IN-DEPTH ANALYSIS

European Parliament

Economic repercussions of Russia's war on Ukraine – Weekly Digest

This paper provides a summary of recent economic, financial and budgetary decisions and developments following President Vladimir Putin's decision of 24 February to start a military attack against Ukraine. It includes recent information relating to the EU sanctions regime, recent economic estimates, and policies supporting economic and financial resilience, including the coordination of national economic and fiscal measures. It also highlights policy recommendations made in the public domain to mitigate any adverse economic, financial and social effects and to support economic recovery in the EU and the Euro Area.

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For a list of previous Weekly Digest on the economic repercussions of Russia's war on Ukraine see here.

1) Some take-aways from the latest European Council and G-7

European Council and Euro Summit

The European Council of 23 and 24 June 2022 draw *inter alia* the following conclusions:

- Following the adoption of the sixth package of EU sanctions, **work will continue on sanctions, including to strengthen implementation and prevent circumvention**. The European Council called on all countries to align with EU sanctions, in particular candidate countries. The violation of EU sanctions shall swiftly be incorporated into the list of EU crimes. Furthermore, it underlined that EU sanctions against Russia allow the free flow of agricultural and food products and the delivery of humanitarian assistance.

The European Council reiterated its invitation to the Commission to explore with international partners ways to curb rising energy prices, including the feasibility of introducing temporary import price caps where appropriate. In the face of the weaponisation of gas by Russia, it **invited the Commission to pursue efforts as a matter of urgency with a view to securing energy supply at affordable prices**.

The European Council invited the Council, together with the Commission, to take any appropriate measures to **ensure closer energy coordination between Member States**.

During the Euro Summit (in inclusive format) of 24 June, the leaders remained united in their steadfast determination to increase the resilience of economies and they invited the Eurogroup to closely monitor economic developments, while they will **continue to be well coordinated, determined and agile in their response**.

G7 Leaders' Communiqué

The Leaders of the Group of Seven (G7) met in Elmau on 26-28 June 2022 and draw *inter alia* the followning conclusions:

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- In coordination with the International Energy Agency (IEA), they will **explore additional measures to reduce price surges** and prevent further impacts on economies and societies, in the G7 and globally.

- In their own societies, they are **providing short-term fiscal support to the most vulnerable groups** to support affordability, as well as to businesses and industry.

- They will also **provide assistance to developing countries**, and will intensify the steps to support global energy market stability, through short term increase in collective production, appropriate use of energy reserves and by working with international partners to do the same.

- They **encouraged producer countries to increase their production to decrease the tension in energy markets, and in this context welcomed OPEC's recent responses to tightening international markets**.

- As countries phase out Russian oil from domestic markets, **G7 members will seek to develop solutions that meet the objectives of reducing Russian revenues from hydrocarbons, and supporting stability in global energy markets, while minimising negative economic impacts, especially on low- and middle-income countries**. In this respect, they welcomed the decision of the EU to explore with international partners ways to curb rising energy prices, including the feasibility of introducing temporary import price caps where appropriate. Members will further reduce reliance on civil nuclear and related goods from Russia, including working to assist countries seeking to diversify their supplies. They tasked the relevant Ministers to evaluate the feasibility and efficiency of these measures urgently.

- G7 Members committed to **new measures that will address, among other things, Russia's revenues, including those from gold, as well as targeting evasion and backfilling activities**. They also intend to align and expand targeted **sanctions to further restrict Russia's access to key industrial inputs, services and technologies** produced by their economies, especially those that support Russia's industrial base and weapons technology sector.

- As for oil, G7 members will **consider a range of approaches, including options for a possible comprehensive prohibition of all services, which enable transportation of Russian seaborne crude oil and petroleum products globally, unless the oil is purchased at or below a price to be agreed in consultation with international partners**. They invited all likeminded countries to consider joining them. They tasked their Ministers to continue to discuss these measures urgently, consulting with third countries and key stakeholders in the private sector, as well as existing and new suppliers of energy, as an alternative to Russian hydrocarbons.

- Moreover, **members will impose targeted sanctions on those responsible for war crimes, those exercising illegitimate authority in Ukraine and those supporting Russia's engagement in efforts to increase global food insecurity by stealing and exporting Ukrainian grain or illegitimately profiting from the war**.

- The leaders also announced that they would **continue to provide financial, humanitarian, military and diplomatic support to Kiev and welcomed the European Council's decision to grant candidate status to Ukraine and Moldova.**

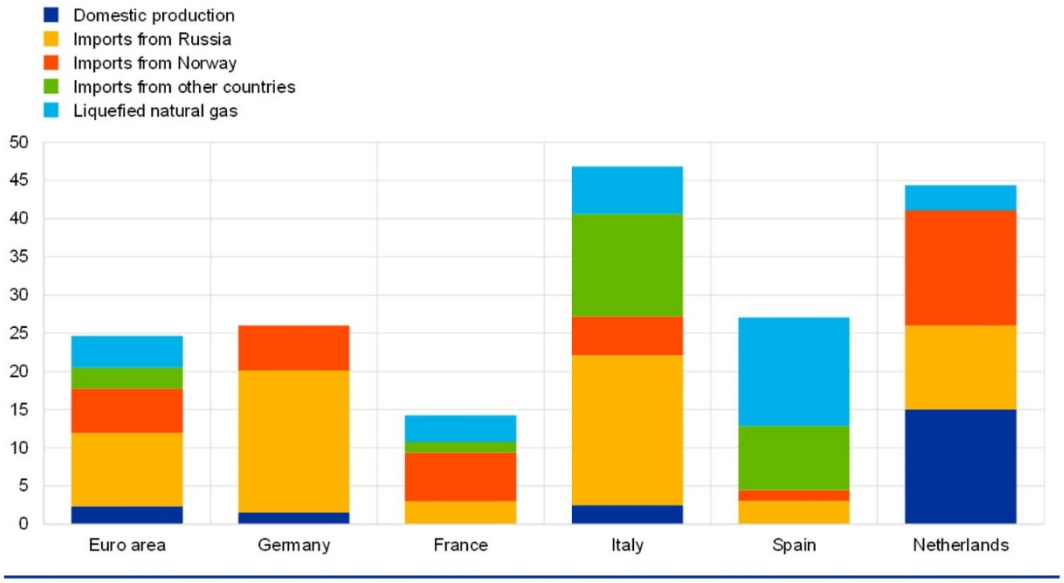
- Finally, leaders expressed their readiness to **support an international reconstruction plan** and welcomed the German Presidency's initiative to convene with Ukraine a high-level international conference of experts to make progress on a comprehensive reconstruction plan. **They supported the work of the EU and its member states in considering a reconstruction platform and a solidarity fund**.

