Inequality and macroeconomic models

By **Stéphane Auray** and **Aurélien Eyquem**

"All models are wrong, some are useful." This quote from George Box has often been used to justify the simplistic assumptions made in macroeconomic models. One of these has long been criticised: the fact that the behaviour of households, although differing (heterogeneous) in their individual characteristics (age, profession, gender, income, wealth, state of health, labour market status), can be approximated at the macroeconomic level by that of a so-called "representative" agent. This assumption of a representative agent means considering that the heterogeneity of agents and the resulting inequalities are of little importance for aggregate fluctuations.

Economists are not blind – they are well aware that households, companies and banks are not all identical. Many studies have looked at the effects of household heterogeneity on aggregate savings and, consequently, on macroeconomic fluctuations[1]. On the other hand, some studies propose so-called "overlapping generations" models in which age plays an important role[2].

Most often, households in these models move from one state to another (from employment to unemployment, from one level of skills and therefore of income to another, from one age to another) and the probabilities of a transition are known. In the absence of insurance mechanisms (unemployment, redistribution, health), the expected risk of a transition produces an expected risk of income or health, which leads

agents to save in order to insure themselves. Furthermore, differences in savings and consumption behaviour are also likely to lead to differences in labour supply behaviour. Finally, changes in the macroeconomic environment (changes in the unemployment rate, interest rates, wages, taxes and contributions, public spending, insurance schemes) potentially affect these individual probabilities and the resulting microeconomic behaviour. Aggregate risks therefore affect each household differently, depending on its characteristics, generating general equilibrium and redistributive effects. However, this relatively old work has come up against two obstacles.

The first is technical: tracking the evolution of the distribution of agents over time is mathematically complex. It is of course possible to reduce the extent of the heterogeneity by limiting ourselves to two agents (or two types of agent): those with access to the financial markets and those who are forced to consume their income at each period[3], working people and pensioners, etc. But while these simplified models make it possible to understand and validate broad intuitions, they are still limited, particularly from an empirical point of view. They do not, for example, allow us to carry out a realistic study of changes in inequality across the entire distribution of income or wealth.

The second obstacle is more profound: several of these studies have concluded that models with heterogeneous agents, although much more complex to manipulate, did not perform significantly better than models with representative agents in terms of aggregate macroeconomic validation (**Krusell and Smith, 1998**). Admittedly, they were not aiming to study changes in inequality or the macroeconomic impact, but rather the contribution of agent heterogeneity to aggregate dynamics. In fact, the subject of inequality has long been considered to be almost or fully orthogonal to macroeconomic analysis (at least when considering fluctuations) and to fall more within the

remit of labour economics, microeconomics or collective choice theory. As a result, heterogeneous agent models have long suffered from the image of being an unnecessarily complex subject in the macroeconomic analysis of fluctuations.

In recent years, these models have undergone an exceptional revival, to the point where they seem to be becoming the standard for macroeconomic analysis. The first obstacle has been overcome by an exponential increase in the computing power used to solve and simulate these models, combined with the development of powerful mathematical tools that render their solution easier (**Achdou *et al.*, 2022**). The second obstacle has been overcome by the three-pronged movement that we describe below: the growing body of work (particularly empirical work) demonstrating the importance of income and wealth inequalities for issues typically addressed by macroeconomics – over and above their intrinsic interest; the development of tools for measuring inequalities that make it possible to reconcile them with macroeconomic analysis; and the refinement of the assumptions made in models with heterogeneous agents.

First, numerous empirical studies show that precautionary savings plays a major role in macroeconomic fluctuations (**Gourinchas and Parker, 2001**). But precautionary savings and the sensitivity of savings (and household spending) to income are not identical for all households. Indeed, empirical work suggests that the aggregate marginal propensity to consume (MPC) lies between 15% and 25% (**Jappelli and Pistaferri, 2010**), and that the MPC of a large proportion of the population is higher than the MPC obtained in representative agent models. In representative agent models at the top of the wealth distribution, the latter is approximately equal to the real interest rate, and therefore much lower than the empirical estimates (see Kaplan and Violante, 2022). It is therefore critical to understand the origin of a high aggregate MPC based on solid microeconomic foundations,

particularly if we wish to carry out a realistic study of the impact of macroeconomic policies (monetary, fiscal, etc.) that rely on multiplier effects linked to the distribution of MPCs.

In recent years, an abundant and increasingly well-developed empirical literature has been dealing with issues relating to income inequality. Following the seminal article by **Atkinson (1970)** along with more recent developments[4], we now have long data series that measure income inequality before and after tax, along with wealth inequality, across the entire household distribution for a large number of countries. Finally, what are known as **Distributional National Accounts** make it possible to compare in great detail the predictions of macroeconomic models using heterogeneous agents with microeconomic data that are totally consistent with the framework of macroeconomic analysis.

Finally, the heterogeneous agent models themselves have evolved. The "first generation" models generally considered a single asset (physical capital, in other words, company shares) and prevented agents from taking on debt, which led them to save for precautionary reasons. These hypotheses were not able to explain why MPCs were high. They failed to correctly replicate the observed distribution of income and, above all, of wealth. In reality, households have access to several assets (liquid savings, housing, equities), and the composition of their wealth differs greatly depending on the level of wealth: households generally start saving in liquid form, then invest their savings in property by taking out bank loans, and finally diversify their savings (only for those with the greatest wealth, above the 60th percentile of the wealth distribution) by buying shares (**Auray, Eyquem, Goupille-Lebret and Garbinti, 2023**). In doing so, a large proportion of the population ends up in debt in order to build up their property wealth, which is thus not very liquid. Although they have high incomes, many households consume almost all their income, which reduces their capacity for

self-insurance through savings. This increases their MPC (and therefore the aggregate MPC) in line with empirical observations (**Kaplan, Violante and Weidner, 2014**).

Macroeconomists can now fully integrate the analysis of inequalities in income, wealth and health into models based on more realistic microeconomic behaviour. They can re-examine the consensus reached on the conduct of monetary[5] or fiscal[6] policies and examine their redistributive effects. They are also in a position to quantify the aggregate and redistributive effects of trade or environmental policies, which are or will be at the heart of their political acceptability – giving rise to new horizons for less wrong, more useful models.

[1] See in particular **Bewley (1977)**, **Campbell and Mankiw (1991)**, **Aiyagari (1994)**, **Krusell and Smith (1998)**, **Castaneda, Diaz-Gimenez and Rios-Rull (1998)**.

[2] See the work of Allais (1947) and **Samuelson (1958)**, and among others **De Nardi (2004)**.

[3] See **Campbell and Mankiw (1989)** ; **Bilbiie and Straub (2004)** ; **Gali, Lopez-Salido and Valles (2007)**.

[4] See (**2001**, **2003**), Piketty and Saez (**2003**, **2006**), **Atkinson, Piketty and Saez (2011)**, **Piketty, Saez and Zucman (2018)** and **Alvaredo *et al*. (2020)**.

[5] **Kaplan, Moll and Violante (2018)**; **Auclert (2019)**; **Le Grand, Martin-Baillon and Ragot (2023)**.

[6] **Heathcote (2005)**; **Le Grand and Ragot (2022)**; **Bayer, Born and Luetticke (2020)**.

Why – and how – to make Next Generation EU (NGEU) sustainable

Frédéric Allemand, **Jérôme Creel**, **Nicolas Leron**, **Sandrine Levasseur** and **Francesco Saraceno**

The Next Generation EU (NGEU) instrument was created during the pandemic to finance the recovery and, above all, to ensure the resilience of the European Union (EU). Since then, with the war in Ukraine and its various consequences, the shocks hitting the EU continue to accumulate, in a context where it is also necessary to accelerate the ecological transition and the digitalization of the economy. Russia's invasion of Ukraine has put defence matters back on the front burner, while inflation is giving rise to heterogeneous reactions from member states, which is not conducive to economic convergence, not to mention the monetary tightening that is destabilizing some banks. The Biden administration's subsidies to US industry have all the hallmarks of a new episode in the trade war, to which the European Commission has responded by temporarily relaxing the rules on state aid. In this uncertain environment, where one shock is following another, the idea of making the NGEU instrument permanent instead of temporary has gained ground. European Commissioner P. Gentiloni, for example, mentioned the idea as early as 2021; it was raised at a conference of the Official Monetary and Financial Institutions Forum in 2022; it appeared at the conclusion of an article by Schramm and de Witte, published in the *Journal of Common Market Studies* in 2022; and it was mentioned publicly by Christine Lagarde in 2022. There is, however, little consensus on this issue, especially in Germany, where, after the Constitutional Court's decision in favour of the NGEU on 6 December 2022, the Minister of Finance, Christian Lindner, reminded us that the issuance of common debt (at the

heart of the NGEU) must remain an "exception". As the debate remains open, in a recent study for the Foundation for European Progressive Studies (FEPS), we assessed the economic and political relevance that the implementation of a permanent NGEU-type instrument would entail, as well as the technical and legal difficulties involved.

The implementation of the NGEU has already raised delicate questions of coordination between member states regarding the allocation of funds to the Commission's various structural priorities (how much to the ecological transition? how much to digitalization?) and between the countries themselves, since the question of a "fair return" never fails to resurface in the course of negotiations. Adding to these coordination difficulties, the first part of our study raises the question of the *democratic legitimacy* of EU policies when supranational priorities limit the autonomy of national parliaments, starting with fiscal policy, the "material heart" of democracy. The problem of democratic accountability is not new if one considers that supranational rules, such as the Stability and Growth Pact, impose limits on the power of parliaments to "tax and spend". In fact, the intrinsic logic of coordination is to force political power to conform to functional (macroeconomic) imperatives, which inevitably leads to a form of depoliticization of fiscal and budget policy. The perpetuation of the NGEU must therefore be seen as an opportunity to remedy the depoliticization of EU policies and to move towards a "political Europe" by establishing a supranational level for the implementation of a European fiscal policy.

This part of the study also reminds us that while the implementation of the NGEU has been of paramount importance in stimulating a post-pandemic recovery, the economic results are still uncertain since the funds were allocated only relatively

recently[1]. It also reveals a change in the mindset of EU policymakers. For the first time, joint borrowing and some risk-sharing have become features of a European fiscal plan. It would be wrong, however, at this stage to see the NGEU as a "Hamiltonian" moment or as the founding act of a federal Europe: the NGEU is limited in scope and duration; it does not take over the past debts of the member states; and it has not created a common spending (investment) capacity. And this is perhaps both its main weakness and its main area for improvement. The pandemic and the strong economic response to it by European states have indicated that they can share common, crucial goals: recovery, resilience, the ecological transition and digitalization. What is missing, however, is a central fiscal capacity to better link the long-term challenges with an instrument adapted to this kind of horizon. Hence the idea of making the NGEU permanent.

As a preamble to a possible long-term establishment of the NGEU, another part of the study raises the issue of determining the main task of a permanent central budgetary instrument. One obvious answer is the provision and financing of European public goods (broadly defined to include the areas of security and environmental protection) that member states may not provide in sufficient quantity, due to a lack of resources and/or externalities. Regarding the provision of public goods, it should be recalled that the preferences of EU citizens are fairly homogeneous within the Union, and that there is a growing demand for some needs to be met at the EU level. For example, 86% of EU citizens are in favour of making investments in renewable energy *at the EU level*. Even the production of military equipment by the EU is increasingly supported by citizens, with 69% "agreeing or strongly agreeing". The provision of public goods at the EU rather than the national level would also allow for very tangible economies of scale, for example in the field of infrastructure. Last but not least, this would be justified by the instrument's capacity to "make Europe" through concrete

actions and strengthen the feeling of being European. Any debate on a central budgetary capacity would of course have to be conducted in parallel with that on the reform of the Stability and Growth Pact in order to guarantee the creation of a fiscal space (or additional margins of manoeuvre) in the EU.

The study then points out that there are few options for creating a central budgetary capacity within the current institutional framework. The treaties define a budgetary framework (centred on the multi-annual financial framework, the MFF) for the EU that ties spending to the ability to raise funds, thus severely limiting the ability to raise debt in normal times. The creation of special financial instruments and the decision to spend beyond the MFF ceilings are explicitly linked to exceptional circumstances and cannot be a solution for the recurrent provision of public goods. The 0.6 percentage point increase in the own resources ceiling to 2 percent of GNI **[2]** ensured that the unprecedented level of borrowing respected the constitutional principle of a balanced budget.

However, this increase was approved only because of its exceptional and temporary nature, as the ceiling on own resources for payments is to be reduced to 1.40 percent of GNI once the funds are repaid and the commitments cease to exist. Even if permanent funding were to be allocated to the NGEU instrument, its capacity to intervene would remain limited. In accordance with its legal basis (Article 122 TFEU), the NGEU is a tool for crisis management whose activation is linked to the occurrence or risk of exceptional circumstances. As a matter of principle, European legislation prohibits the EU from using funds borrowed on the capital markets to finance operational expenditure.

The study examines other legal arrangements that could contribute to the financing of public goods, but whatever legal basis is chosen, (a) the EU does not have a general

multi-purpose financial instrument that it could activate, in addition to the general budget, to finance actions and projects over the long term; and (b) the EU cannot grant funds to finance actions outside its area of competence, i.e., it cannot substitute itself for member states in areas where the latter retain competence for their policies. Therefore, if a central budgetary capacity is to be created, it would be necessary to revise the treaties or establish new intergovernmental arrangements (along the lines of the European Stability Mechanism).

