ECONOMICS – THEMATIC STUDIES

How bad is the Ukraine war for the European recovery?

European Investment Bank
The EU bank

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The mission of the EIB Economics Department is to provide economic analyses and studies to support the Bank in its operations and in the definition of its positioning, strategy and policy. The department, a team of 40 economists, is headed by Director Debora Revoltella.

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How bad is the Ukraine war for the European recovery?

Since the war in Ukraine began, economic growth projections for Europe have been revised down and inflation estimates ratcheted up. Most recent forecasts, which take into account heightened uncertainty and shocks to commodity prices, suggest that real gross domestic product (GDP) growth in the European Union could fall well below 3% in 2022, down by more than 1.3 percentage points compared to estimates before the war. Further supply chain disruptions and economic sanctions are likely to push the European economy into recession.

Higher food and energy prices will hit households in the European Union, especially poorer ones. Ukraine and Russia are major suppliers of energy and agricultural products. As the war damages production capacities, the price of many core products that are difficult to substitute will rise. Inflation triggered by the war could reduce real private consumption in the European Union by 1.1% in 2022, although the impact will vary across countries. The impact will be felt more in countries where consumption is more sensitive to energy and food prices and where a relatively large share of the population is at risk of poverty. Countries in Central and South-Eastern Europe tend to be more affected.

EU firms were weakened during the COVID-19 crisis, especially smaller ones. Their ability to withstand the withdrawal of policy support was already uncertain. The war will exacerbate firms' vulnerability through three channels: (1) a reduction in exports, (2) lower profit due to higher energy prices, and (3) difficulty finding funding as banks avoid risk. Firm-level simulations conducted by the European Investment Bank (EIB) suggest the proportion of firms losing money will increase from 8% to 15% in one year, and that the share of firms at risk of default will rise from 10% to 17% over the same period. Chemicals and pharmaceuticals, transport, and food and agriculture are the sectors hardest hit. Firms in countries closer to Ukraine and Russia, such as Hungary, Poland, Latvia and Lithuania, will feel the pressure. Moreover, firms in Greece, Croatia and Spain will also be more affected than the EU average.

The impact on banks should remain contained, but firms' access to external sources of finance may worsen. Overall, the European banking system has little direct exposure to Ukraine, Russia and Belarus, except for a handful of banks. However, these banks have shored up their capital buffers sufficiently to withstand the write-down of some of their assets in Ukraine and Russia. Despite that, credit standards have started to tighten, especially in the Central, Eastern and South-Eastern Europe (CESEE) region.

The finances of EU Member States will likely deteriorate. Spending could rise as countries host refugees, implement redistributive measures to help households cope with energy price increases and increase military spending. Revenue is also likely to be lower than planned given the slowdown in economic activity. Overall, budgets are expected to be most affected in EU members neighbouring Ukraine and in the Baltics.

Projections are revised down for activity and up for inflation, amid elevated uncertainty

The war has lowered expectations for European economic activity in the short to medium term. Downward revisions were more pronounced for countries that are geographically closer to Ukraine or dependent on Russian gas. As most forecasts are already outdated, the European Investment Bank has developed its own internal estimates. For 2022, we expect EU real GDP to grow less than 3%, down from the 4% forecast before the war by the European Commission in its winter 2022 forecast.

The war in Ukraine will reduce EU economic growth in 2022 and beyond. The Russian invasion has caused a massive humanitarian crisis — over 6 million Ukrainians have fled the country. The impact of the war on economic activity and investment in the European Union is expected to be significant, pushing energy and commodity prices up, disrupting international trade and exacerbating uncertainty. Comparing forecasts for real GDP growth in 2022 from surveys conducted before the war provides insights on the economic impact. The average consensus forecast for euro area real GDP growth in 2022 dropped from 3.9% in February to 2.7% in May (Table 1).[1] The decline of 1.2 percentage points in the growth forecast for the euro area is stronger than the almost 1 percentage point drop expected in the United States (3.7% to 2.7%) and the 0.5 percentage point decline expected for the United Kingdom (4.3% to 3.8%).

Table 1 Consensus economics forecasts for 2022 *(growth in % and revision in percentage points)*

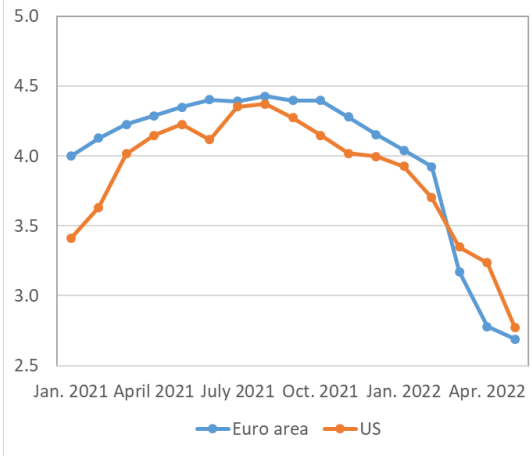
	Real GDP growth			GDP growth (2022 forecast)			Inflation (2022 forecast)		
	2019	*2020*	*2021*	*7 Feb.*	*9 May*	*Revision*	*7 Feb.*	*9 May*	*Revision*
Euro area	1.6	-6.4	5.3	3.9	2.7	-1.2	*3.9*	*6.8*	*+2.9*
US	2.3	-3.4	5.7	3.7	2.7	-0.9	*5.2*	*7.2*	*+2.0*
UK	1.7	-9.3	7.4	4.3	3.8	-0.5	*7.0*	*9.7*	*+2.7*

Source: *Consensus Economics, Eurostat and the International Monetary Fund (IMF).*
Note: *The consensus forecast averages growth rates provided by 28 forecasts for the euro area, 26 forecasts for the United Kingdom and 24 forecasts for the United States. For consumer price inflation (CPI), estimates are based on the average of 27 forecasts for the euro area, 22 forecasts for the United States and 21 forecasts for the United Kingdom.*

The war is expected to push inflation higher in 2022 compared with 2021. The European Union is a major importer of Russian oil and gas. In October 2021, limits placed on Russian energy exports fuelled energy price inflation and therefore overall inflation. The war in Ukraine is projected to push inflation to new highs in 2022. The forecast for euro area consumer price inflation in 2022 was revised up 2.9 percentage points, from 3.9% in February to 6.8% in April (Table 1), on the back of higher food and energy prices. The forecast for consumer price inflation in 2022 was also revised up in the United States, but only by 2 percentage points. In 2023, inflation is expected to decrease as a result of monetary policy tightening started in early 2022 or expected by year-end.

[1] Every month, Consensus Economics surveys financial and economic forecasters' estimates on a range of indicators, including growth, inflation, interest rates and exchange rates. The most recent surveys for the euro area, countries in Western and Southern Europe, the United Kingdom and the United States are from 9 May, 11 April, 14 March and 7 February. Because of the one-week lag in forecasts across different regions, Table 1 and Figure 1 focus on the euro area, the United States and the United Kingdom. In Figures 2 and 3, forecasts for EU countries are also considered.

Figure 1 Consensus forecasts for real GDP growth in 2022 *(in %)*

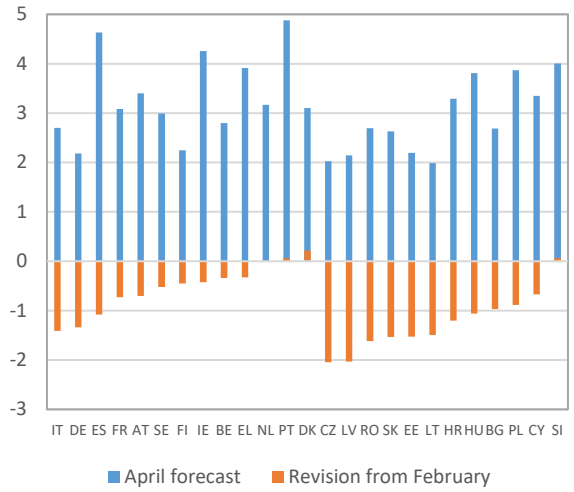


Source: *Consensus Economics.*

Before the war, the gap between US and euro area GDP growth was narrowing. The conflict risks derailing Europe's ability to catch up. From 2019 to 2021, real GDP growth was higher in the United States than in the euro area (**Table 1**). Following the COVID-19 crisis, the strong euro area recovery put Europe on track to close the gap with the United States in 2022. In February, before the outbreak of the war in Ukraine, Consensus Economics was forecasting that the euro area would grow slightly faster than the United States in 2022. However, the forecast for real GDP growth in 2022 in the euro area is now close to that for the United States (**Figure 1**).

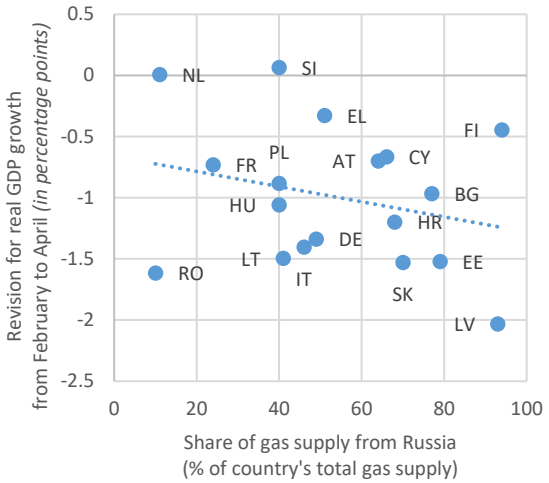
Estimates for real GDP growth in 2022 have been revised downwards particularly strongly in Italy, Germany and Central and Eastern Europe (**Figure 2**). Many Central and Eastern European countries are already hosting large numbers of refugees and are more exposed given their proximity to Ukraine. In addition, as **Figure 3** shows, a negative correlation exists between the revision of the real GDP growth forecast for 2022 and the dependence of countries on Russian gas.

Figure 2 Consensus Economics forecast for real GDP growth in 2022 *(left axis: in %; right axis: percentage points)*



Source: *EIB estimates based on Consensus Economics.*
Note: *Revision of forecasts before and after the war. The figures report the average value of forecasts. The number of forecasts varies across countries, from 29 forecasts in Germany to five forecasts in Cyprus. Malta and Luxembourg are not covered.*

Figure 3 Gas supply from Russia and forecast revision for real GDP growth in 2022



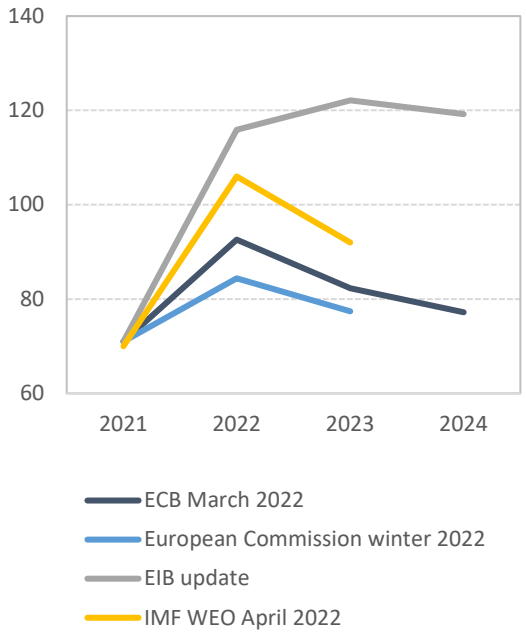
Source: *The European Union's Agency for the Cooperation of Energy Regulators and Consensus Economics.*
Note: *Data on the share of gas supply from Russia in 2019 or 2020 are only available if Russia is among the top three gas suppliers to the country. See note* **Figure 2** *for more information on the nature of forecast revisions.*

Overall, the Russian invasion of Ukraine could lower GDP growth by up to 1.5 percentage points over 2022 and 2023. Most EU forecasts were compiled before the start of the war,[2] and figuring in the changed environment enables estimates of the war's impact on economic growth to be

[2] European Commission (winter 2022) on 10 February, well before the Russian invasion. Moreover, the ECB and the OECD also released forecasts for the euro area in early March 2022.

