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# Economic Spillovers and Exposures in the EU

Note accompanying  
the 2024 In-Depth Reviews

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## **Economic Spillovers and Exposures in the EU**

Note accompanying the 2024 In-Depth Reviews

## INTRODUCTION AND RATIONALE

**Since the beginning of 2020, multiple shocks have tested the resilience of the EU's economies.** First, the severe COVID-19 pandemic and mobility restrictions worldwide brought economic activity to a halt and led to supply disruptions, bringing to the fore Europe's dependence on trade. In the second half of 2021, with economies gradually reopening and demand increasing strongly, supply bottlenecks fully emerged, and prices began to soar. Russia's unprovoked aggression against Ukraine further amplified the increase in prices, mainly through energy prices, and highlighted Europe's dependence on Russia for fossil fuels and several other commodities. Although the EU weathered these crises relatively well, economic spillovers resulting from the openness of its economies, its dependence on a narrow set of trading partners in certain industries and its firm integration into global value chains have seriously tested its resilience to external shocks. Continued heightened uncertainty, also related to the looming risk of geopolitical and trade tensions, poses yet another challenge.

**Spillover analysis, and a quantification of the interlinkages between Member States' economies, are integral to the MIP assessment, and are an important part of macroeconomic surveillance at EU level.** Regulation (EU) 1176/2011 – the MIP Regulation – refers to imbalances as trends that 'adversely affect the proper functioning of the economy of a Member State or of the economic and monetary union, or of the Union as a whole'. According to Art 5 of the MIP Regulation, identification and assessment of imbalances in in-depth reviews (IDRs) requires spillovers to be assessed<sup>1</sup>. The ECOFIN Committees have also systematically asked for spillover-related analysis in all the IDRs. In previous years, spillover analyses have been included either as heat maps with outward spillovers in the country reports for the big Member States (see for instance European Commission 2020), or directly in the in-depth review documents, as thematic boxes on specific relevant topics, such as the commodity price surge and Russian exposures in 2022 (European Commission 2023b as an example).

**This note accompanies the 2024 IDRs<sup>2</sup> and tackles the EU economies' exposure to economic developments abroad and spillovers stemming from their interconnectedness.** The dependencies between individual Member States and selected non-EU countries in terms of their gross and value-added trade, import content of exports and financial ties are quantified. The note recompiles the most recent relevant data from sources such as Eurostat, the International Monetary Fund (IMF), the Organisation for Economic Co-operation and Development (OECD), and the Bank for International Settlements (BIS) and assesses the degree of exposure of each Member State by means of heatmap matrices to pinpoint the dependencies on various partners and industries. The estimates also include non-EU partners, to show the extent to which Member States' economies are exposed to them, as well as to provide comparable benchmarks for the European economies. These comparisons can highlight the degree to which EU economies rely on global links to ensure successful energy and digital

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<sup>1</sup> Recital (27) of Regulation (EU) 1176/2011 highlights the need to assess spillover risk at EU level under the MIP assessment framework.

<sup>2</sup> Country-specific results of the analysis in this note have been included in each of the 12 IDRs. The respective analysis is summarised in a paragraph in the introduction, by highlighting the Member State's exposures in terms of gross trade, value added trade and, where relevant, financial claims, regarding the largest two or three partners.

transitions. The note also reports on i) quantitative estimates of spillovers within the euro area following the inflationary surge of 2022 and ii) lacklustre economic activity after 2019.

## I. GOODS AND SERVICES TRADE EXPOSURES

**The intra-EU market is particularly important for all Member States and many of them gravitate towards major economies.** Most EU economies are highly open and are therefore exposed to trade shocks originating in their trading partners (see the last row in Matrix 1). The columns in Matrix 1 show the degree of dependence (expressed as a share of a country's total imports) on exports of goods and services coming from the trade partners displayed on the rows. For instance, 12% of Croatia's imports come from Italy. Germany is by far the most important trading partner for most Member States, meaning that German exports form a substantial share of many countries' imports. Such patterns can be observed regionally with blocks of countries being more interconnected, like most of those in central and eastern Europe with Germany, those in south-eastern Europe with Italy, those in southern and western Europe with France, Portugal with Spain, and northern Europe with the Netherlands.

Matrix 1. Dependence on exports

		Importer country (as % of own total imports)																															
		BE	DE	EE	IE	EL	ES	FR	HR	IT	CY	LV	LT	LU	MT	NL	AT	PT	SI	SK	FI	BG	CZ	DK	HU	PL	RO	SE	UK	RU	TR	US	
Exporter	BE	NA	6.4	2.2	2.6	2.9	3.9	9.7	2.5	4.6	2.8	2.4	2.9	10.2	2.6	11.7	2.7	3.5	2.3	1.8	3.3	2.9	3.1	2.8	3.0	4.2	2.9	4.4	4.4	1.4	2.8	1.4	
	DE	13.6	NA	8.9	4.1	8.1	12.6	15.4	12.9	15.3	3.2	8.9	10.3	17.4	3.1	18.7	36.6	10.6	15.1	17.9	12.2	10.9	30.9	14.0	25.6	27.5	18.0	14.1	11.9	9.2	10.1	6.4	
	EE	0.1	0.1	NA	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.4	10.0	3.4	0.0	0.8	0.2	0.1	0.1	0.1	0.1	4.0	0.3	0.1	0.4	0.1	0.2	0.1	1.0	0.1	0.4	0.1	0.1
	IE	4.2	2.6	1.0	NA	2.2	1.7	2.0	1.1	2.5	3.0	1.7	1.0	1.0	5.3	3.5	1.0	2.1	1.3	0.4	2.3	0.6	0.9	1.9	3.8	1.3	1.0	2.9	7.4	1.2	1.0	3.2	
	EL	0.3	0.4	0.3	0.2	NA	0.4	0.4	1.0	0.9	15.5	0.4	0.4	0.3	2.9	0.3	0.4	0.3	1.1	0.2	0.3	5.5	0.3	0.4	0.4	0.4	1.7	0.2	0.5	0.2	1.2	0.1	
	ES	4.1	2.9	1.5	1.2	3.5	NA	7.8	1.7	5.6	1.6	1.8	1.3	2.4	1.9	2.8	1.4	31.2	1.7	1.7	2.0	1.9	2.2	2.0	1.7	2.9	1.9	2.1	3.8	0.8	2.5	0.8	
	FR	12.4	6.3	2.3	3.3	3.6	12.0	NA	2.5	9.3	2.2	2.2	3.1	9.5	2.3	5.5	2.6	7.2	3.5	3.5	2.7	2.8	3.8	3.0	3.7	4.6	4.9	4.0	7.0	3.6	3.9	2.3	
	HR	0.1	0.4	0.1	0.0	0.1	0.1	0.1	NA	0.6	0.1	0.2	0.2	0.0	0.5	0.1	1.0	0.1	7.4	0.4	0.1	0.3	0.4	0.1	1.6	0.3	0.4	0.2	0.1	0.1	0.1	0.0	
	IT	4.7	5.1	2.7	1.6	7.4	7.1	7.6	14.0	NA	4.7	3.1	3.5	5.6	10.9	3.0	6.3	5.1	12.7	4.3	2.6	6.9	4.9	2.3	4.8	5.8	8.4	2.9	3.6	2.6	4.3	1.9	
	CY	0.0	0.1	0.1	0.4	1.1	0.0	0.0	0.1	0.0	NA	0.0	0.1	0.1	1.3	0.1	0.0	0.0	0.1	0.1	0.0	0.2	0.0	0.1	0.0	0.1	0.1	0.1	0.2	0.7	0.0	0.1	
	LV	0.1	0.1	8.7	0.1	0.0	0.1	0.1	0.1	0.1	1.0	NA	7.8	0.0	1.0	0.1	0.1	0.0	0.1	0.1	0.1	0.5	0.2	0.1	0.5	0.1	0.3	0.1	0.6	0.2	0.7	0.1	0.0
	LT	0.2	0.3	8.2	0.1	0.1	0.2	0.2	0.2	0.2	0.6	16.4	NA	0.1	0.2	0.4	0.3	0.1	0.2	0.2	0.9	0.3	0.3	0.9	0.3	1.1	0.3	1.0	0.3	1.4	0.2	0.1	
	LU	1.8	1.8	0.5	0.5	0.3	1.6	1.8	0.0	2.2	0.0	0.2	0.2	NA	0.0	0.8	0.5	0.4	0.2	0.2	0.6	0.1	0.4	0.5	0.3	0.4	0.1	1.2	2.7	0.2	0.2	0.2	
	MT	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	NL	21.2	13.4	5.2	5.7	4.8	7.0	9.2	4.3	7.0	4.6	4.7	5.0	4.5	5.4	NA	5.0	6.4	3.6	2.9	8.7	5.1	8.0	7.0	5.8	8.0	4.3	9.9	8.3	3.2	3.2	1.9	
	AT	0.9	4.9	1.0	0.4	0.9	0.8	1.0	6.4	2.6	1.1	0.9	1.0	0.7	1.5	0.9	NA	0.7	10.2	8.1	1.1	2.7	4.6	0.7	6.3	2.6	3.7	1.2	0.9	0.9	0.8	0.4	
	PT	0.6	0.7	0.3	0.3	0.3	5.1	1.5	0.2	0.6	0.4	0.3	0.4	0.5	0.7	0.6	0.3	NA	0.2	0.5	0.7	0.4	0.3	0.5	0.3	0.4	0.4	0.4	0.9	0.1	0.3	0.2	
	SI	0.1	0.6	0.2	0.0	0.3	0.2	0.3	12.4	1.1	0.3	0.3	0.5	0.3	0.4	0.2	1.9	0.2	NA	1.6	0.1	0.9	0.9	0.3	1.9	0.7	0.8	0.2	0.1	0.3	0.2	0.0	
	SK	0.3	1.4	0.5	0.1	0.3	0.5	0.7	2.1	0.8	0.4	0.7	0.6	0.3	0.2	0.4	2.5	0.3	2.1	NA	0.3	1.5	6.9	0.4	5.6	2.5	2.0	0.6	0.5	0.6	0.3	0.1	
	FI	0.6	0.8	11.6	0.4	0.2	0.3	0.4	0.2	0.6	0.3	3.4	2.1	0.1	0.5	0.8	0.5	0.2	0.2	0.2	NA	0.3	0.3	1.2	0.2	0.8	0.2	4.8	0.5	1.3	0.5	0.4	
	BG	0.3	0.3	0.1	0.0	2.8	0.2	0.2	1.2	0.5	0.7	0.2	0.2	0.0	0.1	0.1	0.3	0.1	0.5	0.3	0.1	NA	0.5	0.2	0.6	0.3	3.4	0.2	0.2	0.2	0.9	0.1	
	CZ	1.2	4.4	1.5	0.6	0.6	1.3	1.2	2.4	1.5	1.0	1.7	1.9	0.5	0.6	1.3	4.1	0.8	2.6	18.7	1.2	2.8	NA	1.2	5.5	4.4	2.8	1.6	1.1	1.4	0.9	0.2	
	DK	0.7	1.5	1.8	0.6	0.7	0.9	0.7	0.8	0.7	0.3	2.5	1.9	0.8	0.2	1.4	0.4	0.7	0.5	0.5	3.9	0.7	0.9	NA	0.7	1.6	0.5	7.4	1.4	0.5	0.8	0.7	
	HU	0.7	2.4	0.5	0.2	0.7	0.8	0.7	9.6	1.4	0.8	1.0	0.7	0.3	0.5	0.8	3.3	0.7	3.6	7.4	0.7	3.7	3.3	0.8	NA	1.8	6.7	1.0	0.6	0.6	0.8	0.2	
	PL	1.9	6.5	6.4	0.9	1.5	2.0	2.3	4.1	2.7	2.9	8.8	13.4	1.9	1.4	2.8	3.5	1.9	3.5	8.8	3.5	3.8	11.3	3.7	6.2	NA	5.8	4.6	2.5	2.6	1.2	0.5	
	RO	0.7	1.4	0.6	0.2	1.2	0.8	0.9	1.1	1.9	1.3	0.3	0.6	0.4	0.8	0.7	1.5	0.5	1.2	1.9	0.4	7.9	1.5	0.4	4.0	1.1	NA	0.5	0.6	0.3	1.1	0.1	
	SE	1.6	1.4	6.1	0.7	0.6	1.0	1.2	0.7	1.0	0.7	2.8	3.4	0.6	2.0	1.7	1.0	1.0	0.6	0.6	15.7	0.6	1.0	9.1	0.8	2.3	0.6	NA	2.0	0.9	0.7	0.7	
	EU	72.1	66.3	72.3	24.3	44.5	60.7	65.4	81.7	64.1	50.1	74.9	65.8	57.6	47.2	58.9	77.3	74.3	74.9	82.2	67.9	63.2	86.9	54.2	83.3	75.5	70.9	67.0	61.6	35.5	38.0	22.1	
	UK	5.7	3.6	1.7	12.2	3.1	3.9	4.6	0.5	3.1	1.6	3.0	2.2	8.5	1.9	7.5	1.4	2.9	1.1	1.8	2.7	0.7	1.8	4.2	2.4	2.3	1.0	4.7	NA	1.7	3.1	5.3	
	RU	1.7	1.7	13.8	0.1	4.1	0.8	1.0	2.4	3.0	0.9	16.1	9.1	0.0	10.3	5.6	1.2	0.5	0.7	4.7	8.3	5.3	2.0	1.4	2.6	4.5	2.5	0.4	2.4	NA	9.3	0.5	
	TR	0.9	1.1	0.4	0.2	3.0	2.0	0.9	1.4	1.8	NA	0.6	0.7	0.1	3.2	0.9	0.6	1.3	3.7	0.6	0.4	7.9	0.8	0.6	1.0	1.3	3.9	0.6	1.5	1.5	NA	0.4	
US	7.3	5.5	1.9	18.5	2.8	4.7	5.0	2.0	4.4	1.0	2.0	2.8	7.1	0.6	10.3	1.9	2.8	0.8	0.5	2.9	0.7	2.4	6.0	2.7	2.1	1.1	4.6	13.9	2.8	5.4	NA		
CN	2.5	9.4	NA	2.5	6.1	NA	8.0	3.3	6.7	2.3	4.1	3.8	NA	NA	8.6	5.6	3.9	4.7	6.9	8.1	5.2	10.8	6.3	5.8	9.2	5.5	5.9	NA	NA	NA	NA		
		Imports as share of GDP (for partner country)																															
		86.2	41.8	81.3	93.7	48.6	33.2	32.6	52.5	29.9	85.5	67.7	75.6	177.8	126.7	72.9	55.2	44.0	77.7	92.2	39.4	59.6	70.1	52.0	79.8	54.4	46.3	42.0	NA	NA	34.8	NA	

Source: Commission Services calculations using Eurostat BoP, OECD EBOPS – Trade in services, IMF Department of Trade Statistics and IMF Balance of Payments. The data shown are the latest available (2021).

Note: columns depict the degree of dependence (expressed as a share of the country's total imports) on exports coming from the trade partners displayed on the rows (e.g. 12.4% of Belgium's total exports come from France). Due to missing data for partner economies in trade in services, exposures of and to some countries (Russia, Malta, Türkiye and Cyprus) are underestimated (i.e. only trade in goods is reported). Shades or red indicate higher exposures.

**Some countries are strong importers from outside the EU.** The major EU economies are also exposed to other major global exporters such as China, the US, and the UK. However, data are distorted to some extent as regards the trade in goods by the 'Rotterdam effect',<sup>3</sup> which makes the Netherlands look very dependent on non-EU exports among this group (around 10% of Dutch imports come from the US and 8.6% from China). Several Member States with external EU borders are dependent on exports from major regional or global economies outside the EU, like Ireland on the US and the UK, the Baltics, Malta and Finland on Russia, or Bulgaria on Türkiye. Even after Brexit, the EU remains the largest exporter for the UK, with the US a distant second. This emphasises the EU's role as the natural trading partner for the UK, and the strong gravity for trade between the two economies, given their large size and the short geographical distance between the two<sup>4</sup>.

