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The importance of strategic autonomy in the digital era

Society increasingly relies on technology. Wilbert Jan Derksen considers the importance of strategic autonomy in ensuring national security

Digitalisation has transformed our society on a fundamental level. Since the introduction of the personal computer in the 1980's and the internet in the 1990's digital technology has gradually become an integral part of our daily lives.

This became clearer than ever during the COVID-19 pandemic, where digitalisation provided the means necessary for our economy and society to keep functioning, despite everybody having to stay home due to lockdown measures.

Digital technology has enriched our lives in innumerable ways, but at the same time has made us highly dependent on it. That applies to our personal lives, but in a broader sense also to the whole of society.

Hospitals, banks and power plants are only a few examples of vital service providers that are reliant on digital technology for carrying out many of their respective activities. That means that any disruption of these applications can have serious consequences.

This is especially worrisome in the context of the rising geopolitical tensions we are seeing in the last years. Russia's invasion of Ukraine has once and for all shattered the illusion of a peaceful post-Cold War international order.

In addition, China has also made clear that it wants to challenge the West in order to become the new global superpower. Cyberspace has become a crucial battleground in this new geopolitical reality. Cyberattacks targeting critical infrastructure could paralyze an entire country.

Furthermore, they are a relatively easy and cheap alternative to traditional means of warfare. The current disastrous Russian military campaign in Ukraine might convince policy makers worldwide that future conflicts will be fought largely, if not exclusively, in the digital realm.

The combination of digital dependency and growing geopolitical antagonism means that 'strategic autonomy' in the area of digitalisation is becoming more and more important.

Strategic autonomy means that in critical areas a country is free of any unwanted dependencies on foreign powers, allowing it to pursue its own interests and not be vulnerable to pressure coming from hostile foreign states.

This entails that security interests should take priority over financial gains and that trustworthiness is most important factor in determining what actors are allowed to play a role in providing vital services. Strategic autonomy in general can apply to many different policy fields, but here we are focusing on the digital component of this concept.

... strategic autonomy will require a lot of effort, but in the long run guarantee that the EU is able to stand on its own feet

In a European context this means that EU member states have to make sure that they prevent unwanted digital dependencies on countries that are seen as strategic opponents, such as Russia and China.

According to liberals, providing security is the most important task of the government. Hence, EU governments (and by extension the European Union) have a crucial role to play in achieving strategic autonomy, as it directly concerns national security interests.

Most recently we have seen a big debate about the importance of strategic autonomy with regards to the 5G telecom network that will be unfolded in the upcoming years. 5G will allow data to travel at never seen before quantities and speed. It will form the basis of new exciting technologies such as autonomous vehicles and virtual reality.

However, the installation of a 5G network is quite an expensive undertaking and there are only a corporations that have the know-how to do so. A key player in this field is the Chinese tech company Huawei. It can offer high quality 5G technology for a relatively low price, making it the most interesting player on the market from a financial point of view.

However, there are serious allegation against Huawei concerning spying activities carried out on behalf of the Chinese government. Although Huawei presents itself as privately owned company, its vague ownership structure seems to be a disguise for the fact that in reality it is a state-owned enterprise.

Inviting Huawei into the heart of our telecom network could therefore pose a serious threat to national security, as this would allow the Chinese government to have direct access to sensitive communication lines by installing so-called hidden backdoors in their equipment.

For instance, they could peek into confidential information shared between intelligence agencies or steal valuable trade secrets from important European companies in the area of high-tech and defence.

Hence, many countries have decided to impose restrictions on Huawei products. The United States (as well as some its closest allies like Canada and Japan) has decided on a total ban.

However, this rigorous measure can't be seen as separate from the current trade war that is going on between China and the US. EU countries don't need to base their respective policies on the economic interests of the US, which leaves more room for flexibility. For example, the Netherlands has decided not to impose a total ban on Huawei, but to keep the company out of the core of its network.

This should be sufficient to avoid any unwanted security risks, while also not hurting competition on the market by eliminating a mayor player. After all, strategic autonomy is solely about safeguarding national security interests and should never be a disguise for economic protectionism.

It is very important to make sure that foreign companies and investors that can't be trusted are not allowed to have direct access to our critical infrastructure. But we also need to take a look at the entire supply chain in order to prevent any damages that could arise indirectly.

Not only vital service providers can be targeted by cyberattack, also the logistic companies that they work together with can for example be attacked. If vital products like medicines can be produced, but not delivered, this would also cause major problems for society. Thus, strategic autonomy requires taking into account the entire supply chain.

Taking such necessary precautions in doing business with foreign actors is only half the story though. Strategic autonomy can't only be realised on the demand-side (protecting against unwanted influence from outside), but also on the supply-side. That is to say, stimulating innovation so European tech companies are also relevant players on the market.

Unfortunately, the EU seems to be highly lacking in this regard. Out of the top twenty biggest tech companies in the world, only one is European. The world's tech industry is dominated by American and Asian (mostly Chinese) corporations. For behemoths like Microsoft, Apple, Tencent and Alibaba there aren't any real European counterparts.

Stimulating innovation is therefore necessary in order to change this fact. This would also provide EU countries the opportunity to invest in technologies that have integrated certain values in their design that are important, like privacy, autonomy, transparency and security.

For example, there already exists the French search engine Qwant, that unlike many other search engines like Google, doesn't track its users and respects their privacy.

In addition, open-source software and hardware products allow full insight into their design, thereby ensuring complete transparency. Investing in these type of products would be a perfect complement to EU regulations like the GDPR, Digital Market Act and Digital Service Act.

The question is then how the EU can improve its innovation policy. When we compare this to the US, we see for example that the EU does provide funding, but that vested interests play a stronger role in preventing strong disruptions on the market.

This means that the process of 'creative destruction' – the continuous replacement of older tech by newer, more efficient technologies – can't be fully realised.

From a liberal standpoint this is undesirable, as it contradicts the free market principle of unobstructed competition. Investment therefore ought not to be affected by such interests and allow for an equal playing field.

In addition, it is important that investments are embedded in a broader innovation ecosystem. There the government can play a crucial role, by fostering cooperation between the academic world and business sectors. This can also be realised on an EU level, through close cooperation between the different member states.

In this context we have seen initiatives like GAIA-X and IPCEI-CIS arise, through which EU nations strive for a common European data infrastructure. However, we have seen here that disagreement among member states about the strategy and goals can cause infighting and prevent such initiatives from coming to fruition.

Strategic autonomy therefore will also require willingness among European nations to cooperate and not to let personal ambitions stand in the way of this common interest.

One of the most important reasons why the European tech sector has fallen behind over the years has been the lack of venture capital available on the market. This refers to high risk investments in promising early-stage companies.

Such capital injections can help them to grow rapidly and become successful. Especially in the tech sector such investments are necessary as many businesses only become profitable after a certain critical mass has been reached.

In the US there is almost three times more venture capital available than in the EU. Moreover, investors there are more focussed on growth, than on immediate profits. They are also more willing to kill a business once it becomes clear that it isn't meeting expectations, thereby creating a more dynamic market.

In addition, there is a lot more interaction between businesses, which allows for an exchange of ideas between them. Though it is hopeful to see that European investments in the tech industry have soared during the last couple of years, reaching 100 billion dollars in 2021, it is vital that a sufficient part of this money is allocated as venture capital investments.

What can also help tech businesses to grow is for the government to act as a 'launching customer'. As governments make use of various digital products and services, they can help up-and-coming companies by doing business with them. Having such a major client will allow them to scale up faster.

Moreover, it might have a pull effect on other potential clients. Again, the government can specifically select companies that take into account important values such as privacy and autonomy.

Lastly, it is important to keep investing in education programmes in the field of IT. There is a general shortage in IT personnel in the economy, that not only effects the tech industry, but also other sectors, as many businesses need to undergo certain digital transformations.

This can also be done by offering funds to retrain workers who otherwise might face unemployment in the years to come. The impact of automation on the job market is expected to be massive, as many professions will be partially or entirely taken over by automated technologies.

Offering these workers the opportunity to re-educate themselves in the area of IT will prevent them from becoming unemployed and help businesses to find sufficient IT personnel.

To summarise, strategic autonomy has become a necessity in a world where digital technologies are such a fundamental part of society and geopolitical tensions have caused concerns about unwanted foreign dependencies in this area.

First of all, it is imperative that vital service providers are shielded from any possible digital intrusion by strategic opponents like China and Russia. When it comes to our critical infrastructure, it is important to let security interests take precedence over financial arguments.

Trustworthiness should be the principal factor in deciding who to do business with. That applies to the entire supply chain of these vital services. At the same time it is crucial to improve innovation policy, so that the European tech industry catches up on its American and Asian counterparts.

This can be done by not letting vested interests play a role, fostering cooperation between business and academic actors, increasing the amount of venture capital investments, letting the government be a launching customer and investing in IT (re-)education programmes.

Consequently, strategic autonomy will require a lot of effort, but in the long run guarantee that the EU is able to stand on its own feet. ■

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Fiscal support and monetary vigilance

Olivier Blanchard and Jean Pisani-Ferry consider the economic policy implications of the Russia-Ukraine war for the European Union

Summary

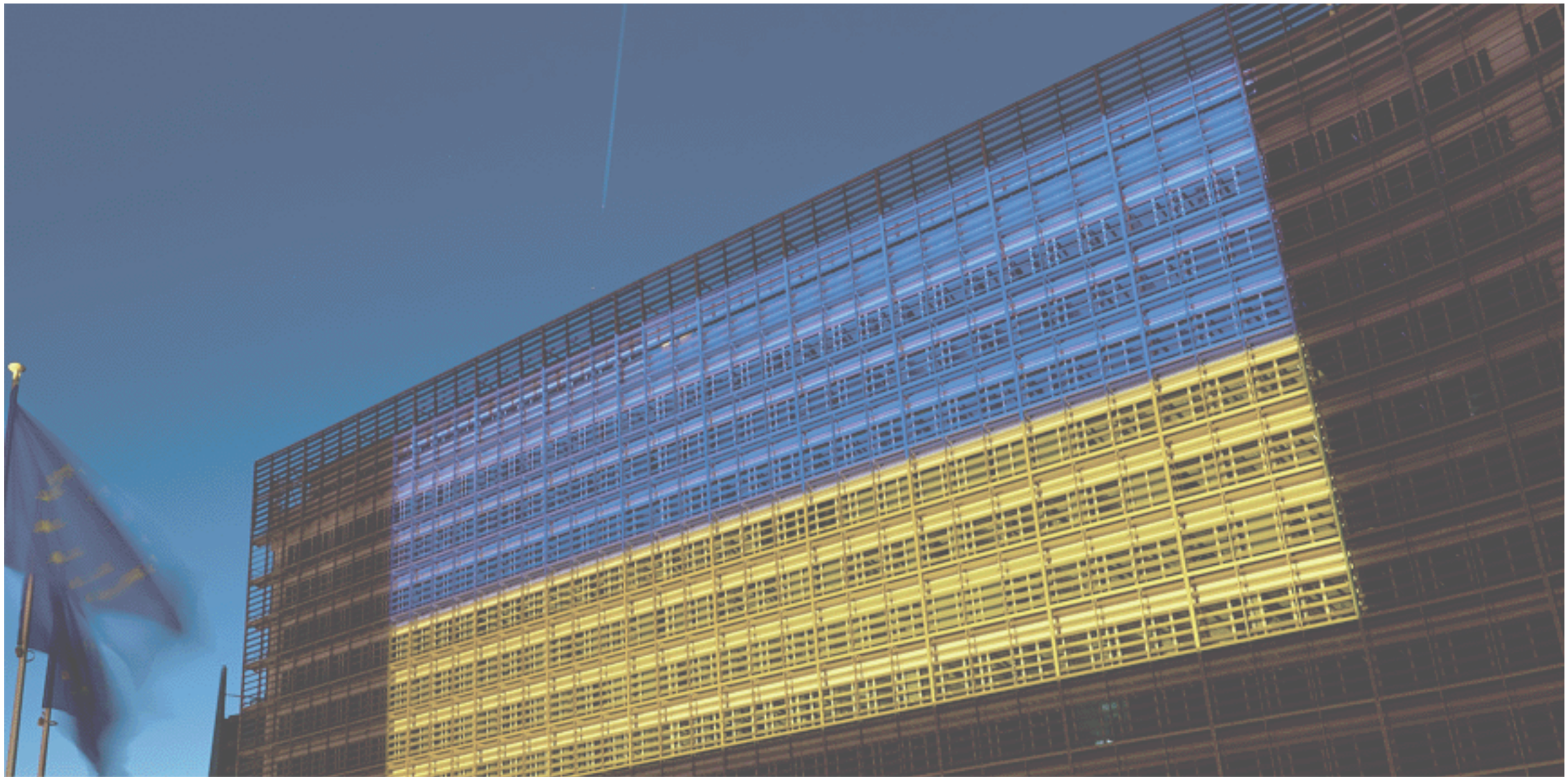
For Europe, the war in Ukraine is a first-order economic shock. While the direct fiscal implications of taking care of refugees, increasing military spending and strengthening energy autonomy remain limited, the impact of elevated energy and food prices on national income and its distribution is potentially significant. This raises three macroeconomic challenges for policymakers:

- How best to use sanctions to deter Russia while limiting adverse effects on the European Union economy: in this respect, it is important to distinguish between oil and gas. For oil, Russia can diversify away from the EU market and, despite sanctions, sell on the world market where it operates as a price taker. For gas, the European Union has substantial leverage because Russia depends on the pipeline infrastructure linking it to the European market. However, gas supply from other sources is relatively inelastic.

- How to deal with cuts to real income because of the increase in the energy import bill: if governments want to protect buyers, they must decide on mechanisms and how to finance the extra spending. Fiscal support and thus some additional deficit finance may be needed, though debt should remain sustainable.

- How to deal with the increase in inflation as a result of higher energy and food prices: there is a need to avoid a de-anchoring of inflation expectations, which is even more challenging than usual given that inflation had already substantially increased before the war. Preventing this risk would call for a tightening of monetary policy. However, the loss of real income is likely to lead to weaker aggregate demand, implying a need to loosen policy.

Policymakers must cope with these conflicting objectives, ensuring that policy instruments complement each other. A combination of well-designed fiscal support to households and tripartite wage discussions may help soften the trade-off the central bank faces. However, the outcomes of the war in Ukraine are unpredictable, and policy must be able to respond quickly to changing circumstances.



Introduction

Nobody can predict with much confidence how the war in Ukraine will evolve and what its geopolitical consequences will be over the next few months, let alone the next few years. Nevertheless, policymakers must think about the implications of the war and the appropriate responses, realising that they will need to be adapted as circumstances evolve.

Moreover, policymakers must think coherently about the joint implications of their actions, from sanctions on Russia to subsidies and transfers to their own citizens, and avoid taking measures that contradict each other. This is what we try to do in this Policy Contribution, focusing on the macroeconomic aspects of relevance for Europe.

We start by exploring the implications of the war. We review the various channels through which it is affecting macroeconomic perspectives. The upshot is that although demand, financial and wealth channels all enter into play, and although the direct budgetary implications of the war matter – because of increased defence spending and the cost of protecting refugees – the war's main impact on Europe is likely to be felt through energy prices and, to a lesser extent, food prices.

We then discuss the factors likely to determine the evolution of energy prices. What hap- pens depends both on Russian actions, even in the absence of sanctions, and on the effect of potential sanctions on Russia's behaviour. In this respect, one must distinguish between oil (and coal) on one hand, and gas on the other.

For oil and coal, Russia is a quasi-price taker in a competitive world market. It faces a very elastic demand curve. For gas, because trade relies on a specific infrastructure, the market is the EU market, the demand is rather inelastic, and Russia can be regarded as a quasi-monopolist.

This has very different implications both for the likely behaviour of Russia in the absence of sanctions, and the effects of sanctions such as tariffs on prices and Russian exports. Given technical constraints, a full embargo on gas is not feasible. Tariffs, however, are feasible, they would be effective, and they should be considered, despite likely strong effects on consumer gas prices.

Our working hypothesis in the rest of this Policy Contribution is that energy prices are likely to increase relative to their pre-war levels, although there is considerable uncertainty about the size of the increase.

The war's main impact on Europe is likely to be felt through energy prices and, to a lesser extent, food prices

So far, both sides have de facto sheltered oil and gas trade from the fallout from the conflict. The large variations in the oil market and even more so in the gas market are due to expectations of Russian actions and sanctions. But the 'balance of energy terror' is precarious and cannot be taken for granted.

We then examine the implications of the war for EU fiscal and monetary policy. Leaving aside the various sources of spending – from defence to refugees to the need to adapt the energy infrastructure to a changed supply of energy – the central fiscal policy issue is, to the extent that food and energy prices increase, whether and how to offset some of the loss in real income of households. Two main issues are involved.

The first issue is how best to do it: through subsidies, transfers or price regulation. The main question here is how the combination of such measures interacts with embargos or tariffs in determining the total effects of sanctions, the prices of energy imports and the implications for inflation.

The second issue is whether these measures, if taken, should be financed by taxes or by debt. While there is a strong political argument for levying an exceptional 'war' tax, the loss of real income due to the higher price of imports and the uncertainty associated with the war are likely to lead to weak aggregate demand; deficit spending may be needed to maintain or at least limit the decline in output. Debt, even if it ends up higher as a result, will remain sustainable.

Turning to monetary policy, the standard recipe in response to an increase in energy or food prices – namely, accommodation of first-round effects and tightening to limit further effects – must be re-examined. On one hand, the additional inflation comes on top of already high inflation, raising the risk of a de-anchoring of inflation expectations. On the other, despite fiscal support, aggregate demand is likely to be weak and put downward pressure on inflation.

The first effect suggests tightening, the second suggests loosening. For the time being, the two indeed roughly cancel each other out, which suggests that monetary policy could roughly remain for the moment on its intended pre-war track, but should be ready to adjust one way or the other.

There is, in the current context, an important, and unusual, interaction between fiscal and monetary policy. The more fiscal policy protects the real income of workers, the weaker the demand for wage increases is likely to be in further rounds. The more a decrease in inflation becomes credible, the less the European Central Bank will have to tighten to achieve lower inflation. In effect, larger deficits can lead to a smaller output cost of fighting inflation.

A final and interesting question is whether this dampening role of fiscal support could be explicitly taken into account in wage negotiations. During the pandemic, government-financed furlough- and business-support schemes socialised income losses and proved a very potent and cost-effective way to minimise economic and social disruption.

There is a case for a tripartite dialogue between governments, employers and employees and, ideally, for a quid pro quo of wage and price moderation in exchange for significant fiscal support.

We start in section 1 by looking at the channels through which the war will affect the EU economy. We review in section 2 the factors likely to determine the evolution of energy prices.

In section 3 we discuss the implications for both output and inflation in the European Union, and in section 4 the implications for EU fiscal and monetary policy. We draw conclusions in section 5.

1 The economic impact of the war

Nature of the shocks

Our working assumption is that the conflict, which began with Russia's invasion of Ukraine on 24 February 2022, will not be resolved in the short term. Over the next 12 months or so, we envision a stand-off, or a Russian occupation with Ukrainian resistance, or a ceasefire followed by acrimonious negotiations. We posit that reaching a permanent settlement will take longer.

In this context we assume the following:

- The breach of United Nations principles (which had been observed for three- quarters of a century on the European continent) will continue to cloud the horizon and affect confidence beyond the direct effects of the war.

- Most Ukrainian refugees will return to their hometowns, but only gradually as widespread destruction will prevent their relocation.

- The crisis will result in a lasting increase in European defence spending.

- Coming on the heels of the pandemic, this new shock will lead global firms to further reconsider their reliance on extended supply chains and just-in-time delivery schemes.

- The war will affect Ukrainian (and potentially Russian) agricultural crops and exports, reducing global supply and increasing world food prices.

- Beyond its immediate reaction to the war, the European Union will embark on an accelerated reduction and the eventual elimination of its reliance on Russian energy through alternative sourcing, and a faster transition to renewable energy.

- Sanctions will likely endure and escalate, leading to a substantial decrease in Russian exports of oil and gas, whether this is triggered by an EU decision or by a decision of the Russian government to restrict such exports. This is a major issue, both geopolitically and economically, and we investigate it in detail in the next section.