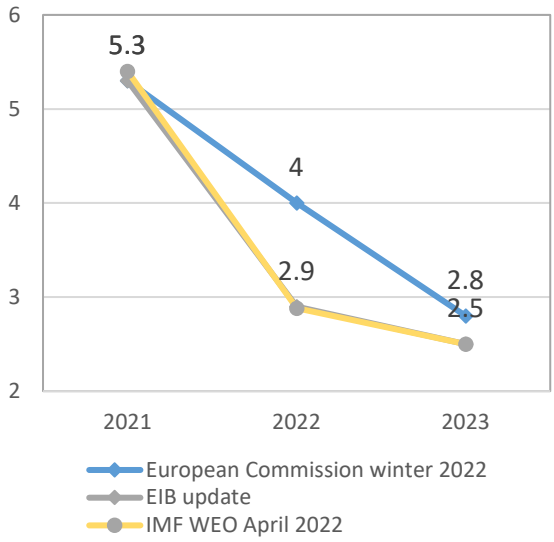
calculated.[3] Commodity prices are assumed to remain at their March average (from 1 to 16 March) throughout the projected horizon, until 2024 (Figure 4). Financial market stress is assumed to remain elevated in 2022, but it should remain below the level observed during the global financial crisis. According to the analysis, GDP growth in the European Union will be 2.9% in 2022 and 2.5% in 2023 (Figure 5). Real GDP growth is expected to be 1.2 percentage points lower for 2022 and 0.3 percentage points lower for 2023 than the rates previously envisaged in the European Commission's winter 2022 projections.

Figure 4 Oil price assumptions *(USD per barrel)*



Source: *EIB estimates based on Bloomberg.*

Figure 5 Projections for real GDP growth in the European Union *(in %)*



Source: *European Commission and EIB estimates based on IHS Markit.*

Estimates from the World Economic Outlook, published by the International Monetary Fund (IMF) in April 2022 (Figure 5), seem to be largely driven by the impact of higher prices. Internal simulations based on an update of the European Commission's winter 2022 projections use more recent prices for food, commodities and energy. These GDP projections are very similar to the most recent IMF ones. Indeed, the latest World Economic Outlook accounts for commodity price developments until the first week of April and therefore incorporates assumptions that are much closer to those used by the EIB. Specifically, the oil price assumptions used in the World Economic Outlook for 2022 and 2023 were USD 106 and USD 92 per barrel (Figure 4). In addition to the baseline, the outlook also provides an adverse scenario to gauge the effect of a further rise in commodity prices (10% and 15% above the baseline in 2022 and 2023), higher inflation expectations and tighter global financial conditions on EU growth. The analysis shows that these additional adverse effects would further lower EU real GDP by 3 percentage points below the normal baseline by 2023.

[3] The analysis is based on the IHS Markit global macro model with assumptions fixed 16 March. A wide range of energy, agricultural and metal commodities are considered.

Households will be hit differently across and within countries

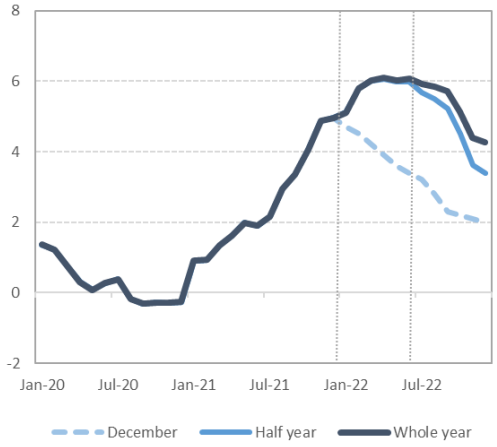
We assess the potential impact of the price shock resulting from the war on EU households, considering differences in income distribution across and within countries and focusing on the most vulnerable households. The price increase triggered by the war could reduce real private consumption by 1.1% in the European Union, and the impact would be felt very differently across countries. The most affected countries are those where the consumption basket is more sensitive to energy and food prices and where a relatively large share of the population is at risk of poverty. The Central, Eastern and South-Eastern European region tends to be more affected than other regions.

Given the uncertainty surrounding inflation, we provide impact analysis rather than projections based on assumptions. We assume that the current pressures on prices will persist. Given the reduction in agricultural production in Ukraine, and the sanctions on Russian agricultural products, food prices are unlikely to decline over the year. For oil, we make two different assumptions: persistently high prices for the first half of the year and then a gradual reduction, or high prices for the whole of 2022. As shown in **Figure 6**, inflation in Europe is likely to remain 2% to 3% above the pre-crisis average for the next two years.

The impact of the inflationary shock on real disposable income is uneven across European countries. The 2 to 2.5 percentage point rise in European inflation is the result of different pressures across EU countries. The impact of food and energy prices depends on the composition of the consumption basket in each country. Therefore, we expect inflation to rise more in countries where such goods constitute a bigger share of the consumption basket. To capture this, we take the deviation of each country's share of food and energy in the average consumption basket with respect to the EU average, and weigh the inflationary shock according to the deviation.[4] The resulting adjusted inflation differs for each country according to the relative importance of these items in the consumption basket.

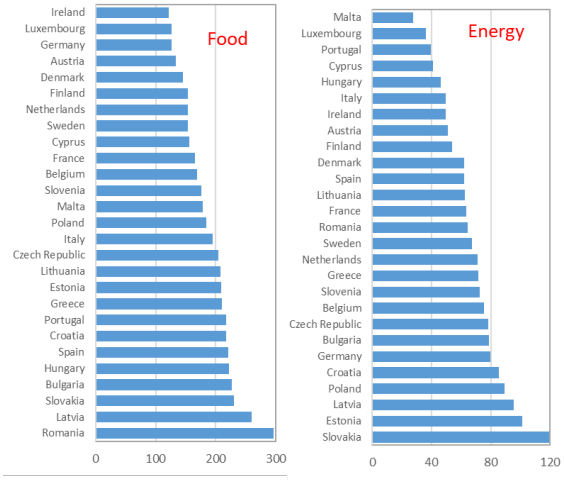
[4] For food, the category "Food and non-alcoholic beverages" is used, while for energy "Electricity, gas and other fuels" is used. The EIB delved more deeply into the data by using a sub-category called "Housing, water, electricity, gas and other fuels." We start by taking the deviation of each country's share of food and energy in the average consumption basket compared to the EU average. We then use this information to measure the country's sensitivity to the inflationary shock, based on the higher or lower weight of these two categories in each country's consumption basket.

Figure 6 Inflation before the crisis and now
(annual rate, in %)



Source: *EIB estimates.*

Figure 7 Weights in the consumption basket
(per 1 000 units of spending)



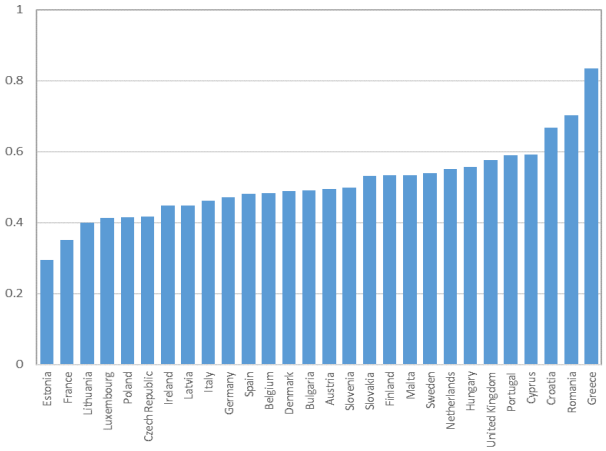
Source: *EIB estimates based on Eurostat.*
Note: *The weights in the consumption basket add up to 1 000.*

In each EU country, the ability of individuals to use their savings to maintain spending differs across the income distribution. People in lower-income brackets (lower quintiles) are less able to save, and thereafter have less capacity to cover price increases. Hence, their spending is more likely to be affected by the crisis. EIB analysis looks at the saving rate across quintiles of disposable income for each EU member. We use the information to calculate how inflation affects private consumption (Figure 8). Poorer households tend to save less, and inflation causes them to reduce consumption. Hence, the impact of inflation on consumption, which we calculate as a ratio, depends on the saving rate per country and the household's position in the income distribution. Taken together with the inflation, this ratio, which is specific to the country and the position in the income distribution, enables us to compute inflation's impact on consumption over the whole income distribution (Figure 9). The result of this "back of the envelope" calculation suggests that a 2 to 2.5 percentage point rise in inflation can depress private consumption 1.1%.

Figure 8 Savings rate

Savings rate	Impact on consumption
Lower than 5%	100%
Between 6% and 15%	70%
Between 16% and 25%	50%
Between 26% and 50%	30%
Higher than 50%	No impact

Figure 9 Inflation pass-through rate for private consumption

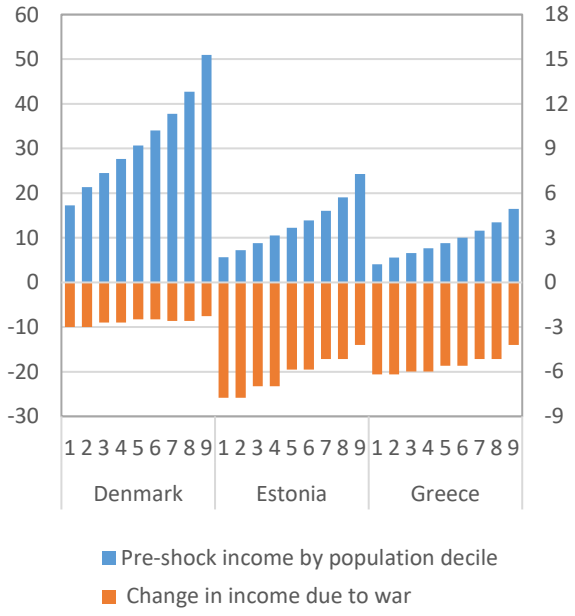


Source: *EIB estimates.*

We then estimate inflation's impact on vulnerable households (those at risk of poverty). The weighting of goods included in the consumer price index in various countries reflects differences in per capita income, among other things. However, in each country food and energy make up a bigger share of spending for lower-income households. We use the share that food and energy represent in the consumption basket of each decile of the population to evaluate the impact of price increases due to the war. Based on this, we calculate the drop in disposable income for each decile in the income distribution. Considering that incomes at 60% of the median level are considered at risk of poverty, we get an estimate of the percentage of people that inflation could push into poverty.[5]

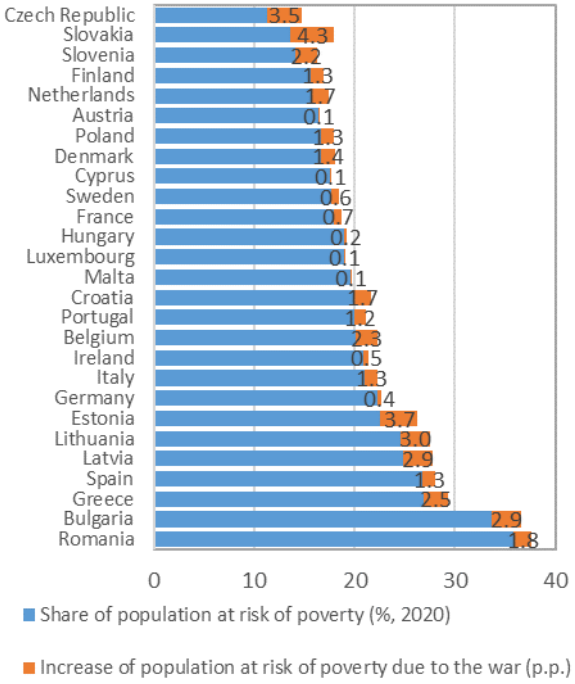
The increase in food and energy prices hits low-income households disproportionally, but to a different extent across EU members. In Estonia, the impact of rising prices on the bottom 10% of income earners is double that of the top 10% earners. In Denmark, the difference is much smaller, largely because savings rates and incomes tend to be higher (Figure 10).