**Dependence on imports is also substantial, with larger and geographically peripheral economies more exposed to the rest of the world.** As with export spillovers, import spillovers might be considerable in many EU economies given their exposure to foreign demand. Columns in Matrix 2 depict the degree of dependence (expressed as a share of the country's total exports) on imports from the trade partners displayed in the rows. Given its large market and central position within the EU, Germany is the largest importing partner for more than half of the Member States, attracting almost 40% of Czech exports and 30% of Austrian, Hungarian, and Polish exports. By contrast, Germany is exposed to a large degree to the US and the UK, much like other major EU economies such as France, Spain, Italy and the Netherlands. However, the exposure of big Member States is rather different to that of smaller ones. Smaller EU economies are usually placed more upstream and are more exposed to developments in larger EU economies, while the larger ones, being more global in outreach, are exposed more to demand shocks originating in large final markets outside of the EU, like the US, the UK and China. The pattern of higher dependence of geographically peripheral Member States on large regional or global economies is also observed in this case: Belgium and Ireland show a high dependency on the US and UK; Lithuania and Latvia on Russia; and to a smaller extent, Bulgaria on Türkiye.

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<sup>3</sup> The 'Rotterdam effect' describes the distortionary effect that strong import/export activities in big ports have on trade statistics. Goods destined for other EU countries arrive in Dutch ports and, according to EU rules, are recorded as extra-EU imports by the country in which they are released for free circulation in the EU (i.e. the Netherlands). This in turn increases the intra-EU flows from the Netherlands to those Member States to which the goods are re-exported. See [International trade statistics - background - Statistics Explained \(europa.eu\)](#).

<sup>4</sup> Gravity for trade, as defined in some seminal papers from the 1950s, is generally expressed as a function of the partners' economic size (the larger the size, the larger the pull for trade between the two) and geographical distance (the shorter the distance, the larger the pull for trade), therefore replicating the gravity force equation from physics.



## Matrix 2. Dependence on imports

		Exporter country (as % share of own total exports)																															
		BE	DE	EE	IE	EL	ES	FR	HR	IT	CY	LV	LT	LU	MT	NL	AT	PT	SI	SK	FI	BG	CZ	DK	HU	PL	RO	SE	UK	RU	TR	US	
Importer	BE	NA	3.5	1.3	3.2	1.5	4.3	6.9	1.8	3.5	0.2	1.5	2.4	5.0	0.0	12.6	1.7	2.9	1.5	1.4	2.7	2.6	2.9	1.5	2.3	2.6	2.9	2.7	3.2	1.6	1.7	1.5	
	DE	21.6	NA	7.4	6.7	8.3	10.6	12.1	18.8	13.2	8.1	8.6	10.5	17.6	1.7	27.6	32.9	11.0	21.3	22.4	11.7	11.9	38.5	11.3	29.7	29.6	20.8	8.5	7.0	5.4	6.7	3.8	
	EE	0.1	0.1	NA	0.0	0.1	0.1	0.1	0.1	0.1	0.1	10.3	4.6	0.1	0.0	0.2	0.1	0.1	0.1	0.1	3.0	0.1	0.2	0.2	0.1	0.5	0.1	0.6	0.1	0.8	0.0	0.0	
	IE	2.3	1.0	0.7	NA	0.9	1.2	1.7	0.7	1.1	7.1	1.4	1.2	1.2	0.2	3.1	0.6	1.5	0.4	0.6	1.6	0.2	1.4	1.2	0.7	1.1	1.0	1.1	6.3	0.1	0.3	3.4	
	EL	0.6	0.4	0.2	0.3	NA	0.7	0.4	0.4	1.1	4.2	0.2	0.2	0.2	0.3	0.6	0.3	0.3	0.5	0.3	0.2	5.6	0.3	0.3	0.5	0.4	1.1	0.2	0.3	0.8	1.1	0.1	
	ES	3.5	3.0	0.9	1.2	2.4	NA	6.2	1.1	4.9	0.5	1.2	1.6	4.1	0.2	3.9	1.4	23.3	1.5	2.3	1.4	2.2	3.0	1.8	2.8	2.4	3.2	1.7	2.0	0.7	3.4	0.9	
	FR	17.7	7.3	2.0	2.9	4.6	15.2	NA	2.8	10.6	0.8	2.7	4.3	9.6	0.8	10.3	3.4	13.9	5.1	6.5	3.0	2.9	5.6	2.8	4.6	5.7	7.1	3.7	4.7	1.8	3.2	1.9	
	HR	0.2	0.2	0.1	0.1	0.4	0.1	0.1	NA	0.7	0.1	0.1	0.2	0.0	0.0	0.2	0.9	0.1	8.7	0.7	0.1	0.8	0.4	0.1	2.4	0.4	0.4	0.1	0.0	0.2	0.2	0.0	
	IT	5.7	4.9	1.1	2.4	6.8	7.3	6.5	11.2	NA	1.0	1.6	2.6	7.7	2.2	5.2	6.3	3.9	13.4	4.8	3.4	6.0	4.6	1.9	6.2	4.5	10.4	2.2	2.1	3.5	4.0	1.1	
	CY	0.1	0.0	0.3	0.1	4.5	0.1	0.1	0.1	0.2	NA	1.0	0.3	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.3	0.1	0.0	0.1	0.2	0.3	0.1	0.0	0.0	NA	0.0
	LV	0.1	0.1	9.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	NA	8.2	0.0	0.0	0.1	0.1	0.1	0.1	0.2	0.8	0.1	0.2	0.3	0.2	0.6	0.1	0.2	0.1	0.8	0.1	0.0	
	LT	0.3	0.3	5.8	0.1	0.2	0.1	0.2	0.2	0.3	0.2	15.4	NA	0.1	0.0	0.3	0.2	0.2	0.5	0.3	0.9	0.2	0.5	0.4	0.2	1.7	0.2	0.6	0.1	0.8	0.1	0.1	
	LU	2.9	1.3	0.2	0.2	0.5	0.8	1.6	0.2	1.2	0.8	0.2	0.3	NA	0.0	0.8	0.4	0.7	0.8	0.5	0.2	0.1	0.4	0.5	0.3	0.1	0.4	0.5	0.3	1.4	0.0	0.4	
	MT	0.1	0.0	0.6	0.2	0.8	0.1	0.1	0.3	0.4	1.2	0.9	0.1	0.0	NA	0.1	0.1	0.1	0.2	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.2	0.0	0.4	0.3	0.0	
	NL	16.6	7.0	5.4	3.9	2.6	4.3	4.4	2.4	3.3	1.7	3.3	5.7	3.1	0.2	NA	2.5	4.2	2.7	2.5	5.3	2.0	4.7	4.5	4.1	5.3	4.8	4.1	6.0	7.7	2.4	3.0	
	AT	1.3	4.8	0.6	0.4	1.2	0.7	0.7	7.8	2.4	0.4	0.6	1.7	0.7	0.1	1.5	NA	0.6	9.7	6.0	1.2	1.6	5.3	0.5	6.0	2.4	3.4	0.9	0.4	0.6	0.5	0.2	
	PT	0.7	0.6	0.2	0.4	0.4	7.1	0.9	0.3	0.8	0.1	0.2	0.2	0.3	0.1	0.8	0.3	NA	0.4	0.3	0.2	0.3	0.4	0.3	0.5	0.6	0.4	0.4	0.1	0.5	0.1		
	SI	0.2	0.4	0.1	0.1	0.6	0.2	0.2	10.4	0.9	0.2	0.2	0.2	0.1	0.1	0.2	1.8	0.1	NA	0.9	0.1	0.5	0.6	0.1	1.2	0.4	0.5	0.1	0.1	0.1	0.6	0.0	
	SK	0.4	1.0	0.2	0.1	0.3	0.4	0.4	1.3	0.7	0.2	0.4	0.3	0.1	0.0	0.4	3.3	0.5	3.3	NA	0.2	0.7	10.0	0.2	5.5	2.4	1.8	0.2	0.2	0.9	0.2	0.0	
	FI	0.7	0.7	15.7	0.4	0.4	0.5	0.3	0.3	0.4	0.1	2.5	1.9	0.4	0.0	1.2	0.5	0.7	0.3	0.3	NA	0.2	0.7	1.9	0.6	1.0	0.4	6.1	0.3	1.8	0.2	0.1	
	BG	0.7	0.3	0.4	0.0	3.2	0.2	0.2	0.5	0.5	0.3	0.3	0.3	0.0	0.2	0.3	0.5	0.2	0.8	0.7	0.1	NA	0.7	0.1	1.3	0.5	3.4	0.1	0.0	0.5	1.4	0.0	
	CZ	1.1	3.0	0.8	0.3	0.7	0.9	0.8	2.2	1.4	0.3	1.0	1.1	0.4	0.1	1.8	3.4	0.6	3.3	12.4	0.6	2.0	NA	0.7	4.5	5.7	2.6	0.7	0.4	0.7	0.6	0.2	
	DK	1.1	1.5	2.9	0.6	0.9	0.9	0.7	0.7	0.7	0.7	3.9	3.4	0.5	0.0	1.7	0.6	0.9	1.2	0.8	2.1	1.0	1.2	NA	1.2	2.0	0.7	6.4	0.9	0.5	0.5	0.5	
	HU	0.8	1.8	0.3	0.8	0.6	0.5	0.6	6.6	1.0	0.1	0.6	0.8	0.2	0.3	1.0	3.4	0.5	5.5	7.4	0.3	1.7	3.9	0.4	NA	2.3	4.9	0.4	0.4	0.7	0.5	0.2	
	PL	2.9	5.0	2.9	0.7	1.6	2.2	1.9	3.2	3.1	0.9	3.7	7.4	0.7	0.2	3.4	3.5	1.3	5.1	8.4	2.4	2.4	7.9	2.5	4.6	NA	3.4	2.8	0.9	3.0	1.6	0.3	
	RO	0.7	1.2	0.4	0.2	2.5	0.5	0.7	1.4	1.6	0.5	0.3	0.7	0.1	0.1	0.7	1.8	0.6	1.9	2.4	0.2	8.8	1.8	0.3	6.1	1.9	NA	0.3	0.1	0.6	1.8	0.1	
	SE	2.3	1.9	9.4	1.1	0.6	1.1	1.2	1.3	1.1	0.6	6.3	4.9	1.7	0.1	3.1	1.2	1.1	1.2	1.4	11.0	0.8	2.1	8.4	1.8	3.1	1.1	NA	1.4	0.2	0.6	0.5	
	EU	84.6	51.2	69.1	26.2	46.7	60.1	48.8	76.2	55.5	30.3	68.3	64.9	53.9	6.9	81.1	71.3	69.4	89.7	83.6	52.7	55.0	97.5	42.5	87.6	78.2	75.7	44.5	39.0	34.2	32.5	18.4	
	UK	7.8	5.5	4.6	10.0	5.5	7.1	7.1	2.8	4.9	5.4	7.6	4.4	13.6	0.5	8.9	3.0	7.9	2.0	4.3	3.8	3.2	5.1	5.3	4.0	6.0	4.6	6.1	NA	4.1	4.8	5.0	
	RU	1.0	1.7	4.5	0.7	0.9	0.6	1.5	1.0	1.4	9.7	10.3	10.0	0.3	0.0	1.4	1.3	0.3	2.1	2.1	4.3	1.7	2.5	0.9	1.5	2.5	1.1	1.1	0.7	NA	2.0	0.4	
TR	1.5	1.4	0.9	0.4	3.8	1.4	1.2	0.9	1.8	0.0	1.2	1.2	0.3	0.1	1.1	0.8	0.7	1.0	0.8	1.1	4.9	1.2	0.9	1.6	0.8	2.7	0.7	1.0	4.8	NA	0.6		
US	9.0	10.7	8.6	15.7	4.9	5.4	8.4	3.7	9.5	11.7	3.0	5.6	4.1	0.5	7.6	5.6	6.0	2.3	3.5	10.8	3.5	3.9	10.1	4.4	4.0	3.5	8.3	19.4	3.2	5.1	NA		
CN	1.7	7.8	1.0	8.6	3.2	NA	5.3	0.3	2.9	0.6	1.0	NA	NA	NA	2.5	2.3	0.9	0.9	1.7	5.0	2.6	1.3	5.1	1.3	1.1	1.3	4.1	NA	NA	NA	NA		
		Exports as share of GDP (for partner country)																															
		87.9	47.3	80.3	133.7	41.0	34.2	31.3	49.8	32.1	89.4	64.6	80.1	216.3	140.9	84.1	55.9	41.5	83.6	92.4	39.5	61.4	73.0	58.7	79.9	57.7	40.6	46.8	NA	NA	35.1	NA	

Source: Commission Services calculations using Eurostat BoP, OECD EBOPS – Trade in services, IMF Department of Trade Statistics and IMF Balance of Payments. The data shown are the latest available (2021).

Note: columns depict the degree of dependence (expressed as a share of the country's total exports) on imports of the trade partners displayed on the rows (e.g. 17.7% of Belgium's total exports go to France). Due to missing data for partner economies in trade in services, exposures of and to some countries (Russia, Malta, Türkiye and Cyprus) are underestimated (i.e. only trade in goods is reported). Shades or red indicate higher exposures.

**Gross trade dependence on Russia is rather limited, but concentrated, while dependence on China is much broader.** Exposure to Russia is relatively small in general, but concentrated on energy products, and where large, it is usually adjacent to the Russian border, as demonstrated by the Baltic countries and Finland. This is because the Russian economy does not create a considerable gravity for trade that can extend far beyond its border, given the moderate size of its economy (for instance, in 2022, Russia's GDP was equal to 13% of EU GDP)<sup>5</sup>. This contrasts with the situation with China, which

<sup>5</sup> The figures in Matrix 1 and Matrix 2 reflect the situation in 2021. The trade interlinkages with Russia have likely changed since then.

despite its large distance from EU borders, exerts a much larger gravity for trade, not only because of the size of its economy, but also due to a more downstream position in global value chains and its massive infrastructure capable of servicing such a high demand for trade. As such, Member States exposure to China is higher across the board than compared to exposure to Russia, with Czechia, Germany, Poland and the Netherlands recording the highest dependencies for Chinese exports, and Ireland, Germany and France for Chinese imports.

**Export industry level data highlight the EU's considerable dependence on imports of fossil fuels and raw materials.** Employing the OECD's input-output tables analysis, Matrix 3 zooms in on the import content of exports, showing the reliance on imports for various exported goods and services. At the EU level, industries with highest reliance on imports include petroleum, chemicals, pharmaceuticals, and basic metals, in which fossil fuels and raw materials are primary inputs. As expected, smaller Member States with few natural resources such as Luxembourg, Malta, Ireland and Hungary, show higher degrees of import reliance for their exporting industries. In turn, larger economies like Germany, France, Italy, or resource-rich countries like Romania show a much lower reliance. Considerable gaps exist across the EU with more service intensive exporters (e.g. tourism) like Greece, Spain, Croatia and Portugal, and Member States with a higher share of manufacturing exports. The countries for which exports are more service intensive show a lower reliance on imports since labour, which is the primary input for services, can be provided domestically, and the intermediate goods trade is a less important factor than in manufacturing.