Based on the second option, the study proposes that a European public investment agency be created as a first step towards the creation of a central budgetary capacity. This agency would have the function of planning and implementing investment projects, in cooperation with the member states. Under EU legislation, the agency would not have full control over policy choices but would act mainly within the limits set by the roadmaps of the EU institutions. Nevertheless, it would have the administrative capacity to design public investment projects that the Commission currently lacks, and it could be given control over allocating grants, developing technical guidelines, monitoring cross-compliance, etc.

The last part of the study reminds us, nonetheless, that even substantial progress in developing a central budget capacity should not obscure the need for national budget policies to be implemented as well, and that close coordination between them is needed. While increasing powers are being transferred to the European level in the area of public goods, as can be seen for example with the European Green Pact and with the targeting of NGEU spending towards greening and digitalization, there is still a need to coordinate national governments' policies with each other and with the policies implemented at the central level. Policy coordination, which necessarily limits the autonomy of national parliaments, raises the question of the democratic legitimacy of EU

policies and may lead to a form of depoliticization of fiscal policy. This would become even more problematic if the EU were to transfer to the supranational level some of the decisions about which public goods to provide and from whom to finance them. To avoid delinking the strengthening of European macroeconomic policy on public goods with the democratic dimension of this orientation, nothing less than a quantum leap in the creation of a political Europe, with two democratic levels, is probably needed, with genuine *European democracy* —- because it would be based on a real European parliamentary fiscal power, which would in turn be linked to the preferences of the European electorate —- but fully *articulated with the national democracies* with their recovered fiscal margins.

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[1] The inconsistency between the need to revive the European economy after the pandemic and a very gradual disbursement of funds is discussed by Creel (2020).

[2] GNI: Gross national income, defined as GDP plus net income received from abroad for the compensation of employees, property, and net taxes and subsidies on production.

Will the US labour market withstand monetary tightening?

By **Christophe Blot**

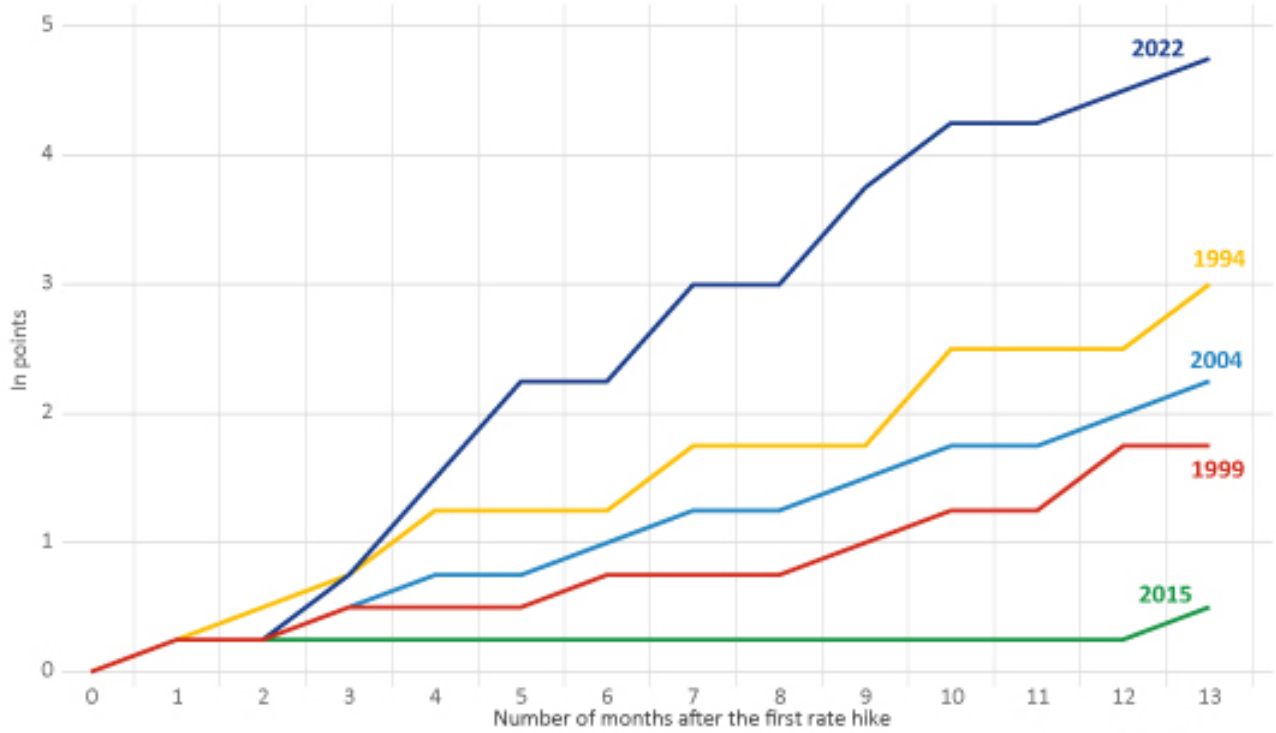
In March 2022, the US central bank began tightening monetary

policy in response to rapidly rising inflation. Since then, the target rate for monetary policy has been increased at each meeting of the Federal Open Market Committee (FOMC), and now stands at 5%. The aim of these decisions is to bring inflation back towards the Federal Reserve's 2% target. After peaking in the summer of 2022, inflation has fallen in line with the fall in energy prices. Thus far, economic activity has been resilient, and the unemployment rate has remained stable despite the tighter monetary and financial conditions. Will inflation continue to fall, and, more importantly, can it converge on the target without pushing up unemployment?

Inflation under control?

The Federal Reserve had been cautious throughout 2021, under the view that the increase in prices would be transitory. It was not until March 2022 that it began tightening, just over a year after inflation began to rise above the 2% target, when it had reached 6.8%[1]. The rise in prices has in fact proved to be more prolonged than FOMC members had anticipated and has spread to all components of the index. Finally, the central bank also feared the risk of a disconnection in inflation expectations, which would have sustained an inflationary spiral. Once it began to act, rate hikes occurred in rapid succession, with the target rate for federal funds rising from 0.25% to 5% in one year, i.e. a much faster pace of tightening than that observed in previous cycles (**Figure 1**), and in particular during the course of 2015, when the Federal Reserve had raised rates only twice in one year, and each time by only 0.25 points.

Figure 1. **The tightening of monetary policy in 2022 compared with precedents**



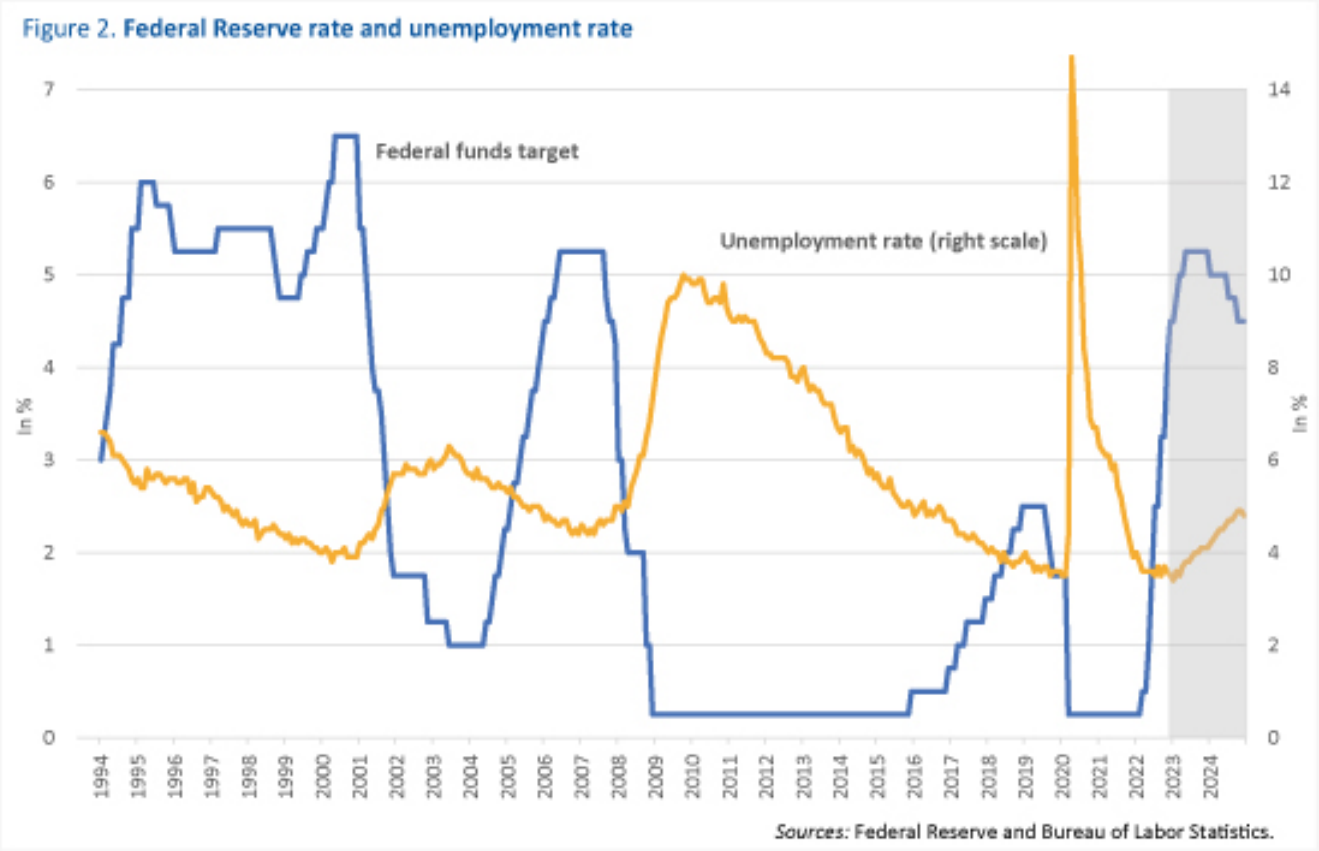
Source: Federal Reserve.

Inflation peaked just a few months after the tightening started. From 7% year-on-year in June 2022, it gradually fell to 5% in February 2023. However, this decline was not due to the Federal Reserve, but mainly reflected changes in the energy component, which is itself directly linked to the fall in oil prices and, to a lesser extent, in the price of American gas[2]. In February 2023, the energy component of the consumption deflator fell by 0.9% year-on-year, whereas it had risen by 60.8% in June 2022. Although the food price index remains dynamic, its rise is also stalling.

Looking beyond the energy factor, is the decline in inflation sustainable? Assuming that oil and gas prices remain stable, the contribution of energy prices will indeed push US inflation down further in coming months. However, the end of the inflationary episode will depend mainly on trends in core inflation, which of course includes a diffusion effect of energy prices but whose dynamics depend mainly on supply and demand factors[3].

Is a rise in unemployment inevitable?

Excluding energy and food prices, so-called core inflation also shows signs of slowing down. In February 2023, it rose by 4.6% year-on-year, compared with 5.2% in September 2022. This dynamic can be explained in part by the evolution of durable goods prices, which were hit during 2022 by supply difficulties[4]. The indicator measuring the pressure on production lines has fallen sharply and, since the beginning of 2023, has returned below its long-term average value[5]. The impact of monetary policy will mainly be transmitted via demand. Indeed, the increase in the target rate for monetary policy has been passed on to all public and private rates, market rates and bank rates. The consequent tightening of monetary and financial conditions should result in a tapering of credit activity and a slowdown in domestic demand: consumption and investment.