Figure 10 The effect of rising prices on income
(left axis: EUR thousands; right axis: in %)



Source: *EIB estimates based on Eurostat.*
Note: *The weights in the consumption basket add up to 1 000.*

Figure 11 Price rises increase the share of people at risk of poverty *(% of people at risk of poverty for 2020 and increase in percentage points)*



Source: *EIB estimates.*
Note: *The share of the population at risk of poverty refers to 2020 and is reported in per cent. The increase due to the war is reported in percentage points.*

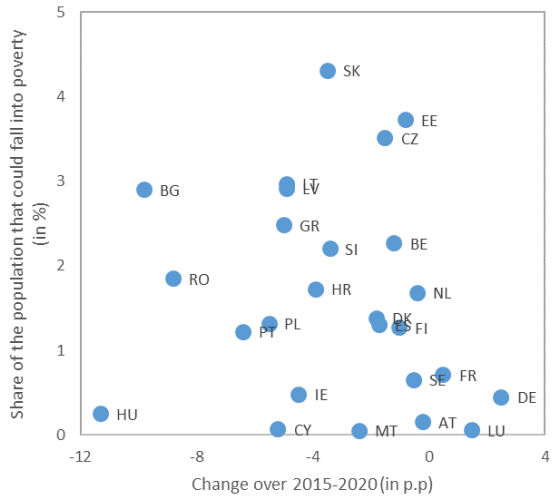
Policies need to be deployed to reduce risks for vulnerable households and to maintain social inclusion. In Europe, social transfers prevent people from falling into poverty. As shown in Figure 13, poverty risks are reduced significantly after these social transfers. Poverty risks increased during the global financial crisis and the sovereign debt crisis, but started to decline with Europe's recovery from these crises. Policy measures were key in keeping poverty at bay during the COVID-19 crisis. Without intervention, rising prices are likely to undo progress made in reducing poverty in some countries

[5] Data on the distribution of income by decile come from Eurostat and are based on the EU Statistics on Income and Living Conditions (SILC) and the European Community Household Panel (ECHP) survey.

(Figure 12 and Figure 13). The risk of falling into poverty is higher for women than for men, and almost double the EU average for single households with dependent children.

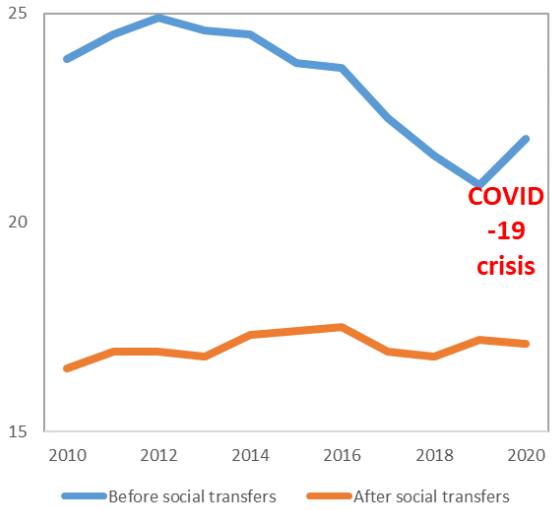
Policymakers at the national and EU level have started to react to the risks inflation poses. EU members have already put in place different measures to support household income or to cap prices through market interventions.[6] Direct transfers and/or changes in tax rates can help households absorb price rises, helping vulnerable populations in the short term. These policies are more difficult to implement in poorer countries with large shares of vulnerable people and less fiscal capacity.

Figure 12 Share of the population at risk of poverty: history and impact of the invasion



Source: *EIB estimates.*
Note: *The rise in the share of the population at risk of poverty refers to 2020 and is reported in per cent. The rise due to the war is reported in percentage points.*

Figure 13 Share of the population at risk of poverty *(in %)*



Source: *EIB estimates based on Eurostat.*
Note: *To get a longer series, the share of the population at risk of poverty is computed using a reduced set of countries compared to Figure 12.*

[6] For example higher support for heating costs for vulnerable households in Germany, or a temporary energy price cap in Romania which limits energy price rises for households and businesses.

Inflation poses a new risk to EU firms already weakened by the COVID-19 crisis

We analyse the implications of the Ukraine conflict on EU firms. We assume that firms' energy bills double and that the increased cost is entirely absorbed by profit margins, without changes in selling prices. We also assume that exports to Ukraine, Russia and Belarus are suspended. In the EIB simulation, in one year, the proportion of firms losing money increases from 8% to 15% and the risk of default rises from 10% to 17%.[7] Chemicals and pharmaceuticals, transport, and food and agriculture are the hardest-hit sectors. Firms in countries close to Ukraine, such as Hungary, Poland, Latvia and Lithuania, feel the pressure the most. Moreover, firms in Greece, Croatia and Spain are also more affected than the EU average. Failing to implement clear policies to protect firms could cause banks to think twice about lending to firms in affected countries, potentially fragmenting the European market. These new pressures could further strain firms already struggling as a result of the COVID-19 crisis and heightened uncertainty.

Exports to Ukraine, Russia and Belarus represent only a small part of GDP for most EU members. These exports accounted for around 1.1% of EU GDP in 2019. However, exposure varies among countries. As shown in **Figure 14**, the share is above 1.5% of GDP in ten EU countries and well above 5% in Estonia and Lithuania. In general, economies closer to Ukraine, Russia and Belarus, mostly from Central, Eastern and South-Eastern Europe, export more to Ukraine, Russia and Belarus, consistent with a gravity model of external trade. Conversely, Southern European economies are much less exposed.

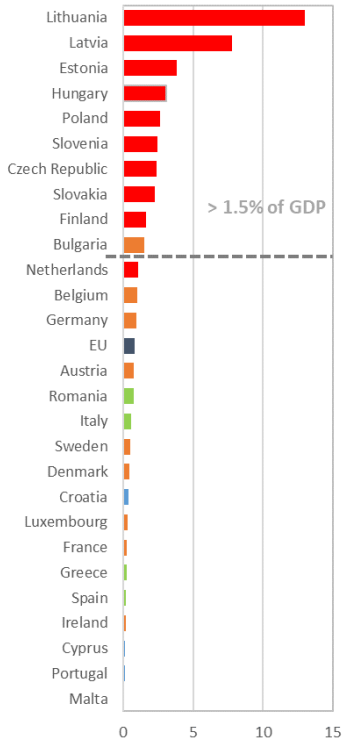
While the dependence of EU economic production on energy has declined overall, it is higher in some countries than others. Over time, as European economies have grown, they have become more technology and service-oriented, sectors that tend to be less energy intensive (**Figure 37**). Volatile energy prices, technological progress and concerns about climate change have pushed firms to improve their energy efficiency. These elements explain why the energy dependence of production has declined in European countries (**Figure 38**).

The sectoral make-up of economies also differs widely, which explains why some countries are more exposed to higher energy prices. **Figure 15** shows the energy intensity of production for each EU member, taken from OECD input-output tables.[8] The differences, from a low of 2% of production in Luxembourg to a high of more than 14% in Lithuania, Greece and Croatia, can be explained by the sectoral composition of the economies and their overall energy efficiency. In general, countries in the CESEE region are more energy dependent.

[7] In the analysis, firms with an interest rate coverage ratio (IRC) below one are considered at risk of default.

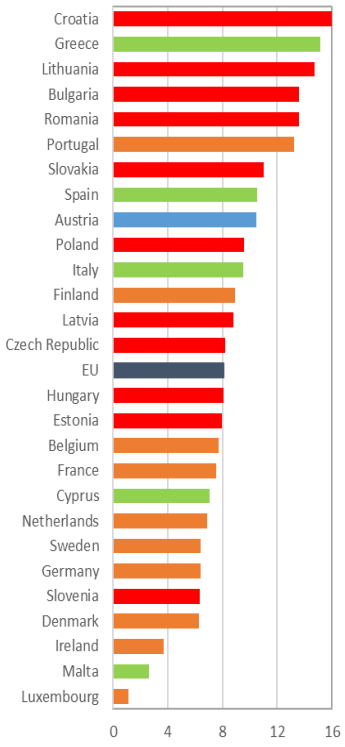
[8] We use the OECD (2018) input-output tables based on data from 2015 for the 27 EU economies. The tables enable us to incorporate the indirect content of energy, or the energy absorbed through the intermediate consumption of an input that also requires energy to produce. At the EU level, this component accounts for at least as much energy as direct content.

Figure 14 Goods exported to Ukraine, Russia and Belarus *(% of GDP, 2019)*



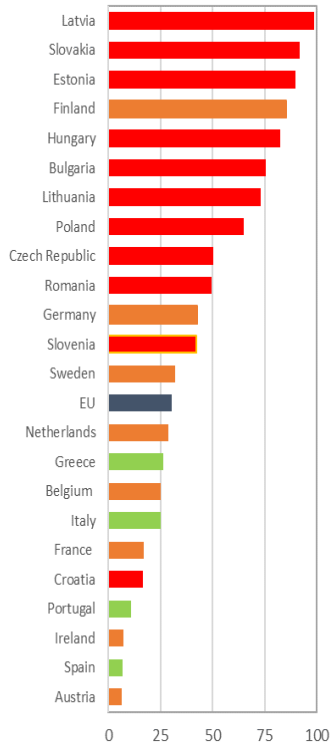
Source: *EIB estimates based on Eurostat.*
Note: *The colour reflects the region in which the economy is located. Red indicates Central and Eastern Europe. Green indicates Southern Europe, and orange indicates Northern and Western Europe.*

Figure 15 Energy intensity of production *(in %)*



Source*: EIB estimates based on OECD input-output tables 2018.*
Note*: See note on Figure 14 for the colours of the bars.*

Figure 16 Share of energy imports outside the European Union coming from Ukraine, Russia and Belarus *(in %)*



Source: *EIB estimates based on Eurostat.*
Note: *The figures refer to the 2019 average. Energy includes natural gas and crude petroleum, coke and refined petroleum and coal and lignite. See note on Figure 14 for the colours of the bars.*

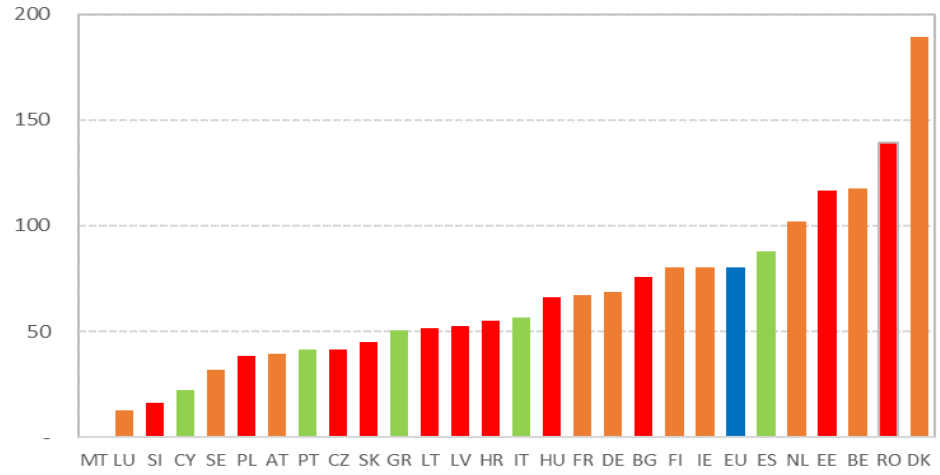
In the current environment, economies dependent on oil and gas are feeling the pressure. Figure 16 shows that in ten EU countries, Russia accounts for more than half of energy imports from outside the European Union.[9] These countries tend to be more dependent on oil and gas for production. Conversely, the countries more reliant on renewables, biofuels and nuclear energy import less from Russia. Countries dependent on Russian oil and gas are also exposed to fluctuations in international markets, for which Russia is a major supplier. Embargoes, damage to production facilities in Ukraine, trade and transport bottlenecks and immediate military needs have caused oil and gas prices to skyrocket on international markets (Figure 40), which affects countries that do not import from Russia directly.