### Matrix 3. Import content of exports (as % share of industry's respective exports)

	Reporting country (import content of exports as % share of total exports)																														
	BE	DE	EE	IE	GR	ES	FR	HR	IT	CY	LV	LT	LU	MT	NL	AT	PT	SI	SK	FI	BG	CZ	DK	HU	PL	RO	SE	GB	TR	US	CN
Total	36.4	23.8	35.4	40.0	30.7	24.1	24.7	23.7	23.4	34.0	23.6	30.8	66.5	54.2	33.3	31.2	30.7	36.9	48.2	28.8	36.8	42.4	31.8	46.4	31.3	24.5	26.1	18.1	21.0	10.1	17.1
Agriculture, hunting, forestry	40.2	20.4	30.2	45.4	17.1	14.5	18.7	21.3	12.9	21.5	22.6	29.2	57.3	30.9	27.5	23.5	22.9	23.5	23.6	16.6	28.7	27.7	27.6	25.4	17.4	21.5	22.2	16.3	9.9	9.6	
Fishing & aquaculture	37.4	18.5	29.9	41.2	11.6	16.4	27.1	23.9	15.1	11.1	17.5	29.3	NA	64.4	17.6	28.5	14.3	31.2	25.5	19.6	47.3	29.7	20.6	25.7	25.0	16.5	26.0	22.9	13.9	5.8	8.1
Mining & quarrying, energy producing products	NA	37.3	24.6	68.2	12.4	3.5	3.4	35.0	21.5	42.2	28.3	29.1	NA	47.9	12.8	24.0	NA	18.3	19.9	28.1	19.9	27.0	8.5	25.7	13.1	14.3	33.3	14.6	21.3	11.4	12.5
Mining & quarrying, non-energy producing products	40.6	11.9	23.7	34.9	9.6	19.5	26.0	27.1	3.8	45.2	20.6	34.3	45.1	29.1	36.4	24.1	20.6	34.0	31.9	26.4	20.9	26.3	24.5	32.2	31.4	22.9	12.5	22.9	15.7	9.0	15.7
Mining support service activities	48.9	10.6	27.8	43.3	19.0	22.9	4.5	33.5	3.4	35.1	31.1	16.4	44.0	22.3	33.4	16.6	29.3	39.1	8.7	27.0	40.8	23.9	18.9	20.6	4.7	23.6	27.8	22.4	9.9	6.8	16.3
Food products, beverages & tobacco	44.4	26.2	37.8	47.7	20.8	23.4	22.3	27.3	22.9	30.0	32.7	28.6	56.8	37.0	37.7	33.1	31.4	33.8	36.8	29.1	39.1	31.5	36.7	38.2	27.6	17.5	26.8	23.4	16.9	12.3	10.2
Textiles, textile products, leather & footwear	42.4	27.4	40.9	39.0	31.1	21.0	30.5	37.9	22.8	28.6	24.8	26.9	57.2	42.3	36.5	36.3	29.8	45.1	37.9	28.1	42.7	37.3	37.1	45.2	36.8	22.8	27.0	14.3	18.9	14.0	13.4
Wood & products of wood & cork	39.0	24.6	33.5	47.0	32.7	25.3	21.2	28.5	20.6	24.4	23.7	25.8	68.9	31.6	33.6	31.4	29.5	36.3	23.7	20.5	34.2	30.9	27.9	39.5	26.7	21.7	26.7	26.6	24.0	13.3	13.7
Paper products & printing	40.1	25.6	36.9	42.2	29.5	24.2	25.3	26.8	23.3	32.2	36.8	31.0	61.2	41.9	34.7	33.9	32.6	48.8	40.0	27.1	38.3	40.4	29.5	41.2	33.0	23.2	25.0	21.8	23.0	12.2	13.9
Coke & refined petroleum products	73.1	54.9	29.1	20.4	76.1	72.8	67.5	51.5	60.9	NA	44.1	80.3	NA	NA	75.6	65.9	76.3	46.6	74.2	59.9	81.1	59.9	42.5	64.0	59.8	35.1	79.6	73.3	64.4	28.4	39.6
Chemical & chemical products	42.9	31.0	46.9	48.7	29.3	33.3	30.1	42.7	35.5	30.1	36.1	46.4	56.9	40.8	44.1	53.1	46.8	50.0	47.7	39.9	50.5	55.4	31.3	46.8	44.4	34.2	30.1	27.5	29.0	13.0	20.5
Pharma, medicinal chem. & botanical prods.	36.3	20.3	29.0	44.8	17.6	20.5	20.8	23.8	26.0	25.1	23.6	19.5	59.4	53.7	28.3	25.7	29.2	28.8	33.5	13.3	34.1	29.8	13.8	33.0	19.3	23.8	25.9	18.8	23.1	11.5	11.1
Rubber & plastics products	45.2	28.7	43.7	34.5	37.3	30.4	30.0	41.5	30.2	33.8	42.5	37.6	69.6	31.3	38.9	37.5	41.5	45.2	48.1	35.3	48.4	50.3	30.3	50.5	40.2	35.2	34.7	27.8	31.6	14.1	18.9
Other non-metallic mineral products	40.5	23.5	32.5	29.2	19.8	25.0	21.8	31.1	23.1	31.1	23.4	40.6	53.3	34.8	30.9	26.7	26.4	33.2	35.9	25.1	28.0	33.9	26.4	44.3	28.0	25.1	29.9	20.3	20.3	10.2	12.0
Basic metals	52.5	43.8	52.9	49.7	38.0	35.8	36.0	42.4	41.9	41.4	36.4	46.6	54.1	18.9	44.9	42.1	44.1	51.8	53.8	41.6	58.6	46.9	42.5	56.0	47.2	31.9	31.1	31.3	23.5	20.9	17.1
Fabricated metal products	37.8	22.8	45.2	44.3	31.8	30.6	29.0	23.6	38.1	35.6	35.8	42.4	47.0	34.8	34.2	35.3	36.2	42.0	30.9	34.7	39.4	31.7	49.3	35.3	26.9	29.5	19.8	23.1	15.9	14.1	
Computer, electronic & optical equipment	37.3	24.8	73.6	38.6	27.7	29.5	25.5	28.1	27.7	28.9	42.3	29.1	36.7	49.7	62.1	34.0	46.2	37.9	70.1	29.3	38.1	55.5	27.2	68.3	54.7	31.3	24.2	17.4	22.8	6.8	26.6
Electrical equipment	42.4	25.9	51.9	47.6	43.6	35.6	34.7	37.7	33.0	35.6	37.7	40.6	57.4	52.6	33.2	37.4	48.2	50.4	55.7	37.6	47.2	50.9	31.1	57.9	45.0	28.7	33.4	26.7	35.3	16.3	18.5
Machinery & equipment, nec	40.9	25.8	45.6	22.7	27.8	32.3	32.7	35.2	26.7	30.9	29.6	30.6	49.2	55.3	36.2	38.0	43.7	45.5	50.8	34.2	37.9	42.7	35.1	54.1	39.3	28.5	28.1	6.1	18.1	17.4	
Motor vehicles, trailers & semi-trailers	59.9	28.9	52.7	53.0	24.4	43.0	40.1	36.3	31.6	32.8	42.3	43.1	57.9	38.3	49.4	53.5	55.6	60.1	67.3	35.7	42.9	58.0	31.5	65.2	49.3	36.0	37.4	34.2	31.7	27.2	14.3
Other transport equipment	33.8	35.2	46.4	82.0	19.1	36.4	47.9	45.6	30.8	36.3	31.5	34.7	50.7	49.6	44.4	43.3	48.9	47.0	46.7	37.5	48.1	46.6	34.0	58.9	41.1	23.6	25.8	27.8	10.7	16.4	19.0
Manufacturing, repair & installation of machinery	38.8	24.6	39.3	25.4	22.6	20.3	26.5	27.2	22.9	23.1	24.3	28.3	41.6	39.8	26.9	34.6	30.7	32.7	34.2	27.3	32.1	34.9	26.7	39.6	31.2	21.4	27.3	21.1	21.6	11.0	13.2
Electricity, gas, steam & air conditioning supply	33.4	18.9	20.6	40.5	16.5	27.2	25.1	18.6	23.2	38.9	30.3	41.4	48.3	NA	24.4	31.6	27.4	21.4	42.8	20.4	44.4	36.4	18.6	37.7	20.4	24.3	14.8	26.2	30.2	7.7	16.7
Water, sewerage, waste mgmt. & remediation	21.1	11.4	22.9	27.7	11.6	15.3	NA	22.1	14.5	13.3	18.2	21.3	29.5	NA	17.2	12.7	17.3	29.0	19.8	19.1	20.9	23.1	19.2	25.1	18.1	NA	21.0	8.9	12.9	6.6	10.4
Construction	30.1	17.4	31.5	NA	23.6	15.4	NA	25.0	14.9	17.3	21.8	23.6	40.4	34.6	26.3	21.6	24.9	27.0	19.3	22.6	35.9	26.2	24.4	36.3	24.5	NA	19.6	13.7	19.3	10.7	NA
Wholesale & retail trade; repair of motor vehicles	24.5	9.9	20.4	25.7	11.9	9.9	14.3	16.6	10.4	15.6	14.0	11.3	51.0	27.5	20.4	16.6	13.3	19.5	21.0	16.5	19.1	20.0	18.8	25.0	14.3	18.2	12.8	11.7	8.1	4.3	5.0
Land transport & transport via pipelines	28.4	13.0	27.4	15.0	16.2	16.2	16.0	20.9	14.5	31.2	25.2	24.8	23.1	49.0	28.8	17.7	21.5	26.6	21.3	17.7	32.1	21.7	32.0	28.7	24.4	24.7	19.7	15.7	18.4	5.9	9.6
Water transport	40.5	27.7	36.9	51.2	37.2	18.2	26.0	24.3	20.2	34.8	20.0	19.5	58.3	60.5	35.6	36.2	24.1	40.6	32.5	25.4	31.8	31.8	68.3	42.8	26.2	15.1	33.3	14.5	12.4	7.5	20.1
Air transport	40.9	24.4	48.5	39.5	25.3	21.2	20.8	31.8	20.2	63.7	34.3	37.0	59.1	59.1	31.0	29.9	29.8	34.1	46.4	25.2	41.0	34.3	48.8	39.0	26.3	29.1	31.9	26.9	19.6	5.2	16.2
Warehousing & supp. activities for transp.	27.8	15.9	32.2	35.3	13.4	15.3	14.7	21.7	14.4	47.7	18.4	21.6	36.9	34.8	19.3	13.7	15.0	18.0	27.3	23.4	22.2	21.4	21.8	26.1	16.2	18.9	24.1	14.3	6.1	5.9	14.6
Postal & courier activities	27.0	13.5	37.8	16.0	16.0	8.1	9.3	9.4	13.6	19.2	23.3	20.9	38.4	61.6	35.6	22.3	21.7	14.3	17.7	16.7	20.1	21.3	23.9	17.2	15.0	14.7	14.3	9.8	11.5	6.5	9.6
Accommodation & food service activities	27.6	13.5	23.1	17.8	15.7	11.9	13.4	17.5	11.5	17.7	17.8	17.3	38.3	34.1	20.5	13.3	15.7	22.5	19.3	18.3	19.6	22.1	19.4	26.9	18.4	14.3	18.0	13.0	8.7	5.0	8.0
Publishing, audiovisual & broadcasting activities	31.6	13.9	25.3	32.5	17.6	18.0	17.0	21.1	13.3	46.4	22.1	27.0	68.3	56.9	45.3	23.7	20.1	31.1	20.5	26.6	14.1	23.6	17.1	28.1	24.3	14.9	17.7	14.5	11.7	3.9	8.6
Telecommunications	25.5	12.8	25.3	20.9	8.5	13.9	15.3	14.3	12.0	18.5	16.6	13.2	60.1	44.9	23.5	22.0	17.5	30.4	14.9	15.8	12.9	26.1	19.3	19.7	21.8	20.8	16.6	8.7	8.6	6.5	9.3
IT & other information services	22.7	14.5	18.7	58.0	9.2	14.6	10.4	18.2	12.1	58.5	13.1	11.3	75.1	48.4	24.6	22.1	15.3	18.0	19.5	21.2	13.1	13.9	17.7	16.6	20.1	12.5	17.2	10.0	2.3	3.4	5.5
Financial & insurance activities	21.1	12.1	13.4	39.1	6.5	8.6	14.3	11.6	8.9	34.3	13.9	10.5	74.5	66.6	13.6	14.0	10.6	15.0	13.4	16.0	7.4	13.1	8.2	16.7	13.0	9.3	5.1	13.0	7.1	3.0	1.6
Real estate activities	8.8	3.7	11.2	11.3	2.8	2.3	3.4	14.7	2.4	5.8	6.2	9.4	21.7	20.9	13.0	6.4	3.1	5.8	6.7	6.5	8.3	16.0	7.3	12.3	11.8	5.9	8.5	4.0	10.6	2.2	1.4
Professional, scientific & technical activities	22.7	8.7	21.2	22.9	7.9	10.5	12.6	15.9	9.1	16.3	12.3	13.4	42.5	44.2	22.1	17.8	14.2	19.2	16.1	17.7	17.0	21.8	14.2	17.2	13.9	15.1	12.9	10.3	7.6	3.5	10.3
Administrative & support services	20.2	9.8	21.9	24.3	11.9	9.9	10.4	16.4	11.3	14.0	19.0	17.9	52.3	40.2	17.1	9.7	10.2	17.7	17.2	14.1	17.9	23.7	18.5	18.8	17.3	13.7	13.4	12.0	6.7	4.0	8.4
Public admin.&defence; compulsory social security	11.2	8.2	11.7	NA	6.3	5.9	7.6	16.0	5.8	5.5	7.6	10.2	17.4	22.9	12.1	9.2	6.2	10.1	8.2	15.9	10.2	10.2	12.5	12.1	8.1	NA	10.4	11.7			

tariffs or trade barriers, especially upstream, where the EU's reliance on imports is very high, could affect output all the way down the value chain and therefore spill over into other industries and sectors.

**Commodity trade tensions have increased since Russia's invasion of Ukraine and represent a real risk for the EU.** The number of trade restrictions on minerals, agricultural and energy commodities more than doubled in 2022. Focusing on trade flows involving 48 critical raw materials (as defined by critical raw materials lists of the EU and US), Alvarez et al. (2023), provide evidence of concentration of production, low elasticities of supply and demand, particularly in the short run, and trade dependence<sup>6</sup>. The authors also found that geopolitical and trade tensions could cause a lot of price volatility for many commodities, mineral markets critical for decarbonisation and selected agricultural commodity markets being the most vulnerable in the hypothetical segmentation of the world into two geopolitical blocs along US-EU and China-Russia fault lines (Alvarez et al. 2023). For instance, the authors' simulations show that the price of refined minerals like magnesium, platinum, palladium, and aluminium, could increase fivefold in the US-EU bloc. However, their simulations do not account for output loss if there is a total ban on trade for such commodities.

**Data on trade in value added (TiVA) better capture the complex interlinkages between countries that result from the rise of global value chains.** Gross trade records the total flow of goods and services across borders and includes the cost of inputs and the value added by each transit country along the supply chain. This means that gross trade could lead to double counting due to trade in intermediate goods and services and could neglect the role of intermediate transit countries in the process when the final good or service is recorded on the trade balance (Ravikumar and Reinbold 2020). Measures of TiVA from the OECD address these shortcomings by recording the flows of value added across borders. These measures therefore better capture the country's exposure to shocks originating in a country located upstream (export spillovers) or downstream (import spillovers) of the supply chain.

**Dependence on foreign demand is high, especially for smaller countries.** Matrix 4 reports the shares of a country's value added in the column exported to a partner country in the row. For example, Belgium exports 5.3% of its domestic value added to France. Overall, the proportion of exported value added exceeds 30% of total value added in some countries, such as Ireland, Luxembourg, Slovenia, Slovakia, Czechia and Hungary. By contrast, Greece, France, Italy and Finland appear to be least dependent on foreign demand. Still, every EU country exports more than 10% of its domestic value added. In particular, the dependence on demand from large Member States, especially Germany and Italy, is relatively high in central and eastern Europe. For example, German demand attracts Austrian, Hungarian, Polish, Slovenian and Slovakian value added to the tune of 6%-7%, while small open economies, like Malta, Luxembourg, Ireland and Denmark show high exposure to the UK and the US. The heatmap also shows relatively high shares of total value added dependent on Chinese demand in most of the EU, particularly in countries like Luxembourg, Malta, Ireland, Slovakia, Germany, Denmark and Sweden.

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<sup>6</sup> Due to the high concentration of production and high demand for the selected critical commodities, the shares of production that are traded internationally are higher than the ratio of world trade to gross output.