A major issue is whether the European Union will continue to respond in unified fashion to an unfolding crisis. While its initial common response was strong, divisions have emerged within the EU on the appropriateness of sanctions, especially in the field of energy.

Decisions on sanctions are part of foreign policy, where individual EU member states have veto power. Energy policy is largely a national prerogative and the EU does not have the legal means to settle differences by putting decisions to a qualified majority vote.

Our working assumption is nevertheless that the crisis will eventually trigger common responses and strengthen solidarity among its members.

Table 1 summarises our assumptions, distinguishing between short-term and longer-term effects. In this Policy Contribution we focus on short-term implications. We intend to return to the long-term implications in another brief. Most of the assumptions are straightforward. Some hypotheses deserve deeper examination.

Table 1. Main assumptions on the implications of the Russia-Ukraine war for the EU

Item	Short term (1–2 years)	Long term (3–5 years)
Exports foreign direct investment (FDI), and financial linkages	Large inflow Immediate fiscal cost Capital losses for European companies	Restructuring of trade and FDI linkages
Refugees	Large inflow Immediate fiscal cost	No lasting effect as most refugees are likely to return or integrate into the labour market Fiscal cost of reconstructing Ukraine
Defence	Support to Ukraine (weapons)	Lasting increases in defence budgets
Efficiency		Increased emphasis on resilience Deglobalisation
Confidence	Precautionary saving	Potential risk premium on Europe, but also potential drive toward closer policy integration within the EU
Food prices	Significantly higher prices Spillback from adverse developments in developing countries	No lasting effect
Energy	Significantly higher prices Supply disruptions Additional cost of alternative sourcing	Change of sourcing Integration at EU level Accelerated transition to renewables (implying additional investment)

Source: Bruegel.

Exports, foreign direct investment, and financial linkages

Exports to Russia have dropped substantially and are likely to decrease further as a result of the combination of EU sanctions, restrictions imposed by the Russian government and delivery problems.

Anecdotal evidence indicates that, even in the absence of legal restrictions, European firms are already reluctant to trade with Russia, fearing legal and payment problems.

According to EU trade statistics[1], exports of goods to Russia amounted to €89 billion in 2021; if they were to stop – a maximalist assumption – this would lead, other things being equal, to a decrease in aggregate demand for EU goods of 0.6 percent of 2019 GDP[2]. A 50 percent reduction in goods exports to Russia would cut 0.3 percent of GDP off aggregate demand.

The European Union also accounts for three-quarters of foreign direct investment in Russia, for a total of more than €300 billion at end-2019[3].

Assuming half of the value of this investment will be lost, this would represent about 1 percent of EU GDP and less than 2 percent of its stock of outward FDI. Although significant for several banks and companies, such a loss cannot be considered to be of major macroeconomic relevance.

During the 2008 global financial crisis, links between financial institutions played a major role as default by one institution triggered default by some of its creditors.

Although Russia has made visible efforts to meet its external commitments and stabilise the economy, a default of the Russian government remains a distinct possibility.

The evidence suggests, however, that this is unlikely to lead to major problems for the EU financial system. Subsidiaries of Russian banks have already been closed and liquidated without putting the financial system in danger.

Non-energy and non-food imports from Russia and Ukraine are of minor economic significance. Their interruption may, however, add to the broader disruption of supply chains due to the pandemic.

Refugees

The flow of refugees from Ukraine has reached 4.6 million people (not counting 7.1 million displaced persons in Ukraine) at the time of writing, mostly women and children (UNHCR, 2022). The outflow continues (though at a slower pace), so that 5 million – and maybe more – is a plausible number.

This is a human drama of gigantic proportions and poses major problems of organisation and allocation across countries. Yet the likely macroeconomic costs appear relatively limited.

Estimates of the annual fiscal cost of providing shelter, food, healthcare and education to refugees vary from €9,000 to €25,000 per person per year[4]. On the assumption of a cost of €10,000 per refugee (per year), the cost of financing 5 million refugees for one year is €50 billion, or 0.35 percent of EU GDP.

Even this number overestimates the cost, because within a few months some refugees will return, some will find work, and some will emigrate from the European Union.

Food

Russia and Ukraine are major producers and, even more relevant, major exporters of food, wheat in particular[5].

According to the Food and Agriculture Organisation (FAO), Russian and Ukrainian exports of wheat accounted in 2019 for 23 percent of world exports and 7 percent of world production.

In Ukraine, planting for the next harvest may be difficult. Distribution issues, given the fighting in the ports along the Black Sea, may further decrease exports. The market price of wheat has already increased nearly 50 percent from $7.70 a bushel before the war to $11, a level last seen for only a few days in 2008 (Macrotrends, 2022).

Because the European Union is a net exporter of agricultural products (in 2021 its trade surplus was close to €50 billion, according to Eurostat), the global price rise may well improve its terms of trade. Two important caveats are in order, though.

The first is that the loss to EU consumers (as opposed to the European Union as a whole, ie. producers and consumers taken together) may be large, an issue to which we return in section 3. The second is that elevated food prices are already having dramatic consequences for many emerging-market and developing countries, affecting their growth and macroeconomic stability, and potentially affecting the European Union in return.

2 The energy conundrum

Much of the economic interdependence between Russia and the European Union results from the fact that Russia is Europe's main supplier of fossil fuels. So far, both sides have mostly refrained from using energy as a vehicle for pressuring the other.

But on 8 April, the EU decided to ban imports of Russian coal, starting 22 August (Bown, 2022). Some EU countries have already gone further. On 30 March, for example, Poland announced its decision to stop importing any Russian energy by the end of 2022.

On 27 April, Russia discontinued gas shipments to Poland and Bulgaria, arguing that these two countries had failed to comply with the requirement that gas be paid for in rubles. This move triggered an immediate increase in the price for LNG.

In thinking about what may happen to energy prices, as a function of both Russian decisions and potential sanctions, it is important to distinguish between oil (and coal) and gas.

Oil and gas

Energy data are easily confusing because of the heterogeneity of measurement units, so a short summary of the situation is a useful starting point.

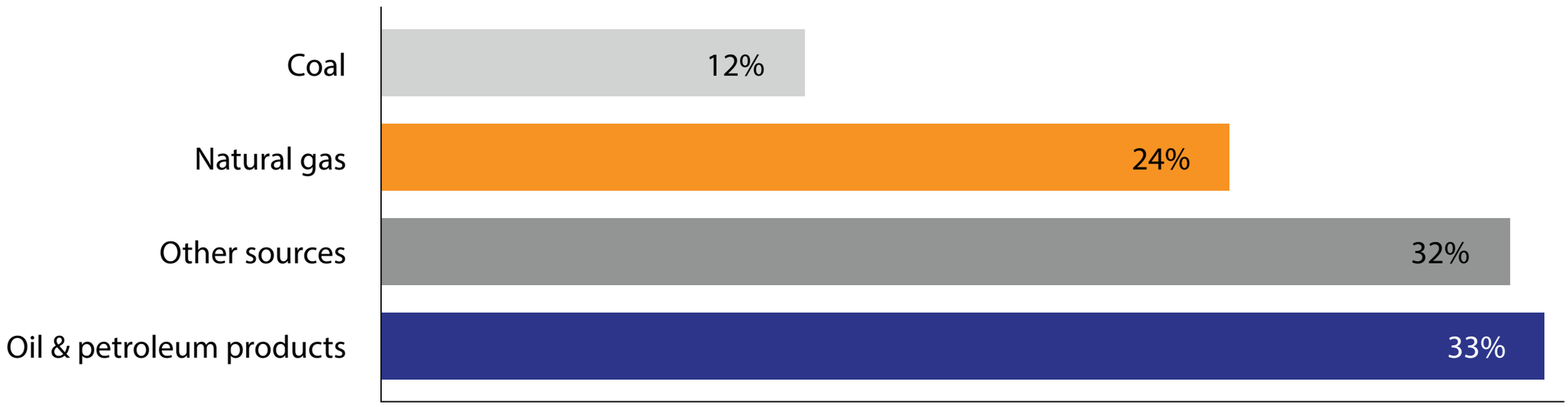
The supply of energy in the EU27 (excluding the United Kingdom) essentially relies on oil (33 percent, virtually all imported), gas (24 percent, primarily imported) and coal (12 percent, primarily imported) (Figure 1).

Other sources include renewables (domestic), nuclear (essentially domestic, as the fuel itself is a small part of the total cost) and imported electricity. Russia is a major supplier of oil, gas, and coal.

Before the war, Russia's export price closely followed the global market price for Brent, an indication of high substitutability. Because Russia is one among many suppliers of oil to the European Union, we assume that lower EU imports from Russia can be replaced by imports from elsewhere. And lower Russian exports to the West can be partly offset by purchases by India and China.

Unlike oil, the market for gas is regional. There are, broadly speaking, three markets globally: Europe, North America and Asia. Prices on these markets are related, as liquefied natural gas (LNG) can be shipped to any of them, but

Figure 1. Primary energy sources, EU27, 2019



Source: Authors' calculation based on Eurostat energy balances. Proportions are based on the energy content (Terajoules) of the various sources.

they can differ significantly. Starting in 2021, high demand in Asia led to a major divergence between the North American gas price and the prices in Asia and Europe (Figure 2).

The relevant market for discussing the impact of an EU sanction is therefore the European market, not the world market. Gas is used in electricity generation (1/3), by industry and services (1/3), and by households (a smaller third).

It is very substitutable in some of its uses (gas-generated electricity can be replaced by electricity generated from other sources), much less so for some others (a gas-powered heating system cannot burn oil or coal).

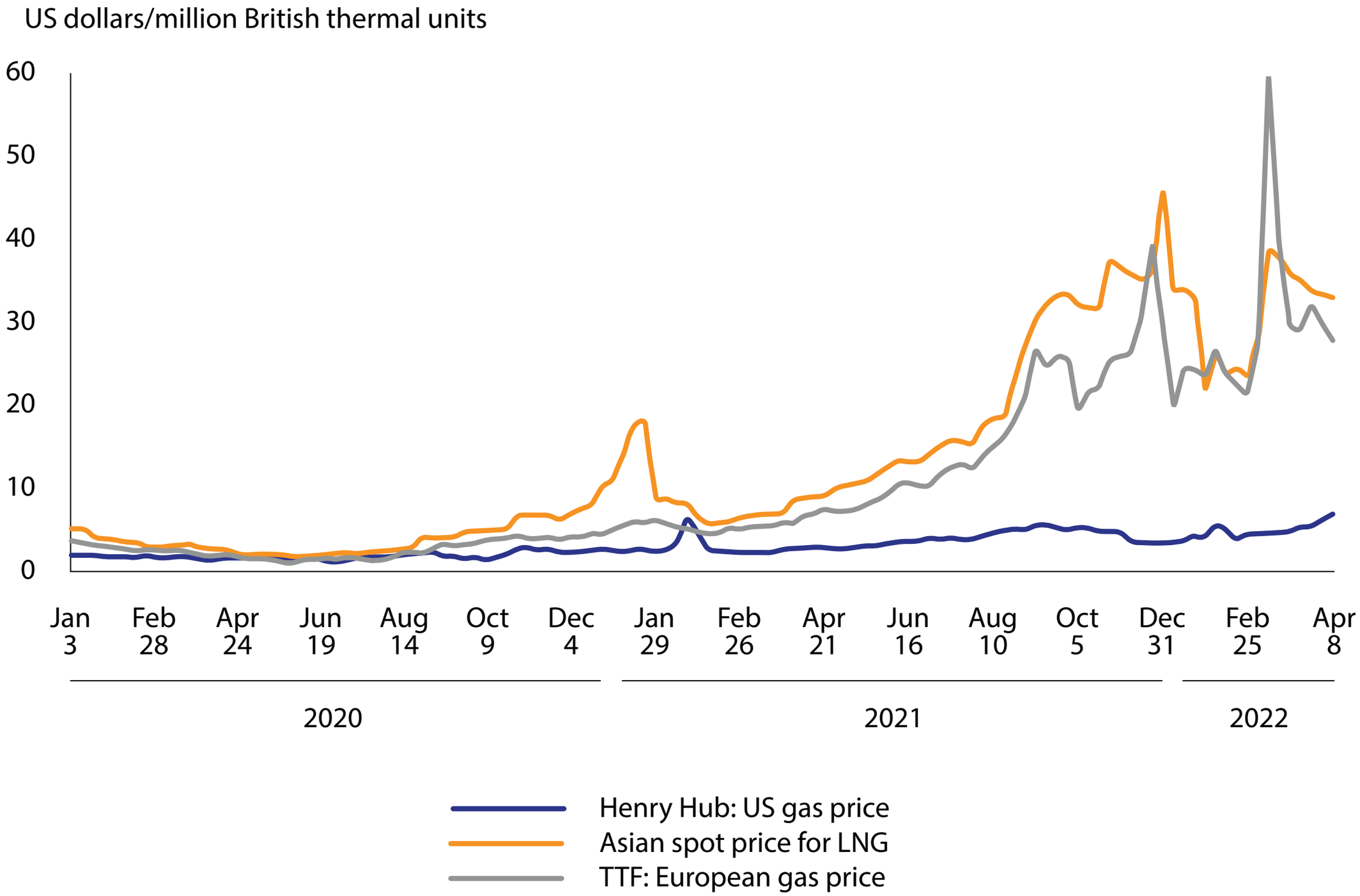
On average, Russian gas accounts for 8.4 percent of primary energy supply in the European Union, but there are wide variations across member states. For example, Portugal does not import any gas from Russia, but in Hungary, Russian gas accounts for 28.5 percent of the supply of primary energy (Pisani-Ferry 2022).

Although not entirely interconnected (Spain and Portugal, for example, have limited pipeline connections to Northern Europe), price differences in the European Union can be largely arbitraged away through internal transactions on imports from the rest of the world, provided – which is not a given – there is political agreement to do it[6]. In what follows, we treat the EU market as one.

Thinking about the determination of energy prices

Even in the absence of sanctions, Russia may want to behave strategically in determining its oil and gas export policy. In the case of oil, it may want to increase revenues to finance the additional spending associated with the war. This would lead to an increase in the world supply of oil and thus a decrease in the world price.

Figure 2. Gas prices in Europe, Asia and the United States, January 2020 to April 2022



Note: TTF = Dutch TTF natural gas hub price. Henry Hub refers to pricing of natural gas futures on the New York Mercan- tile Exchange.
Source: Bloomberg.

Russia, however, faces a series of constraints. Additional supply is currently limited by the difficulty of placing cargoes on the international market (which is reflected in the discount between the prices of Ural and Brent oil). Moreover, Russia is part of the OPEC+ coalition, which constrains its capacity to increase exports.

In the case of gas, a more subtle effect is relevant. The EU is scrambling to reduce its dependence on Russian natural gas, but its commitment to lowering imports by two-thirds by the end of 2022 is optimistic[7]. On the supply side, some Russian gas can be replaced by gas from Norway, Algeria and Azerbaijan, but these countries have limited capacity.

The rest must be delivered by ships as LNG, but in the short run the number of LNG ships is fixed and additional supply can come only from diverting shipments destined to Asia. On the demand side, the ability to replace gas by alternative sources of energy is also constrained by existing equipment.

Recent research (IEA, 2022a; McWilliams *et al* 2022) concludes that the European Union cannot, over this year and next, fully replace imports of Russian natural gas[8]. In the short run, then, the EU demand for gas is relatively inelastic and, under plausible assumptions, the price elasticity of EU demand for Russian gas (total demand less imports from the rest of the world) may well be less than one.

Under standard monopoly assumptions, such a low elasticity would lead Russia to set a very high price, even in the absence of war[9]. The reason Russia did not do so in the past is that the long-run elasticity is surely greater than one, and so it faces an intertemporal trade-off: a very high price raises revenues in the short run but decreases them in the long run.

The war, however, has two effects on this computation. The first is an even greater need for higher revenues today, leading to an increase in the price. The second is that the anticipation of future sanctions, and the clear decision of

the European Union to wean itself off Russian gas exports, reduces the effects of an increase in the price on future revenues, again leading Russia to increase the price while the demand is still there.

In short, ignoring sanctions, Russia may want to increase energy export revenues. But while for oil this would imply increasing the volume of exports (given the world price), for gas it would imply increasing prices (and therefore decreasing export volumes).

True, long-term gas contracts normally preclude such behaviour, as they specify the indexation of prices on the TTF (Title Transfer Facility) market price.

But Russia has some flexibility to shift part of its supply from deliveries within the framework of existing contracts to over-the-counter sales. More fundamentally, contracts can, after all, be revised or broken.

Turning to sanctions, whether embargos or tariffs, the market structure is again fundamental, and one must discuss separately the effects on oil and gas exports.

Sanctions: oil

To sanction Russia, the European Union could emulate the United States and United Kingdom and declare an embargo on Russian oil. This would be the most straightforward approach as a European embargo would strengthen the prevailing reluctance on the part of energy companies, shipowners, banks and insurers to take part in Russian exports.

Such a measure would not prevent Russia from exporting altogether – it would find alternative buyers, such as China, India or others, as it already does – but an embargo would certainly increase the discount on Russian oil, as already seen with the Ural price discount relative to the Brent price, at close to 35 percent at the time of writing.

In other words, the Western strategy would be (it largely is already) to keep Russian oil on the market, while finding ways to push its price down. If, on net, Russian exports decreased, the world price would go up, unless the drop in Russian exports was offset by the decisions of other producers, from Saudi Arabia to Iran to Venezuela, to increase production.

The rise in the world price would depend, in the end, on Russia's ability to find other buyers and on other countries' decisions to sell more. To get a sense of how the price impact would depend on the decrease in world supply, it is worth looking at history.

The 1973 OPEC embargo decreased global supply by 7 percent and led to an increase in the price of 51 percent. The 1978 Iranian revolution decreased global supply by 4 percent and led to a price increase of 57 percent. The 1980 Iran-Iraq war decreased global supply by 4 percent and led to a price increase of 45 percent. The 1990 Gulf War decreased global supply by 6 percent and led to a price increase of 93 percent (Hamilton, 2022).

Russia accounted in 2019 for about 13 percent of world production and its exports for a similar proportion of world trade, so a large decrease in Russian supply, not offset by an increase in supply elsewhere, would have dramatic effects on the price (BP 2021)[10].

History may not, however, be a reliable guide. The effects of lower supply depend on the elasticity of both non-Russian oil supply and world demand for oil. And both are different from what they were in the 1970s or even 1990s.

The price elasticity of supply has increased since the episodes cited above, especially as the United States has started exploiting shale oil. But it takes time before new drills start adding to output.

The price elasticity of demand may have declined as oil is increasingly used where substitutes are lacking, however (for example, for fuelling motor vehicles and airplanes).

And government measures to partly protect buyers, be they firms or consumers, from the price increases may further decrease the demand elasticity.

As discussed in section 4, in late 2021 and again since the start of the Russia-Ukraine war, several governments have introduced energy-related transfers and subsidies. To the extent that they affect the price signal, such measures reduce the demand response.

This is of no importance if a small country subsidises in isolation: the effect on world demand is too small. But if many do – and this would be the case if the European Union joined the United States and the United Kingdom in offering subsidies – the result is bound to be a larger increase in the global market price.

Sanctions: gas

The market structure for gas can be viewed as consisting of a monopolist Russia facing a large number of EU buyers who can purchase gas from other sources but only at a sharply increasing cost.

As we have seen, even in the absence of sanctions, Russia might want to increase its price and reduce supply. The question here is what would happen if the European Union decided to use sanctions, most likely through a tariff on Russian exports[11].

It would be a strong signal that EU member states stand ready to jointly confront Russia. A common tariff would preserve the freedom of private contracts and be legally implementable, as the European Union (as well as the

United States and other countries of the coalition supporting Ukraine) has revoked Russia's most favoured nation status. We assume that, in response, private contracts would be either broken or renegotiated.

In that context, the effect of the tariff depends on the elasticity of the net demand for Russian oil (the demand for Russian gas minus the supply of non-Russian gas to the European Union). In general, a tariff will increase consumer prices, but less than one for one; equivalently, it will decrease the pre-tariff price, but less than one for one.

In the special case when the elasticity of EU demand is constant, theory predicts that Russia should keep its (pre-tariff) price unchanged, leading to a one-for-one increase in consumer prices and a decrease in demand. Russian revenues will decrease as demand decreases.