Across EU economies, international energy prices feed through to domestic prices very differently. As shown in Figure 17, increases in international prices of energy sources such as coal, gas and oil have affected domestic prices of energy very differently across EU economies. When comparing a snapshot of prices on 22 February to the same date in 2019, before the COVID-19 crisis, energy prices (which were compiled taking into account the energy mix in each country) increased only 15% in Luxembourg, but 185% in Denmark. On average, they increased by 80% in the European Union. As explained above, the differences in price partly reflect differences in the energy mix. However, other

[9] Ranking the countries from 50% to 100% dependence, Romania is followed by the Czech Republic, Poland, Lithuania, Bulgaria, Hungary, Finland, Estonia, Slovakia and Latvia.

factors such as price settlement contracts, taxes, regulation, transport costs and local margins also matter. Overall, the impact international prices have on domestic ones varies greatly from one country to the next, especially in the short term.

Figure 17 Relative increase in energy prices *(February 2022 vs. 2019, in %)*



Source: *EIB estimates based on Eurostat.*
Note: *The colour reflects the region in which the economy is located. Red indicates Central and Eastern European countries. Green indicates Southern European countries, and orange indicates Northern and Western European countries.*

Taking into consideration firms' varying exposure to energy costs, we assume that their energy bills double for at least one year. In our simulations, we assume that firms cover energy price rises by reducing their profit.[10] We assume demand is inelastic and the rise in cost is entirely absorbed by profit margins instead of increased sales prices. Lower profits flow through the balance sheet:[11] lower cash reserves, a lower capacity to pay back debt and a reduction in the equity base when losses are realised. Analysing these channels in parallel and taking into consideration the initial balance sheet structure, we compute how higher energy prices will change the share of firms losing money, firms running out of cash, firms at risk of default (with an interest rate coverage ratio below 1, and firms' solvency risk (falling into negative equity).

The energy price shock propagates across sectors through the direct and indirect consumption of energy. Overall in the EU economy, total energy consumption accounts for 7% of total output. At the sectoral level, this total consumption can be broken down into direct and indirect consumption. The indirect consumption of energy relates to the energy content of the intermediary goods incorporated in the production process of the final good. It can be estimated using input-output matrices. **Figure 18** shows that the indirect effects are more pronounced than the direct effects. Overall, energy inputs are particularly intense for the chemicals and pharmaceuticals, transport and raw materials sectors

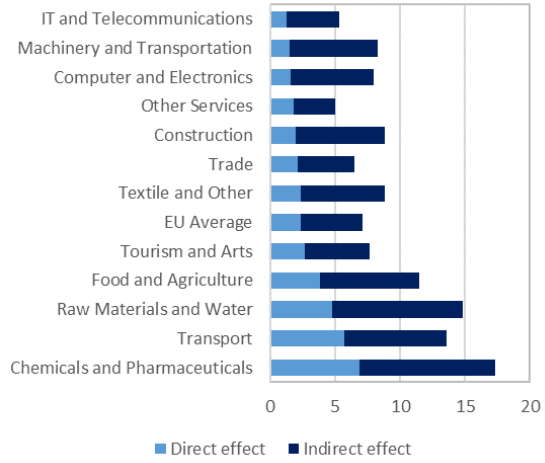
[10] We simulate profit and loss evolution using the firm-level infrastructure developed since COVID-19 (Maurin et al., 2020), in which we match with balance sheet characteristics. We use the EIBIS-ORBIS matched database (around 45 000 firms). We derive changes in risk metrics (Harasztosi et al., 2022). We also consider dependence on intragroup financial flows, credit constraints (both from the EIB Investment Survey over several years), extra-EU exports to Ukraine, Russia and Belarus, imports of energy (taken from Eurostat), and input-output tables from the OECD, at the country level.

[11] ΔProfits = ΔSales – ΔCosts. ΔCosts = – ΔEmployees Cost + ΔFin. Costs + ΔAdm. Costs + ΔMaterial Costs. $\Delta\log$(Costs component) = α(sec) . $\Delta\log$(Sales) with $0 < \alpha < 1$. ΔSales shocked given the export exposure. Costs react imperfectly and with a lag to the change in demand caused by the lower export activity. ΔMaterial costs exposed to the rise in energy price * share of energy in the sector. The simulations are based on firm-level data and sector-specific estimations of the cost elasticities and cost composition (Maurin et al., 2020).

for which energy dependence is around 15%. Conversely, IT and telecommunications, construction, services and trade are less reliant on energy inputs.

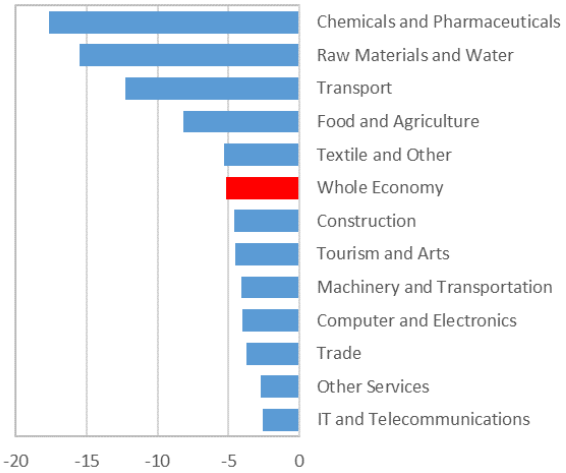
Figure 19 shows the consequences of a 100% increase in energy prices, resulting in a doubling of the energy bill.[12] Overall, the adverse shock leads to a 6% decline in the value firms add. The response is uneven across sectors, with price rises hitting the most energy-intensive sectors the hardest. For example, value added declines by 15% in the chemicals sector. Given the diverse composition of EU economies, the impact of the same energy supply shock is uneven across countries.

Figure 18 Direct and indirect use of energy *(% of total output)*, by sector



Source: *EIB estimates based on OECD input-output tables (2018).*

Figure 19 The impact of doubling the energy bill on the value added in various sectors *(in %)*



Source: *EIB estimates based on the OECD input-output tables (2018).*
Note: *Simulation of a 100% increase in energy prices.*

The proportion of firms losing money doubles compared to normal times. Figure 20 clearly shows that for many countries, the share of firms recording losses rises well above the EU average of 8% during normal times. The proportion increases by more than 8 percentage points in 12 countries, and by up to 28 percentage points in Greece. The impact of energy prices and export disruptions differs across countries. In Austria, Germany, Greece, Italy, Romania, Spain and Portugal, energy prices have a bigger impact, while in Lithuania, Hungary, the Czech Republic, Estonia and Latvia, exports matter more.

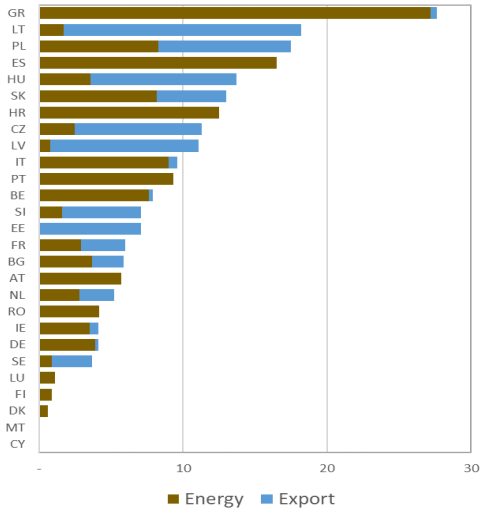
We then allocate the change in profits to either a firm's cash reserves or its equity. Figure 21 shows that in one year, the return on assets of EU firms falls by 3 percentage points, while the share of firms losing money increases from 8% to 15%. Default risk — the proportion of firms with an interest rate coverage ratio (IRC) below one — rises from 10% to 17%, and the share of firms at risk of insolvency, or negative equity, rises 2 percentage points.

The energy dependency of sectors influences the outcome. Figure 22 correlates energy dependency and an index of vulnerability obtained by averaging the proportion of firms at risk, the insolvency risk and the default risk at the sector level, after standardising these measures. We find that chemicals and pharmaceuticals, transport, and food and agriculture are the hardest hit, mostly because of their

[12] The effect of the energy shock on the production costs of the other sectors is estimated using the Leontief inverse matrix, obtained from the input-output table.

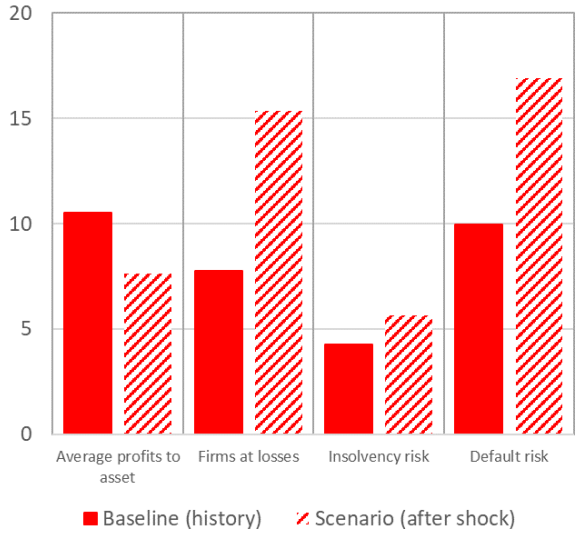
high energy dependence. With the exception of transport, the sectors most affected differ from those destabilised by the COVID-19 crisis.

Figure 20 Increase in the share of firms reporting losses *(in percentage points)*



Source: *EIB estimates.*

Figure 21 Corporate risk metrics: history and scenario *(% of firms)*



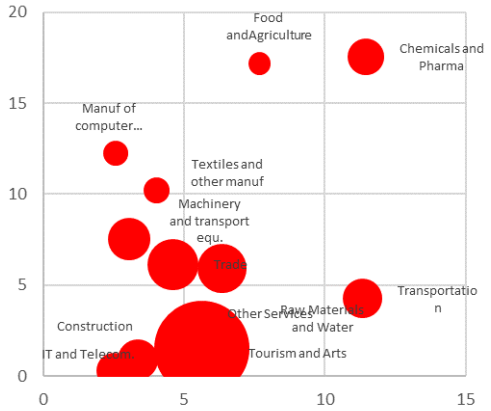
Source: *EIB estimates.*
Note: *Share of firms with losses, negative equity and IRC<1.*

A confidence crisis could make finance difficult to find, putting even more stress on firms. European firms have been developing value chains within the European Union, with firms focused on assembly importing goods from other countries for intermediary consumption. This integration process took for granted the integrity and security of Europe. However, the war in Ukraine is increasing political and security risks in the neighbouring countries. Consequently, cross-border financing may tighten, especially in the Central, Eastern and South-Eastern Europe region. We test the impact of financial stress on firms in EU countries by assuming that in all countries, short-term debt is no longer rolled over for finance-constrained firms. We also assume that 20% of net trade credits, a form of commerical finance, are no longer available in CESEE.[13] These two changes increase the cash firms need to finance working capital, further depleting their cash reserves. **Figure 23** reports the resulting increase in the share of firms running out of cash. It is well above 8% in seven countries.