Matrix 4. Value added generated domestically to meet partner's demand

		Domestic value added embodied in foreign final demand (as % share of domestic value added)																																
		BE	DE	EE	IE	GR	ES	FR	HR	IT	CY	LV	LT	LU	MT	NL	AT	PT	SI	SK	FI	BG	CZ	DK	HU	PL	RO	SE	GB	TR	US	CN	RU	
Importer of value added	BE	NA	0.6	0.4	1.8	0.2	0.4	1.0	0.4	0.4	0.4	0.4	0.8	3.4	0.3	2.0	0.5	0.5	0.5	0.6	0.3	0.6	0.8	0.5	0.7	0.7	0.6	0.6	0.4	0.2	0.1	0.1	0.3	
	DE	3.4	NA	2.5	5.5	1.6	1.9	1.8	3.4	2.1	1.9	2.4	3.8	6.2	4.9	4.8	7.2	2.0	5.6	5.6	2.0	3.7	7.6	2.6	6.8	6.6	3.4	2.3	1.6	1.8	0.4	0.6	1.9	
	EE	0.0	0.0	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.2	1.6	1.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	
	IE	1.3	0.5	0.3	NA	0.1	0.3	0.6	0.4	0.4	0.1	0.3	0.4	3.3	0.6	0.9	0.3	0.4	0.3	0.2	0.5	0.2	0.5	0.5	0.4	0.5	0.2	0.4	1.0	0.1	0.3	0.0	0.1	
	GR	0.2	0.1	0.1	0.2	NA	0.1	0.1	0.1	0.2	1.7	0.1	0.1	0.2	0.2	0.2	0.2	0.1	0.2	0.1	0.1	2.0	0.1	0.2	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.0	0.0	0.3
	ES	0.8	0.8	0.5	1.5	0.3	NA	0.9	0.4	0.8	0.2	0.3	0.7	1.1	0.7	0.9	0.5	3.3	0.7	0.8	0.5	0.8	0.9	0.5	1.0	0.8	0.6	0.6	0.5	0.7	0.1	0.2	0.4	
	FR	5.3	2.2	1.2	3.7	0.8	2.9	NA	1.0	2.2	0.7	1.0	1.8	5.1	1.4	3.1	1.6	3.2	2.5	2.8	1.0	1.8	2.5	1.3	2.0	2.5	2.4	1.5	1.3	1.0	0.2	0.3	0.9	
	HR	0.1	0.1	0.0	0.0	0.1	0.0	0.0	NA	0.1	0.0	0.0	0.1	0.1	0.1	0.1	0.3	0.0	2.3	0.2	0.0	0.2	0.1	0.0	0.5	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	
	IT	1.8	1.3	0.6	2.6	1.1	1.3	1.2	2.5	NA	0.5	0.7	1.2	4.3	1.6	1.5	1.8	0.9	4.1	1.6	0.6	2.2	1.6	0.7	2.1	1.5	2.0	0.8	0.6	1.0	0.1	0.2	0.7	
	CY	0.0	0.0	0.0	0.1	0.5	0.0	0.0	0.0	0.0	NA	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
	LV	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	NA	2.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.1	
	LT	0.1	0.0	1.6	0.1	0.0	0.0	0.0	0.0	0.0	0.2	2.7	NA	0.0	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.4	0.0	0.1	0.0	0.0	0.0	0.0	0.2	
	LU	0.4	0.1	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.1	NA	0.1	0.1	0.1	0.1	0.2	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	
	MT	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	NL	2.4	0.8	0.8	1.9	0.2	0.4	0.4	0.4	0.3	0.3	1.0	1.1	1.3	0.4	NA	0.7	0.5	0.7	0.6	0.5	0.6	0.8	0.6	0.8	1.0	0.6	0.8	0.7	0.3	0.1	0.1	0.6	
	AT	0.3	0.9	0.5	0.4	0.2	0.2	0.2	1.8	0.4	0.4	0.3	0.8	0.6	0.8	0.4	NA	0.2	3.1	1.9	0.2	0.9	1.6	0.2	2.0	0.8	0.9	0.4	0.1	0.2	0.0	0.1	0.2	
	PT	0.2	0.2	0.1	0.3	0.1	1.2	0.2	0.1	0.2	0.1	0.1	0.1	0.2	0.2	0.3	0.1	NA	0.2	0.1	0.1	0.2	0.1	0.1	0.2	0.2	0.1	0.1	0.1	0.1	0.0	0.0	0.1	
	SI	0.0	0.1	0.0	0.0	0.1	0.0	0.0	1.5	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.3	0.0	NA	0.2	0.0	0.1	0.1	0.0	0.2	0.1	0.1	0.0	0.0	0.1	0.0	0.0	0.0	
	SK	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.4	0.0	0.3	NA	0.1	0.2	1.5	0.1	0.7	0.4	0.2	0.1	0.0	0.1	0.0	0.0	0.2	
	FI	0.2	0.2	4.5	0.4	0.0	0.0	0.1	0.1	0.1	0.1	0.9	0.8	0.3	0.2	0.3	0.2	0.1	0.2	0.2	NA	0.1	0.2	0.6	0.2	0.4	0.1	1.1	0.1	0.1	0.0	0.0	0.3	
BG	0.1	0.1	0.1	0.1	0.4	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.1	0.1	0.0	0.2	0.2	0.0	NA	0.2	0.0	0.3	0.1	0.5	0.0	0.0	0.2	0.0	0.2	
CZ	0.2	0.4	0.2	0.3	0.1	0.1	0.1	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.6	0.1	0.5	2.3	0.1	0.5	NA	0.2	0.8	1.0	0.3	0.1	0.1	0.1	0.0	0.1	0.2		
DK	0.4	0.3	1.2	0.4	0.2	0.2	0.1	0.2	0.1	0.2	1.3	1.4	0.3	0.4	0.5	0.2	0.2	0.4	0.2	0.4	0.3	0.3	NA	0.3	0.5	0.1	1.6	0.2	0.1	0.0	0.0	0.2		
HU	0.2	0.3	0.1	0.2	0.1	0.1	0.1	0.6	0.1	0.3	0.1	0.2	0.2	0.2	0.2	0.8	0.1	1.2	1.6	0.1	0.4	0.8	0.1	NA	0.6	0.6	0.1	0.1	0.1	0.0	0.0	0.2		
PL	0.6	0.8	0.7	0.7	0.3	0.3	0.3	0.5	0.5	0.7	0.8	1.8	0.6	0.5	0.6	0.8	0.3	1.0	1.9	0.5	0.7	1.8	0.6	1.2	NA	0.6	0.6	0.2	0.4	0.0	0.1	0.7		
RO	0.2	0.3	0.1	0.2	0.5	0.1	0.2	0.3	0.3	0.4	0.1	0.2	0.2	0.5	0.2	0.6	0.2	0.7	0.8	0.1	2.5	0.6	0.1	1.9	0.6	NA	0.1	0.1	0.4	0.0	0.0	0.2		
SE	0.6	0.4	2.8	0.8	0.1	0.2	0.2	0.5	0.2	0.3	1.9	1.6	1.0	1.3	0.6	0.4	0.3	0.5	0.4	1.9	0.4	0.6	2.3	0.6	0.9	0.2	NA	0.3	0.2	0.1	0.1	0.2		
EU	19.0	10.5	20.4	21.5	7.1	10.2	7.8	15.1	8.9	9.4	16.6	20.6	28.9	15.1	17.2	17.6	12.5	25.3	22.4	9.5	18.8	23.0	11.5	23.1	20.2	14.0	11.8	7.6	7.4	1.6	2.3	8.0		
GB	2.5	1.5	1.2	5.9	0.9	1.5	1.4	0.9	1.2	1.8	2.2	1.6	3.4	5.9	2.5	1.1	1.9	1.0	1.5	1.0	1.3	1.6	1.6	1.6	2.1	1.0	1.4	NA	1.2	0.3	0.5	0.6		
TR	0.4	0.5	0.3	0.4	0.6	0.3	0.3	0.2	0.5	0.6	0.4	0.4	0.4	0.4	0.3	0.4	0.3	0.6	0.6	0.3	1.9	0.7	0.2	0.6	0.5	0.7	0.3	0.2	NA	0.1	0.2	0.9		
US	4.7	3.3	3.3	13.6	2.4	1.9	2.0	1.7	2.7	1.8	2.2	2.6	3.4	3.4	3.2	2.9	2.3	2.8	2.9	2.3	2.1	2.3	4.8	3.2	2.2	1.6	3.1	3.8	2.1	NA	3.0	2.1		
CN	1.5	2.5	1.5	4.5	1.1	1.1	1.5	0.8	1.4	1.8	1.0	1.4	1.6	4.8	1.8	1.9	1.2	1.4	2.9	2.0	2.3	1.8	2.4	2.1	1.3	1.2	2.4	1.3	0.9	0.9	NA	3.1		
RU	0.4	0.6	1.6	1.2	0.2	0.3	0.4	0.4	0.6	3.5	1.5	1.8	0.6	0.5	0.6	0.7	0.3	1.4	1.1	1.0	1.0	1.3	0.5	1.0	1.0	0.5	0.5	0.3	0.9	0.1	0.4	NA		

Source: Commission Services calculations using OECD input-output tables and IMF World Economic Outlook. The data shown here are the latest available (2020).

Note: the matrix reports the shares of domestic value added of a country in the column exported to a partner country in the row (e.g. Belgium exports 5.3% of its domestic value added to France). Shades or red indicate higher exposures.

**When looking at trade in value added it becomes evident that EU economies are highly integrated in the Single market and into global value chains.** As opposed to Matrix 4, Matrix 5 reports value added generated in a partner's economy (rows) to meet own demand (columns), capturing the dependence on productive capacity abroad. For example, the value added generated by the Spanish economy to satisfy demand in Portugal represents 7% of Portuguese total value added. Taking this metric into account, exposure is more evenly distributed than in the case of gross trade (compare with Matrix 1)<sup>7</sup>, highlighting the intensity of value chain integration in global trade

<sup>7</sup> The magnitudes of exposure between matrices showing gross import/exports data and trade in value added are not comparable as the latter are expressed as shares of total value added and therefore do not take into account the trade openness of the economy.

characterising EU economies. The one-to-one comparison between Matrix 4 and Matrix 5 shows a stronger reliance on German value added for some central and eastern European Member States than the other way around, consistent with the German economy's more downstream position in the value chain. For example, as a proportion of Hungarian total value added, the value added generated domestically to meet German demand (6.8%) is lower than the value added generated in Germany to meet Hungarian demand (7.2%). The same pattern can be noticed in the bilateral relations between Germany, on one side, and Austria and Romania on the other; between Spain and Portugal; the Netherlands and Belgium; and between EU Member States, on average, and the US. However, against the UK and China, EU Member States show higher dependence on foreign productive capacity than the other way around.

**Matrix 5. Value added generated in the partner's economy to meet own demand**

Foreign value added embodied in domestic final demand (as % share of domestic value added)

	BE	DE	EE	IE	GR	ES	FR	HR	IT	CY	LV	LT	LU	MT	NL	AT	PT	SI	SK	FI	BG	CZ	DK	HU	PL	RO	SE	GB	TR	US	CN	RU	
BE	NA	0.5	0.5	1.6	0.5	0.3	1.1	0.6	0.5	0.6	0.4	0.5	3.0	0.8	1.4	0.4	0.6	0.4	0.4	0.4	0.5	0.5	0.6	0.7	0.5	0.5	0.6	0.5	0.3	0.1	0.1	0.2	
DE	4.1	NA	3.6	4.0	3.0	2.3	3.2	4.6	2.6	2.6	3.3	3.4	5.7	3.7	3.5	7.9	3.4	4.0	5.2	2.8	3.8	5.8	3.8	7.7	5.4	4.7	3.1	2.2	2.6	0.6	0.6	1.6	
EE	0.0	0.0	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.1	1.8	0.9	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.1	0.0	0.0	0.0	0.2	0.0	0.0	0.0	0.0	0.0
IE	1.5	0.6	0.4	NA	0.6	0.5	0.6	0.4	0.6	1.0	0.6	0.5	0.8	0.8	0.9	0.4	0.5	0.4	0.3	0.7	0.5	0.5	0.6	0.7	0.5	0.4	0.7	1.0	0.2	0.3	0.1	0.4	
GR	0.1	0.1	0.1	0.1	NA	0.0	0.1	0.2	0.1	3.6	0.1	0.1	0.1	0.4	0.0	0.1	0.1	0.4	0.1	0.0	1.0	0.1	0.1	0.1	0.1	0.3	0.0	0.1	0.2	0.0	0.0	0.0	0.0
ES	1.0	0.6	0.7	1.0	0.8	NA	1.4	0.7	0.9	0.9	0.5	0.6	0.8	1.1	0.6	0.5	7.0	0.6	0.6	0.5	0.7	0.6	0.7	0.8	0.7	0.7	0.5	0.7	0.6	0.1	0.1	0.3	
FR	4.8	1.2	1.1	3.6	1.2	1.9	NA	1.2	1.6	1.3	0.8	1.1	3.8	1.8	1.2	0.9	2.4	1.3	1.4	0.8	1.1	1.1	0.9	1.8	1.3	1.8	1.1	1.3	1.0	0.2	0.3	0.6	
HR	0.0	0.0	0.0	0.0	0.0	0.0	NA	0.1	0.0	0.0	0.0	0.0	0.3	0.0	0.2	0.0	1.5	0.1	0.0	0.1	0.1	0.0	0.2	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	
IT	1.4	1.0	1.1	1.5	2.0	1.2	1.6	3.1	NA	1.9	1.1	1.4	1.1	3.6	0.7	1.7	1.5	3.2	1.5	0.7	2.2	1.2	0.7	1.7	1.5	2.3	0.8	0.8	1.2	0.2	0.2	0.7	
CY	0.0	0.0	0.2	0.0	0.2	0.0	0.0	0.0	0.0	NA	0.1	0.1	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
LV	0.0	0.0	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.1	NA	1.6	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	
LT	0.1	0.1	1.8	0.0	0.0	0.0	0.0	0.1	0.0	0.1	3.8	NA	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.2	0.0	0.2	0.0	0.0	0.0	0.0	0.1
LU	0.5	0.1	0.1	0.6	0.1	0.1	0.1	0.1	0.2	0.2	0.0	0.1	NA	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0
MT	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	NA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
NL	3.5	1.1	1.0	1.9	1.0	0.6	1.1	0.9	0.7	0.9	0.9	1.1	1.0	0.8	NA	0.8	1.1	0.6	0.7	1.0	0.9	0.8	1.3	1.4	1.0	0.9	1.1	0.8	0.4	0.1	0.1	0.3	
AT	0.4	0.8	0.4	0.3	0.4	0.2	0.3	2.1	0.4	0.6	0.4	0.4	0.4	0.9	0.4	NA	0.2	2.2	1.5	0.3	0.9	1.0	0.3	2.3	0.6	1.0	0.3	0.2	0.2	0.1	0.1	0.2	
PT	0.2	0.1	0.1	0.2	0.1	0.6	0.3	0.1	0.1	0.1	0.1	0.1	0.3	0.1	0.1	0.1	NA	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
SI	0.1	0.1	0.1	0.0	0.0	0.0	0.1	2.2	0.1	0.0	0.1	0.1	0.1	0.1	0.0	0.4	0.0	NA	0.1	0.0	0.2	0.1	0.1	0.4	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	
SK	0.1	0.2	0.1	0.0	0.1	0.1	0.1	0.4	0.1	0.1	0.1	0.2	0.1	0.0	0.1	0.5	0.1	0.3	NA	0.1	0.3	1.0	0.1	1.1	0.3	0.3	0.1	0.1	0.1	0.0	0.0	0.1	
FI	0.1	0.1	2.8	0.3	0.1	0.1	0.1	0.1	0.1	0.1	0.8	0.7	0.1	0.2	0.2	0.1	0.1	0.1	0.1	NA	0.1	0.1	0.3	0.1	0.2	0.1	0.9	0.1	0.1	0.0	0.0	0.2	
BG	0.1	0.1	0.1	0.0	0.8	0.0	0.2	0.1	0.3	0.1	0.1	0.0	0.2	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.2	0.1	0.1	0.2	0.1	0.7	0.0	0.0	0.2	0.0	0.0	0.0	
CZ	0.4	0.5	0.5	0.3	0.2	0.2	0.2	0.6	0.2	0.3	0.4	0.4	0.2	0.1	0.2	0.9	0.2	0.6	3.4	0.2	0.5	NA	0.2	1.3	0.8	0.6	0.3	0.1	0.3	0.0	0.0	0.2	
DK	0.3	0.2	0.6	0.4	0.3	0.1	0.2	0.3	0.1	0.2	0.6	0.7	0.2	0.4	0.2	0.2	0.2	0.2	0.2	0.2	0.8	0.2	0.2	NA	0.3	0.3	0.2	1.5	0.2	0.1	0.1	0.1	
HU	0.2	0.3	0.2	0.1	0.2	0.1	0.1	1.3	0.2	0.1	0.2	0.2	0.1	0.1	0.1	0.7	0.1	0.7	1.0	0.1	0.8	0.5	0.1	NA	0.3	1.1	0.2	0.1	0.1	0.0	0.0	0.1	
PL	0.8	1.0	2.0	0.7	0.5	0.4	0.6	1.2	0.5	0.6	2.7	3.8	0.8	0.9	0.6	1.1	0.5	0.9	2.3	0.8	1.2	2.3	0.9	2.3	NA	1.4	1.0	0.4	0.4	0.1	0.1	0.4	
RO	0.3	0.2	0.2	0.1	0.3	0.1	0.2	0.3	0.3	0.4	0.1	0.1	0.2	0.1	0.2	0.6	0.1	0.4	0.4	0.1	1.7	0.3	0.1	1.1	0.3	NA	0.1	0.1	0.2	0.0	0.0	0.1	
SE	0.6	0.3	2.3	0.5	0.3	0.2	0.3	0.3	0.2	0.3	1.1	1.0	0.3	0.6	0.4	0.4	0.3	0.3	0.3	2.4	0.3	0.3	2.5	0.4	0.5	0.2	NA	0.3	0.2	0.1	0.1	0.2	
EU	20.6	9.3	21.7	17.2	12.5	9.1	11.8	21.1	9.7	16.4	20.3	19.1	19.2	17.7	11.2	18.3	18.6	18.5	20.1	12.9	17.5	16.9	13.7	24.9	15.0	17.9	13.1	9.5	8.7	2.1	1.9	6.1	
GB	2.0	1.1	1.2	6.1	1.5	1.0	1.4	0.8	0.8	4.5	1.0	0.9	2.5	5.5	2.0	0.8	1.3	0.7	0.8	1.3	0.9	0.8	1.6	1.1	1.0	0.9	1.5	NA	0.8	0.5	0.2	0.6	
TR	0.3	0.3	0.4	0.2	0.9	0.4	0.3	0.5	0.4	0.4	0.3	0.3	0.2	0.8	0.2	0.4	0.3	0.9	0.3	0.2	1.8	0.3	0.2	0.6	0.5	1.0	0.2	0.3	NA	0.1	0.0	0.4	
US	3.4	2.2	2.0	12.6	1.8	1.6	1.8	1.3	1.4	2.4	1.4	1.8	2.8	2.7	3.1	1.8	1.3	1.3	1.3	2.3	1.2	1.8	1.8	2.2	1.8	1.0	2.3	2.7	2.0	NA	1.2	1.4	
CN	1.5	2.4	3.6	1.7	2.5	2.3	1.9	1.7	2.0	2.2	1.7	1.8	1.0	2.7	1.9	2.4	1.7	2.6	2.7	2.7	2.1	5.3	1.7	3.8	3.8	2.1	1.9	2.6	3.4	2.1	NA	4.1	
RU	0.8	0.7	3.5	0.4	2.3	0.4	0.5	0.7	0.5	2.8	3.2	4.1	0.3	0.8	0.9	0.7	0.4	1.4	2.8	1.6	4.1	0.9	0.7	1.7	1.8	1.3	0.5	0.3	1.8	0.1	0.3	NA	