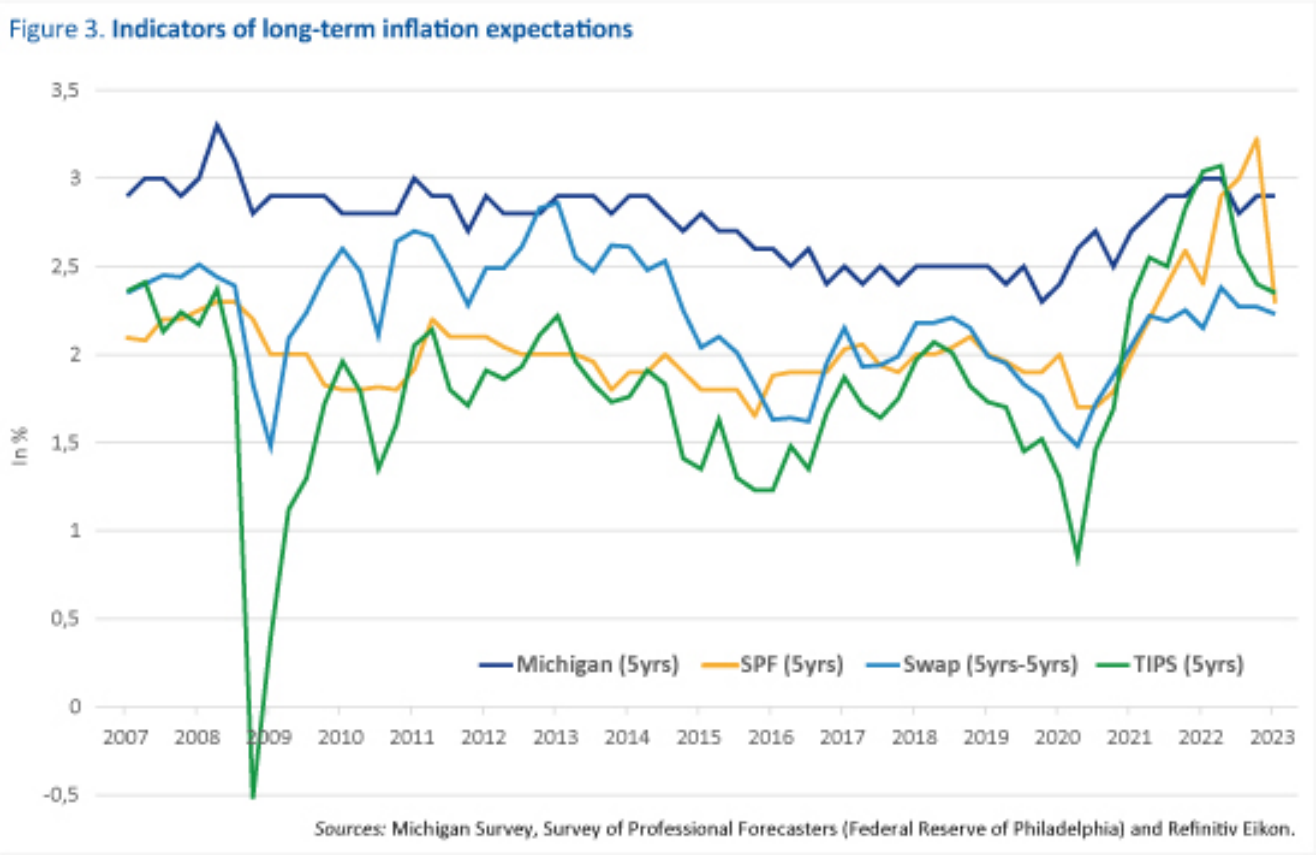
However, after GDP fell in two quarters at the beginning of

2022, it recovered in the second half of the year. Most importantly, the unemployment rate remains at a historically low level: 3.5%, according to the Bureau of Labor Statistics (BLS) for the month of March 2023. Is this situation – falling inflation without rising unemployment – sustainable? If so, the Federal Reserve would succeed in achieving its price target while avoiding recession or at least rising unemployment. **Olivier Blanchard** seemed to doubt this optimistic scenario. Indeed, most macroeconomic analyses suggest that a restrictive monetary policy pushes up unemployment. For example, the variant of the **FRB-US** model suggests that a one-point interest rate hike results in a 0.1 point rise in unemployment in the first year and then peaks at 0.2 points in the second and third years. Recent analysis by Miranda-Agrippino and Ricco (2021) suggests a similar order of magnitude, with a peak of around 0.2 points for a one-point increase in the policy rate, but faster transmission**[6]**. Given the magnitude of the monetary tightening and all else being equal, we expect the unemployment rate to rise by 0.3 percentage points in 2023, which in our scenario would bring it to 3.9% from 3.6% on average over 2022. Indeed, given the lags in the transmission of monetary policy, the tightening over 2022 is likely to have only a small impact, which could explain why the unemployment rate has not yet risen. Previous episodes of monetary tightening have also been characterised by a more or less significant lag between the tightening phase of monetary policy and an increase in unemployment (**Figure 2**). For example, the Federal Reserve's moves to tighten monetary policy in the summer of 2004 did not have a rapid impact on the unemployment rate, which continued to fall until the spring of 2007, before rising sharply thereafter, reaching a peak of almost 10% in early 2010 in the context of the global financial crisis. The same inertia was evident after 2016, with unemployment not rising until 2020 during the lockdowns.

Finally, the capacity of monetary policy to reduce inflation depends not only on the relationship between unemployment and

inflation but also on the reaction of inflation expectations. In this regard, the various indicators of long-term expectations suggest either stability or a slight decrease. For example, the Michigan Household Survey indicates a 5-year inflation expectation of 2.8% in February 2023, compared with 3.1% in June 2022. According to market indicators, 5-year 5-year forward inflation expectations fluctuate around 2.5%. These levels are certainly higher than the target set by the Federal Reserve, but they do not reflect a significant and lasting shift away from what was observed before 2021 (**Figure 3**). As for the inflation-unemployment link, it is clear that there is greater uncertainty. In the FRB-US model, the increase in unemployment induced by monetary tightening has very little effect on the inflation rate, although the estimates of Miranda-Agrippinon and Ricco (2021) suggest a greater impact. In our scenario, US inflation would continue to fall in 2023 not only because of the energy component but also because of a fall in core inflation. In our scenario, we assume that by the end of 2023, the deflator would rise by 3.6% year-on-year, with core inflation at 3.7%.

Figure 3. **Indicators of long-term inflation expectations**



Sources: Michigan Survey, Survey of Professional Forecasters (Federal Reserve of Philadelphia) and Refinitiv Eikon.

[1] This is inflation measured by the consumer price deflator, which is the index monitored by the Federal Reserve. In comparison, inflation measured by the consumer price index (CPI) is on average higher, whether we consider the overall indicator or the index excluding food and energy prices.

[2] The price of gas on the US market has not reached the highs seen in Europe. However, the price almost tripled between the spring of 2021 and the end of summer 2022 before returning to the low point observed in April 2020.

[3] The contribution of food has already fallen since the start of the year, and we anticipate that this will continue.

[4] This is the case for semiconductors, used in particular by the automotive sector. These shortages have contributed to the rise in the prices of cars, both new and especially used, which rose by more than 40% year-on-year at the beginning of 2022.

[5] See the **Global Supply Chain Pressure Index** (GSCPI), which is calculated by economists at the New York Federal Reserve.

[6] See Miranda-Agrippino S. & Ricco G. (2021), "The transmission of monetary policy shocks", *American Economic Journal: Macroeconomics*, 13(3), 74-107. Other estimates indicate effects that are sometimes greater, depending on the estimation strategy. See the simulations reported by Coibion O. (2012), "Are the effects of monetary policy shocks big or small?", *American Economic Journal: Macroeconomics*, 4(2), 1-32.

Bank fragility: What consequences for economic growth and its relationship with bank loans?

Jérôme Creel and **Fabien Labondance**

The collapse of Silicon Valley Bank (SVB) has rekindled concern about the solidity of the US banking system and, via the danger of contagion, the European banking system. It offers a kind of case study of the complex relationship between banks and the economy.

SVB's collapse came a few months after the Committee for the Alfred Nobel Memorial Prize in Economics, funded by the Royal Swedish Bank, awarded the 2022 prize to Ben Bernanke, Douglas Diamond and Philip Dybvig for their contributions to banking economics. In particular, Diamond and Dybvig explained the mechanisms by which a banking panic can occur (word of mouth is enough – economists speak of self-fulfilling prophecies), the difficulty of separating a solvency crisis from a liquidity crisis, and the measures to be implemented to stop it, i.e. by insuring deposits**[1]**. Bernanke showed the way that a banking panic can be transmitted to the real economy, thereby justifying the central bank's implementation of a bank bailout. Their work undoubtedly helps to better understand the recent decisions of the US monetary authorities to contain the crisis triggered by SVB, such as the extension of deposit insurance.

In addition to this work, an empirical consensus had emerged that economic growth, as measured by the change in GDP per

capita, could be explained by the development of bank credit and the financial markets. The international financial crisis of 2007-2009 reshuffled the deck. The work of Gourinchas and Obstfeld (2012) and Schularick and Taylor (2012) (and much subsequent work) showed that the expansion of bank credit was a leading indicator of banking crises. However, the link between bank credit, bank fragility and prosperity remained to be established.

This is the link that we explore with Paul Hubert in a paper entitled "Credit, bank fragility and economic performance", to be published in the Oxford Economic Papers. This paper examines the role of bank fragility in the relationship between private bank credit and economic growth in the European Union. We consider two types of bank fragility, one in terms of bank assets, and the other in terms of liability: the share of non-performing loans on the balance sheet and, in addition, the ratio of capital to assets, i.e. the inverse of leverage.

Our results are as follows. First, bank fragility, represented by non-performing loans, has a negative effect on economic growth: the higher their share of the balance sheet, the lower the growth of GDP per capita. Second, if bank fragility is included in the estimated model, in most specifications, bank credit has no effect on economic growth. The impact of credit on per capita economic growth seems to depend on the degree of bank fragility. Credit only has a positive and significant effect on per capita economic growth in a sub-sample ending before 2008 – which is in line with previous literature – and when non-performing loans are relatively low, i.e. when bank fragility is limited. Conversely, when bank fragility is high, credit has no impact on growth, whereas non-performing loans have a significant negative effect**[2]**.

Omitting a bank fragility variable in the relationship between bank credit and economic growth may therefore lead to erroneous conclusions about the economic impact of financial

development.

The main implication of these empirical results is that closely monitoring and limiting non-performing loans – ex ante through prudent credit supply policies, or ex post through incentives to build up loan loss provisions – not only plays a prudential role at the bank level but also has an impact at the macroeconomic level. This monitoring of non-performing loans is critical for bank credit policy to have a positive impact on economic activity.

[1] See the critical summary of their work in the article by Hubert Kempf, "Diamond et Dybvig et la fragilité bancaire" [Diamond and Dybvig and Bank Fragility], forthcoming in the *Revue d'économie politique*.

[2] On the liability side, leverage has no impact on economic performance.

The UK budget: From support to austerity

By **Hervé Péléraux**

With the latest national accounts published on 22 December 2022 showing a 0.3% fall in GDP in Q3 of 2022, following a 0.1% rise in the previous quarter, concerns are growing that the British economy may be entering a recession. In an inflationary context that has been exacerbated since early 2021, in particular due to the rise in energy prices, successive governments, led by Johnson, Truss and then Sunak, have introduced measures to support the economy in order to cushion the shock to purchasing power and temper its negative

impact on activity.

On 17 November, the Sunak government, which took office on 24 October, presented a budget that contrasts sharply with the orientation of its predecessor, led by Liz Truss, who resigned after only 44 days in office. Indeed, the former government's announcement of a sweeping budgetary plan to support households and businesses in the face of the energy crisis and to lower taxes over a five-year period left doubts about its viability in the absence of financing, sending panic through the markets.

For the medium term, the budget presented by the current British Chancellor Jeremy Hunt takes a line opposite to that promoted by the former government and relies instead on austerity to prolong the effort at fiscal consolidation undertaken after the Covid-19 shock and to guarantee control of the public finances over the next five years in a context of rising interest rates. The government is nonetheless caught between conflicting objectives: between support for households and business in the short term to mitigate the effects of the inflationary shock, and the desire to guarantee the medium-term stability of public finances. The plan announced on 17 November is thus divided into three parts.

A State buffering inflation

A first set of short-term measures has been taken to support households faced with rising prices, particularly for energy. The government continued the measure taken by the previous government for this winter, namely capping gas and electricity prices. Thus, during the winter of 2022/2023, households will see their energy bills limited to an average of £2,500 per year, which represents a saving of £900 borne by the public purse, at a total cost of £24.8 billion. This cost is of

course uncertain as it depends on the price of energy on the international markets. The provisions will be less generous in the 2023/2024 financial year[1], when the cap rises to £3,000 per annum, reducing household support by £500 and cutting the measure's overall cost to £12.8 billion according to the budget. Raising the cap should thus save £14 billion in 2023/2024 compared to the Truss government's announcement of £26.8 billion in tax shields for the year.

The government plans to plough 90% of this £14 billion savings in 2023/2024 back into support schemes for the most vulnerable households, with payments to 8 million households: means-tested benefit recipients will receive payments of £900, pensioners £300, and recipients of disability allowance £150. The government has also decided to follow the Low Pay Commission's recommendation of a 9.7% rise in the minimum wage in April 2023, and social benefits and state pensions will rise in line with inflation in October 2022, i.e. by 10.1%.

On the other hand, in order to support the productive sector, the government has maintained the Truss government's support scheme for companies facing rising energy costs, while cutting the scheme back. The measures, introduced for six months between 1 October 2022 and 31 March 2023, should cost £18.4 billion (compared with £29 billion planned by the previous government).

The government had not yet decided on 17 November 2022 whether to renew the business support measures for the 2023/2024 financial year, and an evaluation was to be carried out to inform future decisions. On 9 January 2023, Sunak's government clarified its intentions regarding the sustainability of the "energy shield" for businesses: it will be maintained during the 2023/2024 financial year but will be considerably reduced compared to current provisions. This is due to their cost, which Jeremy Hunt considers unsustainable for the country's public finances. So £5.5 billion is budgeted for the 2023/2024 financial year.

In total, the energy shield and support for vulnerable households and businesses will receive £43.2 billion in 2022/2023 and £30.6 billion in 2023/2024. Adding in the measures already taken by the Johnson government since March 2022, the public commitment comes to £64.2 billion in 2022/2023 and £45.3 billion in the following year. On a calendar basis, this support amounts to £48.2 billion in 2022 (or 2.2 percentage points of 2019 GDP) and £50 billion in 2023, making the UK one of the most generous countries on the continent of Europe in terms of supporting the economy in the face of an inflationary shock[2], although slightly later than others.

The State – Guarantor of the sustainability of the public finances

In addition to this short-term support for the economy, which implies a highly expansionary policy, the new government has expressed its concern to ensure a "sustainable" trajectory for the public purse, i.e. one that leads to both a fall in the debt/GDP ratio over a five-year period and a reduction in the deficit to below 3% of GDP. In order not to contradict the support measures decided for the 2022/2023 and 2023/2024 financial years, when there is a high risk of the British economy entering a recession, the government has taken care to start tightening fiscal policy only in 2024/2025.