A country's proximity to Ukraine, Russia and Belarus appears to matter, but it is not the only factor. **Figure 24** uses a colour code to link the increase in risk in the vulnerability indicator with the physical location of firms. The vulnerability indicator is obtained by weighting the three risk indicators after they have been standardised. The darker the country, the more firms are affected. Clearly, location matters. Firms in Hungary, Poland, Latvia and Lithuania — which are closer to Ukraine — feel the effects more. However, firms in Greece, Croatia and Spain are harder hit than some other EU countries.

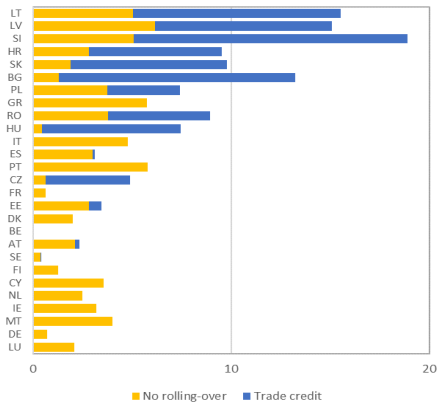
[13] The EIB Investment Survey is used to distinguish finance-constrained firms. The approximated subsidiary dependence on trade credit originating in the non-CESEE region is 20%. We only look at the net trade position for firms in CESEE that have net debt vis-à-vis other firms in the region.

Figure 22 Energy dependence *(x-axis)* and firm vulnerabilities across sectors *(y-axis)*



Source: *EIB estimates.*
Note: *The x-axis depicts the energy dependence in each sector. The y-axis indicates the increase in the vulnerability indicator (mean share of firms with losses, IRC<1 and negative equity). The size of the dot reflects the share of the sector in the economy.*

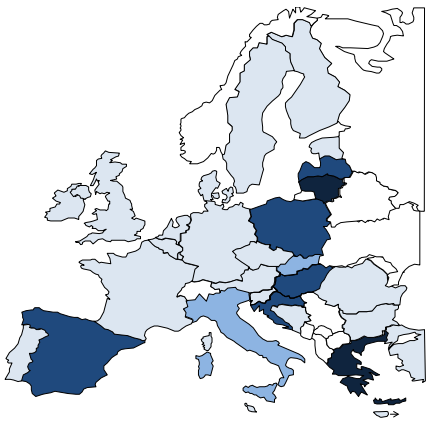
Figure 23 Rise in the share of firms that run out of cash if funding stress increases *(in %)*



Source: *EIB estimates.*
Note: *In the scenario, short-term debt is no longer rolled over for finance-constrained firms, and 20% of net trade credits are no longer financed in Central, Eastern and South-Eastern Europe.*

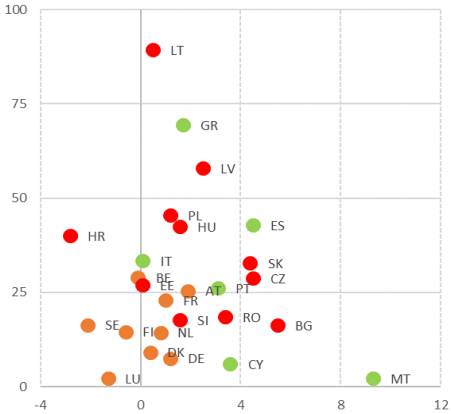
The war is exacerbating the vulnerability of firms already weakend by the COVID-19 crisis. In Figure 24, the same synthetic vulnerability indicator is correlated with the 2022 real GDP gap expected between the European Commission's autumn 2019 and winter 2022 economic forecasts. This gap measures the impact of the COVID-19 crisis on real GDP after the massive policy support deployed. While real GDP had returned to levels reached before the pandemic by the end of 2021, it was still well below the pre-crsis trend in the European Union overall and in most EU members individually. The war slowed down the economic recovery and created new sources of vulnerability. Figure 24 shows that across EU countries, the vulnerabilities have little to do with the COVID-19 crisis. Instead, they are new sources of stress. This new stress is definitely a source of concern for economies located in the upper right-hand portion of the figure. Here, economic activity remains below pre-crisis levels, and the rise in vulnerabilities is more pronounced.

Figure 24 Vulnerabilities across countries



Source*: EIB estimates.*
Note: *Darker colours represent the countries most affected. Based on the synthetic vulnerability indicator, which weights three sources of vulnerabilities. Funding stress not included.*

Figure 25 Gap with the trend before COVID-19 *(x-axis)* and vulnerability indicator *(y-axis, an index based on 100)*



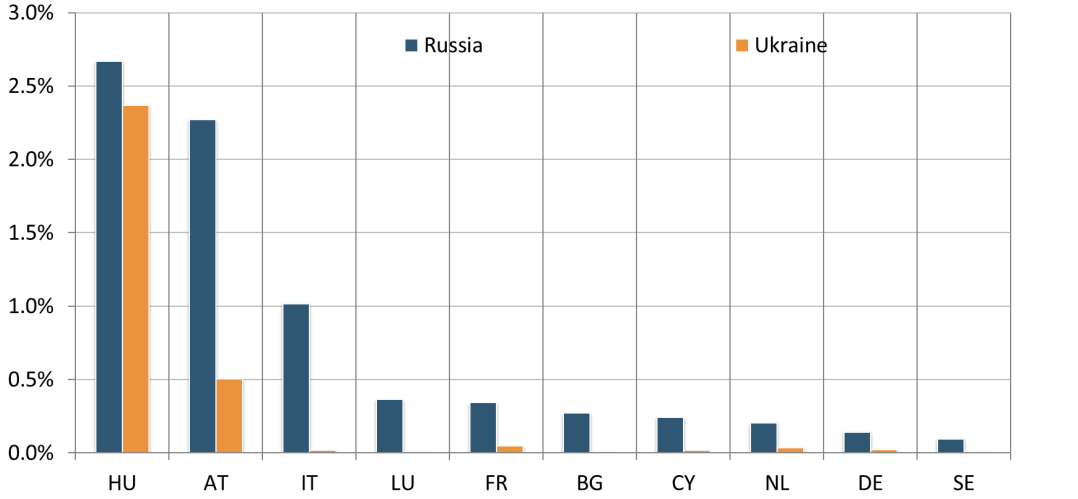
Source: *EIB estimates based on Bureau van Dijk's ORBIS database and EIBIS and European Commission forecasts.*
Note: *The y-axis indicates the increase in the vulnerability indicator. The x-axis reports the gap between real GDP in 2022 expected in the European Commission's autumn 2019 and winter 2022 forecasts.*

Overall, European banks should cope with the crisis but credit could start to tighten, especially in Central, Eastern and South-Eastern Europe

In the immediate future, the impact on banks should remain relatively contained. The European banking system as a whole has very little direct exposure to Ukraine, Russia and Belarus, but the countries are important for a handful of banks. However, many banks have shored up their capital buffers sufficiently to withstand the write-down of assets in Ukraine and Russia. Despite that, credit standards have started to tighten, especially in the CESEE region.

The direct effects of exposure to Russia and Ukraine are concentrated in a few countries and with a limited number of banks. As of the fourth quarter of 2021, according to the European Banking Authority (EBA), banks reported exposures (loans, advances and debt securities) of EUR 76 billion to Russian counterparties and EUR 11 billion to Ukrainian ones. Austrian, French and Italian banks reported the highest levels of exposure to Russia. Austrian, French and Hungarian banks were the most exposed to Ukraine. Yet only Austrian and Hungarian banks reported that Russia and Ukraine represented more than 2% of their total exposure, and those loans and investments were mainly driven by the banks' subsidiaries (Figure 26).

Figure 26 Banking exposure to Russia and Ukraine *(% of total exposure),* by country

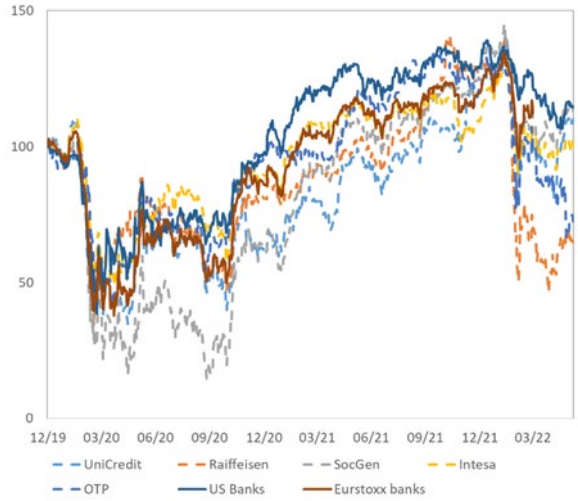


Source: *EBA Risk Dashboard fourth quarter of 2021.*
Note: *Estimate as of December 2021.*

The longer-term effects of the conflict could be broader and could ultimately affect countries with less direct exposure to Russia and Ukraine. It is unclear how the ultimate outcome of the war will affect the global economy, particularly the European Union. Further tensions in supply chains, disrupted trade relations and sanctions might impair aggregate supply over the broader European Union. On the demand side, increasing energy and commodity prices will cut into household and firms' income, while the increased uncertainty caused by the war will damage investment and consumer confidence. These pressures could lead to increased credit risks for banks and a decline in asset quality.

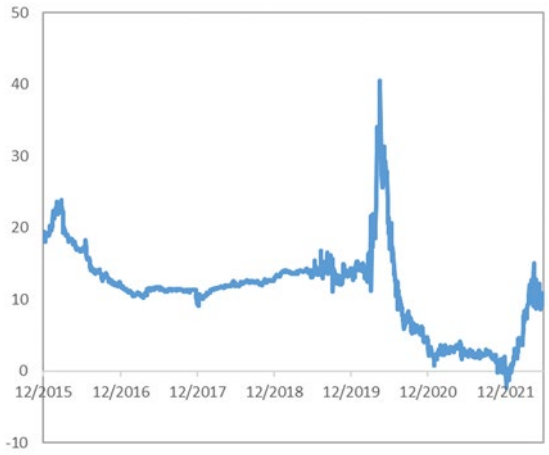
Markets have priced the direct and indirect impact of the war into bank shares, while distinguishing between the different banks. Share prices of European banks declined by 30% in the immediate days after the invasion, while US banks fell 15%. Still, in both cases the fall in bank shares was smaller than in March 2020, when Europe announced the first pandemic lockdowns. Since then, the overall banking index has recovered by 20% in Europe. In the United States, investors are increasingly discerning about the banks they expect to be affected. The share prices of banks more directly exposed to Russia and Ukraine, such as Raiffeisen, OTP Bank of Hungary, UniCredit or Banca Intesa of Italy remain 30% to 50% below the levels registered before the Russian invasion of Ukraine (Figure 27). Credit markets had broadly the same reaction, with the spreads of credit default swaps widening, albeit less than during the COVID-19 crisis. The credit spreads of the banks more exposed to Russia and Ukraine widened significantly more.