Source: Commission Services calculations using OECD input-output tables and IMF World Economic Outlook. The data shown here are the latest available (2020).

Note: the matrix reports the shares of value added of a country in the column imported from a partner country in the row (e.g. Belgium imports 4.8% of its domestic value added from France). Shades or red indicate higher exposures.

**Empirical evidence points towards diminishing EU shares in global manufacturing, but resilience in some other industries.** Employing a decomposition technique to global input-output

data for a period of 15 years starting in 2000, Marschinski and Martínez-Turégano (2020) found evidence of the EU's diminishing share in manufacturing value chains. Most of this trend can be explained by the geographical and sectoral reallocation of global demand, with lower economic growth in the EU relative to the rest of the world being the main cause. The other reason for the EU's loss of global share is the lower participation in manufacturing value chains, which confirms to some extent a downturn in EU competitiveness, with a more pronounced trend for low-tech (e.g. textiles) than high-tech sectors. However, pharmaceuticals emerge as the most resilient EU industry, while concerns appear to be most warranted for electronics, a key sector for which the EU's global share fell even more than that for overall manufacturing.

**Exposure estimates in terms of nominal trade data account for direct flows and more complex analysis is needed to assess the risks from geopolitical and trade tensions.** The figures presented above are a *prima facie* estimation of trade linkages and do not account fully for the complexities of interlinkages. Therefore, they are not an optimal indicator to gauge the possible output losses in case of trade tensions. Estimates employing granular and encompassing data (covering production and trade in primary commodities, manufacturing, and service sectors for a large sample of countries) show that losses due to geopolitical and trade tensions could be sizeable, especially in the short run. Bolhuis, Chen and Kett (2023) estimate such effects could arise under various plausible scenarios. They conclude that under a scenario of geopolitical fragmentation (involving trade barriers between blocs formed around the US-EU and China-Russia fault lines), losses for advanced economies could reach 4.2 percentage points (pps) in real GDP in the short run (1 year) and up to 2.1 pps. in the long run (10 years). However, under a milder scenario of strategic decoupling (involving a US-EU bloc trading freely with the rest of the world, but with trade barriers on all sectors for Russia and trade barriers on high-tech sectors for China), output losses in the first year could reach 0.7 pps, while in the long run they could drop to 0.3 pps.

## II. FINANCIAL AND INVESTMENT EXPOSURE

**Locational banking statistics show considerable amounts of bank claims outside of the EU.** Matrix 6 shows the aggregate amount of bank claims of the creditors (displayed on rows) of debtor institutions located in various partner countries (displayed on columns), as a share of a creditor's GDP<sup>8</sup>. For example, the claims held by Estonian banking institutions against counterparties registered in Sweden equal 4.6% of the Estonian GDP. Knowing the degree of financial exposure to other jurisdictions is crucial to identifying the sources of risk, as the high interconnectedness in the world of finance could easily translate into negative shockwaves across borders in cases of financial distress. For Member States with well-developed capital markets, like Germany, France, Luxembourg and the Netherlands, such exposures are high particularly towards institutions located in large international financial centres outside of the EU, such as the US, the UK, Switzerland and Japan. These non-EU jurisdictions have well-functioning and transparent financial sectors, with well-established regulatory frameworks. However, these do not exclude the possibility of negative spillovers rippling towards the EU in case of distress. The exposure of Member States to China is relatively small across the board, with two relevant exceptions: Luxembourg, with claims totalling almost 10% of GDP and France with

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<sup>8</sup> Data represent cross-border outstanding claims vis-à-vis counterparties, for all financial instruments, currencies, and sectors.



claims totalling 1.2% of GDP. Such exposure is not negligible, considering the size of France's GDP and Luxembourg's role as a financial hub in the EU. Risks related to Chinese exposure could translate into negative spillovers for the EU in the current context of a Chinese real estate downturn, growth slowdown and disinflation. For smaller Member States with well-developed banking sectors, the denominator effect increases the financial exposure, sometimes to values higher than their GDP; e.g. Luxembourg, Cyprus, Malta and Ireland. In turn, the effect of very shallow capital and financial markets in central and eastern Europe is visible, where the value of such claims even with large financial centres barely surpass 1% of GDP. In this context, the completion of the Capital Markets Union and the Banking Union, is needed to advance risk sharing in the euro area, but also to decrease the risk of exposure towards non-EU partners.

Matrix 6. **Financial claims as a share of creditor's GDP**

		Debtor																																
		BE	DE	EE	IE	EL	ES	FR	HR	IT	CY	LV	LT	LU	MT	NL	AT	PT	SI	SK	FI	BG	CZ	DK	HU	PL	RO	SE	CH	JP	UK	TR	US	CN
Creditor (claims value as % share of creditor GDP)	BE	NA	6.7	0.0	2.0	0.0	2.0	13.9	0.0	1.3	0.0	0.1	0.1	4.2	0.0	9.9	0.6	0.1	0.2	1.9	0.4	0.7	3.7	0.7	0.6	0.4	0.1	0.5	0.6	1.6	12.2	0.4	3.5	0.1
	DE	0.9	NA	0.0	1.3	0.6	2.0	8.5	0.0	3.2	0.0	0.0	0.0	5.0	0.1	4.4	1.9	0.2	0.1	0.2	0.7	0.0	0.3	0.7	0.1	0.6	0.0	0.9	1.3	0.4	31.1	0.4	7.9	0.3
	EE	0.0	1.3	NA	0.2	0.0	0.1	1.0	NA	0.0	NA	NA	NA	0.4	NA	0.2	0.3	NA	NA	NA	0.3	NA	NA	0.2	NA	NA	NA	4.6	1.7	0.0	0.2	NA	0.2	NA
	IE	2.7	14.0	0.0	NA	0.0	3.0	16.6	0.2	5.3	0.0	0.0	0.2	4.1	0.0	7.1	0.4	0.5	0.0	0.1	1.0	0.0	0.3	1.2	0.2	0.4	0.1	1.3	0.7	0.5	19.9	0.1	7.4	0.0
	EL	0.1	1.5	0.0	15.5	NA	1.5	1.1	0.0	3.2	1.6	0.0	0.0	1.1	0.1	0.7	0.0	0.2	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.5	0.0	0.0	0.0	1.8	0.0	0.5	NA
	ES	0.7	5.2	0.0	1.6	0.0	NA	7.7	0.0	7.3	0.0	0.0	0.0	1.1	0.0	3.7	0.2	2.1	0.0	0.0	0.1	0.0	0.0	0.1	0.0	0.6	0.0	0.1	0.7	0.3	7.5	0.4	6.2	0.3
	FR	4.9	13.3	0.0	4.3	0.1	6.5	NA	0.0	14.3	0.0	0.0	0.0	8.0	0.1	8.2	0.5	1.0	0.0	0.1	1.2	0.0	0.5	1.1	0.1	0.8	0.1	1.2	3.7	10.6	33.2	0.2	20.3	1.2
	HR	0.5	1.6	NA	1.3	0.0	0.0	0.9	NA	1.1	NA	NA	NA	0.1	NA	NA	1.3	NA	NA	NA	0.0	NA	NA	0.0	NA	NA	NA	0.1	0.9	0.0	0.3	NA	0.1	NA
	IT	0.5	6.3	0.0	1.0	0.0	3.0	5.8	0.2	NA	0.0	0.0	0.0	1.7	0.0	0.8	1.2	0.3	0.0	0.1	0.1	0.1	0.3	0.0	0.2	0.1	0.1	0.1	0.3	0.4	6.7	0.1	2.8	0.1
	CY	2.4	12.5	NA	2.5	9.6	0.2	9.2	NA	0.2	NA	NA	NA	14.5	NA	NA	7.5	NA	NA	NA	0.0	NA	NA	1.1	NA	NA	NA	0.9	85.1	NA	20.7	NA	7.3	NA
	LV	0.1	0.4	NA	0.3	0.0	0.1	1.1	NA	0.0	NA	NA	NA	0.5	NA	0.1	0.4	NA	NA	NA	0.1	NA	NA	0.2	NA	NA	NA	7.1	1.4	0.0	0.6	NA	0.1	NA
	LT	0.2	0.4	NA	0.1	0.0	0.1	0.6	NA	0.1	NA	NA	NA	0.7	NA	0.1	0.1	NA	NA	NA	0.1	NA	NA	0.2	NA	NA	NA	8.0	0.4	0.0	0.1	NA	0.1	NA
	LU	29.4	155.4	0.1	22.9	1.1	15.1	191.0	0.1	25.9	2.1	0.0	0.1	NA	0.6	24.0	3.4	4.8	0.1	0.4	2.5	0.2	0.6	2.0	1.1	4.2	1.1	11.6	31.8	8.5	49.8	1.3	31.1	9.9
	MT	1.9	9.7	NA	5.0	2.0	1.8	16.3	NA	1.4	NA	NA	NA	15.3	NA	4.4	4.2	NA	NA	NA	0.1	NA	NA	0.9	NA	NA	NA	0.5	25.0	NA	6.8	NA	2.7	NA
	NL	4.8	10.7	NA	6.5	0.1	1.8	13.9	0.0	1.2	0.0	0.0	0.0	3.5	0.1	NA	0.7	0.2	0.0	0.0	0.7	0.0	NA	0.4	0.1	0.6	0.2	0.6	3.2	0.4	28.6	0.5	14.8	NA
	AT	0.5	10.8	0.0	1.0	0.0	2.6	4.1	1.0	1.6	0.1	0.1	0.1	1.5	0.0	2.3	NA	0.2	0.7	1.5	0.4	0.1	3.5	0.2	1.9	1.6	1.7	0.5	3.3	0.3	4.6	0.5	1.7	0.1
	PT	0.3	1.2	NA	0.4	0.0	2.3	4.3	NA	0.1	NA	NA	NA	1.7	NA	0.6	0.1	NA	NA	NA	0.0	NA	NA	0.1	NA	NA	NA	0.1	1.8	0.0	0.7	NA	0.6	NA
	SI	0.1	3.1	NA	0.0	0.0	1.2	3.4	NA	0.6	NA	NA	NA	0.1	NA	0.6	2.7	NA	NA	NA	0.0	NA	NA	0.0	NA	NA	NA	0.0	0.3	0.0	1.0	NA	0.1	NA
	SK	0.5	1.4	NA	0.9	0.0	0.2	2.2	NA	0.5	NA	NA	NA	0.1	NA	0.4	1.3	NA	NA	NA	0.3	NA	NA	0.0	NA	NA	NA	0.0	0.4	0.0	0.1	NA	0.1	NA
	FI	0.4	4.2	0.1	0.4	0.0	0.3	6.2	0.0	0.0	0.0	0.0	0.0	0.7	0.0	1.1	0.2	0.0	0.0	0.0	NA	0.0	0.0	16.8	0.0	0.1	0.0	20.0	0.3	0.0	5.1	0.0	1.9	0.1
	BG	3.4	1.7	NA	0.6	0.6	0.1	2.3	NA	1.6	NA	NA	NA	0.4	NA	NA	0.7	NA	NA	NA	0.0	NA	NA	0.0	NA	NA	NA	0.0	3.2	0.0	2.7	NA	0.2	NA
	CZ	1.3	1.8	NA	0.4	0.0	0.1	1.9	NA	0.6	NA	NA	NA	0.1	NA	0.4	1.5	NA	NA	NA	0.0	NA	NA	0.0	NA	NA	NA	0.8	0.0	1.7	NA	0.1	NA	0.1
	DK	0.2	5.7	0.0	1.0	0.0	0.3	4.2	0.0	0.1	0.0	0.0	0.0	3.0	0.0	0.6	0.0	0.0	0.0	0.0	6.7	0.0	0.0	NA	0.0	0.4	0.0	16.0	0.4	0.1	26.1	0.1	3.4	0.2
	HU	2.0	2.0	NA	0.5	0.0	1.0	1.4	NA	1.2	NA	NA	NA	0.3	NA	NA	2.1	NA	NA	NA	0.0	NA	NA	0.1	NA	NA	NA	NA	0.7	0.0	0.8	NA	0.7	NA
	PL	0.4	1.3	NA	0.4	0.0	0.6	1.6	NA	0.0	NA	NA	NA	0.2	NA	0.4	0.5	NA	NA	NA	0.0	NA	NA	0.2	NA	NA	NA	0.8	0.1	0.7	NA	0.8	NA	0.8
	RO	0.0	0.3	NA	0.2	0.0	0.1	0.7	NA	0.7	NA	NA	NA	0.1	NA	NA	0.6	NA	NA	NA	0.0	NA	NA	0.0	NA	NA	NA	0.0	0.2	0.0	0.1	NA	0.1	NA
	SE	0.1	5.0	0.1	1.2	0.0	0.1	1.3	0.0	0.1	0.0	0.6	0.4	2.4	0.1	3.9	0.1	0.0	NA	0.0	12.0	0.0	NA	4.6	0.0	0.1	0.0	NA	0.3	0.1	26.0	0.2	4.2	0.2
	CH	1.5	5.4	0.0	1.0	0.1	0.7	10.0	0.0	0.9	0.4	0.0	0.0	7.8	0.3	1.6	0.5	0.2	0.0	0.0	0.3	0.0	0.1	0.1	0.0	0.1	0.0	0.6	NA	1.1	22.2	0.3	15.7	0.4
JP	1.0	2.0	0.0	1.5	0.0	0.8	4.2	0.0	1.0	NA	0.0	0.0	3.4	NA	1.4	0.2	0.0	0.0	0.0	0.2	0.0	0.0	0.3	0.0	0.1	0.0	0.3	0.6	NA	9.5	0.0	39.7	1.3	
UK	1.1	15.0	0.0	5.4	0.2	1.4	14.4	0.0	0.7	0.1	0.0	0.0	4.3	0.1	3.5	0.2	0.0	0.0	0.0	0.4	0.0	0.2	0.4	0.1	0.1	0.0	1.1	6.7	10.9	NA	0.7	46.8	2.6	
TR	0.0	0.6	NA	0.0	0.0	0.0	0.1	NA	0.0	NA	NA	NA	0.0	NA	0.3	0.1	NA	NA	NA	NA	NA	NA	0.0	NA	NA	NA	0.0	0.6	0.0	0.9	NA	0.7	NA	
US	0.0	0.3	NA	0.3	0.0	0.1	0.6	NA	0.0	0.0	NA	NA	0.2	NA	0.1	0.0	0.0	NA	NA	0.1	NA	NA	0.0	0.0	0.0	NA	0.2	0.1	1.5	3.6	0.0	NA	0.1	
CN	0.0	0.1	NA	0.0	0.0	0.0	0.1	NA	0.0	NA	NA	NA	0.1	NA	NA	0.0	NA	NA	NA	NA	NA	NA	0.0	NA	NA	NA	0.0	0.0	0.2	0.3	NA	0.6	NA	

Source: Commission Services calculations using BIS locational banking statistics. The data shown here are the latest available (2023).