The fiscal austerity plan provides additional resources that rise progressively to £55 billion in 2027/2028, which is split between 45% in tax increases (£25 billion in 2027/2028) and 55% in spending cuts (£30 billion). For households, the government plans to lower the 45% income tax threshold from £150,000 to £125,140 in April 2023, to freeze income and inheritance tax rates at current levels for a further two years until April 2028, to quadruple tax credits on dividends and capital gains from 2024/2025, and to limit the previous government's reductions in property transaction duty to 31 March 2025.

The 19% corporation tax cut envisaged by Liz Truss is cancelled, and the rate will rise to 25% in April 2023, as announced before Truss took office. The rate of social security contributions will remain at the current level between April 2023 and April 2028. In addition, energy companies' excess profits will be taxed more heavily, with the current arrangements extended to March 2028 and the tax rate increased from 25% to 35% on 1 January 2023 (£14 billion expected in the 2023/2024 financial year). In addition, a 45% tax on the profits of electricity producers will be introduced in January 2023 (£4 billion expected in 2023/2024). The government nevertheless remains concerned about inflationary pressures on production and has planned a cumulative support to business of £13.6 billion until 2027/2028, mainly by means of local taxes.

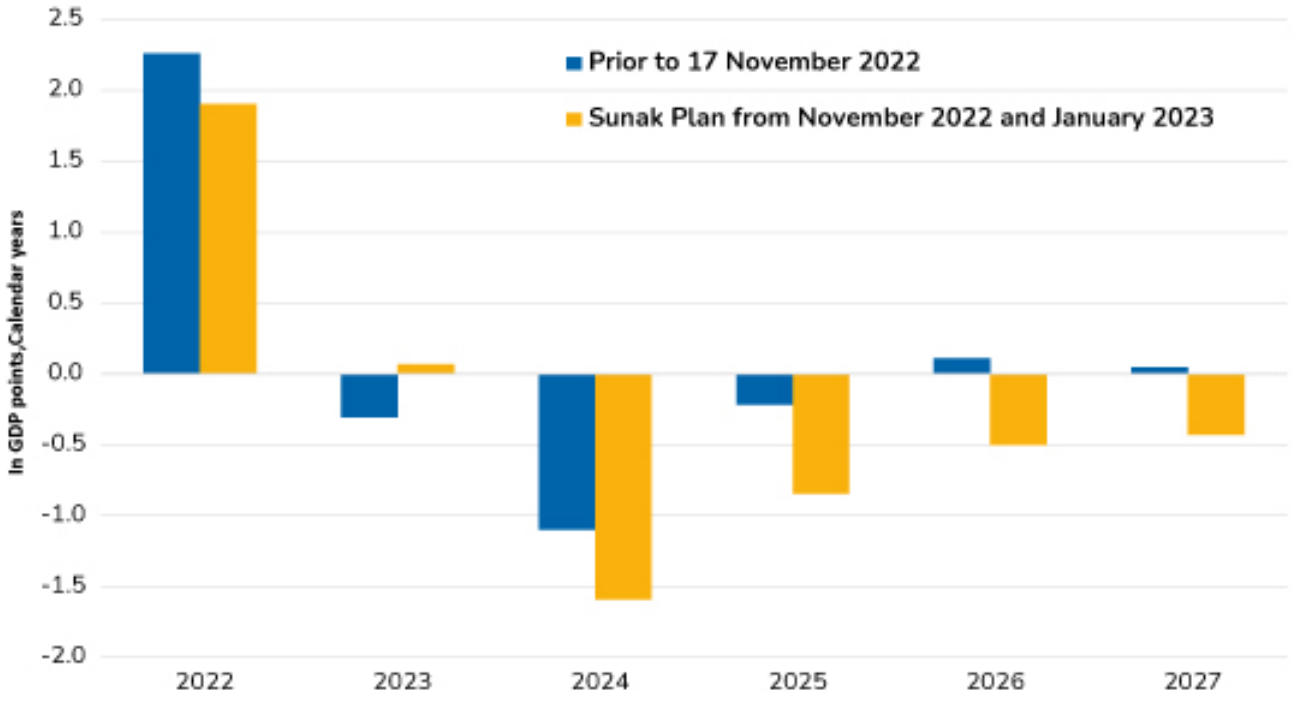
On the expenditure side, the government plans to implement a savings plan based mainly on slowing down the growth in public spending, which should not exceed inflation by more than 1 point. However, the effort will be implemented from the 2025/2026 financial year onwards, while some spending on priority public services (health, social protection and schools) will rise over the next two financial years.

Calming the markets

In terms of the fiscal impulse, the calendar year 2022 looks to be the most expensive ever in response to the emergency created by the spectacular rise in inflation (Figure 1). In 2023, the redeployment of almost all the resources freed up by the reduction in the energy shield to the most vulnerable households and the maintenance of a "business shield" will make it possible to ensure the government's overall commitment to the emergency plan, without however generating any significant additional stimulus. On the other hand, in 2024, the withdrawal of short-term aid schemes and the entry into force of the fiscal savings plan will generate a very negative fiscal impulse of -1.2 points of GDP. By 2027, the provisions

announced by the Sunak government will see a negative fiscal impulse of around 0.5 percentage points of GDP each year.

Figure 1. **Fiscal impulse in the United Kingdom**



Sources: IHM Treasury Autumn Statement 2022, NIESR, OFCE calculations.

However, it is hypothetical whether these projections will be attained over a five-year horizon. First, a new budget will be presented on 15 March. Second, a general election will be held by the end of 2024. There is therefore great uncertainty about the implementation of this plan. Nevertheless, the November 2022 announcements achieved the objective of calming the financial markets, as by 1 December 2022 the yield on 10-year government bonds had fallen back to its level prior to the Truss government's autumn budget statements (Figure 2). In the meantime, the pound, after depreciating by 5% between 6 and 28 September 2022, also returned to its level of early September.

Figure 2. **Yield on 10-year United Kingdom government bonds**

Source: Refinitiv Eikon.

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[1] In the United Kingdom, the financial year starts on 1 April and ends on the following 31 March.

[2] See "**From hot to cold**", Analysis and Forecasting Department, *Perspectives 2022-2023 pour l'économie mondiale et la zone euro* [in French], 12 October 2022, pp. 35-41.

Has inflation in the euro zone peaked?

By **Christophe Blot**

For the first time since June 2021, inflation, as measured by the Harmonised Index of Consumer Prices (HICP), has fallen in the euro zone for two months in a row. However, it remains high, as prices rose by 9.2% year-on-year in December 2022 and by 8.4% for the year as a whole. This trend has been seen in the US since June 2022, with the year-on-year change in the consumer price index falling from 9% to 6.4% in December. On an annual average basis, however, inflation was 8%, 3.3 percentage points higher than in 2021. Indeed, although there may be significant differences between countries, particularly in the euro zone[1], rising prices are a global phenomenon, and inflation is at much higher levels than the average for many years now. What can be inferred from the declines observed in recent months? Has peak inflation been reached? The answer to these questions depends, among other things, on the specific factors that have contributed to inflation since 2021 and to its recent decline. This diagnosis not only is crucial for household living standards, but it also determines the monetary policy stance for 2023 of the European Central Bank (ECB) and the Federal Reserve, since both target 2% inflation.

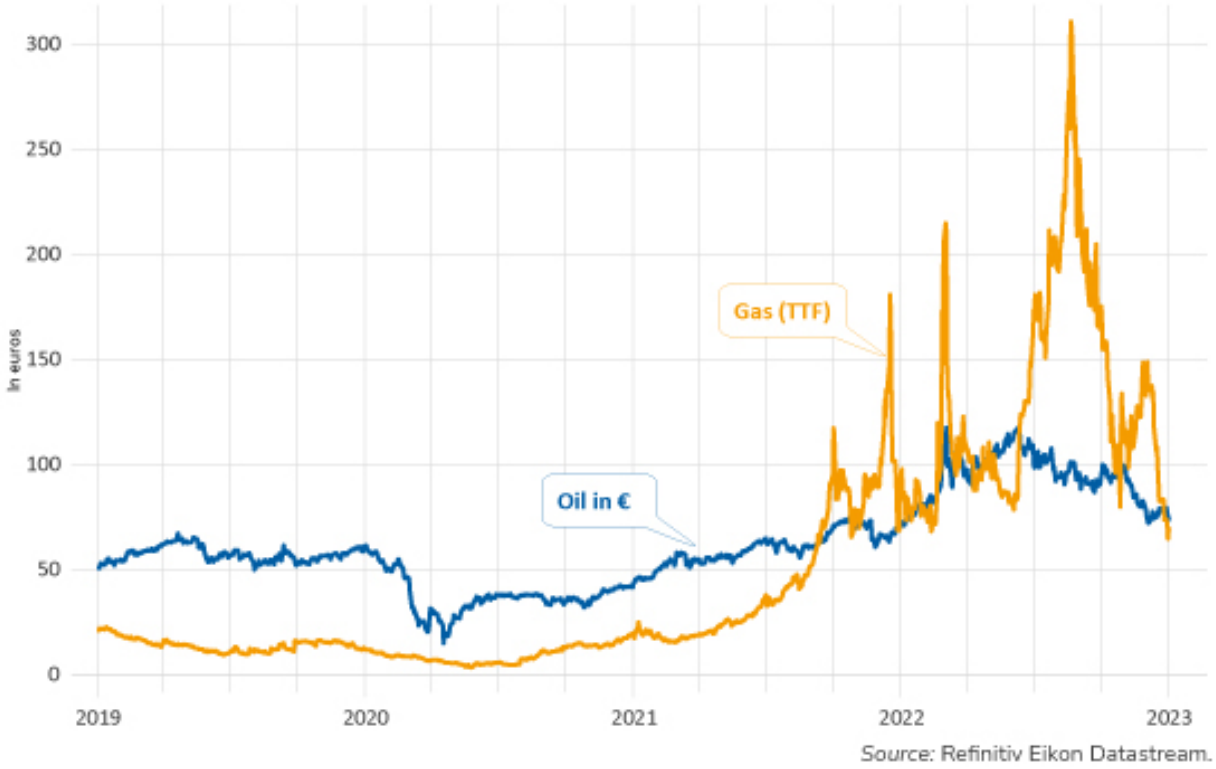
Lower inflation linked to falling energy prices …

Since late summer 2020, inflation in all the industrialised countries has risen almost uninterruptedly to a level not seen since the early 1980s. This can be explained by supply and demand factors. In a context still marked by the situation of health in 2021 and 2022, production capacities remained constrained because of the various waves of the pandemic, which disrupted the functioning of the labour market and supply chains, in particular due to China’s zero-covid strategy. On the demand side, income support measures taken during lockdowns fuelled first savings and then household consumption expenditure, particularly in the US. The rebound

in inflation was also driven by the rebound in energy prices, amplified by Russia's invasion of Ukraine, which triggered an energy crisis. At the same time, climate factors pushed up food prices, which were in turn exacerbated by the conflict between two major grain producers[2].

Indeed, as of October 2022, energy prices in the euro zone had risen by over 40% year on year, contributing 4.2 percentage points to inflation[3]. The rise in energy prices slowed in December to 25.7% year-on-year. The energy index largely reflects changes in the market prices for oil and gas. However, the surge observed for several months now seems to be reversing. After peaking at over USD 120 per barrel in mid-June 2022, the price of Brent crude has returned to the level seen before Russia invaded Ukraine. The price of gas has suffered an unprecedented shock, but it has also been trending downward recently (Figure 1). At the end of August 2022, it peaked at over 310 euros per megawatt hour, a level 15 times higher than observed in January 2021[4]. These declines in oil and gas prices thus explain the trends in inflation over the last two months. In the US, the decline occurred earlier, in line with oil prices and because the rise in US gas was much more moderate[5].

Figure 1. **Price of Brent oil and gas (TTF)**

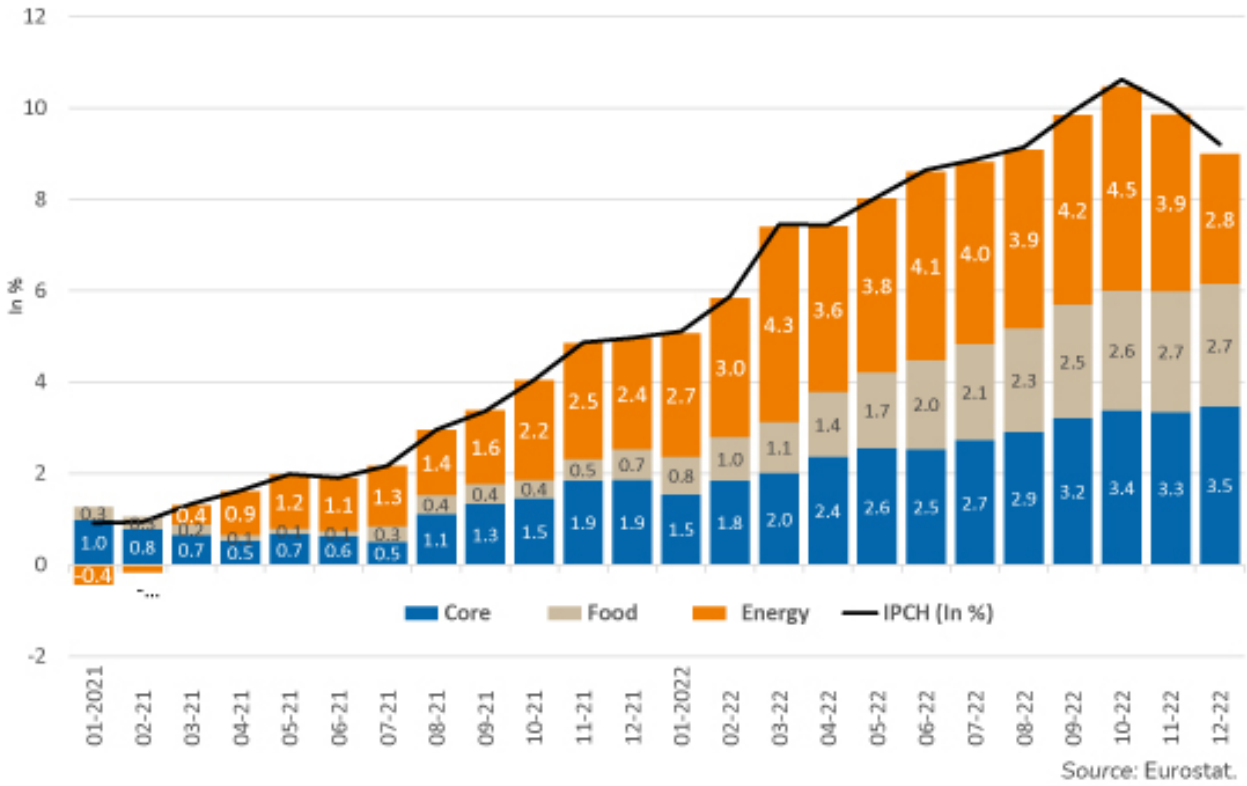


Source: Refinitiv Eikon Datastream.