In the case of linear demand, the effect of the tariff on the consumer price will be less than one for one – Russia will decrease its pre-tariff price, but less than one for one.

Demand will decrease less than in the constant elasticity case. Russian revenues will decrease because of lower demand and lower pre-tariff prices.

Interestingly, a small tariff can actually increase EU welfare: while consumers pay more, the revenues from the tariffs exceed the extra spending, and so, properly redistributed, buyers can be better off.

The point is nicely made by John Sturm (2022), who showed the relationship to the welfare-improving tariff argument that is standard in international trade. Larger tariffs will have an adverse effect on Russian revenues, but also on EU welfare. Assuming linear demand, Daniel Gros (2022) found that a 30 percent tariff on Russian gas would actually maximise EU welfare.

Beyond this rate, the tariff would decrease EU welfare but could substantially reduce Russian revenues. Gros found that a 60 percent tariff would reduce Russia's gas export revenues by three-fourths, but at some welfare cost to the European Union.

3 Commodity price increases, inflation and real income

The previous discussion has made clear that, depending on many factors, both those affecting Russian decisions and those affecting the choice and intensity of sanctions, there is substantial uncertainty about the future evolution of oil and gas prices.

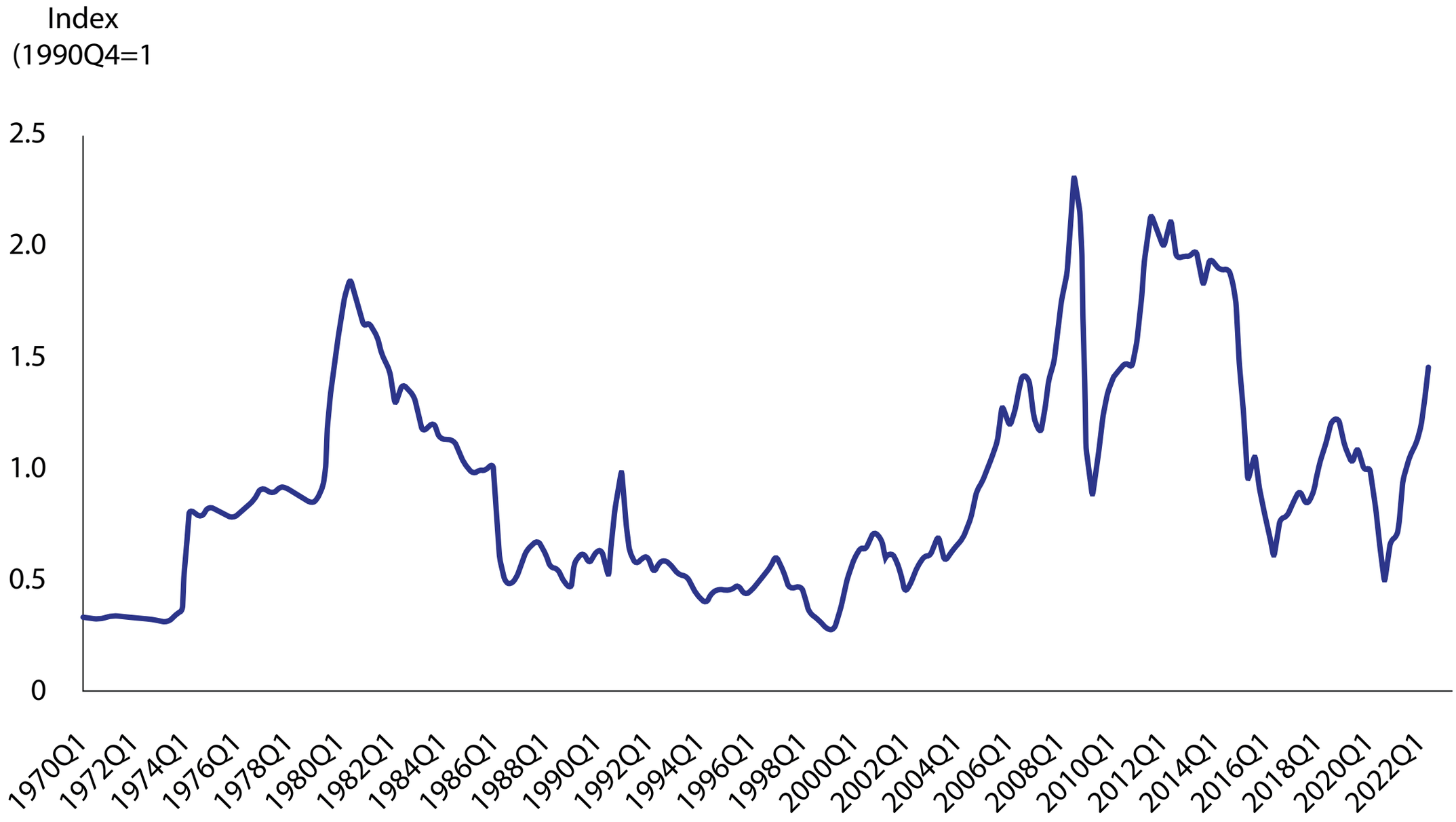
We are less pessimistic than the latest joint forecast of the five main German institutes for economic research (BMWK, 2022), which, in its central scenario, has the price of Brent reaching $135 per barrel and the price of gas in Europe roughly doubling to €200 per MWh.

In the rest of this Policy Contribution we assume – while realising the very large uncertainty associated with this assumption – that Russian decisions and more stringent sanctions will lead to an increase in both oil and gas prices of 25 percent relative to pre-war levels.

Commodity prices have increased many times in the past. To take just oil prices: the Brent price went from $10.27 a barrel in February 1999 to $133 in July 2008, and then went from $40 in December 2008 to $123 in April 2011. It remained above $100 until August 2014.

Given inflation since 2014, $100 then would correspond to $120 today, so the current real price of oil has not yet reached historical records (Figure 3). As a result, economists have a decent understanding of the effects of commodity price increases on the economy.

Figure 3. Real price of oil, 1970Q1–2022Q1, index (1990Q4 = 1)



Source: Authors based on OECD and US Bureau of Labor Statistics via Macrobond. World Brent price deflated by US consumer price index (CPI).

Inflation

The immediate and most visible effect is indeed the effect on inflation. The effect can be quite large. Electricity, heating fuels, and transportation fuels accounted in 2021 for 9.6 percent of personal consumption expenditures in the euro area, and food on average represented 15.7 percent of the consumer basket (as per European Central Bank HICP weights for 2021). In total, the share of consumption that is vulnerable to the direct impact of price rises is high.

Empirical estimates generally indicate that the pass-through of commodity price rises onto consumer prices is partial but quick.

A 2010 detailed Eurosystem study (ECB 2010) found, for an oil price around $100 per barrel, an elasticity of the energy component of the HICP (harmonised index of consumer prices) to the oil price of 0.4 (largely because of price-insensitive excise taxes), 90 percent of which was effective within a month.

These estimates are somewhat outdated, however, because they assume an indexation of the gas price on the oil price (which has been discontinued) and rigidity of the electricity price (which does not hold anymore) (ECB, 2010, table 9).

Let us then take 10 percent for the share of energy in private consumption and assume a 50 percent pass-through. The direct impact of the assumed 25 percent rise in prices is thus 25 percent $\times$ 0.1 $\times$ 0.5 = 1.25 percent. For food, let us assume a 15 percent share, a 10 percent increase, and also a 0.5 pass-through. The impact is 10 percent $\times$ 0.15 $\times$ 0.5 = 0.75 percent. This implies a 2 percent initial increase in the cost of a consumption basket.

These first-round effects can hardly be avoided, but they are just the beginning. Subsequent rounds reflect the responses by firms and workers.

Producers of goods that use energy or agricultural products as an input increase their prices to re-establish their markups. Workers whose wages lagged consumer prices in the first round ask for nominal wage increases to re-establish their real wage.

These lead to further increases in prices and wages. The strength of these further rounds depends on how hard firms try to re-establish markups, and how hard workers try to maintain their real wage.

Eventually, if commodity prices remain high, the pressure on inflation stops only when either the firms that use these commodities accept lower markups and/or workers accept lower real wages.

As we shall see, what happens to inflation and activity over time then depends on both monetary and fiscal policy, as we discuss later.

Real income

These inflation dynamics are present whether or not an economy produces or imports these commodities. But whether the economy is a net importer or not makes a significant difference to what happens to aggregate real income.

Take the case of the United States, which roughly covers its energy needs domestically. An increase in the price of energy is reflected in a decrease in the real income of energy users (consumers and firms) and an increase in the real income of energy producers (and their shareholders).

The effect on the US real income as a whole is roughly equal to zero. The effect on aggregate demand depends on both energy users' and producers' marginal propensity to spend, and so may go up or down.

The European Union, however, imports nearly all the gas and oil it consumes, so an increase in prices leads to a decrease in the real income of energy users and an increase in the real income of foreign producers, who are unlikely to spend much on EU goods.

Thus a price increase in these commodities is likely to have a large adverse effect on domestic demand. In both cases, energy users, especially consumers, may be worse off. But the effect on aggregate demand depends on whether the country is a net importer or not.

It is useful to think about the implications of both oil and gas price increases for the EU real income and get a sense of magnitudes.

Start with oil. Oil markets appear to assume that the reduction in global supply will be limited. The Brent price was $99 per barrel the day before the war started, up from $78 at the start of 2022; it went up briefly to $133 but, at the time of writing (mid-April 2022), was down to $110.

Assume an increase in the price from $78 to $100, roughly 25 percent. Imports of oil (from Russia and elsewhere) by the EU27 were equal to 5,900 million barrels in 2021.

Such an increase in price would imply a decrease in real income for the European Union of $5{,}900 \times 22/1.1$ (for the dollar-euro exchange rate), thus €118 billion, or 0.84 percent of 2019 GDP (oil import data from Eurostat).

Gas markets have also retreated from the elevated prices of February, but they remain high. Assume that the percentage increase in the average price of gas for the European Union is the same as for oil, about 25 percent. Imports of gas (from Russia and elsewhere) were equal to €170 billion in 2021.

This implies a decrease in real income for the European Union of 170 × 0.25 » €42 billion, or 0.3 percent of 2019 GDP.

Under these fairly moderate assumptions, the war-induced increase in oil and gas prices would take a little more than 1 percent of GDP off the real income of the European Union. But this would come on top of the effect of previous price hikes since 2019.

Overall – and disregarding the lockdown period in 2020 during which prices and quantities collapsed – EU imports of energy, which amounted to 2.6 percent of GDP in 2019, would have exceeded 5 percent of GDP had prices remained at their early 2022 level, and would increase to more than 6 percent based on our assumptions.

Distribution effects

Beyond the aggregate loss of real income for consumers, distribution effects are important. Consumption of gas, utilities, and food (as a share of total consumption) is higher for low-income than for high-income households – although there are clear differences across countries: based on Eurostat data, the difference is small in Scandinavian countries, for example, 26 percent for the bottom income quintile versus 25 percent for the top quintile in Denmark.

It is larger for France and Germany, 25 percent versus 21 percent in France, 26 percent versus 21 percent in Germany. It is even larger for poorer countries, for example, 31 percent versus 23 percent in Spain, and 50 percent versus 37 percent for Bulgaria[12, 13].

Moreover, the consumption patterns of lower-income households are often more rigid, as a larger part of their income is pre-allocated to rents and other monthly payments they cannot easily modify. Thus, apart from the aggregate effects on output and inflation, one must take into account that poor households suffer more than richer ones from an increase in commodity prices. This has clear implications for fiscal policy.

4 Implications for policy

We finally turn to the fiscal and monetary policy responses. In the short run, the main issue, and the source of potentially large spending, is whether and how to protect consumers from the commodity price increases.

Tax and transfer measures

Under our moderate price increase assumptions, the median increase in the price of the consumption basket, given wages, is about 2 percent[14]. But the decrease in real income for the lowest income quintile in the most affected countries (eg. Slovakia) is twice as high, 4 percent.

This is a very large number, knowing that the dispersion of income effects among households even within an income bracket can be very large, depending on living conditions, and recognizing that the increases in commodity prices may be larger than in our assumptions[15].

The question, then, is how much and how best to protect households. Since energy prices started to ratchet up in late 2021, EU member states have been busy introducing a series of schemes intended to soften the shock. These schemes can be grouped under three headings[16].

Temporarily lower energy taxes

A first possibility is direct across-the-board subsidies, for example, in the form of cuts or rebates on energy taxes, which are high in most EU countries.

France, for instance, introduced in February a 1-year cut in electricity taxes (at a cost of €8 billion or 0.3 percent of GDP) and on April 1 a reduction of gasoline taxes of 15 cents per litre for a period of 4 months, at an estimated cost of €2.2 billion, about 0.1 percent of GDP[17].

This subsidy is presented as an emergency stopgap until a more targeted system is introduced in early summer. It is highly visible, a political advantage. Similar temporary cuts to excise taxes have been introduced elsewhere, notably in Germany where, on 23 March 2022, the gasoline tax was lowered by 30 cents per litre[18].

Lump-sum transfers

An alternative approach is to provide transfers that are independent of the consumption of food, oil, and gas. Germany, for example, introduced on 23 March 2022 a universal lump-sum transfer (*Energiepreis-Pauschale*) of €300 per person plus supplements for children.

France introduced last year an *indemnité inflation* of €100, given automatically to people with an income no higher than €2,000 a month, at a cost of €3.8 billion, or about 0.2 percent of GDP[19].

Such measures are unlikely to affect market prices for food, oil, and gas substantially (only to the extent that the additional income is spent on these goods), and thus have the effect that the transfers go mostly to consumers rather than commodity producers.

There may be feasible schemes to target transfers more accurately to better protect those who both have a low income and spend more of it on food, oil, and gas. For example, in the case of electricity, one might make transfers proportional to a recent utility bill and, combining it with household income information, limit it to those with income below some threshold.

Or gasoline cheques – a given amount of money to be spent only on energy or gasoline – might be issued; indeed, an energy cheque exists in France and a gasoline cheque is being discussed in the United States. To the extent that the cheque is less than what the recipient spends on energy, this measure does not affect the marginal price s/he faces and thus does not affect incentives to reduce energy consumption. Its political acceptability may however be lower than for across-the-board subsidies.

Price regulations

Yet another approach is to decouple some prices, such as the electricity price, from their marginal cost. The issue has become particularly salient in the face of extremely large fluctuations in the market price of natural gas – which is the relevant marginal cost in the production of electricity. Spain especially has been vocal in criticising the inflationary effect of electricity pricing, and in March it obtained EU authorisation to temporarily disconnect the Iberian Peninsula from the EU electricity market.

France has asked the country's main electricity company to limit the price increase to 4 percent for 2022 and to satisfy demand at that price, thus asking the company to absorb a large part of the cost, leading to a large anticipated decrease in cash flows and a large decrease in market value.

This entails an inefficiency, as the price is less than marginal cost, but allows for a potentially large increase in consumer surplus – at the cost of a larger decrease in producer surplus. From a welfare viewpoint, the gain in real income of consumers may well dominate the loss in efficiency[20].

Potential perverse effects of subsidies

Two main objections can be raised against subsidies. The first is that they increase the demand for energy, thus contributing to keeping energy prices high[21]. The issue is familiar from the standard discussion of tax incidence.

Consider subsidies to the various uses of oil. The effect on consumer prices depends on what happens to the market price of oil. If only one country uses such subsidies and it is small relative to the world market, the world market price will not change and thus the subsidy will be reflected one-for-one in a lower consumer price.

If, however, all EU countries, and possibly other countries such as the United States, introduce such subsidies, then the relevant supply curve is the world supply curve, which is inelastic in the short run.

In the extreme, if the supply curve is fully inelastic, the effect will be to increase the market price one for one and leave the consumer price unaffected[22]. In other words, the subsidies will go to the oil producers, including Russia. In practice, the outcome is likely to be less than a one-for-one effect of subsidies on market prices, but it is still unappealing.

The second, more specific but highly relevant objection, is whether subsidies may go against a possible future tariff and actually strengthen Russia's hand in its confrontation with the European Union.

As discussed in the previous section, a tariff on gas would lower both the price and the volume of Russian exports, while the corresponding revenues could be used to soften the impact on consumers. The question, however, is how this subsidy should be designed. A direct domestic gas price subsidy, such as a lowering of indirect gas taxes, would increase the demand for gas and the price charged by Russia, countering the effects of tariffs.

Governments should not use the revenue from a tariff on Russian gas to subsidise energy consumption in a way that lowers the marginal price of gas on the European market. They should rather rely on transfer schemes that do not affect the marginal price.

Taxes versus debt finance

The next question is by how much fiscal measures should be financed through additional taxes versus debt finance. Tariff revenues may help, but, as we discussed earlier, tariffs are unlikely to yield much revenue for oil; they are likely to yield more in the case of gas.

Immediate discretionary fiscal spending essentially consists of defence procurements (including for the provision of weaponry to Ukraine), assistance to refugees, measures in support of households, and emergency investments to adapt the energy system.

Under our price assumptions, fiscal costs range from small to manageable: in 2022 they should not exceed one-sixth of a percentage point of EU GDP for defence, one-third for assistance to refugees, and, depending on the decisions of different member states, between half and a full percentage point for measures in support of households[23].

A more challenging question is how much emergency energy investments may cost. We do not have a good estimate but assume that it should not exceed half a percentage point. Altogether, therefore, the discretionary fiscal cost of the war should remain within 1.5 to 2.0 percent of GDP.

This would be less than half the fiscal cost of the pandemic support measures, which in Europe typically amounted to 4 percent of GDP in 2020.

Should this additional spending be financed through taxes or debt? On traditional public finance grounds, there are good arguments for relying partly on debt finance. Part of the increase in spending is likely to be temporary, thus justifying tax smoothing.

On political economy grounds, the notion of a war tax – a *"Putin tax,"* as President Biden has called it in the United States, although he was referring to the decrease in real income rather than an explicit tax – may be less unpopular than in other circumstances and underscore the point that contrary to current perceptions in Western Europe a war, even an economic war, is not free.

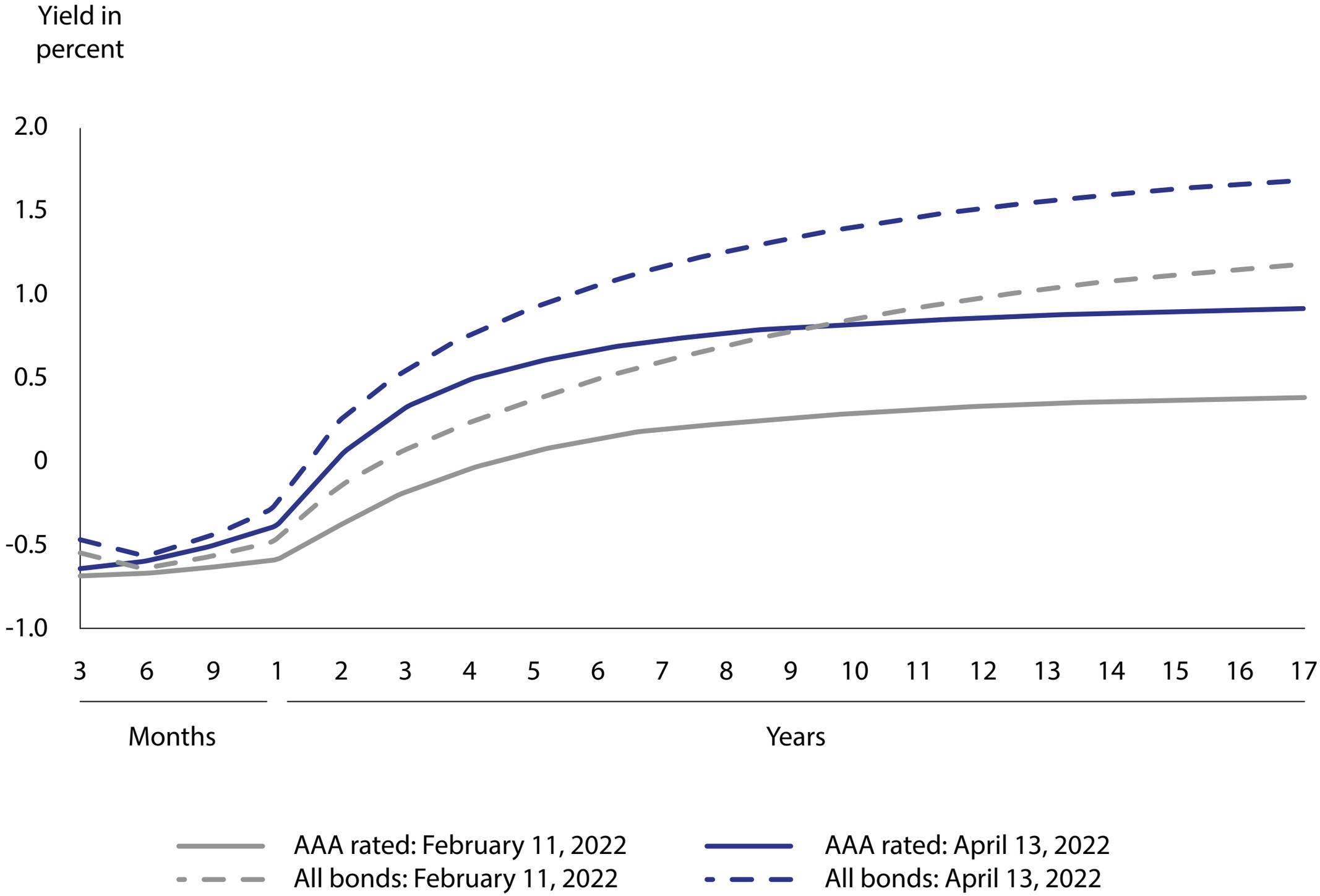
On macroeconomic stabilisation grounds, the case for relying largely on debt finance is strong. The decrease in real income for the European Union is large and is likely to lead to lower consumption. Export demand from Russia is likely to be drastically lower.