Figure 27 Selected bank equity prices
(31 December 2019 = 100)



Source: *EIB estimates based on Bloomberg data.* ***Note:*** *Last record is 7 June.*

Figure 28 Euribor-OIS spread
(in basis points; three-month maturities)

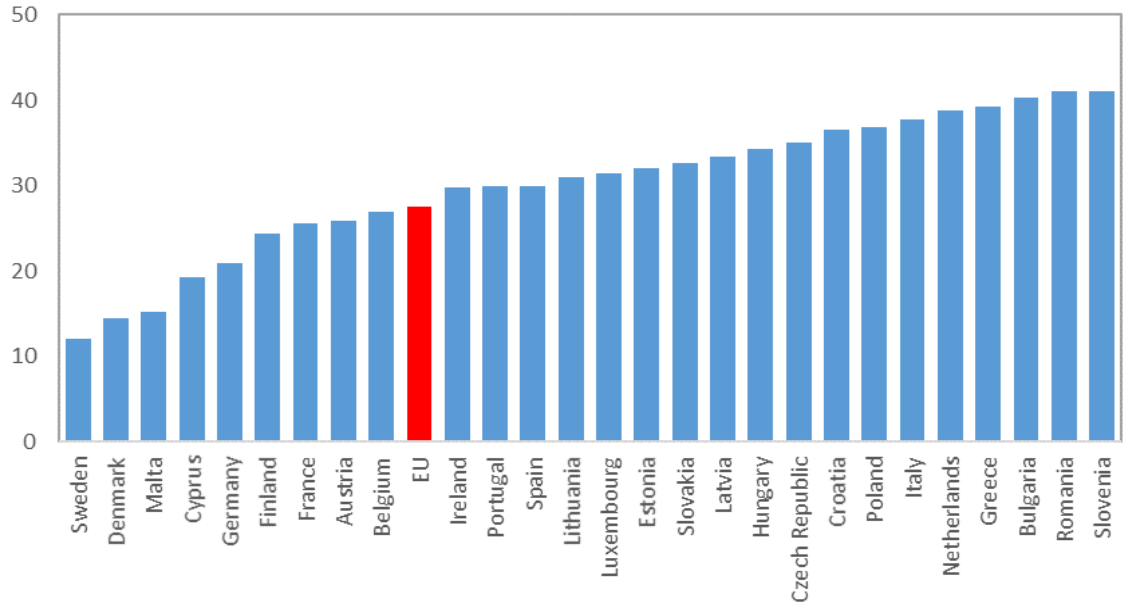


Source: *EIB estimates based on Bloomberg data.*
Note: *OIS refers to the overnight index swap. Euribor refers to the Euro Interbank Offered Rate. Last record is 7 June.*

Liquidity remains abundant, despite the widening of some money market spreads. Some market watchers highlighted the widening of money market spreads after the start of the war as a sign of deteriorating liquidity conditions. However, these spreads had already started widening in December 2021, after the ECB Governing Council signalled the central bank was ready to take the first steps towards normalising monetary policy. The spreads also started to widen again after the three-month Euribor-OIS spread had declined to its lowest level ever (Figure 28). Moreover, liquidity still remains as pervasive, and finance conditions as supportive, as before the pandemic.

Going forward, bank risk will likely hinge on exposure to the economic sectors most affected by trade disruptions and rising prices. As explained in the section about the conflict's impact on firms, liquidity and solvency will be uneven across the EU economy. Banks more engaged in the most exposed sectors, such as food and agriculture, chemicals and pharmaceuticals, and manufacturing and transport, could be more affected. We looked at banks' total loan exposure to these sectors, as reported in the latest EBA Risk Dashboard for the fourth quarter of 2021, to determine the countries most at risk (Figure 29).

Figure 29 Share of the loan book exposed to economic sectors most at risk, fourth quarter of 2021
(% of total loans)

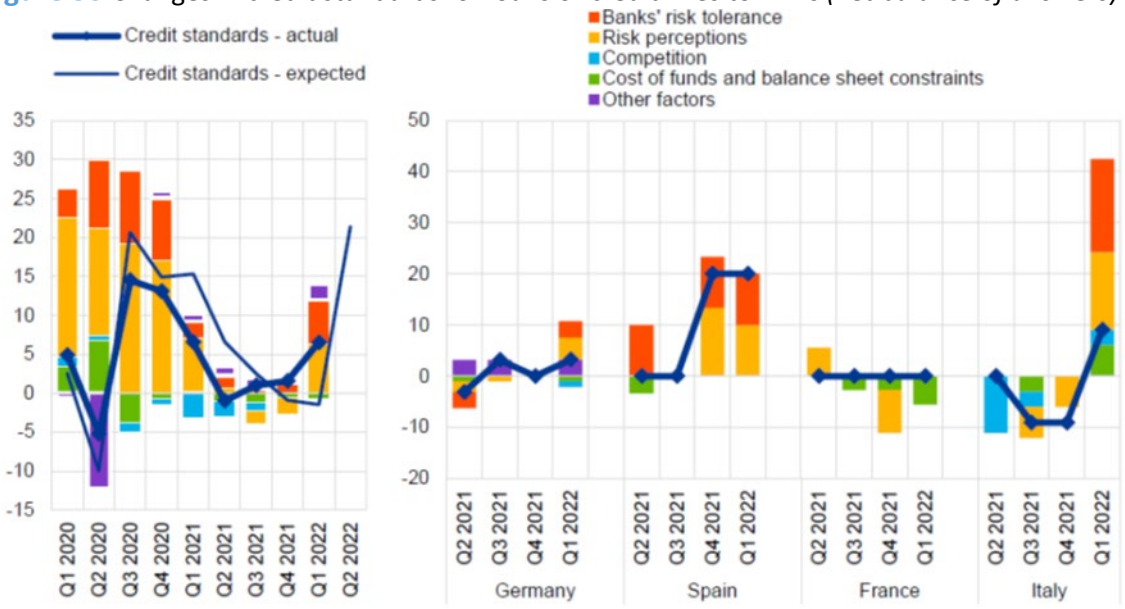


Source: *EIB estimates based on the EBA Risk Dashboard for the fourth quarter of 2021.*

On average, less than 30% of the EU total loan book is allocated to the sectors most at risk. However, the impact is relatively mixed across countries (**Figure 29**). Some banking sectors, like Slovenia, Romania, Bulgaria, Greece and the Netherlands, report total exposure of close to 40% of the loan book, while others, like Sweden, Denmark, Malta or even Cyprus, report 20% or less. Despite these risks, capital ratios remain sound across the EU financial sector.

In the latest ECB Bank Lending Survey, euro area banks reported tightening credit standards for loans or credit lines to firms in the first quarter of 2022, due largely to the war, and banks expect conditions to tighten even further in the second quarter (Figure 30). Banks are concerned about the effect of supply chain disruptions, high energy prices and other input costs, as well as increased credit risks because of firms' exposure to Ukraine, Russia and Belarus. Tightened credit is being felt across smaller and larger firms, with similar credit conditions to those observed in July 2020, at the height of the pandemic, and January 2012, during the euro area sovereign debt crisis. Still, it is important to note that this increase is not being felt across all of Europe. Credit standards have tightened in Germany, Spain and Italy, but remain unchanged in France.

Figure 30 Changes in credit standards for loans or credit lines to firms *(net balance of answers)*



Source: *ECB Bank Lending Survey, first quarter of 2022.*

Several large European banking groups have a strong presence in Central, Eastern and South-Eastern European countries. As indicated in **Figure 31**, Erste and Raiffeisen of Austria, UniCredit and Intesa Sanpaolo of Italy, KBC of Belgium, OTP of Hungary, Société Générale of France and ProCredit of Germany have a number of subsidiaries in the CESEE region, and the banks are often the top players in each country. Some of the banks have subsidiaries in Russia (Raiffeisen, UniCredit, Intesa Sanpaolo, OTP, Société Générale) or Ukraine (Raiffeisen, Intesa Sanpaolo, OTP, ProCredit).

Besides these regional players, other large banking groups are also active in Russia (BNP Paribas, Crédit Agricole, ING, Deutsche Bank, Commerzbank, Credit Suisse, UBS, among others) or Ukraine (SEB, Pireus Bank, ING, BNP Paribas, Crédit Agricole) and some others global players provide credit to Russian companies from different hubs (investment banking activities from London or the United States, for instance). Many of these banks have announced that they are suspending all services in Russia. Société Générale, Raiffeisen and UniCredit are among the top three international banks in Russia, and they are all exiting or unwinding assets in the country. Société Générale declared it would sell its Russian subsidiary Rosbank (and announced a EUR 3.1 billion hit from the sale). Austria's Raiffeisen Bank International also said it was looking at ways to exit the country, while UniCredit has set aside EUR 3.1 billion to cover any Russian exposure. (The bank signalled that in the worst-case scenario, it could lose EUR 5.3 billion if its entire Russian business was wiped out).

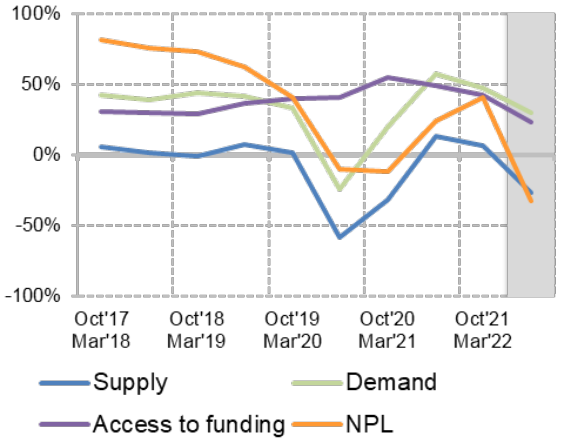
Overall, *direct* bank exposure to Russia is manageable, but the profitability of some groups will be compromised if they have to completely walk away from their subsidiaries in Russia. Local subsidiaries are normally self-funded (thanks to high levels of deposits), and they are little dependent on funding from the rest of the group. This situation helps reduce banking groups' overall exposure. Additionally, strong capital positions at big banking groups will help cushion any blow. On the other hand, if the war drags on, the *indirect* effects could be more pronounced, particularly if Europe falls into recession or banks' balance sheets are significantly weakened.

Figure 31 Main regional banking groups in the CESEE region

	Erste	*Raiffeisen*	*UniCredit*	*Intesa SanPaolo*	*KBC*	*OTP*	*Société Générale*	*ProCred*
Headquarter	Austria	Austria	Italy	Italy	Belgium	Hungary	France	Germa
Czech R.								
Slovakia								
Hungary								
Poland								
Romania								
Bulgaria								
Slovenia								
Croatia								
Bosnia-H.								
Serbia								
Kosovo								
N. Macedonia								
Albania								
Ukraine								
Belarus								
Russia								

***Source**: EIB estimates based on banks' annual reports.*
***Note:** A blue area indicates the group owns assets in the country.*

Figure 32 Expectations at CESEE banks
(net balances, in %)



***Source**: EIB-CESEE Bank Lending Survey.*
***Note**: Supply/Demand: Positive figures refer to increasing demand or easing supply conditions. Access to funding: Positive values indicate increased access to funding. NPL refers to non-performing loans and negative figures indicate increasing NPL ratios.*

The EIB's CESEE Bank Lending Survey provides early insights into the effect the war is having on bank credit in the region. Countries in this region are particularly exposed to spillovers from the war because of their tighter financial links with Russia, the flow of refugees, their trade links, reliance on foreign direct investments and their energy dependence. The results of the CESEE Bank Lending Survey, administered by the EIB in the context of the Vienna Initiative[14], illustrate the possible impact the war could have on banking in the region and the availability of credit for companies and households.[15] The information was collected at the end of March, and therefore incorporates sentiment on the Ukraine war.

After significant improvement in credit supply and demand, funding and credit quality, Central, Eastern and South-Eastern European banks are now signalling a turning point, in which geopolitical uncertainty is negatively affecting their expectations (Figure 32). The impact of the COVID-19 crisis was strong but credit demand rebounded in 2021, and supply conditions started to ease slowly towards the end of 2021 and early 2022. The ample policy responses of national governments and EU institutions to the crisis prevented harsh deleveraging. However, the war in Ukraine is negatively influencing banks' expectations. Demand from bank clients is expected to remain strong, despite being more tilted towards working capital and less on investment finance. Credit, however, appears to be tightening, and bank expectations are souring amid uncertainty over markets' reaction to the crisis, questions about policy intervention and inflationary pressures.