2) Focus on ECB assessments on energy prices and supplies

The ECB Economic Bulletin, Issue 4/2022, published on 23 June, includes a special section on the impact of the war in Ukraine on euro area energy markets, which generated a sharp increase in energy prices and significant volatility in energy markets. The below text and figures are taken from this ECB Bulletin.

According to ECB strains on energy supplies from Russia may affect the euro area via both world market prices and direct supplies. In 2019 Russia's energy production accounted for 12% of the global supply of oil, 5% of coal and 16% of gas. In 2021 the country was the largest supplier of energy commodities to the euro area, constituting 23% of total energy imports. Russia accounted for 23% and 43% of euro area crude oil and coal imports respectively in 2020, which represented 9% and 2% of the euro area's primary energy consumption. However, the euro area is particularly dependent on natural gas imports from Russia, which in 2020 amounted to 35% of euro area gas imports and represented 11% of the euro area's primary energy consumption.

Figure 1: Share of gas imports in primary energy consumption (percentages)



Sources: Eurostat and ECB calculations.
Notes: Imports from other countries include imports from Algeria, Libya and Azerbaijan. EU8 refers to the Czech Republic, Estonia, Latvia, Lithuania, Hungary, Poland, Slovenia and Slovakia. Liquefied natural gas excludes imports from Russia, Norway and other countries. *adjusted for re-exports. The latest observations are for 2021 for panel a) and 2020 for panel b).

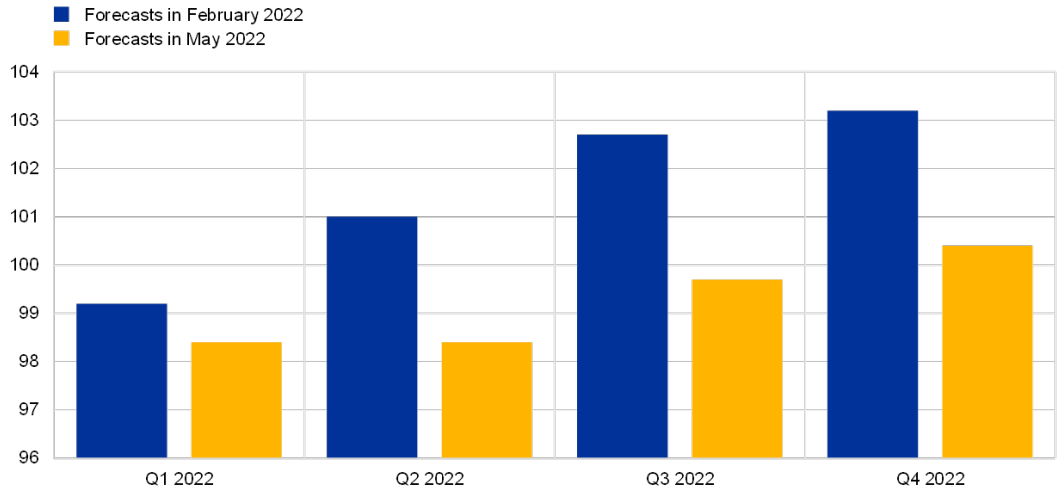
Germany and Italy have the highest dependence on Russian gas among the large euro area countries. The degree of substitutability of these energy sources is relevant to any analysis of the economic implications of the war for energy prices and euro area supplies. Please see Annex 3 for an overview of various estimates of the economic effects of an embargo on fossil fuel imports from Russia. Also please see next section for the latest policy initiatives taken or called for in Germany.

The sanctions therefore also play a particular role: the EU prohibited the import of Russian coal as of August 2022, and the European Council decided at the end of May to stop most Russian oil imports. The ECB also finds that the sanctioning effect was brought forward by discretionary behaviour: "*Immediately after Russia's invasion of Ukraine, European companies started "self-sanctioning"; energy, shipping and insurance companies cut ties with the Russian energy sector, leading to a 23% drop in shipments of Russian oil to Europe in March*".

However, to some extent Russia can make up for the drop in shipments to Europe by redirecting oil exports to other destinations such as India. Still, the ECB observes that signs of significant, persistent

reductions in Russian oil production are emerging, and that the Russian oil supply is projected to fall by 25% in the second half of 2022 (compared to the beginning of the year). That reduction would in turn lead to tighter global oil markets, unless other main producers can speed up their production. Still, the ECB reckons - referring to data from IEA - that such scenario would overall result in a downward revision to the global oil supply forecast of just 3%, for the period since the start of the invasion until the end of the year (see Figure 2 below; please note that the truncated bars make the downward revision visually appear much larger than they actually are).

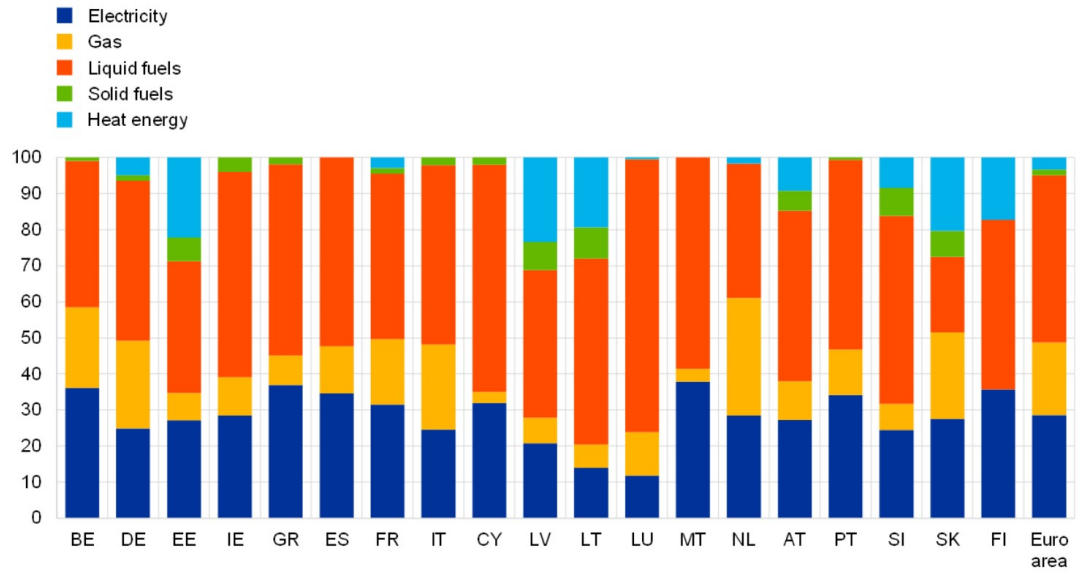
Figure 2: Global oil supply (million barrels per day)



Source: ECB Bulletin 04/22, citing data from the International Energy Agency (IEA), in particular estimates from the IEA's monthly Oil Market Reports.