Higher uncertainty, which played a large role in reducing consumption and investment during the COVID-19 crisis, may play a substantial role again. Fiscal support and reliance on debt finance rather than on a tax increase to offset the higher spending are likely to be needed[24].

This raises the standard question about debt sustainability (a question one of the authors has addressed at length in other writings; Blanchard, 2023). While it may well be that slowing inflation will require temporarily higher real interest rates, the factors behind low neutral real rates have not changed, and – provided inflation remains under control, so that the inflation risk does not start being priced in real bond rates – the neutral rate should, after a bump, remain low in the medium run.

The evidence so far is that 10-year benchmark bond rates have increased by 50 basis points only since the start of the war, a limited upward adjustment in view of the magnitude of the geopolitical and economic shock (Figure 4). In the short run, debt dynamics are likely to remain extremely favourable. ECB (2022a) March forecasts of euro area real GDP growth, nominal policy rates, and inflation for 2022 are 3.7 percent, 0.8 percent (for the 10-year yield), and 5.1 percent.

Figure 4. Euro area yield curves, 11 February and 13 April 2022



Note: The solid lines show the yield curve for AAA-rated sovereign bonds only. The dotted lines show the same for all euro area sovereign bonds.
Source: European Central Bank. https://www.ecb.europa.eu/stats/financial_markets_and_interest_rates/euro_area_yield_curves/html/index.en.html

This implies a value for (r – g) of (0.8 percent –5.1 percent –3.7 percent) = –8 percent[25]. Combined with a debt ratio of 98 percent, this would allow EU governments as a whole to run primary deficits of 8 percent while keeping debt ratios constant. Thus, there is substantial room to run temporary larger deficits if needed.

Monetary policy

The typical advice to a central bank hit with an increase in commodity prices is to accommodate first-round effects (it cannot do much about those anyway) and limit subsequent-round effects, if necessary through lower output and higher unemployment, until inflation is back to target (Blanchard and Galí, 2007).

One can expect firms to eventually re-establish their markup. Thus, how much the central bank needs to lean in and slow activity depends very much on the behaviour of wages. Having suffered a decrease in their real wage in the first round, workers will want to catch up and will ask for a nominal wage increase.

And if they expect inflation to remain high, they will ask for higher nominal wage growth in addition. The strength of this first effect, workers' desire to catch up, depends, among other factors, on how much of a decrease in real income they suffer in the first round and how strong they are in bargaining, thus on the tightness of the labour market.

The strength of the second effect, expected inflation, depends on the credibility of the central bank strategy and its commitment to return inflation to its target.

There is in this context an important interaction between fiscal and monetary policy. To go back to the various protection measures governments may use, price subsidies – to the extent that they mechanically reduce the

increase in consumer prices – or price ceilings (as in the case of the delinking of the electricity price from its marginal cost) decrease first-round inflation and thus limit the initial decrease in the real wage.

This in turn decreases wage pressure in subsequent rounds, making it easier for the ECB to reduce inflation over time. Transfers do not affect first-round inflation, but they limit the initial decrease in real income, thus potentially reducing wage pressure in second and subsequent rounds.

To put it strongly, more protection and higher deficits reduce the need to tighten monetary policy to return inflation to its target. There is therefore a clear trade-off: from an efficiency perspective as well as to ensure the effectiveness of sanctions, governments should avoid income support measures that weaken the price signal and may in fact benefit Russia.

But from an inflation control perspective, they should rely on measures that have a direct, measurable impact on consumer prices. Some measures qualify on both accounts (as indicated, this is the case of transfers based on past energy consumption, if the lower average price paid by consumers is reflected in the construction of the CPI, which in principle it is). But many of the measures introduced so far do not pass the test.

Tripartite wage discussions

One can go a step further and make the case for tripartite discussions, if not negotiations, between firms, workers, and the state. So long as commodity prices remain higher, real wages and/or markups must be lower.

As we have discussed, the state can limit the decrease in the real income of workers through subsidies, transfers, and price regulations, financed by a mix of taxes on the better off, or debt finance, shifting some of the burden to future taxpayers.

Inflation is an extremely inefficient way of reaching an outcome, relying on either workers or firms to give up and accept lower real wages or lower markups. A negotiation in which workers, firms, and the state agree on a better outcome and, by implication, smaller second and subsequent rounds of inflation is clearly desirable.

Is it achievable? The role of such social negotiations has long been debated, and the usual answer is that it requires an unrealistic degree of coordination across firms and across unions. This time may be different, and tripartite negotiations, or at least discussions, should be an option that governments consider.

Any success in reducing the size of second-round effects allows for a more relaxed monetary policy. Two other factors are relevant here, although they move desirable monetary policy in opposite directions.

Potential de-anchoring of expectations

Inflation due to the commodity shock comes on top of an inflation rate substantially higher than what was forecast for 2021. Even before the war, this had led to concern about a de-an- choring of inflation expectations, which would make the job of the ECB more difficult.

Based on the *ECB Survey of Professional Forecasters* (ECB, 2022b), long-run expectations of inflation have started to increase, with the average forecast going from 1.8 percent at the start of 2021 to 2.1 percent in April 2022 (Lane, 2022)[26]. This was initially a welcome development after years during which inflation was expected to undershoot the target, but the worry now is that the additional first-round inflation due to the war will lead to outright de-anchoring.

As recently pointed out by Isabel Schnabel (2022) of the ECB Board, this argues for a tougher monetary policy stance in subsequent rounds than would be the case in the absence of higher previous inflation.

Potential weakness of private demand

The other relevant factor is the effect of the war-related shocks on aggregate demand. The reduction in real income even partly compensated by subsidies and transfers, diminished exports, investment losses, and a dent in overall confidence are good reasons to think that, even with fiscal support, aggregate demand will be weaker, apart from any monetary tightening.

This suggests less need for tighter monetary policy than was the case before the war and, other things equal, argues for looser monetary policy.

Which of these factors will dominate and whether ECB monetary policy will have to be tighter or looser than was intended before the war is difficult to assess at this point. The size of the shocks, the strength of second-round effects, the anchoring of inflation expectations, and the weakness of aggregate demand are all uncertain.

Markets have a hard time assessing what the net effect should be on monetary policy: the euro yield curve went sharply down as the war started, but is now a bit higher than before the war (see Figure 4)[27].

The current ECB stance of no major adjustments due to the war appears to be the right one at this point[28]. But the ECB will have to adjust its stance and be unusually nimble to avoid either lasting inflation or a recession.

5 Conclusion

For Europe, the war in Ukraine is a first-order economic shock. While the direct fiscal implications of taking care of refugees, increasing military spending, and strengthening energy autonomy remain limited, the impact of elevated energy and food prices on national income and its distribution is potentially large.

It would get larger if future European sanctions affect the global oil market or the supply of gas to the EU market. This raises three macroeconomic challenges for policymakers.

The first is how best to use sanctions to deter Russia while limiting adverse effects on the EU economy. In this respect, it is important to distinguish between oil and gas. For oil, Russia can diversify away from the EU market and, despite sanctions, sell on the world market where it operates as a price taker.

The implications are that the spillback from EU sanctions is global and that a European embargo or tariffs on oil may have limited effects on consumer oil prices. For gas, the European Union has substantial leverage because Russia is almost completely dependent on the pipeline infrastructure linking it to the European market.

But because supply from other sources is relatively inelastic, Russia faces a sharply downward sloping demand curve and enjoys significant market power. Given technical constraints, and this strategic game, an embargo on gas is not feasible. Tariffs, however, are feasible; they would be effective, and they should be considered, despite likely strong effects on consumer gas prices.

The second challenge is how to deal with the decrease in real income due to the increase in the energy import bill. Here, two issues require policy clarity.

First, if governments want to partly protect buyers – consumers and firms – from the increase, they have choices among measures, from direct subsidies to targeted transfers, regulations, and price caps. For gas and to a lesser extent oil, subsidies – especially across-the-board tax cuts – may partly offset the effect of sanctions and as such are undesirable.

Lump-sum transfers that do not affect the marginal price, and consequently do not diminish incentives to reduce demand, are preferable, especially if directed to low-income and other most affected households.

Second, governments must decide how to finance the extra spending. Because some of the spending is temporary and because of uncertainty, the loss of real income, and lower exports to Russia, all leading to weak aggregate demand, fiscal support and thus some additional deficit finance may be needed.

Even if deficits are larger, given high inflation and the still low nominal rates, debt ratios are likely to decrease over the next one or two years, and debt will remain sustainable.

The third macroeconomic challenge is how to deal with the increase in inflation as a result of higher energy and food prices. Two forces are at work.

The first is the need to avoid a de-anchoring of inflation expectations, more of a challenge than usual given that inflation had already substantially increased before the war. Preventing this risk would call for a tightening of monetary policy.

The second factor is that the loss of real income is likely to lead, even with some fiscal offset, to weaker aggregate demand, implying a need to loosen policy.

The challenge for policymakers is to cope with these conflicting objectives. In this context, policy instruments complement each other. A combination of well-designed fiscal support to households and tripartite wage discussions may help to soften the trade-off that the central bank is facing.

In each of these three dimensions, there is considerable uncertainty as to the outcome. Energy prices may increase much more than they have so far, or instead return to pre-war levels.

By implication, the loss in real income and the inflationary pressure may be much larger, or instead be less of an issue than currently forecast.

This leads to our last conclusion. Fiscal and monetary policy should be nimble, consisting of measures easy to adjust as the need may be. ■

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Endnotes

1. See https://webgate.ec.europa.eu/isdb_results/factsheets/country/details_russia_en.pdf

2. Nominal GDP of the EU27 was €14,017 billion in 2019 (Source: Eurostat).

3. European Commission, Russia fact sheet; see https://policy.trade.ec.europa.eu/eu-trade-relationships-country-and-region/countries-and-regions/russia_en

4. See the recent survey by Darvas (2022). The upper estimates are based on Swedish data. Pisani-Ferry (2022) used a €10,000 estimate based on the cost of the 2015 wave of refugees to Germany. Costs are bound to be lower in Poland and other frontline countries than they were in Sweden. We, therefore, stick to the €10,000 estimate.

5. For more detail on the implications of the war for food prices, see FAO (2022). See also Ritchie (2022).

6. For example, LNG imports from the rest of the world can be directed to countries where excess demand is the highest.

7. See the European Commission (2022) communication of 8 March 2022.

8. For more discussion of the underlying elasticity of substitution between gas and other sources of energy, and its implications for GDP if there were a full embargo on gas, see Bachmann et al (2022), Baqaee and Moll (2022), and Moll (2022).

9. We think of Russia as a monopolist facing a large number of buyers. In the presence of a tariff, and coordination among buyers, it may then become more appropriate to think of the European Union as a monopsonist. In this case, the right conceptual frame is to treat the outcome as the outcome of a game between the two players. Because European coordination is still lacking, we have not explored the implications of this alternative way of thinking about the market.

10. Here and elsewhere, unless specified otherwise, we are using 2019 data as a benchmark, because 2020 data were affected by the COVID-19 shock and 2021 data are not always available.

11. There is a legal debate as to whether such an action would require unanimity within the European Union. Sanctions are decided by unanimity on the basis of Article 29 of the Treaty on the European Union, but implemented by a qualified majority. Trade policy decisions are taken by a qualified majority. And in the field of energy, each member state has the right to determine "the general structure of its energy supply" (Article 194 of the Treaty on the Functioning of the EU).

12. These numbers are constructed as the ratio of food consumption (CP01) plus electricity, gas, and other fuels (CP045) plus operation of personal transportation (CP072) to total consumption, for each quintile. Numbers are from Eurostat-data.xlsx.

13. Some of the numbers that have been published appear much higher. For example, BLS data for the United States for 2020 give a ratio of consumption of food, transport, and utilities to disposable income of 74 percent for the bottom quintile versus 20 percent for the top quintile. But this reflects, partly, different definitions of what is included in the smaller consumption basket and, mostly, the fact that the analysis looks at the ratio of consumption of gas, utilities and food to disposable income rather than to consumption. In the lower quintile are many individuals and households who are dissaving and for whom disposable income is small relative to consumption.

14. Building on the previous discussion of inflation, to the extent that final goods producers do not fully reflect the increase in commodity prices and accept a decrease in their markup, the effect in the initial round will be smaller than the number in the text. But, if they re-establish markups over time, the number in the text is the relevant one.

15. In the French case, Douenne (2019) provided evidence of the vertical and horizontal dispersions of the effects of a carbon tax.

16. In October 2021 the European Commission introduced a toolbox of measures to tackle the energy situation, as feasible options for member states to consider. See https://ec.europa.eu/commission/presscorner/detail/en/IP_21_5204

17. For details about the French measures, called bouclier tarifaire, see Gouvernement français (2022).

18. See the 23 March German government measures (see https://www.bundesfinanzministerium.de/Content/DE/Downloads/2022-03-23-massnahmenpaket-bund-hohe-energiekosten.pdf). Another set of measures in support of affected business was introduced 8 April (see https://www.bundesfinanzministerium.de/Content/DE/Downloads/schutzschild-fuer-vom-krieg-betroffene-Unternehmen-massnahmenueberblick.pdf).

19. This payment was introduced in 2021, thus before the Russia-Ukraine war, to offset the already large increase in many commodity prices in 2021.

20. For more on the measures taken by EU members, including subsidies, transfers, and price regulations, see Sgaravatti et al (2022).
21. They also go against the need to decarbonise the energy system.
22. The slope of the supply curve was the subject of a Twitter discussion between Paul Krugman and Jason Furman (https://twitter.com/jasonfurman/status/1496483717027618826?s=20&t=Q1d9Glf5i7J1c9T9XaI0UA).
23. The German support programme consists of two packages of about €15 billion each.
24. It is interesting in this respect that Germany decided to combine both approaches by financing a defence fund through debt at 3 percent of GDP, while committing to finance the permanent increase in military spending through taxes.
25. The ECB also gives two other scenarios, one adverse and one severe. In the severe scenario, growth is 2.3 percent, the 10-year yield is 0.8 percent, and inflation is 7.1 percent, implying a value for (r – g) of –8.6 percent.
26. The increase from 1.8 to 2 percent was desirable; the issue is whether it would stop there.
27. See, for example, the ECB's yield curves for 23 February, 3 March and 17 March (https://www.ecb.europa.eu/stats/financial_markets_and_interest_rates/euro_area_yield_curves/html/index.en.html).
28. We thus largely agree with the analysis and conclusions of Isabel Schnabel (2022) in her 2 April speech.

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A new Thessaloniki offer

Georgia, Moldova, and Ukraine have aspirations to join the European Union. Marek Dabrowski believes the EU should grant candidate status as part of a long-term stabilisation strategy

On Monday 28 February 2022, Ukraine's President Volodymyr Zelenskyy, Prime Minister Denis Shmygal and Speaker of Verkhovna Rada (Ukraine's parliament) Ruslan Stefanchuk signed an application for Ukrainian membership in the EU and asked for *"immediate accession via a new special procedure."*

Their request was repeated the next day when President Zelenskyy spoke via videolink to a plenary session of the European Parliament. The Parliament backed the request in a resolution of 1 March on the Russian aggression against Ukraine, calling for *"the EU institutions to work towards granting EU candidate status to Ukraine, in line with Article 49 of the Treaty on European Union and on the basis of merit, and, in the meantime, to continue to work towards its integration into the EU single market along the lines of the Association Agreement."* The President of the European Commission also responded positively to Ukraine's aspirations, saying *"They are one of us and we want them in."*

Following Ukraine's application, two other Eastern Partnership (EaP) countries – Georgia and Moldova – announced their applications for EU membership.

These three applications should surprise nobody. All three countries declared their geostrategic interest in joining the EU already in the early or mid-2000s. All three have been victims of the imperial policy of Putin's Russia by being invaded by the Russian army (Georgia in 2008, Ukraine in 2014-2015 and now) and/or by losing control over parts of their territories (Transnistria in Moldova; Abkhazia and South Ossetia in Georgia; Crimea and one-third of Donbas in Ukraine, plus territories occupied in the current war).

They want to anchor their independence and the chance of peaceful development in the Euro-Atlantic security alliances and the European integration system. They also seek external anchors (incentives) for their domestic economic, political and economic reforms. The previous European Economic Community/EU enlargement rounds since the 1980s demonstrated that the accession process can play this role effectively.

All three countries have Association Agreements with the EU (signed in 2014), including Deep and Comprehensive Free Trade Area (DCFTA) provisions, and they are advanced in their implementation. Citizens of the countries can travel without visas to the EU (citizens of Moldova since 2016; citizens of Georgia and Ukraine since 2017).

How should EU countries react to these applications? The decision to grant EU candidate status and start membership negotiations requires unanimity. It is no secret that, for various economic and political reasons, the political appetite for further EU enlargement has declined since Croatia acceded in 2013.

The EU also has essential homework to do. Once again, it must reform its institutions and decision-making process. Further expansion of qualified majority voting and reduction of the list of decisions that require unanimity is the most urgent component of such reform

This is seen in the slow accession process of the Western Balkan countries. All three new applicants have income-per-capita levels far below the EU average. They suffer from immature institutions, poor business climates, corruption (except Georgia) and unresolved territorial problems (see above).

These circumstances may discourage some EU member states, especially those further away from eastern Europe, from responding positively. Reservation was signalled by the President of the European Council Charles Michel, who spoke about *"different opinions and sensitivities"* among EU countries in relation to Ukraine's application.

However, the lack of positive response or up-front rejection of membership applications would be a strategic mistake at the current critical juncture of European history.

First, it would go against the spirit and letter of Article 49 of the Treaty on the European Union (TEU), which says that *"…any European State which respects the values referred to in Article 2 and is committed to promoting them may apply to become a member of the Union."*

Second, it would mean the EU reneging on its goals of establishing an area of stability and prosperity in its direct neighbourhood.

Third, it would discourage applicants from reforming their states and economies. And for Ukraine now, it would undermine the morale and determination of its leaders, army and the entire society to resist aggression.

Fourth, it would disregard the existing strong economic ties between the three EaP countries and the EU. The EU is their largest trade partner. In 2020, it accounted for 52.3% of the total trade of Moldova, 39.2% for Ukraine and

22.4% for Georgia. Trade reorientation towards the EU helped these countries, particularly Ukraine after 2014, to neutralise the adverse effects of Russian trade protectionist measures applied against them.

The EU is also a significant source of incoming foreign direct investment to Georgia, Moldova and Ukraine. The EU accession process would help consolidate these ties and contribute to the modernisation of all three economies.