… but rising core inflation

However, once energy is excluded inflation is not falling. First, food prices in the euro zone are continuing to rise: 13.6% in December for the euro zone as a whole, partly reflecting the impact of past energy price rises on costs. And second, core inflation, adjusted for energy and food prices, is also high: 5.2% in December in the euro zone and 6% in the US. Moreover, it is continuing to rise, and is increasingly contributing to the overall rise: 3.5 points in the euro zone in December 2022 compared with 1.9 points a year earlier (Figure 2) [6]. This rise in core inflation suggests a gradual diffusion of inflation. The price of energy directly affects production costs, which in turn affects the prices of consumer goods and services excluding energy[7].

Figure 2. **Contributions to inflation in the euro zone**



In addition to the energy shock, supply and demand factors may also have contributed to the resurgence of inflation. On the supply side, the blockage of global production chains – notably due to the local lockdowns imposed in China until recently, and the shipping bottlenecks that appeared at the end of 2020 with the resumption of international trade – caused price pressures that contributed to the rise in the prices of output and final goods. These factors appear to have played a dominant role in 2021 in both the US and the euro zone[8]. On the demand side, expansionary monetary and fiscal policies in 2020 and 2021 made for easier financing conditions and boosted the incomes of economic agents. These measures were intended to absorb shocks, but the way they were calibrated may also have contributed to inflation, particularly in the US. American researchers have estimated the contribution of the fiscal support plans (Coronavirus Aid, Relief, and Economic Security Act and American Rescue Plan) to nearly 3 points of inflation by the end of 2021, confirming fears that the American economy was overheating[9]. A more recent analysis assessing only the effect of the March 2021

Biden plan estimates its contribution to core inflation at nearly 50%[10]. In the euro zone, demand factors definitely played a less important role, in particular because household income support measures have been less extensive than in the US[11].

Will inflation continue to fall? Yes, most likely in connection with energy prices. In addition, the supply-and-demand factors that have been driving prices up should also dissipate. The indicator of constraints on production is not yet back to its long-term average, but it has fallen sharply. On the demand and fiscal policy side, the effects of the support policies put in place during the health crisis are fading. Since then, new measures have been implemented in the euro zone to cushion the cost of the energy crisis on households through subsidies and price freezes. However, consumers are expected to suffer losses in purchasing power, which will weigh on demand[12]. Will inflation return to 2%? Probably not in 2023. Food prices show no sign of easing, which will continue to put a strain on everyday household spending. Moreover, part of the inflationary shock has effectively spread to all prices, as shown by changes in core inflation[13]. Finally, the gradual lifting of tariff shields in 2023 and 2024 should slow down disinflation by spreading the effect of the energy shock on households over time. Under these conditions, central banks will undoubtedly continue to raise interest rates. However, they could slow down the pace of rate increases to a lower level than they would have envisaged if inflation had remained at a level close to 10%.

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[1] According to the figures published by Eurostat for December, inflation is over 20% in Latvia and Lithuania, and over 10% in Italy, the Netherlands and Austria. Conversely, it is 5.6% in Spain and 6.7% in France. Blot, Creel, Geerolf and Levasseur (2022) analyse this heterogeneity of inflation rates in the euro zone and show that it is largely explained by

energy prices and by rates that have been particularly high in some small euro zone economies, notably the Baltic countries.

[2] Also note that part of the rise in food prices is due to higher energy prices.

[3] In the US, this rise in the energy index peaked in June 2022, with a year-on-year price change of +41.5%, contributing 2.6 percentage points to inflation. This fell to 7% in December, contributing only 0.5 percentage points to total inflation.

[4] The war in Ukraine has strongly contributed to the surge in the price of European gas, but the price had already risen sharply before the outbreak of the war, reaching an average of 84 euros per Megawatt hour in January 2022.

[5] See "**Gaz naturel : pourquoi ça flambe"** ["Natural gas: Why is it on fire?" – in French] on the more regional dimension of the gas market.

[6] In the US, the contribution of core inflation in December 2022 returned to the same level as in December 2021 (4.6 and 4.5 points respectively) after peaking at 5.4 points in October 2022.

[7] Price rises could also push wages higher, reinforcing higher costs and prices through a second-round effect.

[8] See this **analysis,** which relies on an indicator of the pressure on supply chains.

[9] See **Jordà, Liu, Necchio and Rivera-Reyes** (2022).

[10] See **Ball, Leigh and Mishra (2022)**.

[11] See Blot C. & M. Plane (2021), "Relance aux États-Unis et en Europe : Un océan les sépare" [Recovery in the US and Europe: An Ocean Apart – in French], ***L'Economie politique***, no. 3, pp. 73-87.

[12] See our analysis from October 2022 on the impact of the energy shock on **France** and **the main advanced economies**.

[13] Alternative indicators of core inflation calculated for the US also confirm the diagnosis of price increases that exceed 6%. See here.

War in Ukraine and rising international tension: What impact on GDP?

By **Raul Sampognaro**

The invasion of Ukraine launched by Russia on 24 February 2022**[1]** dealt a major shock to the European economy, which was already suffering from other constraints (supply problems**[2]**, recruitment difficulties, rising energy prices, inflation). Beyond the massive impact on the economies of the countries directly affected by the war, in particular the aggressed country itself (human losses, destruction of capital, diversion of resources from production, among others), the rise in geopolitical tensions can have economic effects even in countries not (directly) involved in the fighting. In the face of this, these countries may boost their military spending, adopt wait-and-see investment behaviour, increase precautionary savings, or suffer unanticipated shocks to import prices and capital flows (in or out). In a study available online [in French], we have attempted to quantify the effects of these ongoing tensions on GDP growth in the six economies most closely followed by the OFCE: France, the United States, the United Kingdom, Germany, Italy and Spain. In addition, we have tried to measure the impact on world

trade and global industrial production.

Caldara and Iacoviello (2022) have recently proposed a quantitative indicator of geopolitical risk. The authors construct an indicator for the level of tension at the global level, which they have developed for 43 countries, including the main players on the international scene. The study also sets out the statistical method used to quantify the causal impact of the developments observed in 2022. This publication comes at just the right time for the forecaster.

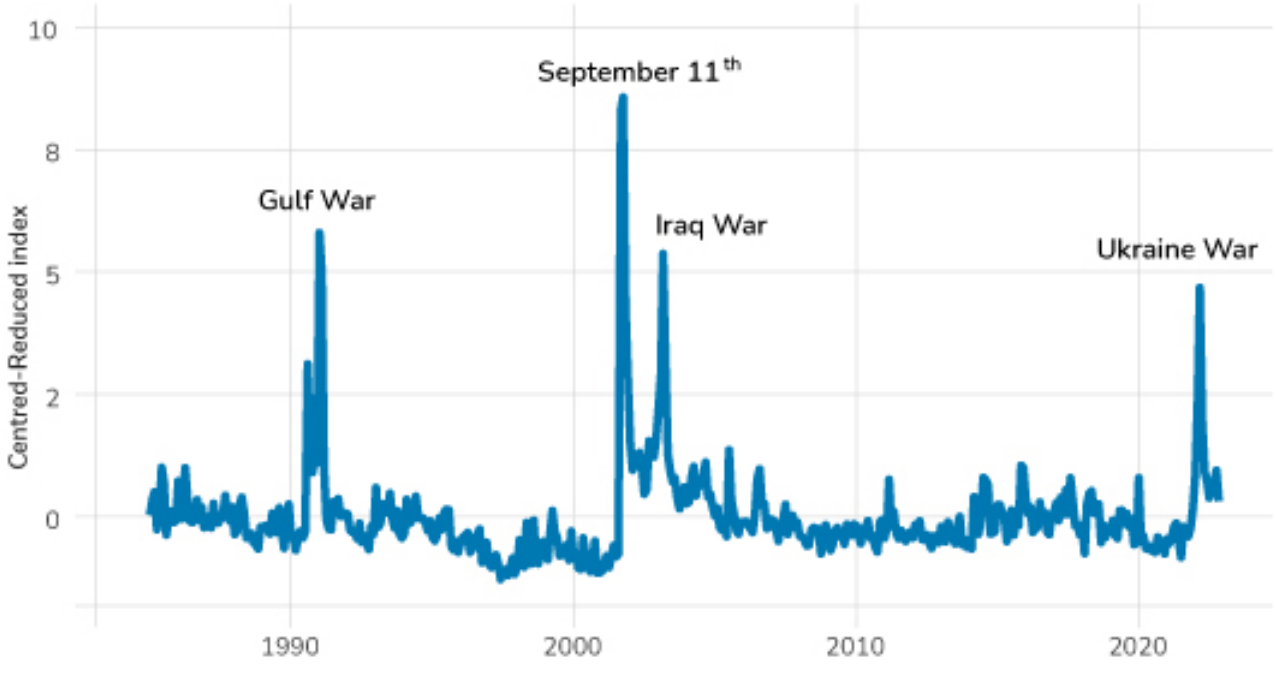
2022: A historic year for international relations

For Caldara and Iacoviello (2022), *geopolitical* risk is associated with the impact of international crises, and more specifically with violence that affects the peaceful course of international relations. According to the authors, geopolitical risk refers to threats, or materializations of threats or the escalation of a pre-existing conflict. Such conflicts may be related to war, terrorism or any other type of tension between states or political actors. It should be noted that the term risk used by the authors for this type of phenomenon has a broad meaning that goes beyond the measurement of uncertainty or the probability that a random event will occur. The geopolitical risk index measures not only potential conflicts (which is consistent with a probabilistic definition of risk) but also conflicts that are actually taking place**[3]**.

Since the 1980s, this index exhibits major changes, notably during the Gulf War, September 11th, the war in Iraq and more recently the invasion of Ukraine (see Figure 1). Moreover, between 2003 and 2022, there were occasional peaks in tension following the various terrorist attacks that took place in Europe (with France in the front line) but also in the United

States, as well as other conflicts (war in Libya, for example).

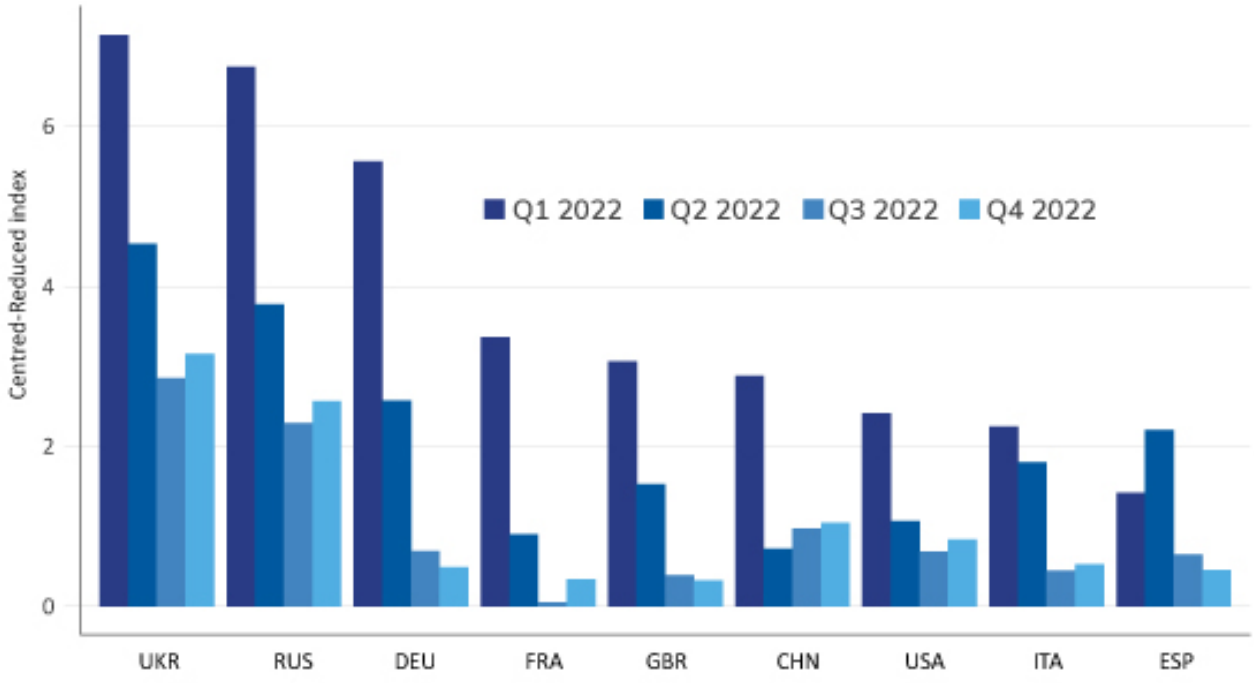
Figure 1. **Geopolitical Risk (GPR) Index**



Last point: October 2022.
Author's calculations based on Caldara and Iacoviello (2022).