Note: the matrix reports the degree of exposure of creditor countries (on rows) in terms of financial claims as a share of own GDP to debtor countries (on the columns) – e.g. Belgian claims exposure to France is equivalent to 13.9% of Belgian GDP. Shades of red indicate higher exposures.

**German and French exposure to the UK increased considerably after 2020-2021 in what appears to be a counterintuitive effect of Brexit.** However, this increase (not shown here) could just be an effect of UK investment banks and other financial institutions having to register and move



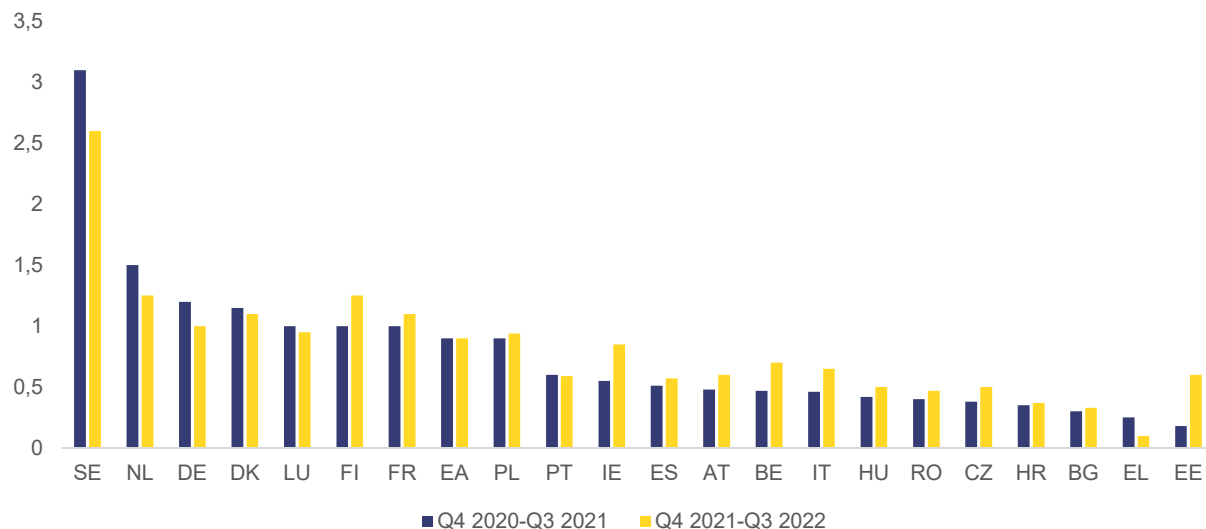
their banking and clearance operations into the euro area after Brexit to comply with the legislation, with their claims on other UK entities therefore appearing in the Member State where they are registered and operate. The ECB estimates that assets booked on the balance sheet of legal entities established in the euro area increased fivefold, to around EUR 1.3 trillion at the end of the first quarter of 2022, as a result of Brexit (Enria 2022).

**Exposure to commercial real estate (CRE), which could spill over across borders, is highlighted as a new source of risk.** CRE has been in downturn since the pandemic, when investor and occupier demand dropped sharply, and transactions declined. The retail and office sectors were the most affected, due to closures of shopping and office spaces and long-term behavioural changes towards teleworking and e-commerce (European Systemic Risk Board 2023). The tightening of monetary policy, further amplified CRE issues, as higher interest rates dampened commercial property prices, making investments and financing in the sector more expensive, while the slowing economic activity came with a reduction in demand for such properties (Deghi, Natalucci, and Qureshi 2024). Results of a survey conducted in September 2023 among investors<sup>9</sup>, ranks EU and US commercial real estate as the second most likely source of systemic risk after Chinese real estate. As of 2022, CRE transactions as a share of GDP (Graph 1) are the highest in Sweden (2.5%), Finland, the Netherlands, Denmark (all above 1%), France and Germany (both with around 1%). As a share of total loans, however, the largest exposure to CRE is in the Baltic countries, Bulgaria, Cyprus and Sweden (between 12% and 18%), while in the Baltic countries, Slovenia, Greece and Ireland, they represent high shares of total non-performing exposure, with values between 30% and 40% (European Systemic Risk Board 2023). Risks in one country could spill over into others as there are considerable cross-border linkages that go beyond traditional banking. During the last decade, real estate investment funds, which operate across borders, have extended significantly in the euro area and have large market footprints in several countries where CRE deteriorated sharply, such as in Austria, Germany, France and the Netherlands (Daly et al. 2023). These interlinkages between investment funds and banks, expose the latter indirectly to liquidity, credit, and market risks. Further declines in CRE price and yield could prompt investors to sell their properties, therefore putting more downward pressures on prices. Risks could amplify through, among other things, investment vehicles that are faced with sudden and large redemptions (open-ended investment funds) and are in urgent need of liquidity. Faced with such scenarios, policymakers' calls for stricter and more specific regulations have multiplied recently. Measures such as regular reassessment of CRE collateral values and the debt-servicing capacity of borrowers, higher capital requirements to increase macroprudential buffers and more specific sectoral systemic risk buffers would be suitable for addressing such risks (European Systemic Risk Board 2023).

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<sup>9</sup> [China Real Estate Most Likely Source of Credit Event, BofA Survey Says - WSJ](#).

Graph 1. CRE transactions as shares of GDP, selected countries



Source: European Systemic Risk Board (2023).

Note: values represent the sums of the quarterly observations over the period indicated. For Ireland the percentage differs if CRE investment transactions as a share of gross national income (GNI) are considered.

**Large non-EU direct investments are concentrated in EU financial centres like Cyprus, Luxembourg, Malta and the Netherlands.** The directional principle of inward direct investment (IDI) allows the source and destination of the investment flows to be identified<sup>10</sup>. Matrix 7 looks at the 2021 stock levels of IDIs, with destination countries shown in the rows and source countries in the columns. For instance, Italian investments in Slovenia amounted to 2.3% of Slovenian GDP. Inside the EU, the heatmap reveals a pattern of investment flows from west to east as investors are benefiting and playing a key role in the fast growth of the catching up Member States. Significant IDIs flow from Germany, Austria, the Netherlands or Luxembourg to newer Member States like Czechia, Poland, Hungary, or Romania. The heatmap also highlights the role of financial centres play in Luxembourg, Cyprus, Malta, Ireland and the Netherlands, as well as the distorting effect that special-purpose vehicles/entities (SPVs or SPEs) have on statistics<sup>11</sup>. Due to their presence, large stocks of Russian investments are recorded in Cyprus, amounting to more than four times the Cypriot GDP (CEPS 2024). Meanwhile, American and British IDIs dominate in Luxembourg with stocks 5 and 10 times higher, respectively, than the Luxembourgish GDP. Other large non-EU sources of IDIs in the EU are US

<sup>10</sup> There are two principles applied to analyse FDI statistics. The asset/ liability concept presents whether the investment relates to an asset/liability, while the directional principle organises FDI according to the direction of investment (see OECD Benchmark Definition of foreign direct investment – 4th Edition). Negative stocks can occur in the case of reverse investments where a direct investor's claims on its direct investment enterprise are smaller than the direct investment enterprise's claims on the direct investor.

<sup>11</sup> The SPEs are pass-through financial entities with no real economic footprint, domiciled in financial centres, and designed for regulatory and tax optimisation reasons, which could distort the real destination and/or source of the investment.

investments in Cyprus, Ireland and the Netherlands, and UK investments in Malta and the Netherlands. The largest exposure to Chinese direct investments are in Luxembourg and Cyprus, but their magnitude is much smaller than for US, British, or Russian investments. The lack of direct exposure to certain partners in other Member States does not necessarily mean they are absent. As the IDIs can be diverted through Multinational Enterprises or SPEs in the EU, the real source can be masked through other Member States (indirect investments), which could be the case for Luxembourgish investments into Hungary, (amounting to more than half of the Hungarian GDP), into Estonia or into Czechia.

Matrix 7. **Inward direct investment (directional principle) stock**

		Counterpart (origin)																																
		BE	DE	EE	IE	EL	ES	FR	HR	IT	CY	LV	LT	LU	MT	NL	AT	PT	SI	SK	FI	BG	CZ	DK	HU	PL	RO	SE	UK	RU	TR	US	CN	
Reference area (destination), as % share of GDP	BE	NA	5.1	0.2	9.6	0.1	0.3	23.7	NA	1.2	0.2	0.0	NA	19.9	0.1	20.0	0.6	0.1	NA	0.0	0.2	0.0	0.3	0.4	7.8	-0.2	-0.1	0.9	2.5	0.0	0.1	5.2	0.4	
	DE	0.4	NA	0.0	0.7	0.0	0.5	1.2	0.0	0.9	NA	NA	NA	5.5	0.3	4.1	1.0	0.0	0.0	0.0	0.0	0.0	0.1	0.3	0.0	0.0	0.0	0.0	1.8	0.2	0.0	2.5	0.2	
	EE	4.6	-3.5	NA	0.9	0.0	-0.3	2.5	0.1	0.3	2.2	7.7	4.7	18.1	0.7	3.8	1.3	0.1	0.0	0.1	19.8	0.0	0.1	2.0	0.2	0.8	0.0	12.8	2.3	2.4	0.1	1.1	0.4	
	IE	-3.8	1.1	0.0	NA	0.1	0.3	5.8	NA	1.4	0.1	NA	0.0	29.7	NA	26.3	0.0	NA	0.0	0.0	0.1	0.0	0.0	0.1	0.1	0.1	0.0	NA	0.5	6.4	-0.3	-0.1	96.5	2.0
	EL	1.0	3.8	0.0	0.2	NA	0.5	0.6	0.0	0.9	1.0	0.0	0.0	3.7	0.0	2.3	0.1	0.0	0.0	0.0	0.0	0.1	0.4	0.0	0.0	0.0	0.0	0.1	0.8	0.1	0.1	1.0	0.3	
	ES	1.2	5.8	0.0	1.0	0.0	NA	6.2	0.0	3.2	0.1	0.0	0.0	9.1	0.1	9.4	0.2	1.2	0.0	0.0	0.0	0.0	0.1	0.4	0.0	0.0	0.0	1.1	7.3	0.3	0.0	2.1	0.1	
	FR	2.1	3.9	NA	0.1	0.0	1.2	NA	NA	0.9	0.1	NA	NA	6.6	0.0	3.7	0.1	0.1	NA	0.0	0.0	0.0	0.0	0.2	0.0	0.1	0.0	0.2	3.8	0.0	0.0	2.1	0.1	
	HR	0.5	4.2	0.0	0.1	0.0	0.2	0.4	NA	5.3	1.2	0.0	0.0	6.6	0.9	7.6	11.1	0.0	2.0	0.2	0.0	0.0	0.6	0.3	5.9	0.3	0.0	0.8	1.2	0.6	0.3	0.4	0.2	
	IT	0.6	1.8	0.0	0.1	0.0	1.0	4.0	0.0	NA	0.0	0.0	0.0	3.7	0.0	5.4	0.2	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.1	0.0	0.0	0.1	1.5	0.0	0.0	0.5	0.0	
	CY	NA	32.3	NA	NA	19.8	NA	NA	NA	0.1	NA	0.2	NA	322.7	2.7	42.2	NA	0.0	0.0	NA	NA	NA	15.8	0.0	NA	NA	0.9	NA	25.6	439.4	0.0	91.0	9.0	
	LV	0.1	3.5	7.5	0.2	0.0	0.1	0.4	NA	0.2	3.7	NA	4.6	2.4	1.2	3.0	0.7	0.0	0.0	0.0	1.0	0.0	0.2	2.0	0.0	0.4	0.0	17.1	0.9	5.2	0.0	0.6	0.3	
	LT	0.3	9.4	5.0	0.5	0.0	0.1	1.1	0.0	0.1	2.2	2.7	NA	2.0	0.1	4.1	0.4	0.0	0.0	0.0	1.2	0.0	0.0	1.5	0.0	2.1	0.0	5.1	-0.7	0.5	0.0	1.1	0.1	
	LU	175.9	179.1	-0.1	278.4	0.7	4.6	34.5	-0.1	30.1	47.9	0.1	0.0	NA	34.8	326.5	5.8	6.4	0.1	-0.1	3.5	-0.1	0.4	6.2	-34.3	0.4	0.3	7.2	525.4	-23.0	-1.4	1085.4	13.9	
	MT	1.4	219.8	5.5	90.2	0.7	29.2	25.3	NA	20.6	23.4	NA	NA	46.8	NA	154.4	5.7	15.4	NA	NA	NA	NA	12.3	66.5	NA	NA	NA	28.8	94.0	NA	4.5	14.6	NA	
	NL	14.0	29.9	0.0	14.1	0.1	1.3	15.3	0.0	2.3	2.6	0.0	0.1	47.2	0.8	NA	3.8	1.1	0.0	0.1	2.3	0.0	NA	0.5	2.2	0.5	0.1	7.1	59.0	1.5	1.6	104.7	1.6	
	AT	0.3	12.6	NA	0.8	NA	0.6	0.6	-0.1	2.2	0.3	NA	NA	4.2	0.0	7.3	NA	0.0	0.0	0.1	0.1	0.1	0.2	0.1	0.1	0.1	-0.2	0.3	1.0	4.4	0.4	-0.1	0.1	
	PT	0.9	2.6	NA	0.8	0.0	15.4	5.7	NA	0.7	0.2	0.0	NA	12.6	0.7	14.7	0.2	NA	0.0	0.0	0.0	0.0	0.3	0.1	0.1	0.0	0.3	1.3	4.4	0.1	0.1	1.0	1.3	
	SI	0.2	2.7	0.0	0.1	0.0	0.0	0.0	3.3	2.3	1.1	0.0	0.0	4.1	0.0	2.5	8.4	0.0	NA	0.1	0.1	0.1	0.6	0.1	0.9	0.1	0.0	0.2	0.8	0.3	0.0	0.2	0.0	
	SK	3.0	3.6	NA	0.0	NA	0.6	0.9	NA	2.8	0.8	NA	0.0	2.4	0.4	10.8	7.1	0.0	NA	NA	0.1	NA	7.2	0.5	2.2	0.5	NA	0.6	1.5	-0.1	NA	0.2	0.1	
	FI	0.2	0.8	0.1	0.4	0.0	0.0	0.5	0.0	0.4	0.6	0.0	0.0	3.8	NA	4.4	0.4	0.0	0.0	0.0	NA	0.0	0.0	1.0	0.0	0.0	0.0	8.7	0.9	0.7	0.0	0.6	0.1	
	BG	2.6	5.3	0.1	1.0	4.1	1.2	1.4	0.1	4.0	3.2	0.2	0.2	3.7	0.9	10.0	6.7	-0.1	0.4	0.1	0.1	NA	0.9	0.6	2.6	0.5	0.5	0.7	3.1	2.6	1.5	1.1	0.2	
	CZ	2.4	10.3	0.0	0.2	0.0	0.5	5.0	0.0	1.9	2.8	0.0	0.0	11.0	0.4	12.4	7.2	0.0	0.1	2.5	0.2	0.0	NA	0.4	0.5	1.7	0.0	1.7	2.0	0.4	0.0	0.8	0.2	
	DK	0.4	2.2	NA	1.4	NA	0.0	1.5	0.0	0.2	0.1	NA	NA	4.0	0.0	4.1	0.1	NA	0.0	0.0	2.4	0.0	0.0	NA	NA	0.0	NA	6.5	4.9	NA	NA	1.7	0.0	
	HU	-24.0	10.3	0.0	1.1	0.0	0.5	3.0	0.0	1.6	0.8	0.0	0.0	51.1	5.5	10.1	6.7	0.1	0.0	0.1	0.0	0.0	0.4	0.7	NA	0.7	0.1	0.5	8.2	0.5	0.1	-8.1	0.5	
	PL	1.2	6.6	0.0	0.3	0.0	2.0	3.1	0.0	1.0	2.7	0.0	0.1	5.0	0.6	7.9	1.6	0.3	0.0	0.1	0.3	0.0	0.5	0.9	0.2	NA	0.0	0.7	1.4	0.0	0.0	0.6	0.1	
	RO	1.0	5.0	0.0	0.3	0.5	0.7	2.6	0.0	3.0	2.5	0.0	0.0	2.1	0.4	8.8	4.9	0.1	0.0	0.0	0.0	0.2	0.4	0.3	0.9	0.4	NA	0.3	1.2	0.1	0.3	0.4	0.1	
	SE	0.4	6.1	0.1	1.9	NA	0.3	1.1	0.0	0.1	1.6	NA	0.0	10.4	0.2	8.7	0.5	0.0	0.0	NA	4.4	0.0	0.0	3.7	NA	-0.3	NA	NA	10.7	NA	0.1	6.0	NA	
	UK	5.3	1.8	0.0	1.7	0.0	1.9	4.0	0.0	0.5	0.2	0.0	0.0	4.9	0.1	5.4	0.2	0.0	0.0	0.0	0.1	0.0	0.1	0.6	0.0	0.0	0.0	0.5	NA	0.1	0.0	26.5	0.2	
	RU	0.1	1.1	0.0	0.3	0.0	0.0	1.3	0.0	0.3	8.8	0.0	0.0	0.3	0.0	1.8	0.4	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.2	2.1	NA	0.1	0.2	0.2	
	TR	0.2	0.8	0.0	0.1	0.0	0.4	0.3	0.0	0.2	0.0	0.0	0.0	0.4	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.4	NA	0.3	0.1	0.1	
US	0.3	1.7	0.0	1.3	0.0	0.3	1.2	NA	0.1	0.0	NA	0.0	1.4	0.0	2.6	0.1	0.0	NA	0.0	0.0	NA	0.0	0.1	0.2	0.0	0.0	0.3	2.7	0.0	0.0	NA	0.1		
CN	0.0	0.5	0.0	0.1	0.0	0.0	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.5	NA		