There is a relevant precedent after the series of tragic conflicts in the former Yugoslavia in the 1990s. In June 2003, the EU summit in Thessaloniki expressed *"unequivocal support to the European perspective of the Western Balkan countries."* It also declared that *"the future of the Balkans is within the European Union."* It opened the process of European integration for this region.

Although today, almost two decades after this declaration, only Croatia is an EU member, four other countries (Albania, Montenegro, North Macedonia and Serbia) have EU candidate status. Montenegro and Serbia are in accession negotiations.

Despite the slow pace and various shortcomings of the accession process in the Western Balkans, it has stabilised the region politically and has incentivised economic and institutional reforms in individual countries.

Of course, EU accession must take time, especially for less economically and institutionally developed candidates. It will not happen immediately, as President Zelenskyy would like to see.

Time is needed to meet the Copenhagen criteria of EU membership, adopt all the *acquis communautaire*, and negotiate technical and institutional aspects of its implementation.

The speed and outcome of this process usually depend on the political determination of a candidate country and its ability to implement all the required reforms and legal harmonisation, and the goodwill of EU countries that have legal power to block accession at each stage.

Unfortunately, this power is sometimes overused, as in the case of North Macedonia, which obtained candidate status in 2005 but had to wait for a long time to start membership negotiations because of obstruction on the part of some of its neighbours. Such practices may derail the entire EU accession process and deprive it of its motivational character.

The EU also has essential homework to do. Once again, it must reform its institutions and decision-making process (the last time it was done in the Lisbon Treaty signed in December 2007). Further expansion of qualified majority voting and reduction of the list of decisions that require unanimity is the most urgent component of such reform.

Too often, the current EU becomes a hostage to individual countries' veto powers, for example, in the areas of the Common Foreign and Security Policy, Multiannual Financial Framework, or EU enlargement. Increasing the number of member states without fixing this problem would complicate the situation further.

The three new applicants have one advantage that most Western Balkan countries (except Croatia) did not have in 2003: the functioning Association Agreements, including their economic and trade components, which have already required adoption of a substantial part of the acquis.

Repeating the 2003 Thessaloniki type offer to the three EaP countries and starting their EU accession path would not determine the outcome or timing, both of which would be dependent on the progress in adopting the acquis.

It would not also prevent various intermediate solutions, such as further deepening trade and investment relations (especially in agriculture and service sectors), or closer political association in the meantime, preferably by upgrading the existing Association Agreements. It would only help the long-term goal of EU integration. ■

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EU economic resilience tested

The EU has revised growth forecasts down. Maarten Verwey, Laura Bardone and Kristian Orsini say the Russian invasion is exacerbating pre-existing headwinds to economic growth

Russia's invasion of Ukraine has led the European Commission to revise its EU growth outlook downwards, and the forecast for inflation upwards. As this column discusses, by exerting further upward pressures on commodity prices, causing renewed supply disruptions and increasing uncertainty, the war is exacerbating pre-existing headwinds to growth, which were previously expected to subside.

Nevertheless, the economy is expected to keep expanding, and inflation is set to gradually decline towards, though remain above, 2% throughout the forecast horizon. Should further disruptions in energy markets occur, the economy would not escape stagflation.

…but economic expansion in the EU is set to continue and inflationary pressures to abate…

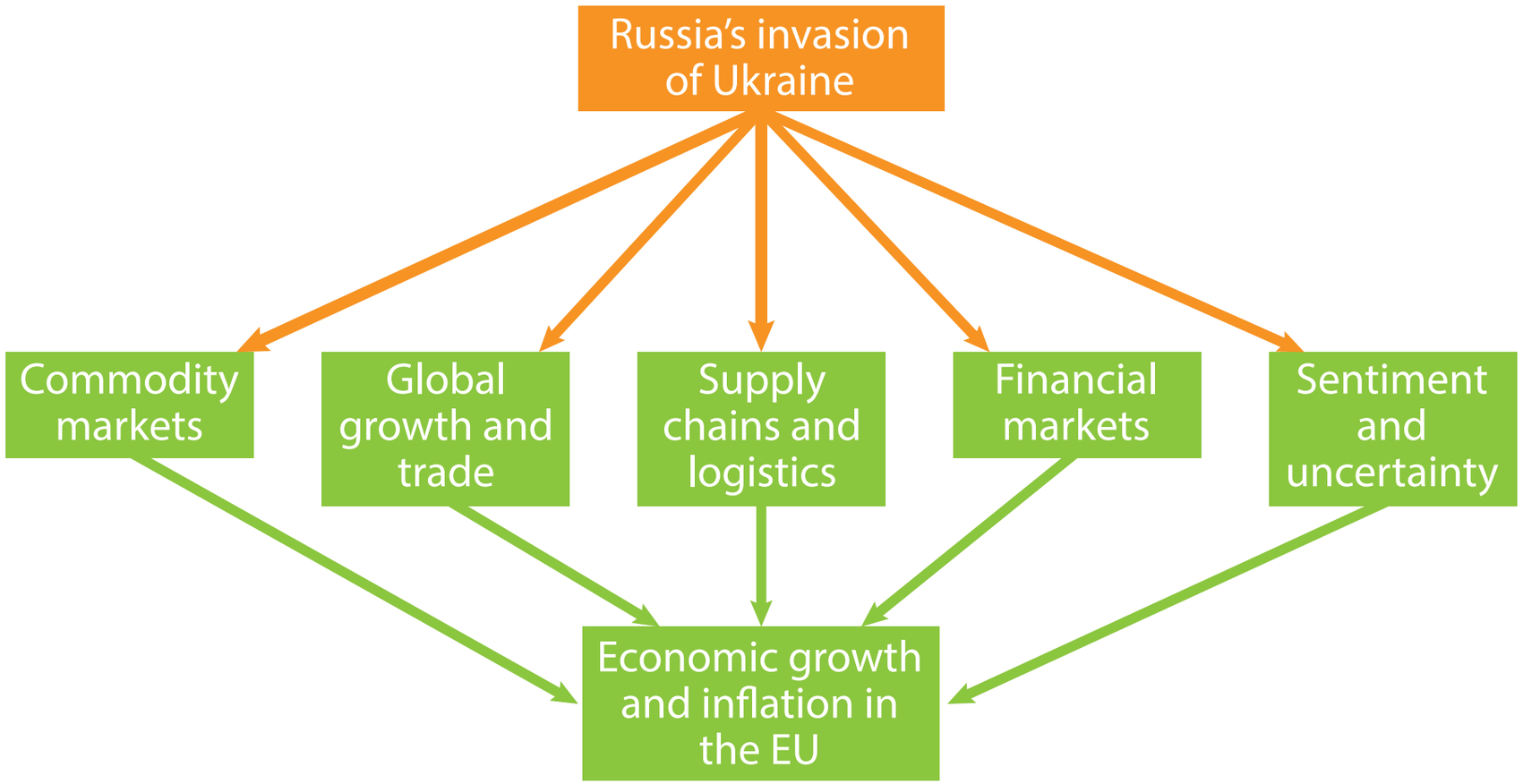
The current shock bears many similarities with that occurring in the 1970s, when oil prices skyrocketed as the Organization of Arab Petroleum Exporting Countries (OAPEC) curtailed supply in response to the Yom Kippur war in October 1973.

This alone has led observers to evoke the spectre of stagflation. Yet, similarities should not be overemphasised. First, at least so far, the magnitude of the energy commodity price increase has been smaller than in the 1970s (Ha *et al* 2022).

Admittedly, the price of gas is now around six times higher than the pre-pandemic benchmark, an increase that is even larger than the surge in oil prices between October 1973 and February 1974.

Yet, the increase in the price of oil – which still is the primary source of energy for the EU – has been more contained, at roughly 60% above pre-pandemic levels.

Figure 1. How Russia's invasion of Ukraine is affecting the EU economic outlook



Second, in the 1970s, OAPEC controlled nearly 60% of the world oil supply, whereas today Russia accounts for a much lower share of both oil and gas global supply (12% and 17%, respectively; British Petroleum 2022).

Third, four decades ago, production in advanced economies was much more energy-intensive than it is today, thanks to progress achieved in energy efficiency and a larger share of services (IMF 2022c).

Fourth, other structural characteristics of the economy also differ: back in the 1970s, widespread wage and price indexations, highly regulated and oligopolistic markets, and trade protectionism were key in propagating and prolonging price shocks.

Policymakers have to preserve incentives to diminish energy consumption and ensure public finances to remain on a track of long-term sustainability

Finally, prevailing demand management policies were slow to respond to the untested supply shock (ECB 2000).

Despite revising the projections for growth downwards and for inflation upwards, the European Economic Spring 2022 Forecast (European Commission 2022b) still projects the economy to keep expanding over the forecast horizon, and inflation to gradually converge towards – but remain above – target. This is not the full-blown stagflationary scenario of the 1970s.

Real GDP growth in both the EU and the euro area is now expected at 2.7% in 2022 and 2.3% in 2023, down from 4.0% and 2.8% (2.7% in the euro area), respectively, in the Winter 2022 interim forecast (European Commission 2022c).

The downgrade for 2022 must be read against the background of the growth momentum gathered by the economy in spring and summer last year, which adds around 2 percentage points to growth over this year ('carry-over effect'). Within-year growth has been reduced from 2.1% to just 0.8%.

In turn, the projection for inflation has been revised up significantly. In the EU, HICP inflation is now expected to average an all-time high of 6.8% in 2022, before declining to 3.2% in 2023. In the euro area, inflation is projected at 6.1% in 2022 and 2.7% in 2023. This compares with 3.5% and 1.7%, respectively, in the Winter 2022 interim forecast.

The economic expansion is upheld by residual tailwinds from the ongoing post-pandemic re-opening of contact-intensive services, as well as the resilience of the economy built through strong policy action at EU and national levels in response to the pandemic crisis.

A strong and still improving employment situation, high accumulated savings and the full deployment of the Recovery and Resilience Facility (RRF) and accompanying reform agenda are set to support private consumption and investment. Fiscal measures to offset part of the impact of rising energy prices on vulnerable households and energy-intensive firms are adding to this support.

Still, the unprecedented nature and size of the shocks ushered in by the war make the baseline projections of our forecast subject to considerable uncertainty, and the balance of risks surrounding them skewed towards adverse outcomes. Risks are heavily dependent on the evolution of the war and its consequences for energy markets.

The forecast is based on the assumption that geopolitical tensions do not normalise over the forecast horizon and that energy prices evolve in line with the indications from futures markets. It does not factor in large-scale interruptions in the supply of oil and/or gas commodities, which reflects the situation on the cut-off date of the forecast.

… still severe disruptions in energy markets could tip the EU into stagflation…

Shocks reverberating from an evolution of energy markets that depart from these key assumptions are assessed through model-based scenario analyses. A first adverse scenario assumes oil and gas prices 25% above the baseline throughout the forecast horizon. A second, more severe scenario considers an outright cut in gas supply from Russia.

Both scenarios are associated with further increases in risk premia and negative confidence effects. The results of the simulation exercise show that the shocks in energy markets strengthen the stagflationary forces at play, and result in lower growth and higher inflation than in the baseline.

Figure 2a. EU GDP growth forecast (Spring and Winter)

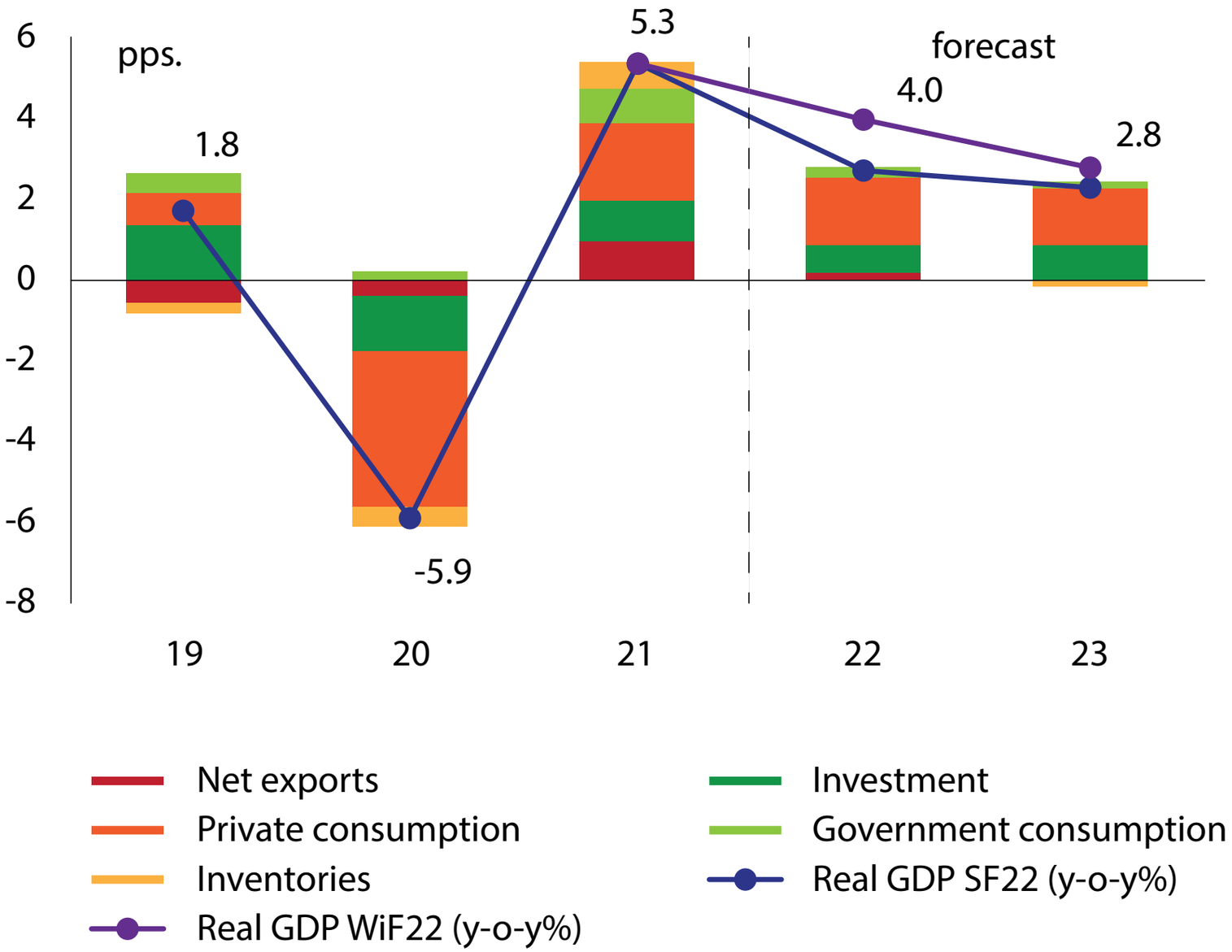
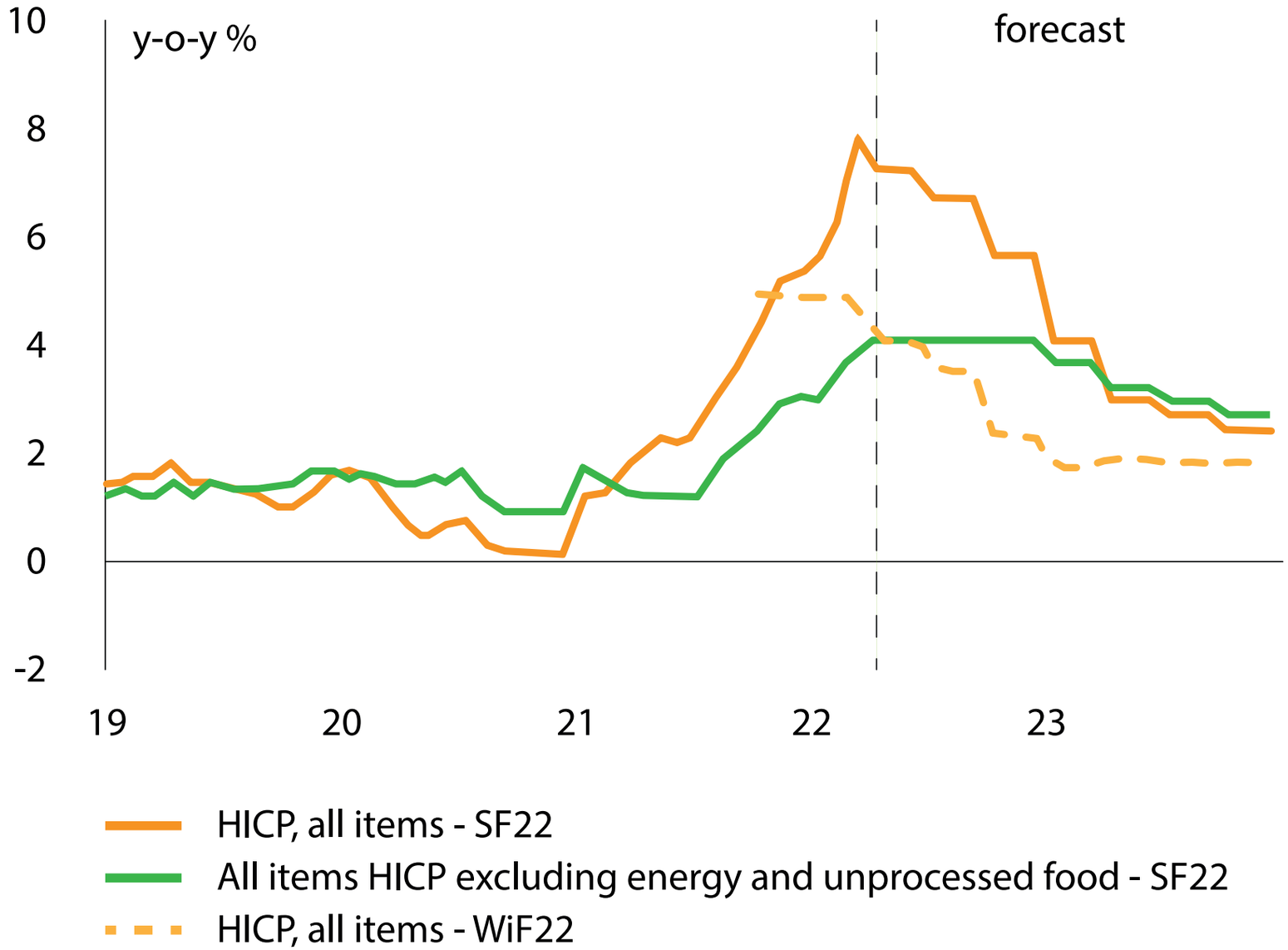


Figure 2b EU inflation forecast (Spring and Winter)



Thanks to the strong carry-over from 2021, the euro area economy would still manage positive annual growth rates in the two forecast years, but net of the carry-over effect from 2021, the economy would contract in 2022.

A sharp reduction in gas supplies from Russia would imply a substantial deterioration of the economic outlook: GDP growth rates would be around 2½ and 1pps. below the baseline in 2022 and 2023, respectively, while inflation, proxied by the private consumption deflator, would be 3 percentage points higher in 2022 and more than 1 percentage point above in 2023.

… reinforcing the need to frontload energy transition

Substantial macroeconomic risks stemming from the EU's high dependency on imports of oil and gas from Russia reinforce the case for an accelerated decarbonisation of the economy. Policy action should target both supply (eg. investing in renewables sources or LNG terminals) and demand (eg. facilitating energy efficiency or electric car charging stations).

It is crucial that the RRF can be counted upon to face this new challenge. The timely implementation of its investment and reform pillars is as relevant as ever to reduce fossil fuel dependency from Russia and enhance the long-term growth potential of the EU economy.

Within the framework of the REPowerEU plan (European Commission 2022d), the Commission stands ready to scale up its support projects and reforms that accelerate the energy transition. Projects completing the internal market in energy and those with a strong cross-border dimension should be privileged. Unused loans in the RRF can be an additional source of funding.