Of course, shocks do not affect all countries equally. Figure 2 shows recent changes in the geopolitical risk index in a selection of countries since the beginning of 2022. Unsurprisingly, the risk rose the most in Ukraine and Russia. In the wake of the invasion of Ukraine, geopolitical risk has risen sharply in Germany, which is especially dependent on Russian hydrocarbons. The other European countries seem – logically – more exposed to the current tensions than China and the United States.

Figure 2. **Quarterly changes in the Geopolitical Risk Index in several countries in 2022**



Last point: October 2022.
Author's calculations based on Caldara and Iacoviello (2022).

Germany's growth strongly affected by the rise in tension

The study estimates the responses of several economic variables (GDP, investment, interest rates, market capitalization) caused by a geopolitical risk shock[4]. In our main results, the geopolitical shock induces an endogenous fall in oil prices and interest rates. In this context, a geopolitical risk shock operates as a demand shock. When this negative effect on energy prices occurs – which is not the case for all countries – we have neutralized this endogenous effect, which does not seem to be operational in the current context, particularly in Europe, in order to make more robust quantitative assessments.

According to our estimates, if the global geopolitical risk index remains at its October 2022 level until the end of the year, the rise in geopolitical tensions observed in 2022 will have accounted for a 0.7 point drop in world merchandise trade (in volume terms) and a 0.6 point drop in world industrial production. In addition, Germany will have lost up to 1.1

percentage points of GDP in 2022 due to the year's rising geopolitical tensions. Elsewhere, the effects are smaller but significant: between 0.4 and 0.5 points of GDP in France, and 0.3 and 0.4 points in the US, Italy and the UK. Finally, Spain's GDP loss would be about 0.2 points (Table 1)[5].

These results provide a basis for reflection but should be taken with caution. Each international crisis is unique, and it is difficult to assess one exclusively in terms of a quantitative indicator. In particular, the current crisis has major consequences for Europe's energy supply, especially in terms of gas, which produces a different crisis from what would spontaneously emerge from a statistical model based on observations in the past[6].

Table. Impact of the invasion of the Ukraine on the GDP of six advanced economies in 2022

	Impact on GDP in 2022 if the GRP stays at its October 2022 level…		…and if the impact on Brent is neutralized
	…until October 2022	…until December 2022	…until December2022
France	-0.4	-0.4	-0.5
United States	-0.3	-0.3	-0.4
Germany	-1.0	-1.1	-1.1
Italy	-0.2	-0.3	n.p.
Spain	-0.2	-0.2	n.p.
United Kingdom	-0.3	-0.3	-0.3

In the last column, it is not pertinent (n.p.) to neutralize the endogenous reaction of Brent prices to the shock of a geopolitical risk – and its impact on GDP – since this variable is not included in the models used for Italy and Spain.

Source: Author's calculations based on Caldara and Iacoviello (2022).

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[1] Caution: When it is said that Russia's invasion of Ukraine dates from 24 February 2022, this is done for ease of language. It should not be forgotten that parts of Ukraine's territory, including the Crimea, have been under Russian control since 2014. What we are currently experiencing, far from being the beginning of a conflict, is above all the crossing of a milestone in a conflict that has persisted for many years.

[2] See **Dauvin (2022) for an analysis of the impact of a supply shock on GDP growth in the six advanced economies**.

[3] The reader interested in a more comprehensive presentation can refer to the original article for greater detail.

[4] The estimates are made using the local projection method of Jordà. See Òscar Jordà, 2005, "Estimation and Inference of Impulse Responses by Local Projections", *American Economic Review*, vol. 95, no. 1, pp. 161-82. **https://doi.org/10.1257/0002828053828518**.

[5] Obviously, while most of the increase in international tension can be attributed to the consequences of Russian decisions, it is not possible to exclude other sources of international tension, particularly in connection with the future of Taiwan and Sino-American relations.

[6] Geerolf (2022) discusses the implications of modelling an energy supply shock specifically in the context of a Russian cut-off of the gas supply.

How do rising interest rates impact French economic growth? An overview of macroeconometric models

By Elliot Aurissergues

The year 2022 was marked by a sharp inflationary surge in the United States and the euro zone. At the end of October, the inflation rate hit 7.7% over one year in the US, 10.6% in the

euro zone and 7.1% in France, i.e. between 5 and 8 points above the inflation targets of the US Federal Reserve (Fed) and the European Central Bank (ECB). In response, the two central banks significantly tightened monetary policy. The Fed raised its key interest rate from 0% in March 2022 to 4% in November 2022. While the ECB's key rate hike has been more measured for the moment, long-term rates on public debt in European countries have risen sharply, gaining between 250 and 300 basis points in one year in France and Germany, and even more in euro zone countries where the risk on public debt is perceived as higher. This increase is close to what is anticipated for short-term rates in 2023. The OFCE thus forecasts that the ECB's key rate will reach 3% in the third quarter of 2023[1].

It is not easy to estimate the impact this tightening will have on economic activity. There is a very rich literature on the transmission of a monetary shock to the rest of the economy, using methods that, while conceptually similar or even equivalent, in practice lead to a wide variety of results. We are particularly interested here in the impact of a rate shock using macroeconometric models of the French economy. For this overview, we chose three models: the *Mésange* model co-developed by the French Treasury Dept and the INSEE statistics agency (see Bardaji *et al.*, 2017), the *FR BDF* model of the Banque de France (see Lemoine *et al.*, 2019, and Aldama and Ouvrard, 2020, for the notebook on variants), along with the OFCE *e-mod* model used in Heyer and Timbeau (2006).

What is a macroeconometric model?

Macroeconometric models are the oldest class of macroeconomic models. They combine accounting relationships (or equations) with estimated behavioural equations in order to make predictions about an economy's response to shocks. The major

macroeconomic variables (wages, prices, household consumption, investment, employment) are expressed in the form of error correction equations. In the long run, these converge towards a certain target, which is determined by economic theory. Thus household consumption expenditure will converge on a certain fraction of household disposable income in the long term. In contrast, short-term behaviour is left much freer in order to achieve a good forecasting performance. The interest rate is essentially a long-term factor. The impact of a rate shock is limited initially and becomes more important as the gap between the variables and their long-term targets closes.

The *Mésange* model

We consider the variant published in Bardaji *et al.* (2017). The results are summarised in Table 1. A monetary shock of 100 basis points (or 1%) results in a fall in GDP of 0.2% after one year, 0.8% after three years and 3% in the long run. This decline is due in particular to a sharp drop in investment: -2.7% after 3 years (-3.4% for the GFCF of non-financial companies) and -5.5% in the long term, but all components of aggregate demand are hit, including exports, which fall by 3.3% in the long haul. Surprisingly, monetary tightening is reflected in higher prices in the *Mésange* model. Value-added market prices rise by 0.1% after one year, 0.8% after three years and more than 6% over a longer period! This price increase makes the economy less competitive, hence the fall in exports. Two transmission channels are at work. The first is the direct negative impact of higher interest rates on business investment. In the *Mésange* model, the demand for capital and therefore investment depends in the long run on the cost of capital. The intuition is in line with standard microeconomic theory: companies choose the combination of capital and labour that maximises their profit. A rise in the cost of capital leads firms to substitute labour for capital and pushes down investment. The user cost of capital is composed of the depreciation of capital, the long-term

interest rate on government debt and the terms of the risk premium between government bonds and corporate loans, while the long-term elasticity of investment to this user cost is estimated to be 0.44. Assuming a 10% capital depreciation rate, initial nominal rates at 0, and ignoring any risk premia, a 1% increase in the interest rate translates in the long run into a 5% decrease in investment. The second, much less intuitive channel plays a key role in this variant and explains in particular the response of prices and exports. An increase in the cost of capital means higher production costs for business. Firms pass on these higher costs in their selling prices, leading to higher inflation and lower competitiveness. Portier, Beaudry and Hou (2022) recently explored this positive impact of a rise in interest rates on prices via the cost of capital channel. Note that this effect is difficult to detect using more agnostic empirical methods (unrestricted VAR models, local projections). While these sometimes show positive effects in terms of how a rise in rates impacts prices, the effect is usually either insignificant or clearly negative over longer time horizons (see for example Miranda-Agrippino and Ricco, 2021).

The *FR-BDF* model

Compared to *Mésange*, one of the important features of the *FR BDF* model is the way it treats agents' expectations. This specificity explains why two interest rates intervene in the dynamics of the model. The short-term interest rate, determined by the European Central Bank, affects agents' expectations, while the long-term interest rate on public bonds affects the long-term demand for production factors. The long-term elasticity of investment to the cost of capital is 0.5, which is slightly higher than in *Mésange*. The *FR BDF* model does not incorporate systematic relationships between long and short rates. To generate the effect of a rate shock in the model, it is therefore necessary to add two distinct analytical variants, the first simulating the impact of a

permanent rise in the short-term rate, the second the impact of a rise in the long-term rate. These two variants are available in Aldama and Ouvrard (2020). The effects of a rate shock are much weaker than in *Mésange*. After 3 years, real GDP decreases by 0.3%, against 0.9% in *Mésange*. This is due in particular to a much smaller reduction in GFCF (-1.9% compared to -3.4% after 3 years in *Mésange*). The effects on prices are more in line with the usual Keynesian intuition, with a 0.2% fall in the GDP deflator after 3 years. The resulting improvement in competitiveness leads to an increase in exports of 0.2% after 3 years (compared to a 0.2% decrease in *Mésange*). There are two main reasons for these differences. First, the transmission channel of the cost of capital to prices is neutralised in the FR BDF model. While value-added prices are determined by the cost of production factors and a constant markup, as in *Mésange*, the cost of the capital factor that enters the price equation is not the user cost of capital but the marginal return to capital. Second, investment reacts much less strongly in the short term to the growth in value added in *FR-BDF* and is characterised by greater inertia. The negative investment shock therefore spreads more slowly.

Table. **Impact of an interest rate hike of 100 basis points**

% difference from central account

Impact at 3 years	*Mesange* model	FR-BdF	*e-mod.fr* model
GDP	-0.9	-0.3	-0.4
Investment of NFCs	-3.4	-1.8	-1.2
GDP deflator	0.5	-0.2	-0.1
Household consumption deflator	0.8	-0.2	-0.1
Unemployment rate	0.4	0.2	0.2

OFCE calculations.

The *e-mod* model

The impact of a rate shock in the version of the e-mod model developed by Heyer and Timbeau (2006) is closer to the results of *FR BDF* than to *Mésange*. However, the economic mechanism is

different. The interest rate shock is transmitted via a fall in asset prices, particularly property prices, which leads to a reduction in consumption via a wealth effect. After 3 years, real GDP falls by 0.4%, a fall that is driven by the reduction in household spending (consumption and investment) (-0.6%) and, to a lesser extent, in business investment (-1.2%)[2]. As in *FR-BDF*, the rate shock negatively impacts prices. The GDP and household consumption deflators fall by 0.1%.

What does this overview tell us?

The main transmission channel of a rate shock in macroeconometric models involves the user cost of capital and business and household investment. The magnitude of this negative effect on investment depends on the long-run elasticity of the demand for capital to its user cost. These models estimate this elasticity econometrically. While criticisms can be made of the estimation methods, the value ultimately adopted (on the order of 0.5) seems plausible relative to other estimation methods (for example, a meta-study by Gechert *et al.*, 2022, estimates it at 0.3) and implies moderate substitutability between production factors. It is also possible that the rate shock impacts household consumption via wealth effects, even if this channel remains controversial. In addition to these primary effects on aggregate demand, there are multiplier and accelerator effects that also vary between the models, adding to the uncertainty. We find the channel of production costs, which has a certain importance in the dynamics of the *Mésange* model, implausible. This leads us to retain in this paper the results of Aldama and Ouvrard (2020) and Heyer and Timbeau (2006).

The impact of monetary tightening on economic activity will depend not only on the response of the economy to a generic shock but also on the size of the current shock. In the October 2022 OFCE forecast, the one-year interest rate hike is projected to be 300 basis points, but this hike cannot be used as is. First, this rise is not coming as a complete surprise.

Interest rates fell to very low levels during the Covid-19 crisis, and normalisation was expected to start by 2022, albeit at a very gradual pace. Second, this is a rise in the *nominal* rate. The relevant interest rate for the transmission channels of monetary policy as they appear in macroeconometric models is the *real* rate. This would not pose a problem if the rate hike were a pure monetary policy shock, i.e. if the central bankers had decided overnight to raise rates without any reason. But the rise that we are experiencing is a response to an inflationary shock, a shock that is affecting real interest rates independently of any changes in the nominal rate. The solution adopted by the OFCE in its October 2022 forecasts[3] was to retain the change in the real rate using certain measures of inflation expectations. This leads to a rate shock of around 2%.