Source: Commission Services calculations using IMF Coordinated Direct Investment Survey. The data shown here correspond to 2021.

Note: the matrix displays the stock levels of IDIs, with destination countries displayed on the rows and source countries on the columns (e.g. the French investments in Belgium amounted to 23.7% of Belgian GDP). 2022 data are more recent, but data for Russia are missing, so the last available year (2021) was chosen instead for the whole sample. Shades of red indicate higher exposures.

**Analysis of recent trends indicate a drop in indirect investments through SPEs, but active Chinese and Russian investment in some Member States.**

The cross-sectional analysis of the 2021 stocks presented above is complemented by findings contained in a recent report (CEPS 2024) on flows in foreign direct investment (FDI), from a balance of payments perspective. The euro area, historically a net sender of FDI, became a net receiver in 2020, but this has been reversed since 2021, when outflows became and have remained larger than inflows (CEPS 2024). Roughly half of the inward

FDI originated from other EU countries, while the remainder originated from outside the EU. Around 30% of total inward FDI involved SPEs, which for 2021 marks the lowest share in 4 years. FDI from SPEs has experienced a gradual but substantial decline since 2018, when it was almost half of the total, a trend that could be linked to aggressive tax planning, the phase-out of models such as the Double Irish, as well as US legislation incentivising profits to be repatriated from abroad<sup>12</sup>. This most likely involved higher transactions going through SPEs as US profits were repatriated. At the same time, for 2021, in the case of 95% of the FDI in the EU, the immediate and ultimate investors coincide, a record high percentage, implying a lower share of indirect investment. In 2019 and 2020, for instance, around 40% of FDI involved a third (transitory) country, and the ultimate investor resided in a different country from the immediate investor. FDI directed into SPEs suggests that some non-EU jurisdictions are particularly active in certain EU countries, where domiciled SPEs receive large amounts of FDI, like FDI from Russia into Cyprus and from China into Hungary. In Luxembourg and the Netherlands, various small countries and offshore financial centres appear to be the largest ultimate investors (CEPS 2024).

**Concerns over geopolitical and trade tensions are already shaping the flows and nature of EU's investments.** Inward FDI flows in the EU indicate a downward dynamic since the start of the war, especially for extra-EU FDI which is in disinvestment territory. While it is still unclear whether this change is transitory, the increased geopolitical instability following the war in Ukraine and the increased tensions between the US and China are likely to have played a role (CEPS 2024). Survey data from 2023 suggest that the persistent and long-lasting barriers to market access in China and the US-China tensions pushed 75% of European companies to reconsider their supply chains in line with EU and US strategies while several companies have already shifted existing or planned investments from China to other locations (CEPS 2024). Due to closer EU scrutiny, particularly in critical technologies, in 2022 there was a drop in Chinese IDIs into the EU and a shift from predominantly merger and acquisitions (which was the trend over the past two decades) to greenfield investment, with Germany, France and Hungary as the main recipients of Chinese FDI in the EU (particularly investments in new battery plants). Furthermore, in 2022 there was a sectoral shift in Chinese investments into the EU from sectors dominated by state-owned enterprises, like energy, infrastructure, real estate and finance, towards sectors driven by highly competitive private investments such as automotive (CEPS 2024). These latest trends mark rather healthier and less risky bilateral investment behaviour in relation to China, in line with the de-risking strategy.

**Challenges such as increasing uncertainty over geopolitical tensions, global competition, climate change and risks related to strategic dependencies pose significant threats.** Tackling issues such as cross-border barriers to availability of services or challenges related to supply chains and strategic dependencies, while delivering on the twin transitions would help boost the potential of the single market. It would ensure that goods, services, skills, critical raw materials, technologies and investments that are available and accessible within the single market are put to use, boosting the EU's competitiveness and productivity as well as strengthening its strategic autonomy (European Commission 2023a).

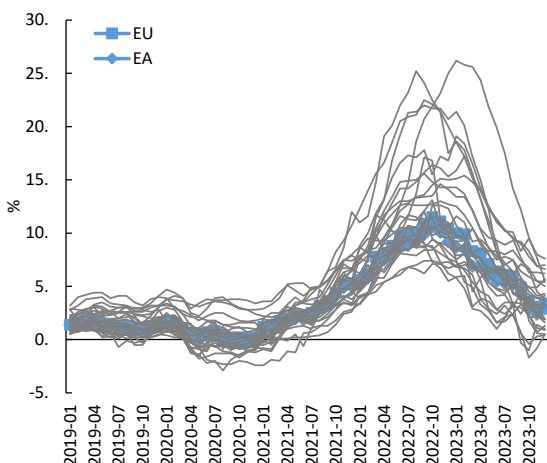
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<sup>12</sup> For instance, the US Tax Cuts and Jobs Act of December 2017.

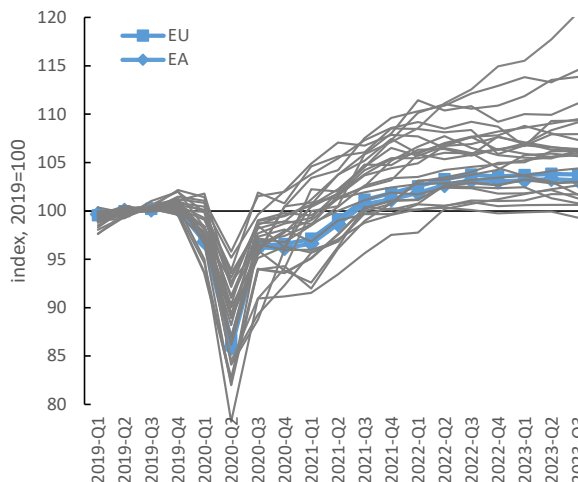
### III. INFLATION AND GROWTH SPILLOVERS

**Direct and indirect effects of the massive external shocks over the past 4 years pushed inflation in the euro area to levels unseen for decades while economic activity has yet to gain a momentum.** By early 2024, the euro area price level measured by the harmonised index of consumer prices (HICP) exceeds its 2019 value by nearly 18%, with most of the increase occurring in 2022 (see Graph 2). Even though the energy shock was the main factor triggering the sharp rise in inflation, domestic sources of inflation – profits and wages – also contributed noticeably. The paragraphs below aim to disentangle the direct impact of energy prices from the contribution of domestic profits and wages, and spillovers resulting from profits and wage inflation in other euro area countries. Along with inflation spillovers, recent economic developments have also given rise to growth spillovers. While aggregate real GDP rebounded quickly from the slump in 2020, the subsequent growth has remained lacklustre under the weight of high inflation and tightening financing conditions. In particular, growth developments have been uneven across countries (Graph 3). The second half of this chapter looks into the performance of five big countries and their impact on growth in the euro area after 2019.

Graph 2. **HICP inflation, y-o-y**



Graph 3. **GDP, index**



Source: Eurostat.

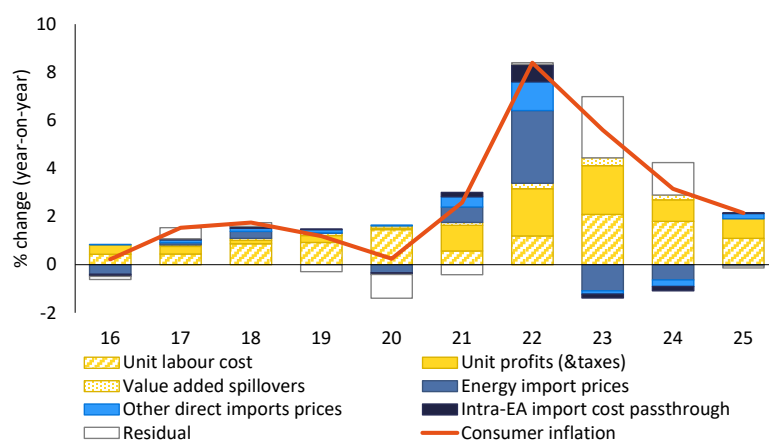
**Input-output analysis is a useful tool for analysing the extent of inflation and growth spillovers.** Such a tool helps to uncover how price and demand shocks are transmitted to final demand components through the domestic productive structure as well as across borders. The approach used in this note extends the analysis accompanying the 2023 IDRs (European Commission 2023c)<sup>13</sup>. Namely, consumer inflation is broken down into i) the contributions from energy and non-energy prices of imports from non-EU countries, ii) domestic value added – profits and wages – and iii) value added inflation originating in the other euro area countries, which is the measure of inflation

<sup>13</sup> For a brief description of the methodology, see Annex 2 of European Commission (2023): Inflation Differentials in Europe and Implications for Competitiveness, European Economy – Institutional Paper 198; as well as [LIME note July 2023].

spillovers in this analysis. Afterwards, real growth (value added) in EU countries is broken down to contributions from domestic demand in EU and several non-EU countries.

**Domestic production prices have been a key factor pushing consumer inflation lately while spillovers remained contained at the euro area-wide level.** Following a dip in 2020, the HICP in the euro area picked up in 2021 and surged in 2022-2023, increasing by a massive 14.2%. Along with a significant impact of external factors, mainly energy, there have also been considerable increases in domestic-origin inflation, namely profits and wages in this period (see Graph 3). The direct impact of energy prices is estimated at around a third of total inflation in 2022. In 2023, energy prices are estimated to have detracted around 1 percentage point from total inflation. By contrast, the importance of domestic inflation increased. The contribution of domestic value-added inflation is estimated at around 1.6 pps in 2022, owing mainly to increasing profits. This contribution is estimated to have increased to over 4 pps in 2023. While the share of profits in total inflation remained broadly unchanged from 2022, the contribution from wages nearly doubled. Despite the strong increase in profits and wages across the euro area, their estimated cross-border spillover effects are rather muted. In 2022-2023, intra-euro area spillovers are estimated at around 0.6 pps.

Graph 4. **Consumer inflation and contributors**



Source: European Commission services with data from Eurostat.

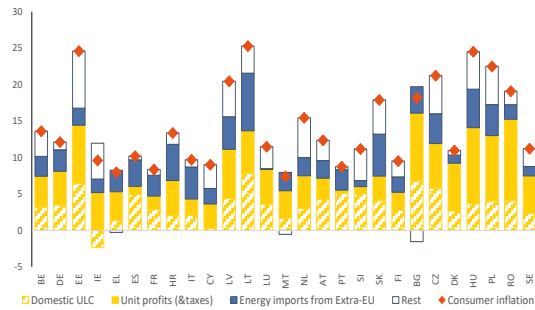
**While domestic value-added inflation and global shocks account for the bulk of total inflation in each euro area country, in some spillovers are non-negligible.** These are typically small countries, whose productive sectors are closely entwined with those in large EU countries, as documented above. In particular, consumer inflation in Hungary, Croatia, Luxembourg, Latvia, Cyprus and Malta appears to be affected by imported value added inflation from other euro area countries more than in others. In 2022-2023, the spillover effects are estimated at nearly 2 pps in these countries. In 2024, inflation spillovers are set to add to inflation, particularly in these countries, as wage growth is expected to only ease gradually<sup>14</sup>. While these may be temporary phenomena, imported inflation can translate into more persistent price increases, through second-round effects, and lead to competitiveness being eroded. Empirical evidence (Ari et al. 2023) shows that inflationary

<sup>14</sup> Forecast data come from the Commission's Autumn 2023 forecast.

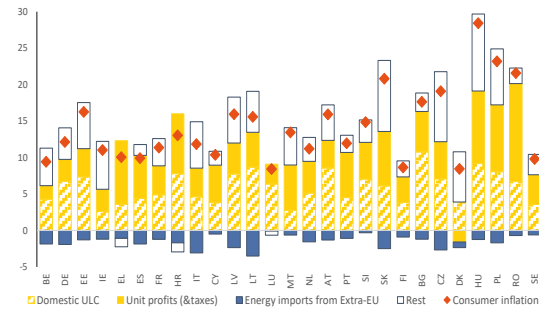


episodes after premature retractions of the tight policies are likely to return and are associated with periods of inflation plateauing at higher levels or accelerating again. Evidence also points to less nominal depreciation and lower nominal wage growth (which does not necessarily imply negative real wage growth) as main factors in helping resolve the inflationary episodes.

Graph 5. **Cumulative inflation 2019-2022**

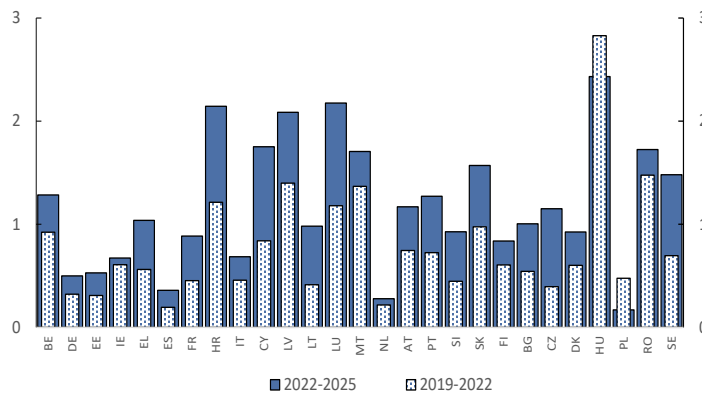


Graph 6. **Cumulative inflation: 2023-2025**



Source: European Commission services with data from Eurostat.