Figure 3a. Real GDP growth rates across scenarios, euro area

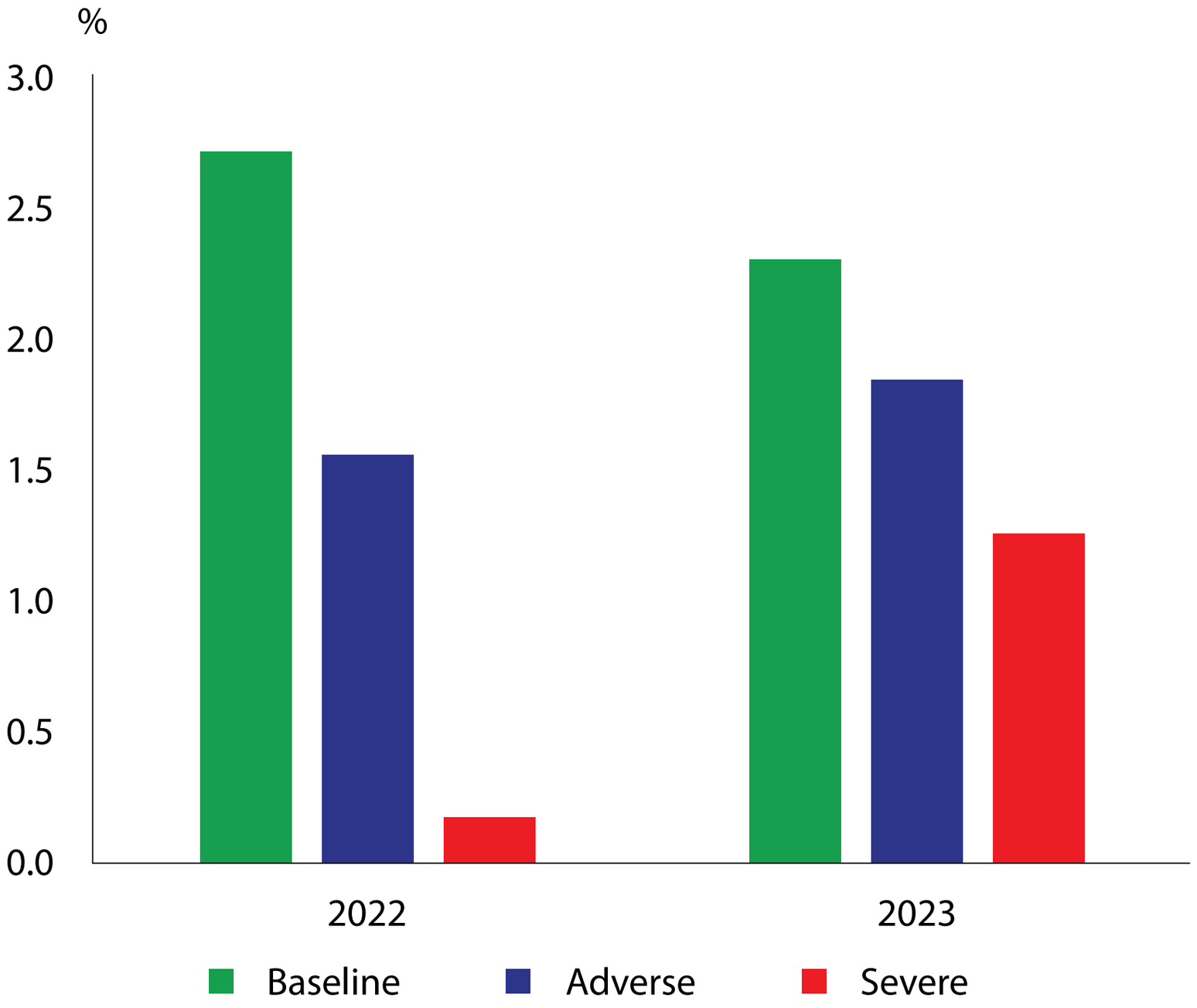
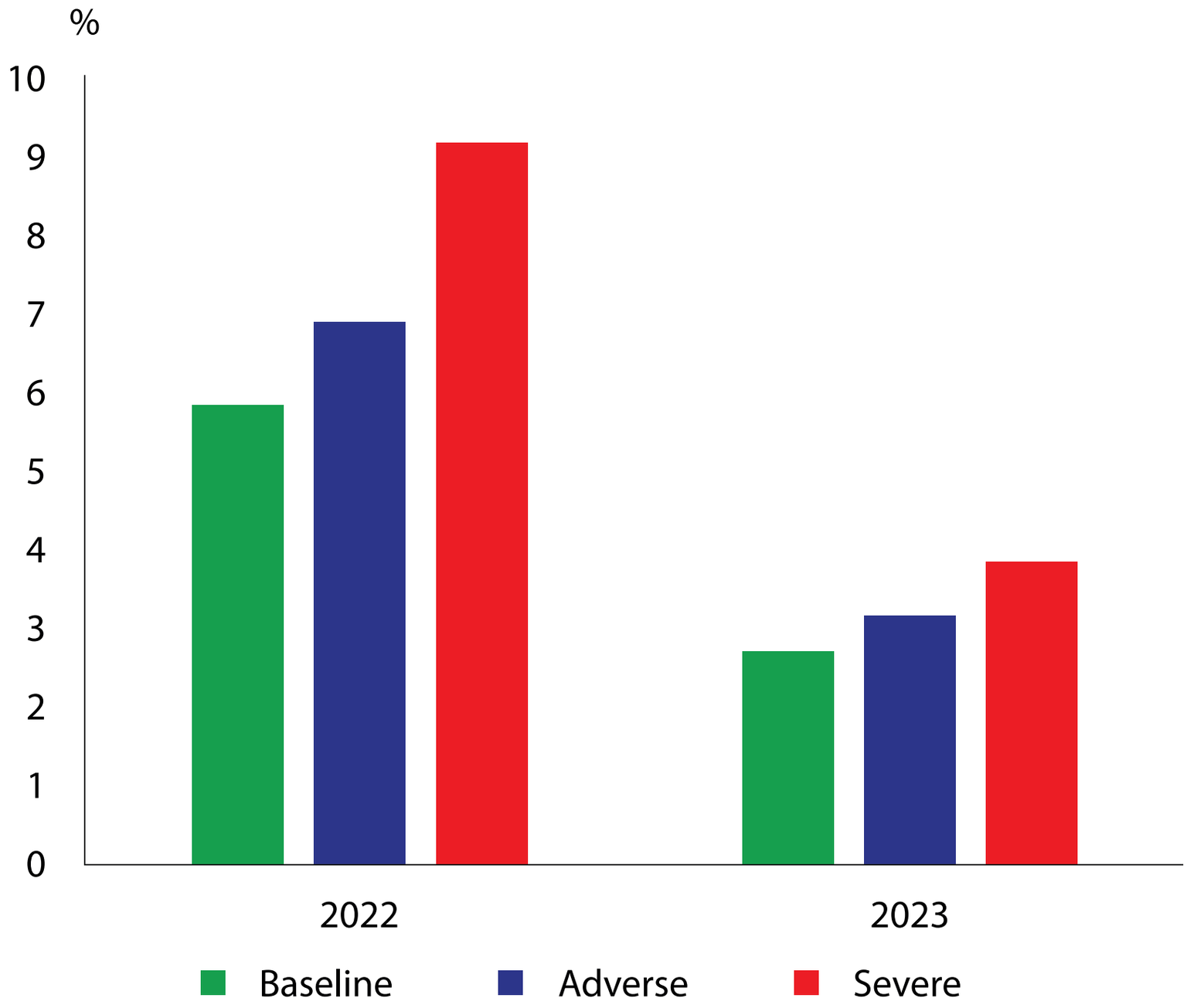


Figure 3b. Inflation rates across scenarios, euro area



Policymakers will have to recalibrate their policy tools deployed during the pandemic. Over the past couple of years, fiscal firepower was successfully mobilised to support aggregate demand and stabilise employment, thereby also safeguarding price stability in face of deflationary risks.

This response has proved highly effective in protecting EU citizens and preserving the economy's productive capacity in a context of a temporary shock, expected to have overall limited transformational consequences. Faced with a potentially permanent shock that largely weighs on the supply side of the economy, policy action should no longer aim at avoiding excessive dislocations but rather accompany and accelerate structural change.

In facing these new challenges, attention needs to be paid to distributional aspects. While softening the impact of rising energy prices on vulnerable households and energy-intensive industries, policymakers have to preserve incentives to diminish energy consumption and ensure public finances to remain on a track of long-term sustainability. ■

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EU's proposed crypto regulations are flawed

The crypto markets are in turmoil. Karel Lannoo believes the proposed regulatory framework is not the right remedy

As the crypto world goes through yet another bout of turmoil, it is clear that stronger regulatory oversight of digital assets is needed. The EU will soon roll out a specific regulatory framework for cryptocurrencies and markets. The move comes as digital assets are plunging and a crisis has engulfed some of the world's biggest 'stablecoins'.

Cryptocurrencies have become popular despite the fact that there is very limited or no oversight. Whether they are Ponzi schemes, money-laundering shells or stablecoins pegged to real-world assets, it is difficult for ordinary investors or users to know which is which. Where they are based, how they are organised and who is backing them is often an enigma. This is a cause of concern.

But there are reasons why EU proposals are not the right remedy. Under the planned regulations, only crypto coins authorised in the bloc can be offered to investors. But cryptoassets and exchanges will have a very light supervisory regime, much less than what is in place for financial instruments and other exchanges. That raises the question about why distinct rules are needed.

The industry is divided into three different forms in the proposed EU Markets in Crypto-Assets Act: Non-fungible tokens (NFTs), or virtual gadgets; stablecoins, whose value is meant to be linked to a real-world asset; and digital currencies, which always represent a fixed exchange rate to a hard currency.

Digital currencies can be issued only by banks or fintech companies that already have a license to do so, while issuers of stablecoins must have a minimum level of reserves.

The EU is the first international organisation to propose a specific regulatory framework. Certain member states already have special legislation for tokens and crypto, but there is no agreement on this at a multinational level.

Outside the bloc, countries such as the UK and US and territories including Hong Kong are reluctant to impose dedicated rules and apply existing securities legislation.

This has led to an unclear framework for a digital product that has become an international phenomenon. Consumers have at present little idea of their rights to protection or redress, especially if the transactions take place outside the EU.

... an unregulated crypto sphere just encourages misunderstanding and potential abuse of a fundamentally interesting innovation

Non-EU crypto currencies, such as Bitcoin or Ethereum, will have to register under one of these forms to gain admission to the EU market. A system of mutual recognition is unlikely, given that regulations vary too widely internationally. The brunt of the risks will be borne by the consumer, who will see no difference between EU or international crypto but will still be besieged on social media with adverts for unregulated cryptos, or even flat-out scams.

The EU's Mica proposal raises many more problems. Supervision is very limited and split between national or European regulators. Under the proposed rules, it is much easier to start a crypto exchange than a traditional exchange, which is governed by the European financial markets rule book known as MiFID.

Provisions against market manipulation and insider trading are very light, hardly comparable with existing EU law. And accounting standards and tax rules for crypto companies do not exist. On the other hand, some EU countries also apply existing consumer protection or market regulation to crypto publicity. How that interaction will work in practice remains a big question.

The EU would have been better off considering crypto under existing laws, rather than creating a new regulatory framework. This means applying MiFID for cryptoassets, considering them financial instruments. Electronic money or banking rules could be used for digital money. NFTs do not require sperate rules, but can be covered under existing consumer or intellectual property legislation.

Market and business conduct rules should apply regardless of the packaging. Start-ups in the crypto sector will say that this will make the market unattractive, but why should they be subject to lighter supervision for their financial operations?

An international framework is required to regulate crypto with a common approach. Diverse regulatory approaches enable regulatory arbitrage and a race to the bottom, where providers are the winners, and investors the victims. And an unregulated crypto sphere just encourages misunderstanding and potential abuse of a fundamentally interesting innovation.

Even more important is to inform consumers adequately about the dangers of investing in crypto, and the need to distinguish between fraudulent and well-intentioned schemes. ■

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For a few cryptos more: the Wild West of crypto finance

Fabio Panetta argues that bringing cryptoassets safely into the regulatory perimeter would promote innovation, whilst avoiding their widespread use for illicit activities and setting the stage for a new bubble

170 years ago Americans pushed westward across the frontier to seek their fortune in the gold rush. Greed and lawlessness turned this promised land into the Wild West, where the few exploited the dream of the many. Fast-forward a century and a half and, amid the global financial crisis, growing distrust of banks, coupled with technological innovation, gave rise to a new dream – a digital gold rush beyond state control.

Satoshi Nakamoto – or rather the software developers using that pseudonym – created the source code of what they thought could be decentralised digital cash. Their 2008 white paper[1] shows a great fascination with technology, notably cryptography, but not necessarily an in-depth understanding of payment and money issues. They aspired to realise an anarchistic utopia of a stable currency free from public scrutiny.

Almost 15 years on, cryptoassets are what everyone's talking about. Crypto enthusiasts marvel at the rise of the crypto market, with many feeling they should take their chances on the crypto gamble. An ecosystem has emerged, from miners to intermediaries, all seeking to expand into digital finance.

Crypto evangelists promise heaven on earth, using an illusory narrative of ever-rising cryptoasset prices to maintain inflows and thus the momentum fuelling the crypto bubble.

But appearances are deceptive. Satoshi Nakamoto's dream of creating trustworthy money remains just that – a dream.

Cryptoasset transfers can take hours to process. Their prices fluctuate wildly[2]. The supposedly anonymous transactions leave an immutable trail that can be traced[3]. A large majority of crypto holders rely on intermediaries, contrary to the avowed philosophy of decentralised finance. In El Salvador, for instance, which is the first country to adopt bitcoin as legal tender, payments are carried out via a conventional centrally managed wallet.

Cryptoassets are bringing about instability and insecurity – the exact opposite of what they promised. They are creating a new Wild West[4]. To quote Littlefinger from Game of Thrones, 'chaos is a ladder'. The story does not end well for this character. However, it only takes a few to climb high on the ladder – even if their gains are only temporary – to convince many others that they are missing out.

The crypto market is now larger than the sub-prime mortgage market was when it triggered the global financial crisis. And it shows strikingly similar dynamics

Indeed, the crypto market is now larger than the sub-prime mortgage market was when – worth $1.3 trillion – it triggered the global financial crisis[5]. And it shows strikingly similar dynamics. In the absence of adequate controls, cryptoassets are driving speculation by promising fast and high returns and exploiting regulatory loopholes that leave investors without protection. Limited understanding of risks, fear of missing out and intense lobbying of legislators drive up exposures while slowing down regulation.

We must not repeat the same mistakes by waiting for the bubble to burst, and only then realising how pervasive crypto risk has become in the financial system. And while some may hope to be smarter and get out in time, many will be trapped.

Now is the time to ensure that cryptoassets are only used within clear, regulated boundaries and for purposes that add value to society. And it is time for policymakers to respond to the people's growing demand for digital assets and a digital currency by making sovereign money fit for the digital age.

I will argue that at present cryptoassets are not only speculative and high-risk investments, but they also raise public policy and financial stability concerns. I will then discuss some elements of the public policy response which is necessary in order to protect investors and preserve financial stability without suffocating innovation.

The rise of cryptoassets

Let me start with the underlying drivers of cryptoassets. At their root, cryptoassets are the result of advances in cryptographic methods and distributed ledger technology. Innovation has made it possible to create an asset that lacks any underlying claim.

In the initial set-up of what we today call 'unbacked cryptoassets', nobody is liable, nor are these assets backed by any collateral or managed by a trustworthy operator. This makes them purely speculative in nature, and hence highly volatile.

To address the risks of unbacked cryptos, 'stablecoins' have emerged, with their value linked to one or more low-risk assets. But, if left unregulated, they are stable in name only. In fact, they can be low-risk but not riskless, and cannot guarantee redeemability at par at any time[6]. They do not benefit from deposit insurance, nor do they have access to central bank standing facilities. They are therefore vulnerable to runs[7]. They are often purely speculative assets, exposed to high financial and operational risks: research finds that one-third of stablecoins launched in recent years have not survived[8].

In spite of these weaknesses, the number of cryptoassets has expanded significantly, with around 10,000 available on the market today[9]. Driving this growth is a complex and opaque crypto ecosystem made up of cryptocurrency miners and service providers, such as exchanges or wallets, that are largely unregulated and insufficiently supervised or overseen.

Within that market is a fast-growing segment of decentralised finance, which uses smart contracts to support trading, lending and investment in cryptoassets – supposedly without relying on intermediaries[10]. This supply of cryptoassets has been met with strong demand from both professional investors and the public. In 2021 around 16% of Americans[11] and 10% of Europeans[12] invested in cryptoassets.

This strong appeal of cryptoassets, especially unbacked ones, is a cause for concern given the lack of fundamentals, the number of recent scandals[13], their use in illegal activities and the high volatility of their prices. All this points to unsound underlying market dynamics.

For one thing, the market is highly concentrated: for example, retail investors holding less than 10 bitcoins own one-tenth of bitcoin supply, while professional investors and high-net-worth individuals hold almost two-thirds[14].

Vested interests of large investors naturally lead to increasing lobbying activities[15]. In the United States, for example, crypto firms spent around $5 million lobbying the Senate in the first nine months of 2021 alone.

Rising prices are fuelled by extensive news reports and investment advice on social media, highlighting past price increases and features such as artificial scarcity to create the fear of missing out. As a result, many invest without understanding what they are buying[16].

Like in a Ponzi scheme, such dynamics can only continue as long as a growing number of investors believe that prices will continue to increase and that there can be fiat value unbacked by any stream of revenue or guarantee. Until the enthusiasm vanishes and the bubble bursts.

Cryptoassets and public policy concerns

Meanwhile crypto enthusiasts will argue that cryptoassets are different and that to regulate them is to stifle innovation. We have heard it all before. But do cryptoassets really generate value for the payment system?

Unbacked cryptoassets cannot fulfil their original objective of facilitating payments. They are simply too volatile to perform the three functions of money: medium of exchange, store of value and unit of account[17].

For example, between November 2021 and January 2022, bitcoin prices fell from roughly USD 68,000 to about $38,000. Their three-month volatility was 60%, almost five times higher than gold and four times higher than US stocks[18].

Such high volatility also means that households cannot rely on cryptoassets as a store of value to smooth their consumption over time. Similarly, firms cannot rely on cryptoassets as a unit of account for the calculation of prices or for their balance sheet.

And this is just as true for stablecoins, given the poor consumer protection and the vulnerability to panic selling that characterise them in the absence of appropriate regulation and supervision. When adequately regulated and supervised, stablecoins are nothing more than e-money arrangements. This is something we have known for many years[19].

So cryptoassets, especially unbacked ones, are not useful as money. But do they at least perform other worthwhile social or economic functions, such as funding consumption or investment, or helping to combat climate change? There is reason to believe that they do the exact opposite.

Cryptoassets are widely used for criminal and terrorist activities. It is estimated that the amounts of cryptoassets exchanged for criminal purposes are substantial, exceeding $24 billion in 2021[20]. Research suggests that as much as $72 billion per year, or about 23% of all transactions, is associated with criminal activities[21]. Ransomware attackers usually demand crypto payments.

Cryptoassets may also be used for tax evasion or to circumvent sanctions. For example, North Korea has actively tried to recruit cryptocurrency experts over the past few years[22]. More recently trading volumes in cryptoassets using the rouble increased after sanctions were imposed on Russia[23]. While we cannot be sure that cryptoassets are actually being used by sanctioned persons or businesses, it nonetheless shows that they provide a potential means to circumvent sanctions[24].

Cryptoassets based on proof-of-work (PoW) blockchains can also cause huge amounts of pollution and damage to the environment. They are created in a decentralised mining process which consumes an enormous amount of energy and computing hardware. It is estimated that mining in the bitcoin network uses up about 0.36% of the world's electricity – comparable to the energy consumption of Belgium or Chile[25].

Worse still, efforts to reduce energy demand may prove futile. The networks' hunger for energy is potentially limitless, since the validation process encourages miners to keep upgrading their computing capacity to ensure system security.

And even where crypto mining uses clean energy or less energy-intensive techniques, this is energy that is not available for other purposes, increasing the consumption of fossil fuels and impeding the fight against climate change.

So cryptoassets are speculative assets that can cause major damage to society. At present they derive their value mainly from greed, they rely on the greed of others and the hope that the scheme continues unhindered. Until this house of cards collapses, leaving people buried under their losses.