Funding conditions are expected to deteriorate. To some extent, these deteriorating conditions are a result of reduced central bank support. Credit quality is also expected to suffer. These negative sentiments potentially reflect long-term perspectives, such as lower revenues, higher costs, supply

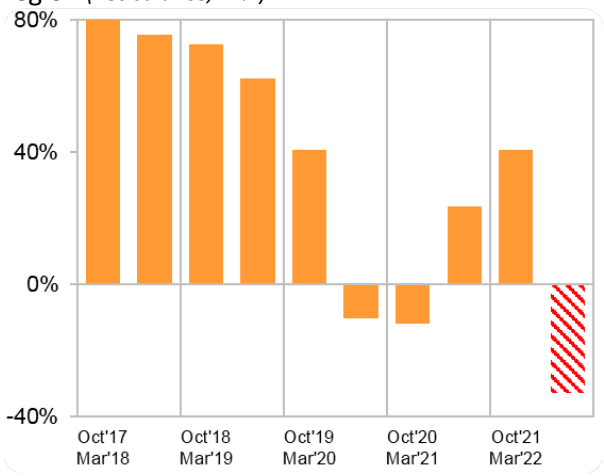
[14] The Vienna Initiative seeks to safeguard the stability of the financial sector in Central, Eastern and South-Eastern Europe.
[15] The CESEE Bank Lending Survey was developed by the EIB in the context of the Vienna Initiative 2.0 and contributes to monitoring cross-border banking activities in the region and better understanding the determinants/constraints influencing credit growth. Most questions have backward- and forward-looking components, covering the last six months and expectations for the next six months. The latest survey involved 12 international groups operating in CESEE and 70 local subsidiaries/independent domestic players, representing more than 50%, on average, of local banking assets. For more information on the Vienna Initiative see: Vienna Initiative (eib.org) and Vienna Initiative (vienna-initiative.com)

disruptions, withdrawal of COVID-19 support, etc. We must note that current bank expectations were formed in March 2022, and therefore do not reflect potential fiscal and monetary policy responses across the region, which may soften the outlook.

Despite uncertainty and the increasing risks, international banking groups remain confident in the region's potential. Banking groups are overall comfortable with their exposure, and they plan to maintain (75%) or even increase their exposure (17%) to the CESEE region. Only a small share are planning to sell assets or embark on strategic restructuring (in both cases, the likelihood of taking action is only marginally higher than in the previous six months).

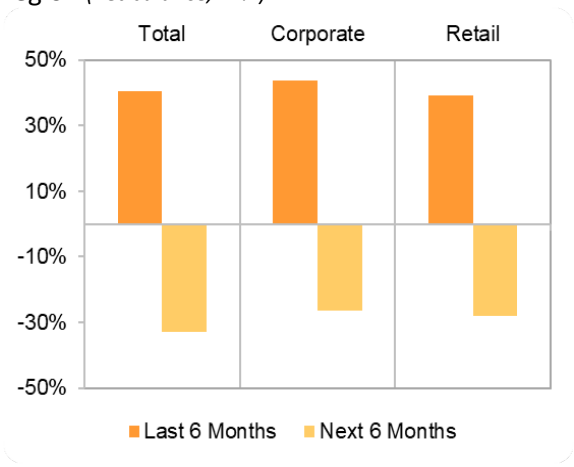
Non-performing loans are expected to rise substantially. Ratios of non-performing loans (NPLs) were declining from the beginning of 2018 until the start of the COVID-19 crisis (Figure 33). An increase in non-performing loans at the beginning of the pandemic was short-lived, and it immediately dissipated as the economic recovery began in the second half of 2021. The latest survey shows that expectations have turned negative again since the start of the war, and more substantially so than during the COVID-19 crisis. Both corporate and household exposures are expected to be affected (Figure 34).

Figure 33 Evolution of NPL ratios in the CESEE region *(net balance, in %)*



***Source**: EIB-CESEE Bank Lending Survey.*
***Note:** Net percentage; negative figures indicate increasing NPL ratios.*

Figure 34 Most recent NPL ratios in the CESEE region *(net balance, in %)*



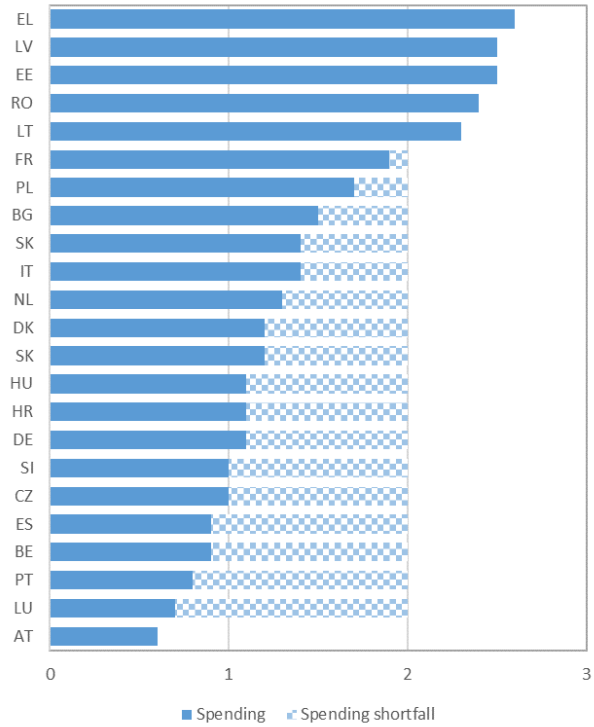
***Source**: EIB-CESEE Bank Lending Survey.*
***Note:** Net percentage; negative figures indicate increasing NPL ratios.*

The Ukraine conflict will weigh on government finances

The war will negatively affect the fiscal balances of EU members. Spending is likely to rise as countries host refugees, implement redistributive measures to help households cope with rising energy prices and increase commitments for military spending. In addition, revenue will be lower than planned given the economic slowdown. Overall, budgets are expected to be most affected in EU members neighbouring Ukraine and in the Baltics. However, funds available from the Recovery and Resilience Facility (RRF) may give governments fiscal room to manoeuvre. Hungary has already expressed its intention to use the funds for such a purpose.

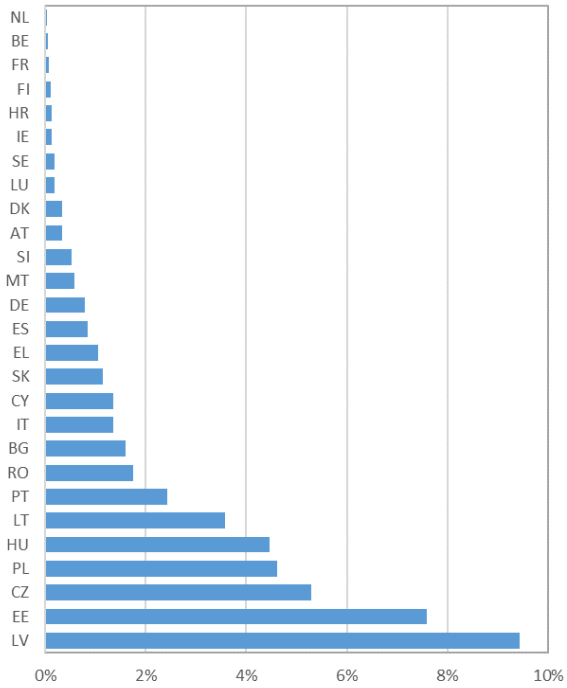
Most EU governments have committed to increase their military spending. Military spending in most NATO members in the European Union does not meet the target of 2% of GDP (**Figure 35**). To meet the targets, spending will need to be considerably increased, not only for countries in Western Europe such as Germany and Spain, but also for Eastern European countries such as the Czech Republic and Slovenia. Nevertheless, government budgets may not immediately feel the strain as most countries intend to phase in the spending increase. But it remains to be seen whether national parliaments will approve the increased military spending.

Figure 35 Military spending shortfalls and commitments *(% of GDP)*



Source: *EIB estimates based on Eurostat (COFOG) data on military spending.*

Figure 36 Expected costs of accommodating refugees *(%* of GDP)



Source: *EIB estimates.*

Note: *Figures assume 3.5 million refugees from Ukraine will arrive in the European Union, and that governments will need to spend EUR 10 000 per refugee.*

The cost of accommodating refugees is expected to be substantial. In the short run, the inflow of Ukrainian refugees will primarily strain the finances of EU members bordering Ukraine. Over time, however, refugees will likely relocate to countries in which they have family and friends, and that movement will be facilitated by the decision to grant work permits and free movement within the European Union. Taking into consideration where the Ukrainian diaspora primarily lived before the invasion, the countries expected to shoulder the biggest expenses for refugees are the Baltics, the Czech Republic, Poland and Hungary (**Figure 36**). Should refugees decide to stay for more than a few years, their host countries are likely to benefit financially from their presence.[16]

Government policies to cushion energy price rises will further strain budgets. The increase in energy prices has prompted EU members to put in place measures to shield households and/or firms from the direct impact of rising prices. The measures taken include a combination of lump-sum payments, tax reductions, energy subsidies and caps on energy price increases. Only some of these measures include incentives for the green transition, such as lump-sum payments.[17] Where estimates are available, the cost of the announced packages hovers around 0.5% of GDP — from 0.3% in Belgium and Estonia, to 0.4% in the Netherlands and 0.6% in France and Italy.[18] Some countries have announced additional sources of revenue such as taxes on energy providers (Bulgaria, Italy and Romania) and higher carbon tax revenues (Germany, Greece, Ireland and Italy) to cover part of the additional spending.

A number of EU countries need to invest heavily in energy security. The European Commission proposed an outline of a plan (REPowerEU) to encourage investment in energy security (see the Joint European action for more affordable, secure and sustainable energy (europa.eu)). The measures include diversifying gas supplies, speeding up the rollout of renewable gases and replacing natural gas in heating and power generation. EU members dependent on Russian energy imports have started to implement their own plans. Germany, for example, is planning large investments in liquefied natural gas (LNG) terminals to reduce its gas dependency (including renting floating LNG terminals for the shorter term), and is starting to substitute coal and oil imports from Russia. These plans are evolving and their costs have not yet been published.

Government revenues are likely to fall short of forecasts made before the war. The economic slowdown caused by the war is likely to result in revenue shortfalls (relative to the levels originally foreseen in draft budgets), putting pressure on government budgets. Although the exact slowdown in GDP growth is still uncertain, historic data show that a 1% drop in output coincides with a 1.04% decrease in public revenues on average in the European Union.[19] The shortfall will affect countries differently, with elasticities varying from 0.78 in Bulgaria to above 1.1 in the Netherlands, Malta and Cyprus. Higher numbers imply that tax receipts will be more affected by the economic slowdown.

Overall, fiscal balances will worsen unless government measures offset the economic impact. Financing the additional expenditures and revenue shortfalls will not necessarily result in considerably higher budget deficits for the most affected countries. For example, in 2020, the European

[16] Simulations for the period 2015-2035 show positive net fiscal contributions by migrants coming from within the European Union. See Bélanger, A., Christl, M., Conte, A., Mazza, J. and Narazani, E. (2020), "Projecting the net fiscal impact of immigration in the EU," Joint Research Centre (JRC), European Commission.

[17] Communication from the European Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions, "Tackling rising energy prices: a toolbox for action and support," COM(2021) 660 final.