According to ECB, the main components of consumer energy prices are liquid fuels, electricity and gas, with smaller contributions from heat energy and solid fuels. Overall, the weight of HICP energy in the euro area HICP was 9.8% in 2020, 9.5% in 2021 and 10.9% in 2022. Liquid fuels contribute 46% to overall energy consumption in the euro area, while electricity and gas contribute 28% and 20% respectively, based on 2022 weights. The euro area aggregate masks some differences at the country level (see Figure 3 below).

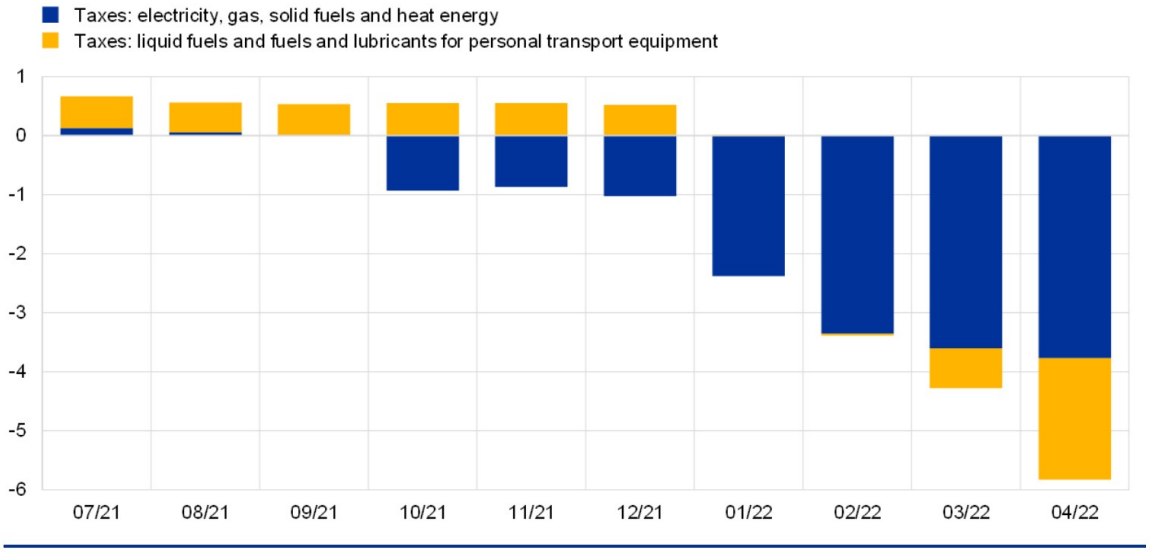
Figure 3: Weights of HICP energy components in overall HICP energy (percentages, 2022)



Source: ECB Economic Bulletin, Issue 4/2022.

According to the analyses by ECB, **many euro area governments have provided support to compensate households for high energy prices**. Most of them also reduced excise duties and value added tax rates, which had a direct downward impact on consumer prices. As a result of the changes to indirect taxes made in several countries from autumn 2021 alone, energy inflation was dampened by around 4.3 percentage points in March and 5.8 percentage points in April 2022 (see Figure 4 below).

Figure 4: Contribution of tax measures to reducing HICP energy inflation (percentage points)



Sources: Eurostat and ECB calculations.

Notes: The impact of changes in indirect taxes is calculated as the difference between HICP energy inflation and HICP energy inflation at constant tax rates, assuming full and immediate pass-through of indirect taxes. The latest observations are for May 2022 for HICP energy inflation and fuel, and April 2022 for all other items.

3) Gas emergency plan: German Federal Government declares alert level

Following a significant reduction of Russian gas deliveries to 40% of the regular amount and a deterioration in the supply situation, the Federal Minister for Economic Affairs, Robert Habeck, announced on 23 June to **activate the second level of the gas emergency plan ("Alarmstufe", or alert level**). The Federal Government is taking those measures to save gas, considering that – if Russia continues to restrict its deliveries – the gas storage tanks, which are needed during the winter period, may not be able to achieve the legally prescribed filling level of 90 percent by December. The alert level means that the **utility companies** (market players) are still primarily **in charge to ease the situation** with measures that they take on their own initiative. However, the federal government can provide **additional State support**, for example by helping companies in the gas supply chain to remain solvent in the event of sharp price increases (see factsheet). According to Reuters news from 30 June, one of Germany's largest listed energy supply companies, Uniper, was is in talks about a possible **government bailout**.

A corresponding additional measure is to reduce the amount of gas that is currently used for the production of electricity (approximately 15% of the total gas consumption, see parliamentary written question), **reactivating coal-fired power** plants instead. That measure requires a new specific legal base that is currently in the parliamentary legislative procedure (Ersatzkraftwerkebereithaltungsgesetz), scheduled to be dealt with in the Bundesrat on July 8th, to come into force quickly.

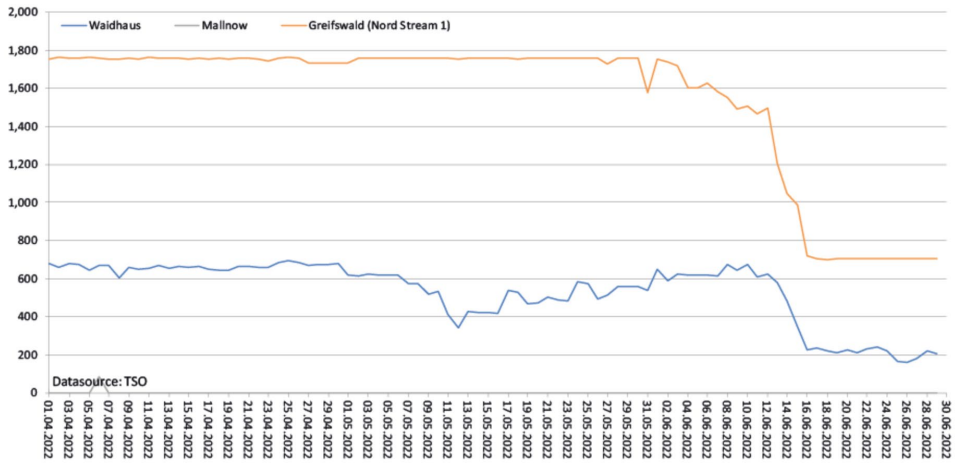
The scarce supply situation also urged the German Federal Government to launch an **energy saving campaign**, making an appeal to the industry, public institutions and private households to reduce their gas

consumption as far as possible. That call has reportedly found broad support by Germany's influential trade associations, employers and trade unions.