Cryptoassets and financial stability risks

Let me now turn to the risks that cryptoassets pose to financial stability. Cryptoassets still comprise a small share of total global financial assets (about 1%). But, as I mentioned, they already have a larger market than sub-prime mortgages had before the global financial crisis started. We cannot afford to ignore them.

Indeed, the popularity of cryptoassets is spreading beyond their core supporters.

The launch of the first bitcoin exchange-traded fund in the United States last October is a sign of increased institutional activity in these assets, largely in response to demand from customers[26]. The retail segment is also growing, with retail investors often attracted by misleading advertisements that fail to clearly set out the risk involved in these products[27].

Big payment networks have stepped up their support services for cryptoassets[28] and intermediaries are seeing a significant increase in retail holdings. For example, Coinbase, which is the biggest US cryptoasset exchange, now has 56 million users – an increase of 65% since March 2020[29].

Cryptoassets pose financial stability risks through three main channels.

> First, stress in cryptoasset markets could spill over to players in the wider financial system through direct asset holdings or ownership of service providers. One measure of such linkages is the correlation between changes in the prices of cryptoassets and of equities, which has been positive since 2020[30].
>
> Second, a fall in the value of cryptoassets might have an impact on the wealth of investors, with knock-on effects on the financial system.
>
> Third, a loss of faith in the value of cryptoassets – for instance because of operational failures, fraud, price manipulation or cybercrime – could lead to a sharp deterioration in investor confidence[31], which could spill over to broader financial markets.

Linkages through these three channels are as yet still limited. But they could increase rapidly if cryptoassets are widely adopted by institutional or retail investors. Such a scenario is not far-fetched. For example, high-net-worth investors, financial advisors and family offices are now leading the charge to invest in cryptoassets[32].

More importantly, big tech players could launch global stablecoins for retail use[33]. We have seen the example of Diem, a cryptocurrency project by Meta, and now Meta's new endeavour[34]. By exploiting their large customer bases and bundling payments and other financial services, big tech firms could significantly strengthen linkages between the cryptoasset ecosystem and the broader financial system.

In a stress situation, a sudden surge in redemptions by stablecoin holders could lead to instability in various market segments. For example, Tether, one of the most popular stablecoins, promises 'stability' by investing in low-risk assets, such as commercial paper, and holds a large proportion of the stock of these instruments in circulation[35].

Large-scale sales of these assets in response to a sudden increase in redemptions could generate instability throughout the commercial paper market. This phenomenon could spread to other stablecoins and related sectors, eventually finding its way to the banks that hold the stablecoins' liquidity.

Such extreme scenarios might not be just around the corner. But the longer we wait, the more exposures and vested interests build up. And the harder it will be for policymakers to act.

Regulating cryptoassets

This brings me to the issue of regulation. Policymakers should not allow cryptoassets and the associated risks to proliferate unchecked. We must decide how to regulate them, following a rigorous risk-based approach tailored to different instruments[36].

The current regulatory approaches differ across countries. Some countries have banned cryptoassets outright while others have restricted their use[37]. This situation is clearly unsatisfactory, as cryptoassets are a global phenomenon and their underlying technologies can play an important role, not only in finance.

We need globally coordinated regulatory action to address issues such as the use of cryptoassets in cross-border illicit activities or their environmental footprint. Regulation should balance the risks and benefits so as not to stifle innovation that could stimulate efficiency in payments and broader applications of these technologies.

Progress is being made in Europe and worldwide, but not swiftly enough to keep pace with the emerging challenges. We need to see faster progress on many fronts. Four of these are particularly relevant.

First, we need to hold cryptoassets to the same standards as the rest of the financial system. This means swiftly implementing all rules to prevent the use of cryptoassets for money laundering and terrorist financing, based on the standards set by the Financial Action Task Force (FATF), and enforcing them effectively[38].

These efforts should also aim to bring peer-to-peer cryptoasset transfers within the scope of the standards for anti-money laundering (AML) and countering the financing of terrorism (CFT).

Second, we should consider how to adequately tax cryptoassets. Currently the tax treatment of cryptoassets is minimal: we know very little about who really owns them, and about the size[39] and the distribution of the capital gains. By its very nature, the cryptoasset market makes it very difficult to identify tax-relevant activities because it relies less on traditional financial intermediaries, who typically provide information for tax purposes[40].

We should bring taxation on cryptoassets into line with the taxation of other instruments and aim for alignment across jurisdictions, given the global nature of the crypto market. The introduction of reporting obligations for transactions above certain thresholds, as just recently proposed by the Organisation for Economic Co-operation and Development (OECD), would enhance transparency and combat tax evasion[41].

There could also be a case for higher taxation of some cryptoassets – such as those based on PoW – above and beyond the taxation of other financial instruments. Negative externalities that lead to sunk costs for society, such as high pollution, could be factored into appropriate taxes levied on participants in crypto markets (issuers, investors and service providers).

Third, public disclosure and regulatory reporting need to be strengthened. The current practice observed in the crypto industry – for example, the disclosure of reserve assets backing stablecoins – is highly problematic[42].

It is not sufficient and differs across products, and can even be misleading to investors and policymakers, mandatory disclosure requirements for financial institutions are necessary to pinpoint where risks emanating from cryptoassets are concentrated.

At the same time, public authorities (central banks, supervisors and AML authorities) need to further improve their data capabilities in order to detect illicit trades and emerging threats to financial stability.

Fourth, given the crucial unanswered questions on issues such as operational risk, volatility and liquidity, regulators should introduce strict transparency requirements and set out the standards of conduct to be followed by professional operators in order to protect unexperienced retail cryptoasset investors.

Europe is leading the way in bringing cryptoassets into the regulatory purview. The finalisation of the Regulation of Markets in CryptoAssets (MiCA) will harmonise the regulatory approach across the European Union (EU).

In a similar way, the European Commission's legislative proposals to create an EU AML/CFT single rulebook will bring all cryptoasset service providers within the scope of the relevant EU framework, which will also provide the basis for a harmonised European approach to supervising them.

Moreover, the proposed Regulation on information accompanying transfers of funds and certain cryptoassets (FCTR) will aim to ensure that cryptoasset transfers which include at least one cryptoasset service provider can be traced and that suspicious transactions can be blocked.

Swift negotiations by the European Commission, European Parliament and the Council of the European Union, together with thorough enforcement by competent national authorities, are necessary given the rapid growth of the crypto market.

Europe's regulatory measures need to go further. We need to focus more on unbacked cryptoasset activities that are undertaken without service providers. In addition, we cannot afford to leave on-chain peer-to-peer payments unregulated, as they can be used to circumvent any regulation.

Finally, if we really want to harmonise supervision significantly across all EU member states, the new European AML Authority should supervise the riskiest cryptoasset providers. But our measures can only be effective if they are matched by ambitious measures implemented by our international peers.

The United States is taking action on this front[43], while the Financial Stability Board (FSB) has made progress in advancing a global agenda of work on cryptoassets[44], in cooperation with other international bodies such as the Committee on Payments and Market Infrastructures, the Basel Committee on Banking Supervision and the FATF[45].

We should build on this momentum and not wait for a crisis to occur before creating a dedicated global policy forum that brings together the key actors needed to address the risks arising from cryptoassets[46].

Conclusion

The westward expansion of the United States in the second half of the 19th century broadly coincided with a period when some states passed free banking laws which eased the requirements for opening a bank, facilitating the emergence of so-called wildcat banks[47].

These banks were typically located in remote areas where wildcats roam, so they were able to get away with issuing their own banknotes to the public, backed by questionable assets, with no intention of honouring them. Many of them defaulted, undermining public confidence in banks.

We should not permit such a situation to happen again in the digital arena with cryptoassets. We need to make coordinated efforts at the global level to bring cryptoassets into the regulatory purview. And we need to ensure that they are subject to standards in line with those applied to the financial system.

In doing so, we will have to deal with complex trade-offs, balancing the goals of promoting innovation, preserving financial stability and ensuring consumer protection. We should make faster progress if we want to ensure that cryptoassets do not trigger a lawless frenzy of risk-taking.

But this is not enough. The growth of cryptoasset markets reveals society's growing demand for digital assets and instant payments. If the official sector – public authorities and intermediaries – does not satisfy this demand, others will step in.

Central banks must engage even more with digital innovation by upgrading wholesale financial infrastructures, operating fast retail payment systems and preparing for the issuance of central bank digital currencies.

The ECB is at the forefront of work in all these areas. We are focusing on a digital euro, in order to allow citizens to use sovereign money to make payments anywhere in the euro area, while protecting its role as an anchor for the payment and monetary system[48]. ■

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Endnotes

1. Nakamoto, S (2008), A Peer-to-Peer Electronic Cash System, Bitcoin.org.

2. The cryptoasset market quadrupled in 2021 alone, reaching nearly USD 3 trillion in market capitalisation in November, before halving within just three months.

3. Holders can choose to be anonymous through encryption, but the blockchain is transparent in terms of what addresses hold which amounts of coins, and the related transaction flows.

4. Gensler, G (2021), Remarks Before the Aspen Security Forum, US Securities and Exchange Commission, August.

5. US Government Printing Office (2007), "Subprime and Predatory Lending: New Regulatory Guidance, Current Market

Conditions, and Effects on Regulated Institutions", hearing before the Subcommittee on Financial Institutions and Consumer Credit of the Committee on Financial Services, US House of Representatives, 27 March.

6. The stabilisation mechanism of stablecoins is crucial to determine whether the coins issued can maintain a stable value. Different stabilisation mechanisms may either require the intervention of accountable institutions, in the role of issuer and custodian, or delegate these tasks to stablecoin users. See Bullmann, D, Jonas, K and Pinna, A (2019). In search for stability in cryptoassets: are stablecoins the solution? ECB, Occasional Paper Series, August.

7. Panetta, F (2021), "The present and future of money in the digital age", lecture, Rome, 10 December.

8. Mizrach, B (2021), Stablecoins: Survivorship, Transactions Costs and Exchange Microstructure, SSRN, 28 April.

9. According to Statista (2022).

10. Decentralised finance grew from about $15 billion at the end of 2020 to $110 billion in September last year, before shrinking to $80 billion in December. See Chapter 3 of International Monetary Fund (2022), Global Financial Stability Report, 19 April.

11. Financial Stability Board (2022), Assessment of Risks to Financial Stability from Cryptoassets, 16 February.

12. Based on the ECB Consumer Expectations Survey (CES), which – among other things – collects information on euro area households' economic and financial behaviour. The numbers in the text refer to the six countries covered in the sample (Belgium, Germany Spain, France, Italy and the Netherlands).

13. See, for instance, US Department of Justice (2022), Two Arrested for Alleged Conspiracy to Launder $4.5 Billion in Stolen Cryptocurrency, February; for instances of Ponzi schemes, see "the Bitcoin Savings and Trust" or the "MyCoin" pyramid scheme in Planet Compliance, The 10 biggest scandals that rocked the Blockchain world, published online, last accessed 20 April 2022, or the "rug pull" scam based on the popular Netflix series "The Squid Game", in Wired (2021), How a Squid Game Crypto Scam Got Away With Millions, November.

14. Sources: Glassnode and ECB calculations.

15. The Economist (2021), Crypto lobbying is going ballistic, December.

16. A survey showed that one-third of cryptoasset investors know little or nothing about these assets. See Cardify (2021), All Aboard The Crypto Train: Who Are The Latest Crypto Investors?, February.
17. See G7 Finance Ministers and Central Bank Governors' Statement on Central Bank Digital Currencies (CBDCs) and Digital Payments, 13 October 2021. Moreover, the European Supervisory Authorities have recently warned that these assets are not suited for most retail consumers as an investment or as a means of payment or exchange; see "EU financial regulators warn consumers on the risks of cryptoassets", 17 March 2022.
18. S&P 500; see Financial Stability Board (2022), Assessment of Risks to Financial Stability from Cryptoassets, February.
19. See European Central Bank (1998), Report on electronic money, August.
20. Chainalysis (2021), The 2021 Crypto Crime report, January.
21. Foley, S, Karlsen, JR and Putniņš, TJ (2019), "Sex, Drugs, and Bitcoin: How much illegal activity is financed through cryptocurrencies?", Review of Financial Studies, May. The use of bitcoins for illicit payments is well documented, although the share of such payments in total bitcoin transactions is disputed. Foley (ibid.) estimates it to be 45%, while Chainalysis' 2021 crypto crime report puts the figure at less than 1% for 2021. At the same time, the low ratio could be because the denominator refers to trade volumes (investment flows) and not payments; see Green, MW (2021), "The Case Against Bitcoin", Common sense, 14 May. Finally, the FATF reports variations in identified illicit bitcoin transactions from 2016 to 2020 to range between 0.6% and 9.9% (relative to the number of transactions); see FATF (2021), "Second 12-Month Review of the Revised FATF Standards on Virtual Assets and Virtual Assets service providers", July.
22. A former US researcher in a cryptocurrency group has been sentenced to more than five years in prison for conspiring to help North Korea evade US sanctions using cryptocurrency. Moreover, the United States Treasury Department has linked North Korean hackers to the theft of cryptoassets tied to a popular online game and worth hundreds of millions of dollars.
23. See Kaiko Research (2022), Bitcoin Dominance Climbs Amid Persistent Volatility, March.
24. On 21 April Binance, the world's largest crypto exchange, announced that it would comply with the European Union sanctions imposed on Russia for its invasion of Ukraine and limit services in Russia. Russian nationals, residents and

businesses in the country with cryptoassets exceeding €10,000 will not be able to deposit or trade them, they may only make withdrawals. See Binance (2022), Changes of Services to Users in Russia, 21 April.

25. See Chapter 2 of International Monetary Fund (2021), Global Financial Stability Report, October.

26. A survey by Intertrust of a group of 100 hedge fund Chief Financial Officers found that, on average, they expected to allocate 7.2% of their funds' assets to cryptoassets by 2026. If replicated across the sector, this could equate to a total exposure of $312 billion. See Financial Times, 2021, Hedge funds expect to hold 7% of assets in crypto within five years, 15 June.

27. In 2022 the cryptoassets exchange, Crypto.com, had two advertisements banned because they were considered to be misleading by the UK's advertising regulator, the Advertising Standards Authority (ASA). See ASA (2022), Ruling on Forisgfs UK Ltd t/a Crypto.com, 5 January.

28. In particular, Mastercard, PayPal and Visa continue building capabilities and strategic partnerships to support cryptoassets (as well as stablecoins).

29. Backlinko (2021), Coinbase Usage and Trading Statistics, April.

30. The returns on bitcoin, for example, were unrelated to those on the S&P 500 index between 2017 and 2019, but their correlation coefficient increased to 35% in the period 2020-21. See Adrian, T, Iyer, T and Qureshi, MS (2022), Crypto Prices Move More in Sync with Stocks, Posing New Risks, IMF Blog, January.

31. Recent analyses from the IMF show that cyberattacks often cause the collapse of decentralised finance platforms: on average, more than 30% of the total deposits is lost or withdrawn after a cyberattack; see IMF (2022), Global Stability Report, April.

32. See Fidelity (2021), The Institutional Investor Digital Assets Study, September 2021.

33. See Panetta, F (2021), "Stay safe at the intersection: the confluence of big techs and global stablecoins", speech at the conference on "Safe Openness in Global Trade and Finance" organised by the UK G7 Presidency and hosted by the Bank of

England, October.
34. See Financial Times, 2022, Facebook owner Meta targets finance with 'Zuck Bucks' and creator coins, 6 April
35. See IMF (2021), op cit.
36. The term cryptoasset is often used to label anything that is recorded via distributed ledger technology (DLT), regardless of whether it constitutes a new type of asset, a financial instrument or a form collective investment. See Bullmann, D, Jonas, K and Pinna, A (2019), op. cit.
37. Egypt, Morocco, Algeria, Bolivia, Bangladesh, Nepal and China have imposed outright bans. Countries that have restricted the ability of banks to deal with cryptoassets or prohibited their use for payment transactions include Nigeria, Namibia, Colombia, Ecuador, Saudi Arabia, Jordan, Turkey, Iran, Indonesia, Vietnam and Russia.
38. The result of a questionnaire launched by FATF in July 2021, showed that less than 50% of reporting jurisdictions – 38 FATF members and 90 FATF-Style Regional Bodies (FSRB) members – had implemented the revised FATF Standards on Virtual Assets (VA) and VA Service Providers (VASPs) in their national law. See Financial Action Task Force (2021), Second 12-Month Review of the Revised FATF Standards on Virtual Assets and Virtual Asset service providers, July. The five most cited challenges and barriers to implementation are: (1) the lack of capacity, expertise and experience in public sector agencies, (2) the implementation of the travel rule and the lack of sufficient technological solutions, (3) challenges in identifying and registering/licensing VASPs, (4) the lack of implementation of domestic regulations for virtual assets/VASPs and (5) challenges in conducting ML/TF risk assessments and understanding the size of the virtual asset/VASP sector. The FATF addressed these issues in the revised Guidance it released recently. See FATF (2021), "Updated Guidance on Virtual Assets and Virtual Assets service providers", October.
39. According to some simulations by the European Commission, the revenue potential of taxing capital gains on bitcoin across the EU in 2020 alone would have amounted to about €900 million, or 0.3% of the total tax revenue from property taxation in the EU. See Thiemann, A (2021), "Cryptocurrencies: An empirical view from a tax perspective", JRC Working Papers on Taxation and Structural Reforms, No 12/2021.
40. Cryptoassets in most instances do not fall within the scope of the Common Reporting Standard (CRS) developed

by the OECD in 2014, which applies to traditional financial assets and fiat currencies. Even where cryptoassets do fall within the definition of financial assets, they can be owned either directly by individuals in cold (ie. offline) wallets or via cryptoasset exchanges that do not have reporting obligations under the CRS. They are therefore unlikely to be reported to tax authorities in a reliable manner. See OECD (2022) CryptoAsset Reporting Framework and Amendments to the Common Reporting Standard, public consultation document, 22 March-29 April.

41. See OECD (2022), op. cit.

42. See IMF(2021), op. cit.

43. White House (2022), Executive Order on Ensuring Responsible Development of Digital Assets, March. The main policy objectives of the executive order are: 1) protecting consumers, investors and businesses; 2) protecting US and global financial stability and mitigating systemic risk; 3) mitigating illicit finance and national security risks; 4) reinforcing US leadership in the global financial system and in technological and economic competitiveness; and 5) supporting technological advances that promote responsible development and use of digital assets.

44. See FSB (2022), Assessment of Risks to Financial Stability from Cryptoassets, February; FSB (2021), Regulation, Supervision and Oversight of "Global Stablecoin" Arrangements: Progress Report on the implementation of the FSB High-Level Recommendations, October; FSB (2020), Final report and high-level recommendations for the regulation, supervision and oversight of "global stablecoin" arrangements, October. See also CPMI-IOSCO (2021), Consultative report on Application of the Principles for Financial Market Infrastructures to stablecoin arrangements, October.

45. See FSB (2022), letter from the Chair to G20 Finance Ministers and Central Bank Governors, 14 April.

46. See Panetta, F (2021), "Stay safe at the intersection: the confluence of big techs and global stablecoins", op. cit.

47. See Federal Reserve Bank of Philadelphia (2016), Economic Insights, Vol. 1, Issue 3.

48. See Panetta, F (2022), "Central bank digital currencies: defining the problems, designing the solutions", contribution to a panel discussion on central bank digital currencies at the US Monetary Policy Forum, New York, February.

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REPowerEU: will the EU really make it work?

Simone Tagliapietra believes acting together, the European Union can optimise its response to the energy crisis in all scenarios, but each country will have to make concessions

The European Commission on Wednesday 18 May published its plan setting out how the European Union can eliminate its dependency on Russian fossil fuels. A phase out of Russian coal imports by August 2022 has already been agreed within the fifth package of sanctions imposed by the EU on Russia in the wake of the war in Ukraine, and a gradual phase out of oil by end-2022 is currently been discussed in the context of the sixth package.

Consequently, the new plan, known as REPowerEU, focuses predominantly on how to underake an orderly and affordable phase out of Russian gas by 2027. REPowerEU also proposes EU-level backstop options in the face of the plausible risk of a sudden interruption of Russian gas supplies, particularly after the supply cuts to Poland and Bulgaria.