On the basis of the two variants that we have chosen, a rate shock of around 2% could, all else being equal, cause French GDP to fall between 0.6% and 0.8% by 2024/2025. The impact on prices would be negative but modest, between 0.3% and 0.4%. This estimate obviously remains very uncertain. As explained in the previous paragraph, calculating the magnitude of the shock itself requires making major assumptions. The models used are estimated with limited information and therefore have potentially broad confidence intervals. More generally, the validity of this estimate of the effects of a rate shock is contingent on the validity of the models used.

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[1] See Table 2 in Appendix 1 of the OFCE forecast in the section *Tour du monde de la situation conjoncturelle*, *[Overview of the economic situation],* OFCE Forecasting and Analysis Department, under the direction of E. Heyer and X. Timbeau.

[2] These figures are obtained by dividing the results presented in Heyer and Timbeau (2006) by two, as the authors simulated an interest rate rise of 200 bps. As the e-mod model is not completely linear, the results are an approximation.

[3] See Box 2 in *Perspectives 2022-2023 pour l'économie mondiale et la zone euro*, *[2022-2023 Forecast for the Global Economy and the Euro Zone],* E. Heyer and X.Timbeau (dirs.).

How effective are economic sanctions?

By Céline Antonin

This topic was the subject of a conference entitled "Sanctioning a country's economy – A solution?" on 16 November 2022 as part of Lyon's Focus on the economy days (Journées de l'économie – Jéco):

http://www.touteconomie.org/conferences/sanctionner-leconomie-dun-pays-une-solution

* * *

The idea of using economic instruments to influence political objectives dates back to antiquity, but it was not until after the First World War that sanctions were legally codified in the Charter of the League of Nations. The victors in the First World War believed that measures like this would act as a deterrent and help to secure peace by avoiding armed confrontation[1].

Russia's military intervention in Ukraine and the many rounds of sanctions that have been imposed by the West since then (the United States, the European Union, etc.) have revived the debate on sanctions. What is their political purpose? Can they be effective, or, in a globalized economy, can the sanctioned country find ways around them? What conditions are needed for sanctions to succeed?

History of sanctions

For several centuries, economic sanctions were intended to complement military action in wartime. In the 20th century, a paradigm shift occurred with the idea that sanctions could be an effective substitute for military action, as reflected in the Charter of the League of Nations (Article 16). Keynes himself said he was "sure that the world greatly underestimates the impact of economic sanctions". History has, however, proved Keynes wrong: for example, sanctions by the League of Nations against Italy or Japan on the eve of the Second World War failed to prevent that global conflict.

After the Second World War, the idea of sanctions as an alternative to armed confrontation gained traction, and sanctions came into long-term use. The 1990s saw a return in force of sanctions, following the Cold War period when they were used less often, to the point where the period is referred to as the "decade of sanctions". Voices were nevertheless raised challenging their effectiveness and highlighting the suffering of civilian populations. At the dawn of the 21st century this led to the notion of targeted sanctions, known as "SMART" sanctions (specific, measurable, achievable, realistic, time-bound).

Definition and objective(s)

What exactly is meant by the term sanctions? Askari et al. (2003)[2] define sanctions as "coercive measures, imposed by one country or group of countries on another country, its government or individual entities, aimed at inducing a change in behaviour or policy". Sanctions can be general or targeted, bilateral or multilateral, trade and/or financial.

When assessing sanctions, it is common to assign them a single objective, but the reality is much more complex. There are actually a plurality of objectives, as Barber (1979)[3] shows: primary objectives, aimed at changing the behaviour of the *target* country; secondary objectives, aimed at satisfying *domestic* political forces; and tertiary objectives, aimed at

promoting the defence of certain values. Thus, sanctions are also a form of punishment of actors whose behaviour is deemed "deviant" from the dominant moral order, and they reflect a desire to extend national sovereignty, as exemplified by US extraterritoriality laws.

As a consequence, the effectiveness of sanctions cannot be judged solely on the basis of their primary objective. Moreover, the objectives actually sought sometimes differ from the objectives declared: in the case of sanctions against Iran, beyond the stated objective of the United States to prevent Iran from becoming a nuclear power, there is in reality also an objective of regime change, which has been pursued since 1979 (Coville, 2015[4]).

Debatable effectiveness

Among the attempts to assess the effectiveness of sanctions, one school of thought, considered "pessimistic", has generally concluded that they are ineffective. This line of thought began with Galtung's seminal study (1967)[5], which, using Rhodesia as a prime example, concluded that sanctions have contributed to the strengthening of political power. A second stream of research starting in the 1980s offers a more "optimistic" view of the effectiveness of sanctions; this approach was initiated with a study by Hufbauer, Schott and Elliot (HSE, 1985)[6]: based on a sample of 103 cases of trade and financial sanctions implemented between 1914 and 1985, the authors concluded that 36 per cent of the sanctions achieved their objective. A third stream of research then developed out of criticisms of the HSE methodology. As Coulomb and Matelly (2015)[7] point out, recent studies suggest an average success level of 30% for targeted sanctions (Targeted Sanctions Consortium, 2012[8]). Some political scientists disagree, such as Robert A. Pape (1997)[9], who criticises the causality established between sanctions and political objectives and estimates the effectiveness of sanctions "in the strict sense" at around 4%.

Worse still, sanctions are sometimes charged with even being counterproductive. In the country sanctioned, they may provide additional legitimacy to the leadership and render the population more vulnerable to radical ideologies. They can also worsen the situation of the civilian population (access to basic needs, medical care and services, basic food, etc.) and lead to the development of a parallel economy, hurting the most vulnerable in particular. Sanctions can also have strong repercussions in the countries implementing them. They can lead to counter-sanctions, as we are currently seeing as Russia targets European countries. Furthermore, if sanctions are bilateral, they can disadvantage companies in the countries implementing them and create a windfall effect for their competitors who do not apply sanctions: both China and India are currently benefiting from a sharp discount on Russian oil, while European business is having to bear higher fuel costs.

Performance over effectiveness

As the PERSAN report (2017) cited above shows, measuring effectiveness is not in fact sufficient to determine whether sanctions are appropriate. Rather than measuring their effectiveness, the authors argue for measuring the sanction's "performance", using a triptych of relevance-effectiveness-efficiency. While the notion of effectiveness measures only the adequacy between objectives and results, the notion of relevance evaluates the adequacy between means and objectives. If a country's economy is highly integrated globally and has possibilities to circumvent bilateral sanctions, then the sanction will lose its relevance. On the other hand, effectiveness measures the relationship between means and results, in other words, it takes into account the effect of the sanctions on the country implementing them. The ideal sanction is thus one that maximises the potential cost to the sanctioned country while minimising the cost to the implementing country.

It is worth noting that the vulnerability of EU countries to sanctions is comparable to the level of the United States, if intra-regional trade is excluded. Indeed, the rate of openness to international trade, measured as the sum of a country's exports and imports of goods in relation to GDP, comes to 18% in the European Union (51% if intra-EU trade is taken into account) compared to 19% in the United States in 2019[10]. But the level of dependence varies from one European country to another: small, very open countries such as Slovenia and Bulgaria have an openness rate of 35% (excluding intra-EU trade), whereas the openness rate in France and Portugal is only 14%. Moreover, the degree of dependence varies according to the product: for example, Guinea and Sharma (2022)[11] draw up a list of 233 products for which the European Union is highly dependent on the outside world, highlighting the importance of China, India and Russia.

EU sanctions against Russia: Self-defeating?

The question of how sanctions perform has importance today, especially in the case of Russia. In response to Russia's invasion of Ukraine, six successive waves of sanctions have been approved by the European Union. The first four rounds of EU sanctions targeted trade with Russia, but carefully exempted energy products and banks heavily involved in the energy sector. This changed with the fifth round of sanctions imposed by the EU Council on 8 April 2022, which banned the import of Russian coal and other solid fossil fuels to the EU from August 2022. The sixth set of sanctions decrees a total halt to imports of Russian oil within six months and to refined products by the end of 2022. Russia has responded to these measures with counter-sanctions: it has obliged foreign creditors to pay for their imports in roubles, and it has suspended gas deliveries to several European countries via the Yamal pipeline.

In terms of effectiveness, it is still early to judge the effect of the sanctions on the Russian economy, but the

provisional balance sheet appears mixed. In its October 2022 forecast, the IMF expects Russian GDP to contract by 3.4% in 2022, which is less than the 6% expected in July 2022. True, half of the country's foreign exchange reserves are frozen, several major banks have been cut off from the international payment system, and Ural crude oil is trading at a discount of about $20 per barrel. However, Russia's economy seems to be holding up better than expected. The central bank has imposed capital controls and raised interest rates sharply, pushing the rouble up steeply. The trade balance has improved: higher world oil and gas prices have offset the "Russian discount", and increased sales to China and India appear to have partially offset the decline in exports to the EU. Thus, the existence of third countries claiming to be neutral, in a context of globalization, largely weakens the power of sanctions and raises questions about their relevance. Some countries, such as Turkey, play a major role in circumventing sanctions, as illustrated by the project discussed by V. Putin and R. T. Erdogan that aims to create a gas hub in Turkey intended to supply Russian gas to European countries[12].

Furthermore, the EU's heavy dependence on Russian oil and natural gas also calls into question the sanctions. Changing producers may be possible in the case of oil, because of the relative simplicity of transporting oil; sanctions would then imply a reworking – not without cost – of the trading network. In the case of natural gas, however, the very nature of the transport infrastructure limits the possibilities for substitution, as the bulk of European gas trade is based on a network of pipelines coming from Russia. Moreover, Europe's countries are unevenly dependent on Russia, with the easternmost European countries appearing to be the most vulnerable (Antonin, 2022[13]). In response to the sanctions, Russia has drastically reduced its gas deliveries to the European Union, which could have a strong impact on EU countries' growth (Geerolf, 2022[14]). But if the cost to the implementing country outweighs the cost to the sanctioned

country, then the sanctions will be counterproductive. The challenge for the implementing country is therefore to reduce the impact on its own economy, for example by providing the best possible support to the domestic entities that are most directly affected by the sanctions.

Defining the conditions for successful sanctions

It is impossible to predict the conditions required for sanctions to succeed, as each situation needs to be analysed in specific detail. However, certain conditions seem favourable for maximizing their performance. Although empirical studies based on the data of Hufbauer et al. (already cited) show that unilateral sanctions have a higher success rate than multilateral sanctions, there is no consensus on this result: based on new data covering 888 cases of sanctions – with a higher proportion of sanctions not involving the US – Bapat and Morgan (2009)[15] show that multilateral sanctions are more likely to succeed than unilateral sanctions, *provided that* there is either a single grievance against the targeted country or (if there are several grievances) that the sanctions are orchestrated by an international institution. Indeed, because of the presence of an international institution, each implementing country loses its ability to enter into a side agreement with the target country and to participate de facto in a strategy of circumvention. As a result, the target country is more likely to take the threats seriously and offer a compromise. In addition, multilateral sanctions have the advantage of conferring strong political legitimacy on the sanctions.

Furthermore, it is important to ensure that the final political objective is in line with the intermediate economic objective, so that the country issuing the sanctions is confident of its ability to maintain the sanctions over time (Lettre Trésor-éco, 2015[16]). Finally, sanctions should be limited to the most effective measures, and sanctions that have a display objective – whose performance has not been

proven – should be prohibited. The sanctions regimes that have a high success rate are those where the main measure targets a key export sector of the target country – without the implementing country being overly affected: the *Lettre Trésor-éco* (2015) estimates a success rate of 54% when the main measure of the sanctions concerns one of the main export resources of the target country, compared to an average success rate of 18%, all sanctions combined[17]. Finally, it is important to ensure that the final objective is clear so as not to fuel the idea that sanctions are an instrument of imperialism; otherwise there is a risk of leading the population of sanctioned countries to harbour a sense of being subject to unjust aggression and to reinforce their rulers' legitimacy – which would be completely counterproductive.

[1] For a more detailed discussion of the performance of sanctions, the reader may wish to refer to the report Matelly S., Gomez C., Carcanague S. (2017). Performance des sanctions internationales, Typologie : étude de cas. Rapport final PERSAN, June 2017, IRIS, CSFRS [The performance of economic sanctions – A typology and case study], which has generally inspired and nourished the production of this text.

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[17] *Lettre Trésor-éco* (2015), cited above, Table 2.