A recent study by Prognos for the Bavarian Industry Association (VBW) published in June (see annex) **forecasts a significant drop in Germany's GDP** in case that Russia stops all gas exports to the EU, indicating that the country would head towards recession. The VBW hence reminded that in case of a delivery stop, the federal agency in charge (Bundesnetzagentur) must ensure that the allocation of rationed gas supplies will limit the economic damage to the extent possible. See also Annex 3 for a set of estimates of the economic effects of an imports embargo.

In the same vein, the head of Germany's biggest power supplier RWE, Markus Krebber, urged according to the FT to agree on **standardised rules between countries that would govern priority supplies** in case of rationing, warning that EU solidarity would come under severe strain this winter if Russian gas supplies are cut off. "*I'm not so much concerned that we cannot find agreement, but it is better to* discuss emergency proceedings when you still have time and not when the house is on fire," Krebber told the Financial Times.

Figure 5: Gas flows from Russia to Germany (from 1 April to 30 June 2022)



Source: Bundesnetzagentur

4) Focus on: BIS Annual Economic Report of June 2022

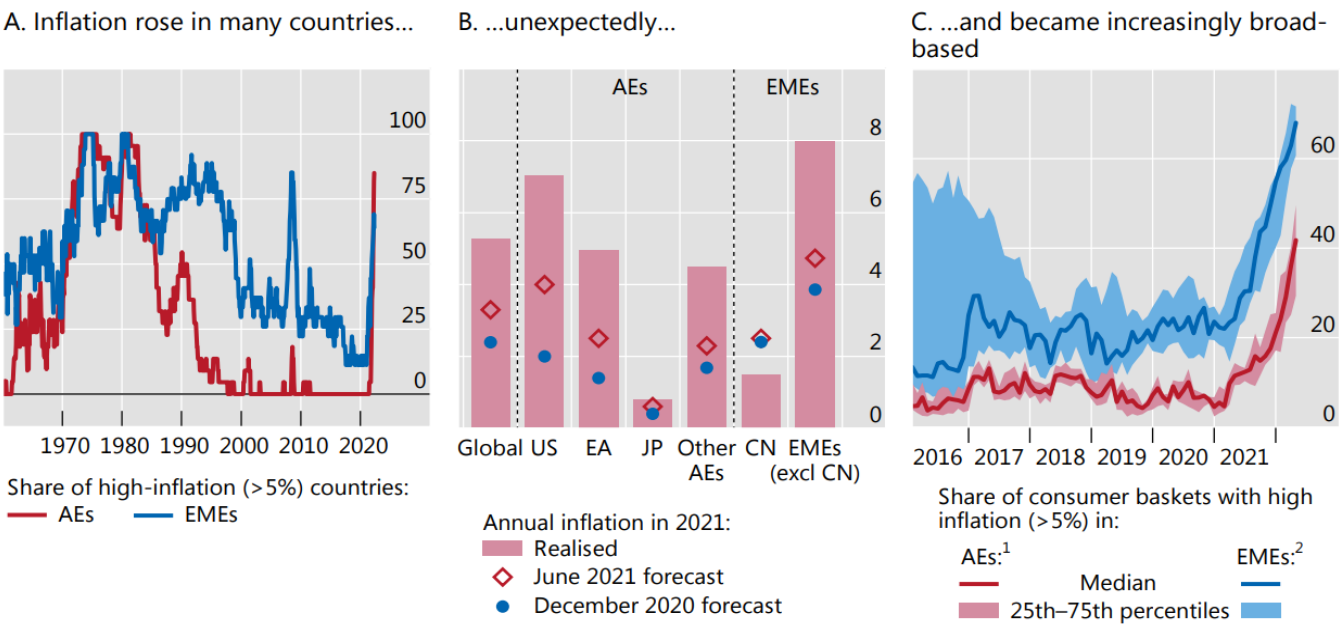
On 26 June 2022, the Bank for International Settlements (BIS) published its latest **Annual Economic Report**, warning that the global economy risks entering a new era of high inflation. Stagflation dangers loom large, as a combination of lingering disruptions from the coronavirus pandemic, the war in Ukraine, soaring commodity prices and financial vulnerabilities cloud the economic outlook. Here we cite some key statements and charts from that BIS report regarding inflation risks, causes of inflation, and financial vulnerabilities.

Unanticipated global rise in inflation

*[T]he most remarkable development during the review period was the **return of inflation**. [...] [W]hat initially appeared a temporary blip ... turned into a much broader surge, across prices and countries. [...] Just like most observers, we at the BIS did not quite anticipate the strength and persistence of the surge. [...] Why the miss? [T]he best explanation involves the confluence of three forces [...] First, the surprisingly **strong rebound in aggregate demand** [...] The huge policy stimulus combined with households' pent-up spending turbocharged activity. Second, a surprisingly persistent "pivot" or **rotation of demand from services to goods**. [...] Finally, there were some surprising **difficulties in adjusting supply**. Their most visible manifestation are the "bottlenecks" that held back production around the world.*

An unanticipated rise in global inflation

In per cent — Graph 2



[1] AT, BE, CH, DE, DK, ES, FR, GB, IT, JP, NL, PT, SE and US. [2] BR, CL, CO, CZ, HU, KR, MX, PH, PL, RO and TR.