Main areas of action

The plan covers four main areas: energy efficiency and savings; energy supply diversification; clean-energy transition acceleration; investment and reform. If approved, this plan should see Europe end its reliance on Russian energy by 2027, while also accelerating its green transformation. And this would be economically beneficial for Europe.

The European Commission estimates that delivering REPowerEU objectives requires an additional investment of €210 billion between now and 2027, but this would save almost €100 billion per year in reduced fossil-fuel imports. In short, a reasonable investment to get a significant structural cost reduction.

However, it will be national capitals that determine the success of the plan. Most of the proposed measures require either national implementation or coordination between EU countries. The extent to which countries really engage is therefore going to be defining. Four key areas of the plan underline the complexities.

Energy savings

Simple energy saving actions could immediately reduce demand for gas and oil. But for this to happen, action needs to be undertaken at national level. Governments must actively promote awareness campaigns, adopt financial schemes to prompt households to save energy and introduce regulations mandating energy savings in public buildings.

At EU level, rules on energy efficiency, starting with buildings and transport, can be strengthened. The plan puts forward new proposals on this, additional to the EU's current Fit for 55 package, from strengthening energy requirements for new buildings, to the introduction of a range of regulatory measures to increase transport energy efficiency.

A fragmented response to the energy crisis would likely lead to suboptimal results domestically, both in terms of energy security and competitiveness

Since September 2021, countries including Germany, France, Italy and Spain have each spent €20 billion to €30 billion to artificially lower gas and electricity bills, as well as gas and diesel prices. A determining factor in the success of REPowerEU will be whether governments switch from universal energy subsidies to targeted measures for poor households and vulnerable small and medium companies, and if they have the courage to ask all others to consume less energy.

Energy supply diversification

REPowerEU mainly addresses this key item through the EU Energy Purchase Platform, an initiative under development since March that would pool demand to maximise Europe's leverage and attract reliable supplies from global markets at stable prices.

For now, the contours of this initiative remain unclear. Initially proposed by the European Commission as a joint purchasing scheme similar to what was done for COVID-19 vaccines, this has been turned – after discussion between EU countries – into a voluntary initiative aimed at coordinating ongoing EU initiatives with members, transmission system operators, associations and market players.

EU countries need to appreciate that the EU should be given an emergency tool to procure LNG for the 2022 storage refilling season and to coordinate gas distribution across Europe in case of a disruption of Russian gas supplies.

Accelerating renewable energy deployment

Third, unlocking renewable energy projects by accelerating permitting. REPowerEU emphasises the acceleration of green technologies, from solar photovoltaic to wind, and heat pumps to green hydrogen – and proposes to increase the EU's headline 2030 target for renewables from 40% to 45%.

The plan rightly focuses on faster permitting, with slow processes today represent a major obstacle to the deployment of wind and solar energy. Obtaining a permit can take nine years for wind projects, and four and a half years for solar projects in certain European countries.

National rules and capacities unnecessarily slow down permits, and the time to obtain a permit varies significantly between EU countries. REPowerEU seeks to overcome this issue by removing ambiguity in the application of EU legislation and setting out good practices in EU countries. Countries must fix long-lasting administrative inefficiencies and implement the necessary changes quickly.

Backstop solutions in case of a sudden interruption of Russian gas supplies

Fourth, REPowerEU includes two main contingency measures in case of a sudden interruption to Russian gas supplies. First, it proposes the creation of a coordinated European plan for the reduction of industry gas demand.

Should an EU-wide gas security shock occur, a reduction of gas demand in countries less affected by the interruption to allow redirection of gas to more affected countries should be considered, even in case such rationing is not foreseen in the national emergency plan. Such a plan would aim to minimise the overall impact on the European economy of emergency measures.

On the regulatory front, the plan suggests an EU gas price cap in case of an emergency situation, in order to put a limit on price rises for consumers, companies and essential service providers.

The fundamental question in this scenario is: will EU countries be able to agree a common European response in case of an abrupt interruption in Russian gas supplies, or will they react individually, closing their energy market borders?

A united Europe would be better off than a fragmented Europe

REPowerEU shows convincingly that by acting together, the EU could optimise its response to the energy crisis, in both 'muddling-through' and 'abrupt disruption' scenarios. But EU countries must decide to what extent to engage in this cooperation.

Each country will have to make concessions: for instance, Germany might need to overcome its reluctance on joint procurement of LNG through the EU Energy Purchase Platform to ensure EU energy security, while France might need to organise its gas infrastructure so other EU countries can tap into Spain's unused LNG import capacity.

A fragmented response to the energy crisis would likely lead to suboptimal results domestically, both in terms of energy security and competitiveness. This would likely spillover into foreign policy, with far-reaching consequences on the capability of the EU to maintain a firm stance on Russia. ■

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Is the EU Chips Act the right approach?

Niclas Poitiers and Pauline Weil argue that measures to safeguard semiconductor supplies proposed in the European Chips Act could prove to be wrongly focused and could tip over into harmful protectionism

The European Chips Act, proposed by the European Commission in February 2022, is intended as a framework giving the Commission more power to steer and shape the European Union's role in global value chains for semiconductors. The impetus is the shortages of chips experienced by European industries during the COVID-19 crisis.

Chips are ubiquitous in modern manufacturing. Cars, for example, contain hundreds of semiconductors. Through the Chips Act, some of which must still be approved by the European Parliament and EU countries, the Commission wants to make the EU a stronger global player in semiconductor production and minimise the risks of future supply chain disruption.

The European Chips Act could therefore have important international implications. The industry is too capital-intensive, specialised and interconnected for any one country or bloc to aim for self-sufficiency.

The Chips Act is important to strengthen the EU foothold in high-tech industries, but it should be integrated into the broader European trade strategy. The EU priority should be finding ways to coordinate with partners in the value chain, while maintaining its position in the context of the confrontation between the United States and China over technology supremacy.

Three-part plan

The proposed Chips Act has three pillars: research, development and innovation (R&D&I) policies; a new state aid exemption for cutting-edge foundries (semiconductor manufacturing plants); and measures to monitor the supply chain and intervene in crises. The first pillar on R&D&I is the most conventional in its nature and builds on existing programmes to strengthen the EU chips ecosystem over the long-term. Europe is already prominent globally in fundamental research; the Chips Act aims to reinforce this by supporting industrial innovation.

It would bring together existing (and successful) R&D programmes, including chips-related Horizon Europe projects, Digital Europe and the Key Digital Technologies Joint Undertaking under the umbrella of a new Chips for Europe Initiative.

As part of this initiative, the European Commission wants to create new 'open' R&D&I infrastructures. They would encourage cooperation between firms and benefit smaller companies, which are less likely to benefit directly from state aid.

While the rationale for EU export controls – economic activity or national security – remains unclear, their signalling is clearly protectionist. The EU has more to lose than others from 'beggar-thy-neighbour' policies in the industry

It remains unclear how much new funding is available to these new initiatives. The Commission has said it wants overall to *"mobilise more than €43 billion of public and private investments"*. The Chips for Europe Initiative itself would have an €11 billion budget, but only €3.3 billion of this would come from the EU itself, by redirecting funds already committed through Horizon Europe and the Digital Europe Programme, some of which were earmarked for chips anyway.

A 'Chips Fund' will leverage EU and European Investment Bank funding to raise €2 billion in equity financing for start-ups in the sector. For the remainder of the €11 billion, the Commission provides only the legal framework for countries and firms to invest.

The biggest part of the public investments will likely come from another EU instrument, the Important Project of Common European Interest (IPCEI) on microelectronics, through which EU countries can support industrial R&D projects. IPCEIs have certain shortcomings in transparency and governance but are nevertheless a fitting – and the only – EU tool to channel public and private funds towards industrial goals.

Venture capital markets in the EU are less developed than in the US to support innovation in the high-tech sector. State subsidies support some projects but developing equity financing in the EU is a more long-term solution.

A new approach to supply chain management

With the second pillar of the Chips Act, the Commission wants to increase capacity in the most concentrated and capital-intensive stage of chip production: fabrication. To achieve a goal – set out already in 2021 – of doubling European fabrication capacity, the EU needs to attract foreign investment, especially for the latest generation of chips for which there are no European producers.

The Chips Act would allow EU countries to grant subsidies for manufacturers willing to build cutting-edge 'mega-fabs' in the EU. Given the global subsidy race around foundries, this would be an expensive endeavour.

Because a European 'mega-fab' would apply existing cutting-edge technology, it would not meet the conditions for a standard industrial subsidy project (IPCEI) which can only finance R&D&I. Therefore, the Chips Act would establish a bespoke state-aid exemption.

The European 'first-of-a-kind' rule that would be established by the Chips Act would allow subsidies for foundries implementing cutting-edge technology not yet present in the EU but present elsewhere. The Commission wants EU countries to address these applications for aid as rapidly as possible with an urgency that supposedly precludes any impact assessments.

Building capacity at home is only part of the EU's answer to ensuring more resilient supply chains. The third pillar of the Chips Act foresees monitoring of the sector and would establish tools to intervene in times of crisis. This could include 'joint procurement' by the Commission on behalf of EU countries and industries, requiring foundries that benefitted from state support to supply European customers first. Export controls could also be envisaged.

This toolbox is largely taken from the pandemic playbook, where the Commission procured medical goods and vaccines for EU countries and introduced export authorisation requirements. That production should serve EU customers first also justifies EU public support.

However, the justification for these interventions is much weaker for chips – in the interest of private companies – than for medical products in the interest of public health.

The strategic question

All this raises the broader question about strategy. The Chips Act is intended not only as an answer to recent shortages, but to the broader challenge of competitiveness and interdependence in high-end technologies. It marks a shift towards a more hands-on approach to industrial and trade policy.

The Chips Act would see the EU joining a global subsidy race. With the goal of €43 billion in public and private investment, the EU wants to match amounts spent by China ($150 billion over 10 years) and the US ($52 billion over 5 years). Estimates of support provided to the industry by the US, China, Japan, South Korea and the EU amount to $721 billion, or 0.9% of 2020 global GDP.

This is bound to create major competition distortions. The EU has prioritised limiting the effect of foreign subsidies. The fact that it is now entering a global subsidy race in high-tech is a sign of the failure of multilateral subsidy control – and since most of the competitors are likeminded partners, also of policy coordination.

Furthermore, investing public money in fabrication capacity for high-end chips is risky. Investments in innovative foundries do not always succeed: the technologies are tricky to master. To be profitable, factories need high utilisation rates.

Only three companies in the world currently produce cutting-edge logic chips (TSMC, Samsung and Intel), with Intel and Samsung yet to master the latest generation, notwithstanding billions invested. This high concentration at the top gives these three firms huge negotiating power when countries compete to attract them.

They are already well financed, with tens of billions of dollars in annual capital expenditure. Since the Chips Act was proposed, Intel has announced plans for up to €80 billion of investment in Europe, but there is no disclosure of support from EU countries the firm might be negotiating.

State aid to this sector should also be balanced carefully with European demand for such chips. The EU currently consumes very few cutting-edge chips as inputs to production. Cutting-edge chips are most important for product such as smartphones and computers, but EU industries (including automotive) rely more on trailing-edge chips, of which each car needs hundreds.

Shortages affecting the auto industry would be better addressed by increasing capacity in lower-end rather than cutting-edge chip manufacturing.

The COVID-19 crisis also revealed vulnerabilities in global supply chains through concentration and bottlenecks. Diversification of supply of high-end chips outside of Taiwan is important, but diversification of supply of lower-end chips away from China is just as important.

Overcapacity risk

Though global demand for chips will undoubtedly increase in the coming years, the current shortages have prompted governments and firms to invest in fabrication, making overcapacity in the future not unlikely.

For instance, prices for some types of memory chip, which best fit the definition of a commodity, are expected to decline by 16% in 2022 as supply growth outstrips demand. The chips industry is subject to boom-and-bursts cycles.

The Commission has not clarified which market failure the Chips Act is supposed to address with massive government support, or how obtaining an (at best) modest market share in cutting-edge logic chips would actually increase EU geostrategic leverage.

On supply management, implementing emergency measures would not fit the reality of supply and demand dynamics in the high-end chips sector. The chips that would be produced by an EU 'first-of-a-kind' facility are not commodities that can be reallocated.

High-end logic chips are produced by foundries according to customer specifications, which vary between industries and buyers, and the manufacturing of such chips can take up to 26 weeks. A request to divert production would be inconsistent with an industry that cannot swiftly adapt production lines – as confirmed by the 2021 shortages.

Governments currently make up 1% of global demand for chips. If the Commission were to act as a buyer, it would have to choose to which companies to allocate the scarce supplies, while making the situation worse for everyone else. This problem can be much better solved by firms reviewing the trade-off between lean inventories and supply sustainability. The private sector should adapt to the risks on global value chains witnessed during the pandemic – it is starting to do so.

Such measures raise risks of adverse economic implications and political messaging. Protectionist measures in a sector in which the EU is currently dependent on imports could create a precedent which would be to the detriment of the EU if copied by other players.

Chip shortages were not the result of export bans but of a multitude of economic factors. Where export control measures have been introduced in the chips sector, it has been because of geopolitical rivalries and has not targeted the EU.

While the rationale for EU export controls – economic activity or national security – remains unclear, their signalling is clearly protectionist. The EU has more to lose than others from 'beggar-thy-neighbour' policies in the industry.

The need for a more muscular trade policy would be better achieved through general trade defence tools than chip-specific export controls. The EU should push back against uncoordinated protectionist reactions triggered by heightened supply chain risks and uncertainty, since the COVID-19 crisis and Russia's aggression against Ukraine.

This moment should be turned into an opportunity for sustainable trade: the balancing act is between creating global coordination structures among like-minded partners for strategically important products, while retaining policy independence from players such as the US. ■

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Regulating the digital economy

Christophe Carugati says overlapping rules in the digital economy requires cooperation between national regulatory authorities to ensure consistency and effective enforcement

The digital economy brings with it numerous overlaps between regulatory fields, and raises issues for which it might not be clear which regulator would have jurisdiction. Yet, in Europe, there is no enforcement cooperation mechanism to bring together the regulatory authorities responsible for digital-related issues. This creates enforcement gaps and substantial enforcement costs for both regulators and businesses.

The European Union's Digital Markets Act (DMA), a new law that should be finalised in autumn, will require cooperation between the European Commission and national regulatory authorities to ensure coherent, effective and complementary enforcement. However, the practical arrangements for cooperation will only be decided later. A practical arrangement should be based on case information, case allocation and case resolution.

Jurisdictional and cross-border issues

The digital economy implies numerous jurisdictional issues for competition, data protection and consumer protection authorities. At the heart of the business model of most digital companies, such as Google or Meta, are data-driven products that rely on data-usage practices, as set out in terms and conditions. User data enables digital companies to improve their products and services and offer new ones, contributing to their market power.

Yet, these data practices raise privacy and consumer protection issues. Misleading terms and conditions that lack information (consumer protection violation) or don't allow for explicit consent (data protection violation) might distort the competition process (competition violation).

Regulators around the world deal with these issues in different ways. For instance, Italy's competition authority found in 2017 that Facebook-owned WhatsApp violated consumer protection law with misleading terms and conditions that forced users to share personal data with parent company Facebook.

In 2021, Hamburg's data protection authority found that a similar WhatsApp practice violated data protection law because of the absence of explicit consent. Authorities in Turkey, India, Brazil and Argentina are investigating whether the practice violates competition law by giving undue competitive advantage over rivals.

Enforcement cooperation mechanism

Europe lacks an enforcement cooperation mechanism to deal with these issues more consistently by involving different regulators in different fields. The lack of such a mechanism entails substantial enforcement costs,

Overlapping rules in the digital economy require cooperation between national regulatory authorities; a practical arrangement based on case information, case allocation and case resolution would ensure consistency and effective enforcement

including compliance and transaction costs for businesses that must navigate multiple regulators and countries, administrative costs regulators running similar investigations, and inconsistent outcomes arising from conflicting rulings.

But the costs of non-cooperation are likely higher than the benefits of divergence from mutual learning, higher deterrence, lower risk of corruption by interested groups and higher discretion to address the issue under a specific rule.

There have been numerous initiatives to foster enforcement, advocacy and institutional cooperation through consultation (for example, the still-pending 2019 German Facebook data-sharing case on which the competition regulator cooperated with data protection regulators), joint work (for example, the 2020 Italian Big Data joint report between Italian telecommunications, competition and data protection authorities), and joint teams (for example the United Kingdom's Digital Regulatory Cooperation Forum, DRCF).

However, these initiatives do not have enforcement powers that would significantly reduce enforcement costs. So far, the most advanced form of cooperation is the DRCF, involving competition, data protection, telecommunication and financial authorities, which set joint projects, approaches and teams. But, even the DRCF does not have enforcement powers that would cut enforcement costs.

Practical arrangement

When digital enforcement cooperation between national regulatory authorities and the European Commission is established under the DMA, the practical arrangements should ensure reduced enforcement costs while retaining the regulatory autonomy of each field and country. This is possible through a three-step enforcement cooperation mechanism based on case information, case allocation and case resolution.

Case information: national regulatory authorities should be required to inform the European Commission of the opening of all cross-regulatory and cross-border cases. This should be done through the DMA cooperation forum involving the Commission and the European bodies of competition, data protection, consumer protection, telecommunication and media regulators.

At a minimum, national regulatory authorities should notify cases involving firms falling within the scope of the DMA, because the law – a list of dos and don'ts for big tech companies – has several provisions relevant for different regulatory fields. Information provided should include a non-confidential case summary, with a list of regulatory fields and countries concerned.

The Commission should publish the information in a readily accessible database that automatically informs, thanks to adequate labelling, the regulators for which the case is likely to be relevant. This first step would therefore be to identify which authorities and countries are likely to need to coordinate.

Case allocation: the second step would allocate the case to a lead authority, based on four objective criteria: the main harm, the deterrence effect of the rule, the standard of proof and the territorial effect of the legal decision.

The main harm is the principal violation. The deterrence effect of the rule is how likely the rule is to change the infringer's behaviour. The higher the level of deterrence, the lower the risk of violation and the greater the likelihood of effectively changing behaviour.

The standard of proof is all the elements required by the law to prove the violation. The lower the standard, the more cost-efficient the regulator's decision. The territorial effect of the legal decision refers to where any legal decision can have a legal effect. The wider the effect, the more the solution will solve cross-border issues.

For instance, France, Germany and Poland have ongoing investigations against Apple under competition law. Apple is accused of imposing a privacy policy on third-party services without imposing it on its own services, thus placing rivals at a competitive disadvantage.

The main harm alleged is that Apple's privacy policy favours its own services to the detriment of rivals. The privacy policy is the instrument of the alleged harm, but not the injury. The competition authority, not the data protection authority, is thus the relevant competent regulatory authority.

Furthermore, should the allegations against Apple be upheld, competition law would be most likely to change the behaviour of Apple as, under competition law, the company could be fined up to 10% of its annual global turnover and a solution could be imposed that changes how Apple does business.

Competition law has, however, a high standard of proof that requires defining a market and a dominant position in that market, and identifying an abuse of the dominant position that has an anticompetitive effect. Last, the legal effect of a competition-law decision is EU-wide or national, depending on whether the Commission or a national competition authority oversees the case.

In this case, the Commission would have been the best-placed authority to investigate because Apple follows the same practice globally. Of course, the firm can adopt any national solution globally (eg. the 2019 German Amazon online sales terms, which Amazon adopted worldwide). This second step thus enables a case allocation to a single authority to avoid multiple investigations.

Case resolution: in the third step, the lead authority would resolve the case with a joint team composed of staff from competent regulatory authorities. They should assess jointly the practice and issue a joint solution to all the

cross-regulatory issues. For instance, the alleged harm in the German Facebook data-sharing case mentioned above involves Facebook exploiting user data by combining data from multiple sources (competition law violation) without the user's voluntary consent (data protection violation).

The German competition authority cooperated with data protection authorities to find a solution that resolves both issues: Facebook cannot combine data (competition law solution) without the user's consent (data protection solution) (the case is still pending before the EU Court of Justice).

This third step would thus enable solving such jurisdictional issues in relation to digital companies consistently and effectively. ■

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