Graph 7. **Inflation spillovers**



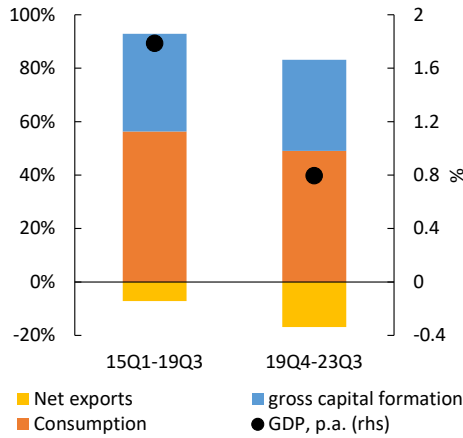
Source: European Commission services with data from Eurostat.

**Spillovers have also arisen from uneven economic growth across the euro area since the pandemic began.** Compared to the 5-year period before the pandemic, the euro area’s economy expanded only marginally after 2019 (see Graph 8). While the structure of growth has remained broadly unchanged, the geographical allocation of growth has changed considerably (see Graph 8 and Graph 9)<sup>15</sup>. In both periods, the share of consumption and gross capital formation in total growth was reasonably stable, with net exports having a somewhat larger negative impact in the more recent period. However, the relative contributions of countries have changed. Italy and the Netherlands have increased their relative shares, with the former benefiting mainly from strong growth in investment. By contrast, the relative contributions of France, Spain and Germany have shrunk. Still, France and, in

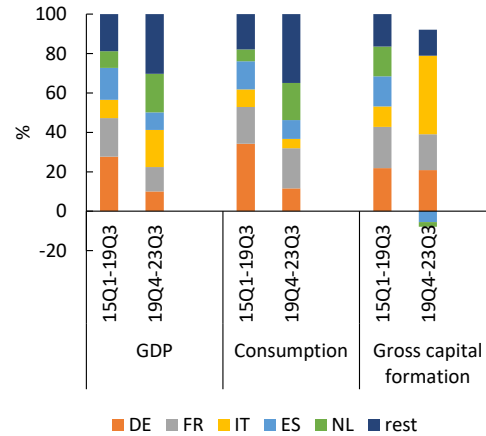
<sup>15</sup> As highly volatile economic data for Ireland have a sizeable impact on the euro area aggregates, the figures and graphs in this paragraph and Graph 8 and Graph 9 report figures that exclude Ireland in order to better extract the underlying information.

particular, Spain have greatly outperformed Germany in terms of growth after the slump inflicted by the pandemic in 2020, as it was substantially bigger in France and Spain than in Germany.

Graph 8. EA growth structure, excl. IE



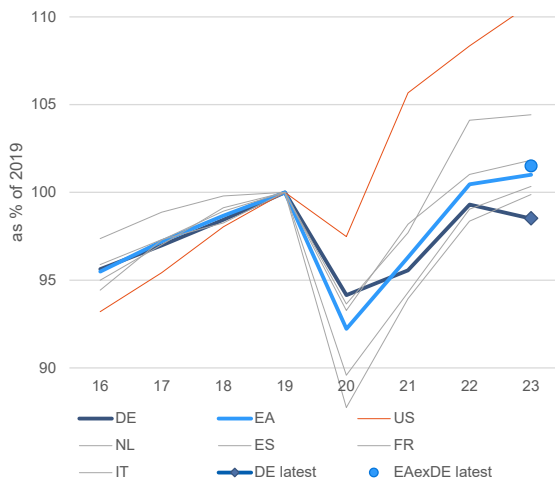
Graph 9. Contributors to EA growth, excl. IE



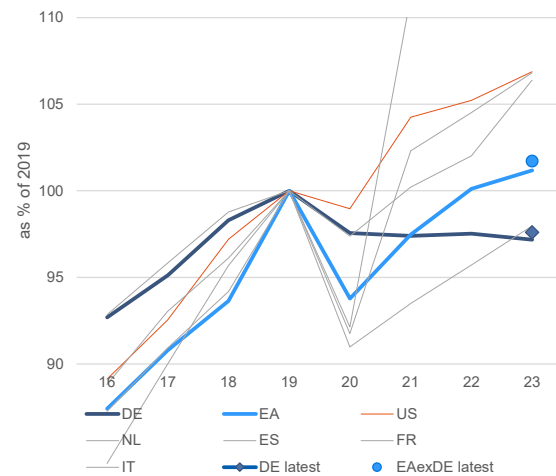
Source: European Commission with Eurostat data

**Although massive policy support during the pandemic helped avoid scarring effects, economic activity in the euro area has remained sluggish.** After a considerable fall in 2020, real consumption in the euro area quickly rebounded and continued growing in 2022 and 2023, though the volume of consumption in 2023 only slightly exceeded its level in 2019 (see Graph 10). Compared to the US, the difference is noticeable. Within the euro area, Germany falls behind the other four biggest economies pointing to a protracted weakness in the biggest economy. As in the case of consumption, gross fixed capital formation in the euro area only exceeded its 2019 level by less than 1% in 2023, a substantially lower level of growth than in the US (see Graph 11). Among the five largest Member States, Italy showed a noteworthy performance, albeit the starting level of investment was rather low. On the other side of the spectrum, investment in Spain and Germany has yet to reach its pre-pandemic level. While investment in Spain is on track to closing the gap this year, investment activity in Germany has been weak since 2020.

Graph 10. Real consumption, index



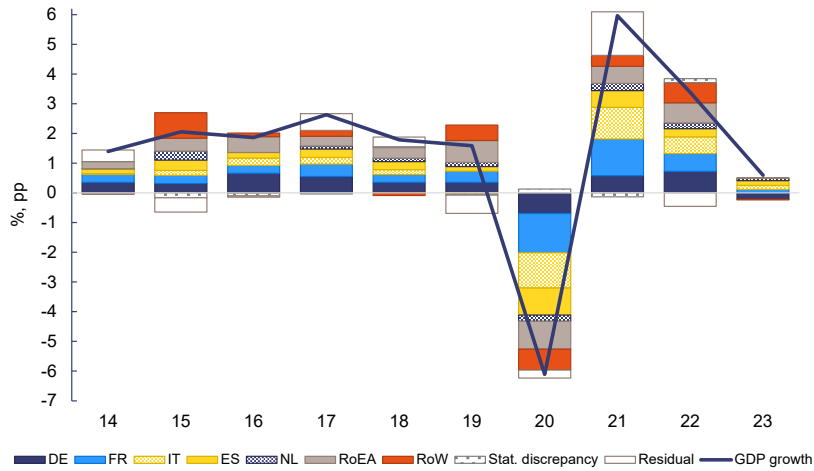
Graph 11. Real gross fixed capital formation, index



Source: European Commission with Eurostat data.

**The slowdown after the reopening boom has been widespread, with some countries showing a more persistent weakness compared to others.** Graphs 8 and 9 show the extent and regional structure of the slowdown post 2020. However, the impact of strong/weak demand of key economies on growth in trading partners is unclear. The input-output framework introduced above is used to estimate the contribution of demand from several countries, both euro area and non-euro area countries, to value added, therefore GDP, produced in the euro area (see Graph 12). A broad-based rebound in 2021, followed a broad-based drop in demand in 2020. In 2022, euro area GDP exceeded its pre-pandemic level thanks to, among other things, strong demand from abroad (RoW). All major euro area economies as well as smaller euro area economies (RoEA) also showed continued appetite for spending despite rising inflation. The momentum completely faded in 2023 when demand growth shrank in all regions. Demand in Germany contracted and therefore extended the period of weakness that already started in 2018. The contribution of demand in Germany to value added growth in the euro area is estimated at around -0.2 percentage points while the remaining four big economies and the rest of the euro area continued contributing positively, cumulatively at around 0.5 percentage points. In addition, the euro area could not rely on foreign demand, whose contribution was broadly neutral. Overall, Germany appears to be gradually losing its position as the major driver of euro area growth, with its subdued demand over the last 6 years keeping a lid on total euro area growth.

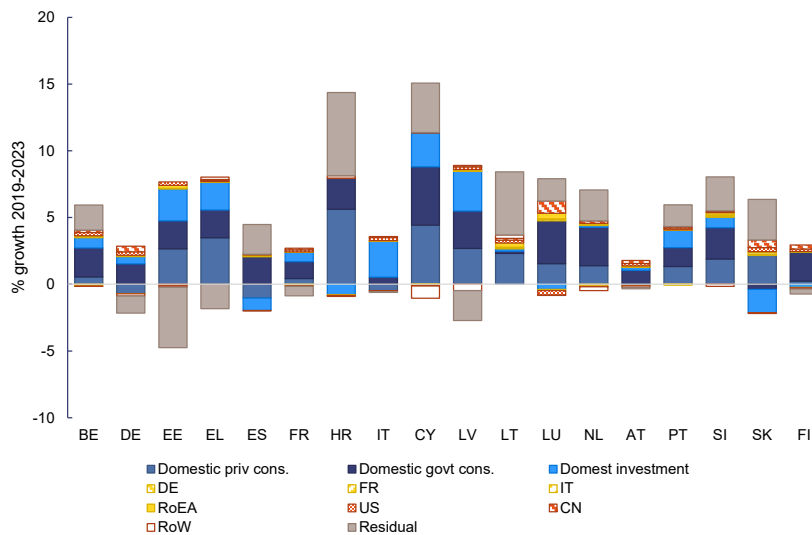
Graph 12. **GDP growth and contributions, EA20**



Source: European Commission services with data from Eurostat.

**Domestic demand was the key factor behind the uneven growth within the euro area in the past 4 years.** Between 2019 and 2023, there were marked differences in the pace of growth among the euro area countries, with Germany and Austria barely registering positive growth while the economies of Croatia and Cyprus registered significantly higher growth: see Graph 13. Domestic demand was particularly strong in several countries, with two having experienced external imbalances, namely Greece and Cyprus. Unlike Italy, which grew through investment and kept its consumption growth muted, Cyprus and Greece saw their consumption growth contributing markedly to overall growth. Growth spillovers from foreign demand are estimated to be mildly positive in most countries.

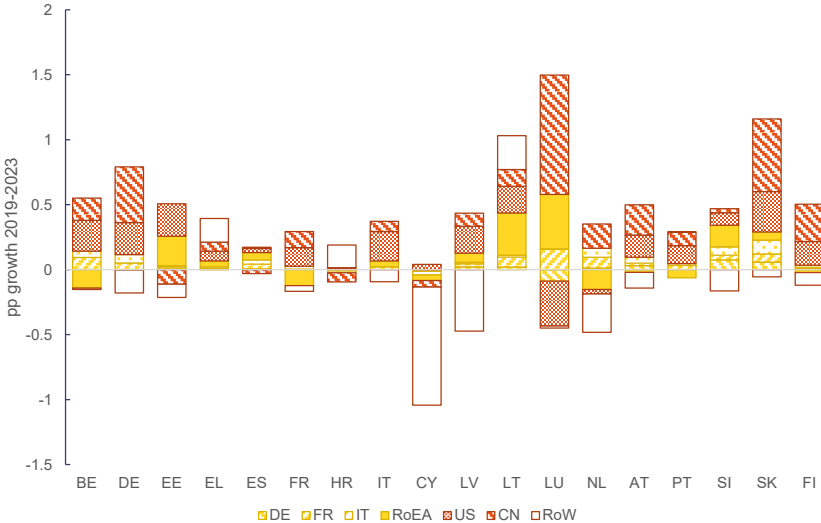
Graph 13. **Contributions to GDP growth 2019-2023**



Source: European Commission services with data from Eurostat.

**Demand from non-EU countries is estimated to outweigh the impact of intra-euro area demand on growth.** For most euro area countries, demand from China, followed by the US, is estimated to be the key non-domestic contributor to their growth in 2019-2023: see Graph 14. The recent economic slowdown in China is therefore set to weigh on the rebound in many EU economies. In addition, trade and geopolitical tensions have increased recently. Should the tensions persist or exacerbate, open economies in the EU would face potentially non-negligible negative growth spillovers, as recently analysed in Deutsche Bundesbank (2024) for Germany and its close ties with China. In the recent period, spillovers from intra-euro area demand were rather subdued, owing to subdued growth in most countries. Among the big five countries, demand in France seems to be a more important growth factor than demand in other big countries.

Graph 14. Foreign demand contribution to GDP growth 2019-2023



Source: European Commission services with data from Eurostat.

#### IV. CONCLUSIONS

**Geopolitical and trade tensions pose a risk to EU economies, particularly given the need deliver on the ongoing twin transitions.** While the benefits of international integration are sizeable, negative spillovers may affect the functioning of economies. For this reason, macroeconomic surveillance under the MIP regularly entails assessing economic spillovers. The degree of Member States’ exposure depends on the size and structure of their economies, their geographical position, proximity to other large regional or global economies, endowment with natural resources and the level of their integration within value chains. The interplay between these factors results in very mixed exposure maps across the EU, but even when such exposure might seem small, the negative impacts of trade tensions could still ripple through many industries and sectors.

**The openness of its economies and their high level of integration within global value chains make the EU prone to external developments.** This note reviews several measures of exposure to external shocks. It highlights that EU economies are typically very open to international trade, with

intra-EU linkages particularly strong, as for most countries, imports for final domestic demand are mainly sourced from within the EU and largest shares of exports are directed to other EU partners. In this respect, Germany plays a central role, particularly for central and eastern European partners, South-eastern countries tend to gravitate around Italy while most of western Europe is well connected to France, and Portugal with Spain. Northern economies show high interlinkages with the Netherlands and Germany. Still, some countries, particularly larger economies, and peripheral Member States, are particularly exposed to non-EU partners, particularly the UK, the US and China. Russia and Türkiye play an important role as well, but mainly at a region level, adjacent to their borders given their more moderate gravity for trade. Dependence of some industries on trade, particularly on commodities, underscores the risk stemming from price and supply shocks. Gross trade flows (exports and imports) partly bias the exposure to external risks, as they do not account for the impact of global supply chains. The measures based on trade in value added address these flaws and while largely painting the same picture, they underscore even more the interdependence with partners like China, the US, and the UK.

**Financial and investment exposure is not insignificant, and risks displayed by real estate distress or geopolitical and trade tensions are real.** Financial exposure to extra-EU jurisdictions is high, particularly in small Member States that act as international hubs or in Member States with well-developed financial sectors. Most of this exposure is to jurisdictions that are well supervised and regulated like the UK, the US, Switzerland, or Japan. By contrast, the very low level of financial interlinkages in eastern Europe underscores the relatively undeveloped financial and capital markets there. Claims exposure to China is particularly large in Luxembourg and France and this poses risks in the current context of the Chinese real estate downturn. Risks related to CRE exposure in a few Member States like Austria, Germany, France, and the Netherlands represent avenues for financial sector distress across the EU, due to a large footprint across jurisdictions from real estate investment funds and the intertwinement of banking and non-banking financial institutions. The direct investments heatmap displays a clear pattern of flows from western to eastern Member States as investors seek higher returns. Instances of very high exposure to non-EU investments, like those from Russia and China are mainly recorded in Cyprus, Malta, Hungary, and Luxembourg. However, the picture is distorted by the activity of SPEs, which as of late has become less intense and less opaque. Geopolitical and trade tensions are already shaping the flow of European investments as supply chains are reconsidered in the context of de-risking.

**Global economic developments over the past 4 years thoroughly tested the resilience of the EU economy to external shocks.** In that period, GDP in the EU plummeted before bouncing back strongly, but total growth between 2019 and 2023 was subdued, with a complete loss of the momentum in 2023. During the same period, inflation in the euro area climbed to levels not seen in decades but fell below 3% in December 2023. The breakdown of consumer inflation in an input-output analysis finds that the direct impact of soaring energy prices represented slightly over a third of total inflation in the euro area in 2022. The direct impact turned negative in 2023. Cumulatively, domestic inflation in wages and profits added more to consumer inflation in 2022-2023 than energy, which opens the door for spillovers in the EU's highly interconnected environment. However, these spillovers are estimated to be rather muted. The loss in growth momentum resulted from weakening demand across the euro area and beyond its borders, especially in 2023. Among the five big euro area economies, demand in Germany has been rather subdued for several years and its contribution to euro area growth has somewhat shrunk.



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