Source: BIS Annual Economic Report, June 2022

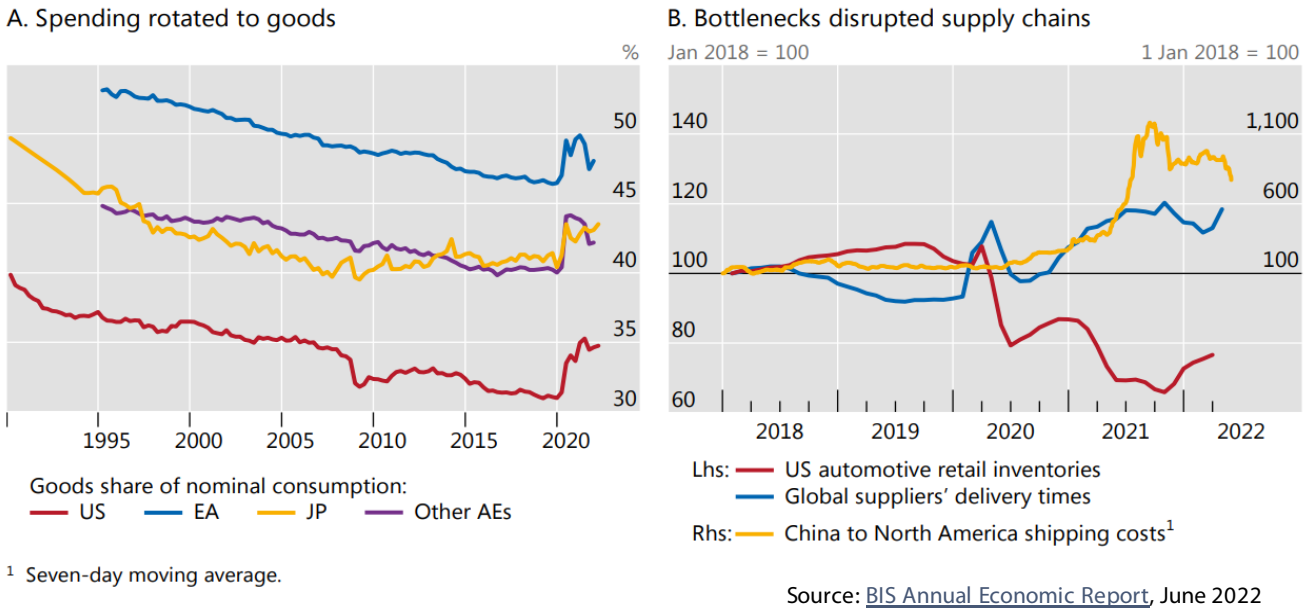
AEs: Advanced economies; EMEs: Emerging market economies

Causes of higher inflation

*Higher inflation reflected a confluence of factors. First, the **recovery from the Covid recession** has been unusually rapid, particularly in AEs [Advanced economies]. [...] Massive **fiscal and monetary policy support** early in the pandemic bolstered household incomes despite large falls in GDP. This income boost – much of which was initially saved – paved the way for spending to bounce back as activity restrictions eased in 2021. [...] Second, the pandemic-induced **rotation of aggregate demand to goods from services**, especially contact-intensive ones, proved*

surprisingly persistent. [...] Third, ***supply failed to keep up with surging demand****. In particular, global value chains came under pressure.* ***[B]ottlenecks emerged*** *in a number of areas, including* ***container shipping and semiconductors****, leading to sharp price increases [...] the supply constraints had large spillovers across industries and countries. [...]*

Causes of higher inflation: demand composition and supply constraints — Graph 5

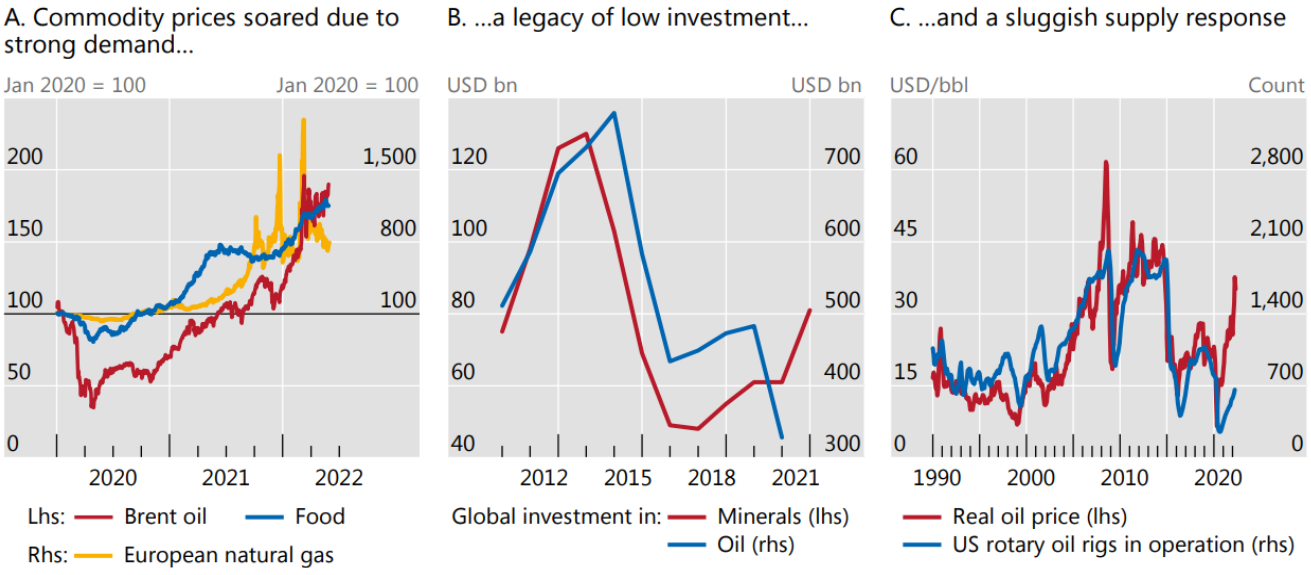


[1] Seven-day moving average.

Source: BIS Annual Economic Report, June 2022

Supply was especially ***tight in energy and other commodity markets****, triggering major price increases and higher volatility. In this case, a* ***legacy of low investment*** *by resource producers further restricted supply [...] Partly as a result, the* ***supply response*** *of marginal producers, such as those of* ***shale oil, fell short*** *of previous ones, which had helped to moderate commodity price shifts in the 2010s [...] The war in Ukraine further disrupted the global supply of products such as wheat, oil, gas, nickel, palladium and fertilisers.*