Reforming the Growth and Stability Pact: The Commission has fallen on the debt

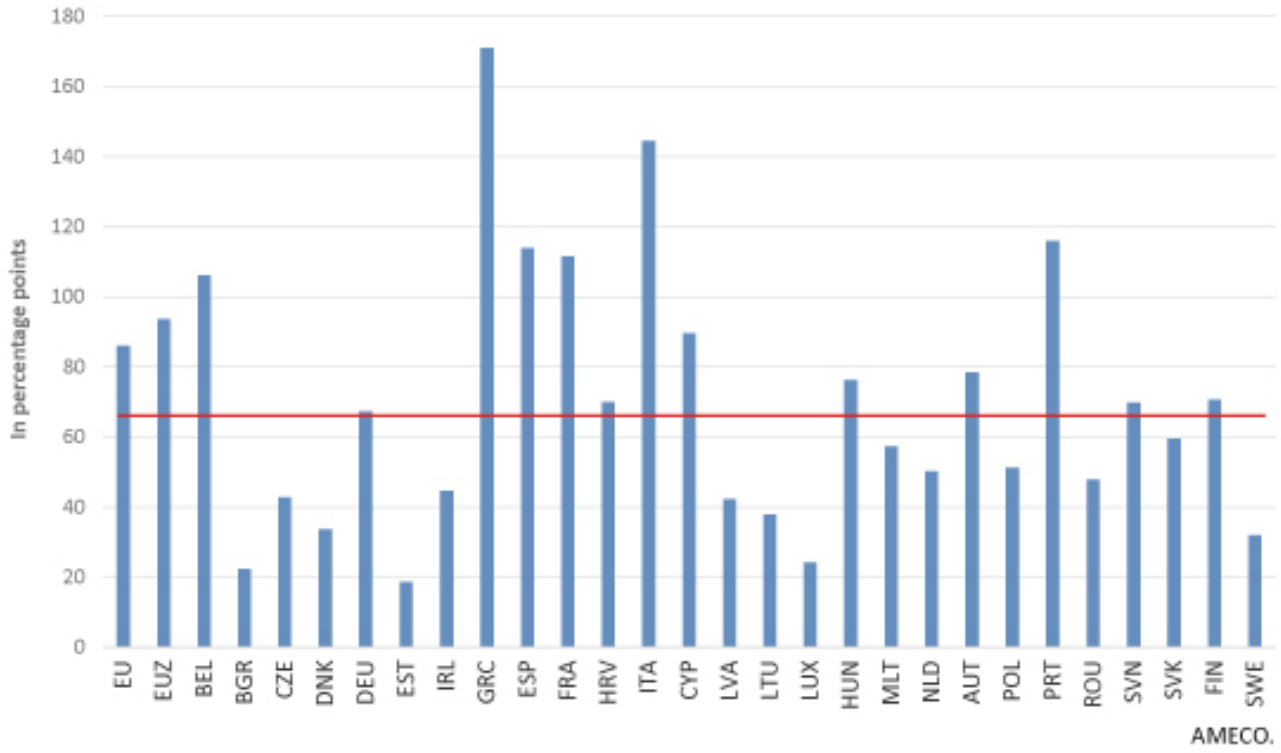
By Jérôme Creel

In its communication of 9 November 2022, the European Commission outlined the contours of the new European fiscal framework that should, in its words, be simplified and adapted to Member States' specific needs in order to ensure that they remain solvent and to allow for necessary reforms and investments. The new framework should also take better account of economic imbalances, including those relating to trade, and, finally, it should be better applied. A vast programme!

The goal of ensuring the Member States' solvency, which is reiterated by the Commission, reflects that a significant number of Member States have excessively high public debt-to-

GDP ratios within the current European fiscal framework: 12 Member States out of the 27 will have a public debt-to-GDP ratio that exceeds the 60% threshold at end 2022 (Figure 1).

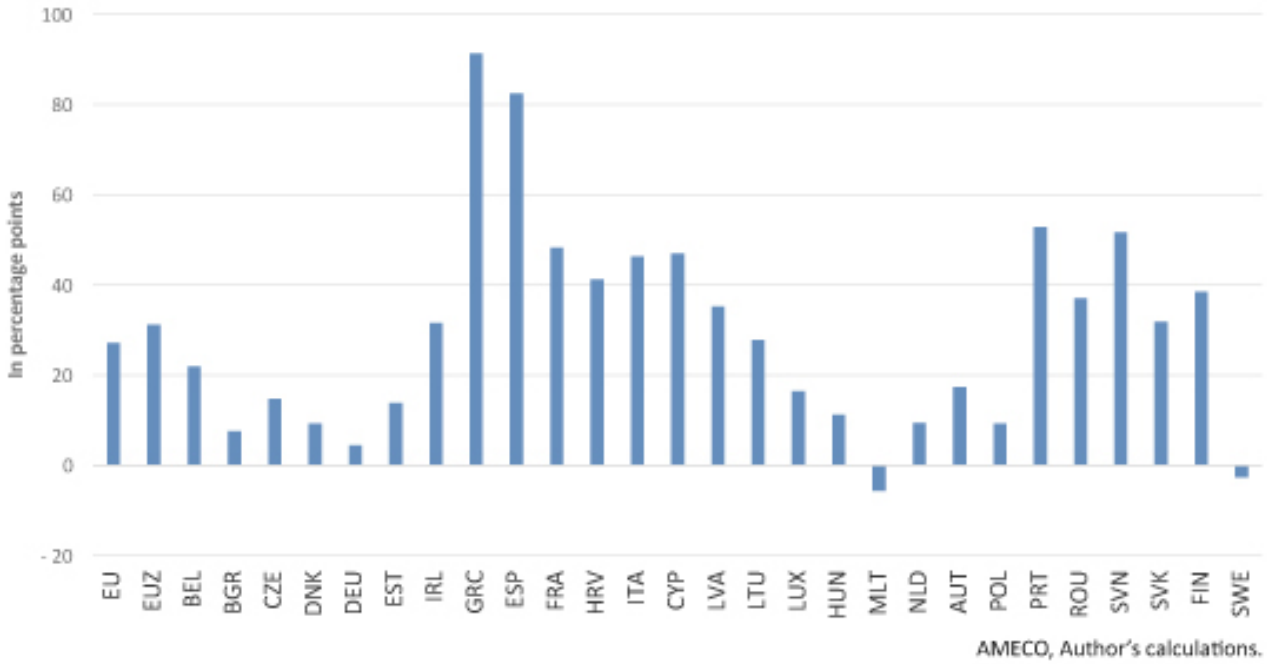
Figure 1. **Ratio of public debt / GDP forecast for end 2022**



These high levels of public debt are the consequence of the series of economic, financial and geopolitical crises that have hit Europe since 2007. Between end 2007 and end 2021, public debt rose by almost 30 percentage points of GDP on average, with a dispersion of around 23 points. As Figure 2 shows, some EU Member States (recall that the Stability and Growth Pact that the Commission is planning to reform applies to all of them, not just those in the euro zone) have experienced debt increases of almost 50 points (France, Italy, Cyprus, Portugal) or even much higher (Greece, Spain). Others, like Germany, have seen their debts increase only slightly, or even decrease (Malta, Sweden). In this context, it would be difficult if not impossible to apply fiscal rules in a homogeneous or undifferentiated way, as this would require major efforts from Member States that are gradually emerging from the pandemic and are continuing to suffer from the energy

crisis that is severely hurting public finances[1].

Figure 2. **Variation in the ratio of public debt / GDP between end 2007 and end 2021**



AMECO, Author's calculations.

The Stability and Growth Pact, which has been in force since the creation of the euro zone in 1999, aims to ensure fiscal discipline among EU countries by preventing excessive government deficits and debts or by correcting them through fiscal policies that limit spending and boost tax revenues. As the Pact is not applied mechanically, its application depends on how the States and the Commission interpret what is meant by the "excessive" nature of deficits and debts. Although numerical criteria have been appended in a Protocol to the Treaty on the Functioning of the European Union – the well-known criteria of 3% of GDP for the deficit and 60% of GDP for the debt – there are exceptional circumstances that allow for temporary exemptions. So when a serious crisis occurs, as was the case in 2020 with the pandemic, the derogation clause relating to the suspension of the preventive arm of the Pact can be activated. As a result, the Pact will have been put on hold from 2020 to the end of 2023. In the Commission's view, what should happen after that?

The Pact's two numerical criteria would be retained, but the

main tool for meeting the criteria would be changed. Fiscal sustainability[2], i.e. the reduction of public debt, would now be assessed on the basis of a single indicator: primary expenditure, i.e. public spending net of discretionary income, excluding interest charges on the debt and expenditure on unemployment benefits. The reference in the current fiscal framework to the annual reduction in the debt (one-twentieth of the difference between the current debt and the 60% of GDP target) would be dropped, as would the reference to a minimum reduction in the cyclically adjusted government deficit. The one new indicator would replace two, and hence in the Commission's view constitute a simplification.

The primary expenditure target should ensure a plausible path for reducing the public debt towards the 60% of GDP target over 10 years. This does not imply that the debt will necessarily have reached its target after 10 years, but rather that it will be on a trend towards that at a pace deemed satisfactory.

Member States are to present the Commission with a "national medium-term fiscal and structural plan" consistent with their commitment to fiscal discipline. The primary expenditure target established in close coordination between the Member State and the Commission should therefore be consistent with the expenditure deemed necessary by both parties to ensure structural reforms and investments. The precise nature of these is not specified. The primary expenditure target could therefore differ from one country to another, in accordance with likely differences in their needs for reform and investment.

Primary expenditure in line with this fiscal discipline would be planned over a period of 3 to 4 years, engaging the State's responsibility during this period. If unforeseen economic circumstances prevented the public debt from falling at the desired pace (the State's commitment is accompanied by a growth scenario over the same horizon) or if the reforms and

investments fail to produce the anticipated results, mainly economic growth, the adjustment in primary expenditure could be extended by up to 3 more years: the State would then have a maximum of 7 years to reduce its public debt towards the 60% of GDP target at a satisfactory pace. This would tend to greatly expand the notion of the medium term in the current version of the Stability and Growth Pact.

Since 2011, the European Union has equipped itself with instruments for monitoring macroeconomic imbalances (the overheating of wages, trade imbalances, excessive private debt, etc.), which have so far not been connected to the European fiscal framework. The Commission is proposing to integrate these into the framework. By better monitoring these imbalances, the Commission would adjust its recommendations for reforms and investments to ensure that the Member States enjoy sustainable growth and gradually reduce their debt.

Finally, the Commission is giving serious emphasis to the need for Member States to respect their commitments – the application of the Stability and Growth Pact has not always been very scrupulous – and for national bodies to more closely control these (in France, the High Council for Public Finances, the HCFP). These bodies would be responsible for organising a national debate on the relevance of the multiannual public finance assumptions made by governments.

So this is the reform project. What do we think of it?

First of all, the reform project, if adopted, would give the States greater manoeuvring room than in the current rules: reducing the debt more slowly, maintaining spending on unemployment benefits, and taking investments into account. There would be no immediate fiscal austerity.

However, adjusting primary expenditure over several years to ensure debt sustainability while taking account of the reforms and investments deemed necessary does not really seem much

different from the situation prevailing today. Flexibility would be enshrined in the new draft whereas it is more a matter of improvisation in the current framework. But in practice how much does this really change? The States are by now used to modifying their fiscal policies to finance reforms and investments while ensuring their solvency. The hearings before France's High Council on Public Finance are already supposed to stimulate the national debate on the short and medium-term orientation of public finances. On this point, too, it is rather difficult to see how the Commission's proposal is innovative.

The *a priori* coherence between a potentially more flexible target for primary expenditure and the continuing need to meet the public deficit criterion is not self-evident. How much manoeuvring room will States with deficits in excess of 3% of GDP really have? They will definitely need to find new resources to reduce their deficit and maintain their primary expenditure capacity in order to finance reforms and investments. This is a major challenge, especially if macroeconomic conditionality is applied for the availability of EU funds (cohesion policy, funds from the Recovery and Resilience Facility of the Next Generation EU programme) when the public deficit is deemed excessive: the granting of EU funds may be suspended.

The major role played by the Commission in the proposed fiscal process is another significant factor. The Commission imposes the path for adjusting expenditure, and if the States fail to implement their fiscal plans and reforms on time, it may magnanimously grant them a little extra time to do so. And, in what is considered an intelligent proposal for sanctions[3], it plans to systematically require the finance ministers of countries that have not met their commitments to explain this before the European Parliament. In this fiscal process, should the role of Europe's only democratic assembly really be limited to systematically humiliating those at fault? This

provision does of course already exist, but it is not applied systematically. There are undoubtedly other ways of involving the European Parliament in the new fiscal framework.[4] But it is true that the Commission has a strong penchant for technocratic bodies, such as fiscal committees or high councils for public finance.

As for better integrating the tools for monitoring macroeconomic imbalances, the intention to ensure the overall coherence of the Commission's recommendations is laudable. It remains to be seen however whether countries that exceed the maximum threshold for their trade surplus – which is likely to happen again once energy costs have fallen – will actually implement the recommendations. Germany's governments have thus far never taken these into account.

Finally, there is something very mechanical in the vision of fiscal policy that this reform project conveys. Over a three- to four-year horizon, ministry officials will continue to do what they have been doing since the Stability and Growth Pact was first put into place, i.e. to calculate expenditure trajectories compatible with reducing the public debt. And, contrary to what the proposal tries to imply, the controversial notion of the output gap, i.e. the gap between unmeasurable potential GDP and actual GDP, has not disappeared from the European fiscal framework. It will remain crucial to separate the cyclically-adjusted deficit from the cyclical deficit, and the primary structural balance (the cyclically-adjusted government balance excluding interest charges) remains the benchmark for analysing debt sustainability.[5] Given the series of economic crises that we have been going through for the last 15 years and the rising debt they have generated, it is not clear that these exercises have been very useful.

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[1] See the forecast for the world economy [in French]

recently conducted by the OFCE's Analysis and Forecasting Department.

[2] On the sustainability of the debt, see the special issue of the *Revue d'économie financière* from last month.

[3] The characterization as intelligent appears in column 3 of Figure 2 of the Commission Communication.

[4] This is the subject of my contribution to the aforementioned special issue of the *Revue d'économie financière*.

[5] See pp. 11-12 and p. 22 of the Commission Communication.