[18] The OECD also uses an average 0.5% of GDP government spending increase in response to the war in its simulations for the March 2022 Economic Outlook, "Economic and Social Impacts and Policy Implications of the War in Ukraine."

[19] Mourre, G., Poissonnier, A. and Lausegger, M. (2019), "The Semi-Elasticities Underlying the Cyclically-Adjusted Budget Balance: An Update & Further Analysis," ECFIN Discussion Paper 98, European Commission.

Commission offered to subsidise the resettlement of refugees from more affected EU members to less affected countries by providing EUR 10 000 per refugee.[20] Moreover, in some countries energy subsidies are at least partly funded by taxes on energy companies. To avoid higher budget deficits, another option would be to shift expenditures from seemingly less urgent public investment to current spending. For example, the European Union's Cohesion's Action for Refugees in Europe initiative allows Member States to use some cohesion funds to support refugees. Similarly, there have been calls from a number of officials to allow some grants financed by the Recovery and Resilience Facility (RRF) to be used for current spending.[21] Evidently, such measures involve a trade-off: covering current fiscal needs at the expense of higher economic growth in the medium term.

Some of the remaining deficits could be financed by leveraging existing EU financial instruments to obtain funding at lower costs. Recovery and Resilience Facility loans could provide some relief. Many of the hardest-hit countries, which include the Baltics, Hungary, the Czech Republic and Slovakia, have not yet borrowed from the facility. Hungary, however, recently announced it would ask to be able to use RRF loans to cover expenses.[22]

[20] Financial incentives from the EU budget to encourage recipient Member States to receive refugees go further back in time.
[21] For example, the Greek Minister for Environment and Energy announced that EUR 100 million allocated by the Recovery and Resilience Facility to build photovoltaic stations by municipal energy communities will be used to provide power to vulnerable households.
[22] The Hungarian government intends to use the Recovery and Resilience Facility for defence, border control and humanitarian and other acute crisis management tasks — an allocation quite different from the RRF's original purpose to support primarily green and digital spending.

Concluding remarks

The EU economy had only just recovered from the COVID-19 crisis when the war broke out. At the end of 2021, real GDP in the European Union was marginally above the level at the end of 2019. On the back of strong policy support, including the deployment of RRF funds, the EU economy was expected to continue growing well above its potential, making up for the slowdown caused by the pandemic and reaching a normal trend by 2023. With the war in Ukraine, higher food, commodity and energy prices have become entrenched and uncertainty is intensifying. The EU economy is not yet expected to enter a recession, but the once-bright outlook for activity has been revised downwards substantially, and the outlook for inflation has become even more worrisome.

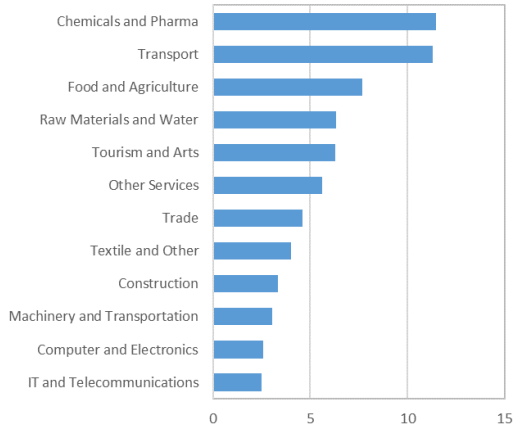
We analyse the economic shock caused by the war, and the reverberations felt by households, firms, banks and governments. Some effects, such as the short to medium-term impact on households' real income, firm profits, bank write-offs and public finance, are relatively well understood by economists. However, the economy's reaction to higher uncertainty is not very well known. To contain fallout, governments need to deliver strong, decisive policies.

Public policies can cushion part of the economic pain. The economic environment is increasingly challenging, and interest rates have already started to rise. As financing costs and uncertainty move upwards, firms will scale down their plans for investment. It is even more important to ensure that public investment, supported by RRF funds, is fully used to catalyse private investment. The massive spending needed to make Europe greener and more digital was already widely known before the war. Since then, other investment needs, such as expenditures to secure Europe's energy supply, have become clearer. In this context, public policy can maintain confidence while fulfilling these needs. Coordinated policy executed over time can send a clear signal to markets, reducing uncertainty and tempering risks of a new recession.

ANNEX — complementary information

Figure 37 EU energy intensity across sectors

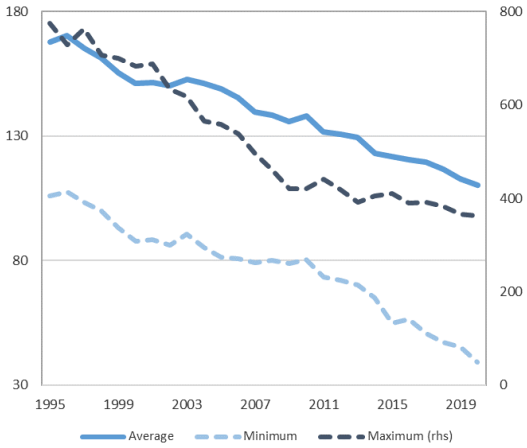
(in %)



Source: *EIB estimates based on OECD input-output tables, 2018.*
Note: *The bars depict the range across EU economies. The 13 sectors are derived from the combination of 35 sectors. See Harasztosi et al. (2022).*

Figure 38 Energy intensity of EU real GDP

(*Kilograms of oil equivalent per thousand euros*)

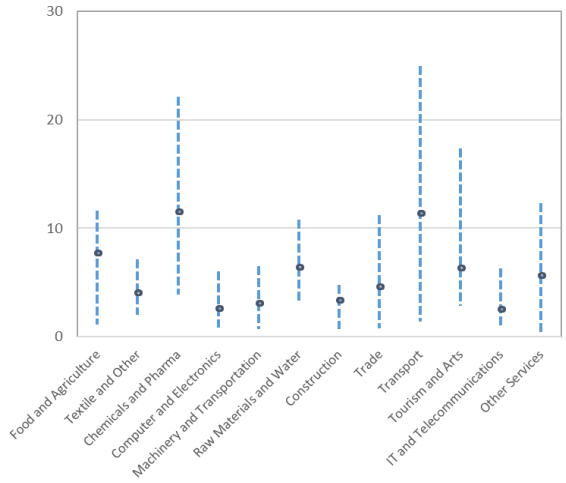


Source: *EIB estimates based on Eurostat.*

Note: *Real GDP in chain linked volumes (2015).*

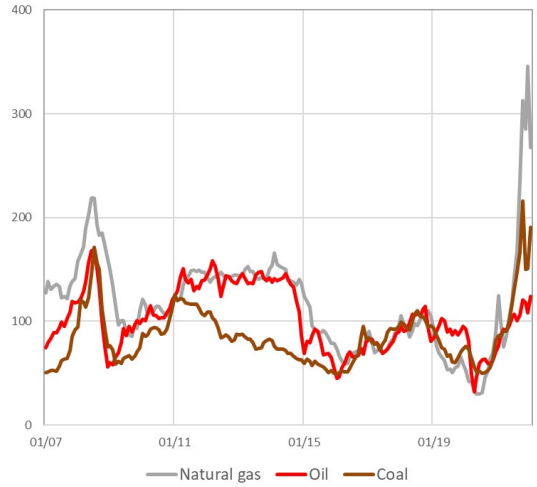
Figure 39 Sector output across EU economies

(in %)



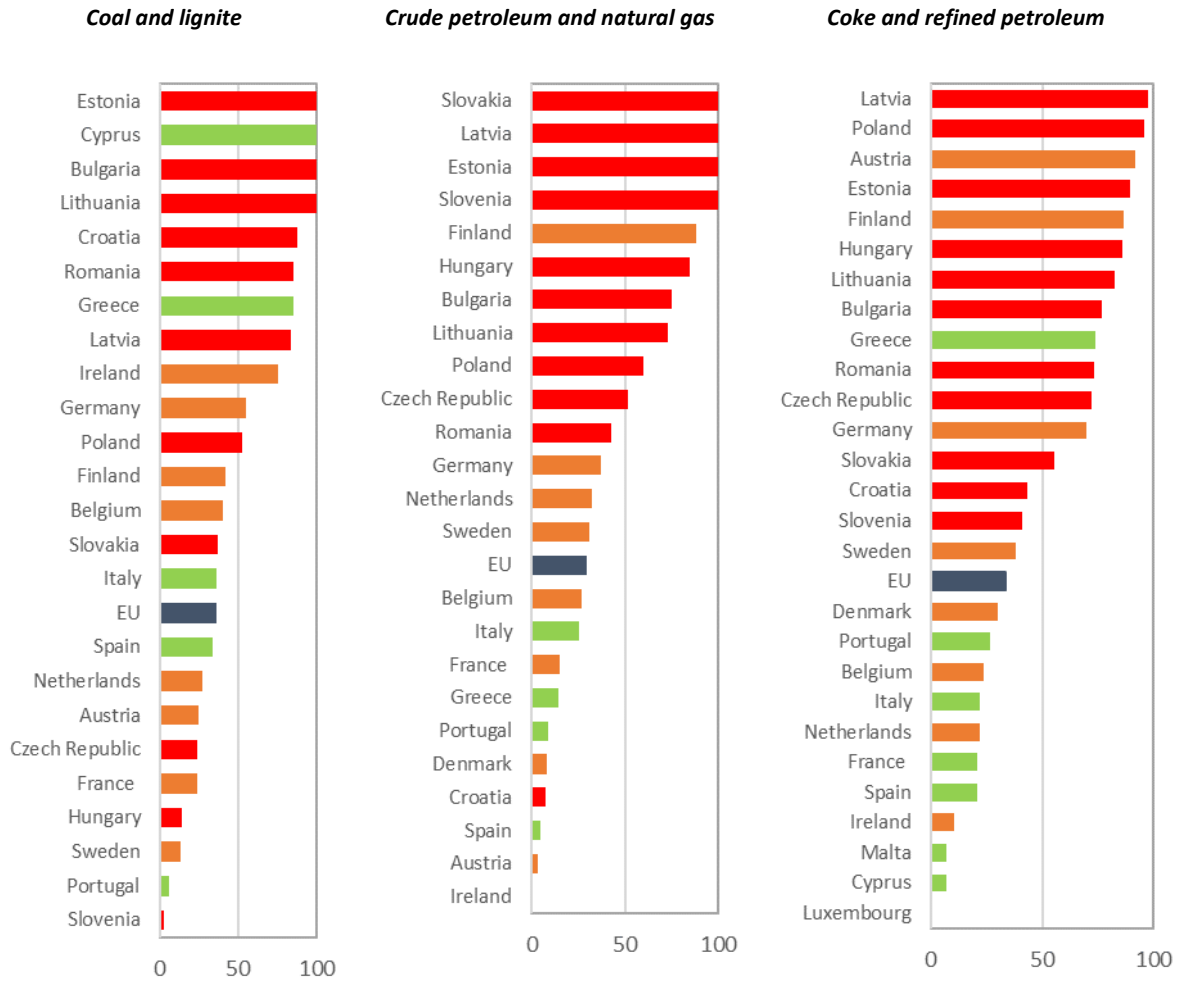
Source: *EIB estimates based on OECD input-output tables, 2018.*
Note: *The vertical lines depict the range across EU economies. The 11 sectors are derived from the combination of 35 sectors. See Maurin and Pal (2020).*

Figure 40 International prices of oil, gas and coal *(EUR, 2018=100)*



Source: *EIB estimates based on Refinitiv.*

Figure 41 EU members' dependence on energy imports from Ukraine, Russia and Belarus *(in %)*



Source: *EIB estimates based on Eurostat.*

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How bad is the Ukraine war for the European recovery?

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