Commodity prices and supply — Graph 6

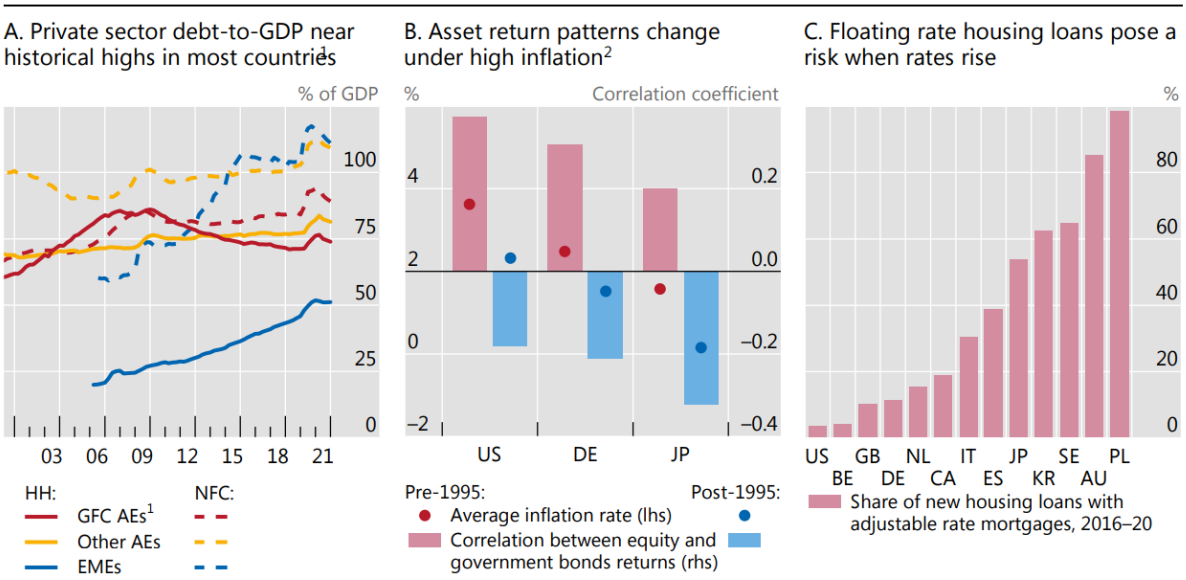


Source: BIS Annual Economic Report, June 2022

Financial vulnerabilities

*The **coexistence of elevated financial vulnerabilities and high inflation** globally makes the current conjuncture unique for the post-World War II era. The tighter monetary conditions needed to bring down inflation could cast doubt on assets – including housing – priced for perfection on the assumption of persistently low real interest rates and ample central bank liquidity. [...] The largest strains are likely in countries where **floating rate loans** – sensitive to higher policy rates – are more common [...]. In this regard, several **small open economies look particularly exposed**, at least in their **household sectors**. [...] In principle, the **aggregate savings** built up early in the pandemic could provide buffers for households and firms to cope with higher rates, at least initially. However, the incidence of higher savings may not match that of debt burdens.*

Financial vulnerabilities and high inflation: where are the risks? Graph 16



HH = households; NFC = non-financial corporations.

[1] ES, FR, GB, GR, IE, IT, PT and US. [2] Data starting in 1985.

Source: BIS Annual Economic Report, June 2022

*An **economic downturn** against the backdrop of high debt levels **would test banks' resilience**. Credit losses are most likely to accrue in the medium term, after rising policy rates have passed through into market rates and households and firms have exhausted accumulated buffers. The size of credit losses will depend on the degree of required policy tightening. [...] Developments in NBFIs [**non-bank financial intermediaries**] **could pose greater challenges**. Financialised **commodity markets are a key pressure point**. These markets came under strain when the war in Ukraine broke out, as sharp rises in commodity price volatility triggered large margin calls in derivatives markets. [...] A **broader concern** is that the **extent of exposures** among NBFIs, which could transform stresses at individual institutions into more systemic disturbances, are **not well known**. The collapse of Archegos Capital Management in April 2021, and the attendant stock market disruptions, is a leading example. In that instance, not only was the capital of Archegos largely wiped out, but several banks that provided it with prime brokerage services also took significant hits to their own capital buffers. While the fallout was ultimately contained, it nonetheless highlights the **risks posed by hidden leverage in loosely regulated corners** of the financial system.*

ANNEX 1: Public monitors on the economic and other effects of the war in Ukraine

Centre for Research on Energy and Clean Air (CREA):

CREA has compiled a **detailed dataset** **of pipeline and seaborne trade in Russian fossil fuels in order** to shed light on who purchases Russia's oil, gas and coal, and how the volume and value of imports have changed since the start of the invasion,

Bruegel - Russian crude oil tracker:

This dataset aggregates weekly and monthly data on Russian **exports of crude oil** since the beginning of 2021 (excluding oil products). It tracks oil leaving the four main Western Russian ports (Primorsk, Ust-Luga, Murmansk and Novorossiysk) using real-time vessel data to infer the amount and destination of exports.

Bruegel - European natural gas imports

This **dataset aggregates daily data on European natural gas import flows and storage levels**.

Kiel Institute for the Word Economy -The Ukraine Support Tracker:

The Ukraine Support Tracker lists and quantifies **military, financial and humanitarian aid promised by governments to Ukraine** since January 24, 2022 (the day some NATO countries put their troops on alter). It focuses on support by 31 Western governments, specifically by the G7 and European Union member countries. The database is intended to support a facts-based discussion about support to Ukraine.

Peterson Institute for International Economics (PIIE):

Russia's war on Ukraine: **A sanctions timeline**

An International Working Group on Russian Sanctions by Stanford University:

A working group of independent, international experts aim to recommend new economic and other measures to pressure Russian President Vladimir Putin to end his invasion of Ukraine as soon as possible and restore Ukraine's territorial integrity within its internationally recognized borders.

ANNEX 2: Policy recommendations in the public domain: Some recent picks

O. Blinov, S Djankov: Ukraine's deepening population challenge (28 June 2022)

Population dynamics, and more specifically human capital formation, are the determining factor for economic growth. Population growth matters even more when capital is destroyed due to war. When the Covid-19 pandemic erupted, there was speculation that Ukraine would see a baby boom at the end of the year as home-locked families spent more time together. Instead, in the period December 2020 to February 2021 there were 5,000 fewer births than in the comparable period a year earlier. Covid-19 also had a sharp, upward effect on the death rate. Overall, by 2030, the total demographic toll on the economy (mortality and generation shifts combined) would increase to over 300,000 people exiting the workforce a year. And that was the trend before the war started. The evidence suggests that Russia's invasion of Ukraine will further deepen the population decline. Some 7.6 million Ukrainians have left the country and 5.1 million are still residing in other countries as of mid-June 2022. Even if only 15% of refugees and their family remain abroad once the war ends, this conservative estimate implies a strong one-off extra cut of around 400,000 to the rapidly dwindling workforce in Ukraine. For these reasons, policies to ameliorate the population challenge should be enacted. First, government policies should focus on creating incentives, like monetary rewards to rebuilding homes and businesses, for Ukrainians abroad to return to Ukraine once the war is over. Secondly, child support policies can be aimed at increasing fertility rates with measures that can specifically lower the cost to women of childcare. Finally, the post-war recovery should be geared towards the creation of a green economy as the ongoing crisis presents a chance to reinvent Ukrainian economy.

N. Mulder: The Sanctions Weapon (June 2022)

Not since the 1930s has an economy the size of Russia's been placed under such a wide array of commercial restrictions as those imposed in response to its invasion of Ukraine. But in contrast to Italy and Japan in the 1930s, Russia today is a major exporter of oil, grain, and other key commodities, and the global economy is far more integrated. Sweeping sanctions against Russia have combined with the worldwide supply chain crisis and the wartime disruption of Ukrainian trade to deliver a uniquely powerful economic shock. The impact of the sanctions on Russia belongs to an altogether different category. Russia is the world's 11th largest economy, and its role as the prime commodity exporter among emerging markets gives it a structurally significant position. Moreover, since the end of the Cold War, more than two decades of advancing integration have made Russia a very open economy, with a trade-to-GDP ratio of 46 percent. In the past century, the 1930s is the only decade that offers a precedent for sanctions against states with a similar weight in the world economy, the case being Italy for Benito Mussolini's invasion of Ethiopia in October 1935. From October 1935 to June 1936, Italian industrial production fell by 21.2 percent, while in the first five months of sanctions, exports plummeted by 47 percent. Crucially, the sanctions failed to stop the Italian conquest of Ethiopia, in large part because the United States and Germany, the world's largest and third-largest economies, were not League members and did not join the sanctions. What this interwar history shows is that the global economic environment determines the form that sanctions can take and shapes their effects. The Depression was marked by an agrarian crisis, monetary collapse, and a downturn in trade. These developments diminished world exports, fragmented currency blocs, and drove global price deflation for much of the period between 1928 and 1939. On the one hand, this meant that export earnings were lower, as was the cost of decoupling. On the other, it made imports cheaper, ensuring a basic level of continued access to metals, foodstuffs, and energy. Sanctions were deployed in a world of growing autarky, where interdependence between national economies had fallen to its absolutely vital minimum. By contrast, the global trade-to-GDP ratio is much higher today, and it is sustained by a highly integrated dollar-based global financial system. Instead of deflation, markets worldwide are experiencing strong inflation pressure. High commodity prices generate windfalls for exporters while encouraging energy-importing economies to transition to renewables. Meanwhile, increased financial market integration makes capital flows from advanced economies crucial to growth and investment in emerging market and developing economies. Today's world

economy enjoys substantial gains because of this interdependence, as trade employs larger workforces and imports can be sourced from more places. However, it also contains greater vulnerabilities, as nodal points in flows of commodities, financial transactions, and technology can be choked by supply chain issues or targeted by government sanctions. The result of these changes is that today's sanctions can cause graver commercial losses than ever before, but they can also be weakened in new ways through trade diversion and evasion. On the whole, the nature of the risks and costs of sanctions have changed, but the transmission channels through which they operate—higher commodity prices and transaction costs and bigger supply bottlenecks and trade losses—have remained the same, and they affect more people around the world. Policymakers today possess everything they need to avoid a repetition of the 1930s and a number of policy adjustments can help counteract the spillovers of sanctions on Russia. For example, advanced economies should focus on long-term infrastructure investment to ease supply chain pressures while advanced economy central banks should avoid rapidly tightening monetary policy to prevent capital flight from emerging markets. It is high time for our thinking about the global economic stability implications of sanctions to catch up with the new realities of economic coercion.

M. Chorzempa: Export controls against Russia are working—with the help of China (27 June 2022)

The economic sanctions targeting Russia after its invasion of Ukraine have been described as an effort to permanently weaken its ability to make war. The situation is complex and dynamic, but the evidence suggests that export restrictions and sanctions are biting Russia's economy and military. Russia's imports have fallen significantly, not only from countries in the sanctioning coalition but, surprisingly, also from countries that have refused to adopt the sanctions, most notably China. Specifically, since the invasion, sanctioning countries' exports to Russia have fallen by 60 percent from the average level in the second half of 2021. Significantly, however, exports by nonsanctioning countries have also fallen, by 40 percent, exacerbating the decline in Russia's ability to buy from abroad. China is by far the most important potential source of backfilling. It supplied a quarter of Russia's imports in 2021—more than any other country—with exports of $73 billion. However, Chinese exporters appear to have internalized the risks of violating export controls and sanctions. Under US export control and sanctions laws, Chinese firms violating the ban on sensitive goods sold to Russia could lose access to crucial technology, goods, and currency. As a result, its exports to Russia since the invasion have fallen 38 percent compared with the second half of 2021. China is not, however, shutting off trade with Russia as its imports have surged to record highs with nearly 80 percent of those imports being oil and gas. Yet, despite being the target of this economic firepower from 38 sanctioning countries, Russia's economy has not collapsed, its currency has recovered, and the volume of imports remains high, despite the decline. But there is no silver bullet. The multilateral sanctions have had a major impact, depriving Russia of billions in imports it cannot easily substitute while making China and other countries that would like to bail out Russia have find it difficult to do so and prudent not to try.

Contact: egov@ep.europa.eu

This document is available on the internet at: www.europarl.europa.eu/supporting-analyses

Annex 3: Recent estimates on economic effects of total or partial stop of Russian energy imports

Institution	Key scenario	Methodology, assumptions, restrictions	GDP reduction (pp change compared to the baseline scenario)	Additional inflation (pp change compared to the baseline scenario)
Study for the Vbw (Bavarian industry association), drafted by Prognos (June 2022)	A total stop of Russian gas exports to the EU, starting on July 1, 2022	The authors use a model with input-output calculations that incorporates direct effects as well as upstream and downstream effects of declining production. Under the economic assumptions used, the authors find that the downstream effects have the largest impact, even though they assume that the industry sectors indirectly affected would be in a position to replace 60 to 90 percent of those products that could no longer be produced in Germany by imports from other countries.	**Germany: 12,7 pp (for 2H 2022)**	
Pichler et al, Complexity Science Hub (CSH) Policy Brief 24 May 2022	A total stop of Russian gas exports to the EU starting on June 1, 2022 The authors analyze **two scenarios: (A) EU-wide cooperation and (B) an uncoordinated scenario.**	The authors use the direct economic shocks in a dynamic out-of-equilibrium macroeconomic input-output model to estimate overall economic impacts (direct shocks plus indirect effects through supply relations between industry sectors. The authors notably distinguish two cases of how much of the additional EU-wide gas supply can be accessed by Austria: In the EU-cooperation Scenario A they assume that MS face a common shock and distribute existing and additional gas resources such that every country faces the same relative reduction in its gas supply. In the uncoordinated Scenario B each member state individually tries to substitute its current Russian imports from other countries (Austria depends strongly on available capacities of pipeline and LNG port infrastructures of other countries, which might not be willing to pass through gas to foreign consumers). As regards the limitations of the model used, the authors mention that due to limited availability of data, the gas dependency of industrial sectors had to	**Austria: 1,9 pp (EU-wide cooperation)** **Austria: 9,1 pp (uncoordinated action)**	

		be estimated, that the industry-level analysis may underestimate the amplification of gas supply shocks (a limitation that is not specific to this study).		
Antosiewicz (Warsaw School of Economics) et al.: IBS Research Report 01/2022	Ban on fuel imports from Russia	Evaluation of the macroeconomic effects with a multi-sector, dynamic stochastic general equilibrium model. To model the effects of the embargo, the authors define shock prices following assumptions made in scenario analyses by Oxford Economics (2022) and the German Council of Economic Experts (Grimm et al., 2022). The limitations of that study include the focus on direct price effects (oil, gas and coal prices), leaving changing consumption patterns aside. Potential welfare losses, effects of social transfers, and monetary and fiscal policy effects are not considered either.	**Poland: 0,2 pp – 3.3 pp (2022), Poland: 2,1 pp – 5,7 pp (2025)**	
Krebs, University of Mannheim (for Hans-Böckler Stiftung)	Immediate stop of Russian gas deliveries	Network model, depicting the production interdependencies of the six industry sectors that rely most intensively on natural gas. Simulated network effects are modelled by analogy, drawing from a study of Carvalho et al. (2020) about the economic consequences of the 2011 earthquake that caused the Fukushima accident, resulting in the shutdown of most nuclear reactors in Japan. In that case, the initial direct impact on GDP was small, but multiplier effects increased the indirect impact nearly fivefold (second-round effects). The author points to the large degree of uncertainty associated with all calculations, exceeding the normal degree of uncertainty in economic studies.	**Basic scenario (shortfall 53% of gas consumption) Germany: 3,2-8,0 pp (2022-23) (supply-side effect)** **Alternative scenario (shortfall 33% of gas consumption) Germany: 1,2-3,0 pp (2022-23) (supply-side effect)** **Additional demand-side effects Germany: 2,0-4,0 pp (2022-23)**	-
Bayer, Kriwoluzky, Seyrich (DIW, 2022) (29.03.22)	Full embargo of gas and oil from Russia	Effects on the financial sector disregarded No analysis of effects on diffent industry sectors Assumption that Maastricht criteria remain suspended Effects on perceived government default	**Germany: 3.0 pp**	**2,3 pp**

		risk (and spreads) disregarded Assumption that private consumption will not be affected		
Bachmann et al. (07.03.22)	Full embargo of all energy imports from Russia	Elasticities of substitution for the fossil energy imports concerned (gas, oil and coal) are said to be subject to a large degree of uncertainty. The estimated range of economic impact hence crucially depends on the assumed substitution effects and reallocation of energy inputs, and to some extent also depends on the model chosen. across sectors	**Germany: 0,2 pp - 2,2 pp**	-
Bundesbank (22.04.22)	Full embargo of Russian energy imports (alternative scenario)	The model calculations incorporate a component to map international economic ties (NiGEM), the macro-econometric model of the Bundesbank for the German economy (BbkM-DE), a linear sectoral input-output model (intended to capture rationing effects in energy use), and various satellite models.	**Germany: 1,0-3,25 pp (2022)** **Germany: 3,5 pp (2023)** **EU: 1,75 pp (2022)** **EU: 1,75 pp (2023)**	**Germany: 1,5 pp (2022)** **Germany: 2,0 pp (2023)**
Bagaee, Moll et al. (Conseil d'Analyse Economique, 4.04.22)	Full embargo of all Russian energy imports	Estimates rest on the assumption that the firms have the possibility to substitute intermediate goods or inputs in the production process. Not taking into account this effect would lead to higher impact, but would not be realistic based on historical and empirical insights according to the authors.	**EU: 0,2 - 0,3 pp** **Germany: 0,3 pp** **France: 0,2 pp**	-
ECB Staff economic projections, June 2022	The downside scenario assumes a complete cut in Russian energy exports to the euro area starting from the third quarter of 2022, leading to a rationing of gas supplies, significantly higher commodity prices, lower trade and intensified global value chain problems.		**EA: -1.5 pp (2022)** **EA: -3.8 pp (2023)** **EA: +0.9 pp (2024)**	**EA: +1.2 pp (2022)** **EA: + 2.9 pp (2023)** **EA: -0.2 pp (2024)**

European Commission: Spring 2022 Economic Forecast	Sudden stop of gas supply from Russia, partial substitution	Severe adverse scenario, as alternative to the baseline assumption and adverse scenario: Sudden stop of gas supply from Russia with only partial substitution possibilities; oil prices as in the adverse scenario (an increase by 25% compared to the baseline assumption). Caveats: the scenarios are run for the euro area as a whole, but European countries are set to be affected to different degrees. Like other model-based assessments, the simulations are subject to an unusual high degree of uncertainty. Beyond the risks explicitly addressed, additional disruptions could come from no energy imports such as metals, fertilisers and food imports, as well as from more extreme supply chain bottlenecks.	**Severe adverse scenario** **EU: 2,5 pp (2022)** **EU: 1,0 pp (2023)**	**Severe adverse scenario** **EU: 3,0 pp (2022)** **EU: >1,5 pp (2023)**
IMF April WEO (20.04.22) (See Box 3 on page 18)	12 month Russian gas and oil supply shut-off	The scenario presented by the IMF also assumes the disconnection of Russia from much of the global financial and trade system. In such a scenario the impact would propagate to the rest of the world through higher commodity prices, disruptions to supply chains, and tighter financial conditions. The resulting supply shock, at a time when commodity prices and inflationary pressures are already high, would lead to an upward shift in inflation expectations and require a greater tightening in monetary policy, further amplifying the negative impact on global activity.	**EU: 3,0 pp (2023)**	**> 1,0 pp (2022 and 2023)**
Gemeinschaftsdiagnose (joint analysis of 12.04.22) by DIW, ifo Institut & KOF/ETH Zürich, IfW Kiel, IWH, RWI & IHS Wien	Stop-order by Russia concerning all oil and gas deliveries as of mid-April (alternative scenario)	The joint analysis models the external shock in five steps, based on the determination of the gas availability profile over time, immediate production losses in manufacturing, reinforcement and spillover effects on other sectors of the economy, loss of purchasing power due to higher energy prices, and a macroeconomic cycle analysis	**EU: 0,5 pp (in 2022)** **EU: 2,5 pp (in 2023)**	**1,0 pp (2022)** **1,1 pp (2023)**

OECD forecast (08.06.22)	Full embargo of Russian energy imports.	Effects along the production chain not taken into account, could lead to smaller impact. The OECD forecast is based on a macroeconometric multi-country input/output model, providing complete representation of the economy in the sense that it covers production, government activities, income generation and consumption, prices, wages, exchange rates, and international financial and trade flows. Important to note aslo is that Projections for the EU countries account for spending financed by the Next Generation EU (NGEU) grants and loans, based on expert judgments about the distribution across years and different expenditure categories and informed by officially announced plans where available.	**EU: 1.25 pp**	**EU: > 1 pp**