INVESTMENT REPORT
2022/2023

# Resilience and renewal in Europe

European Investment Bank

## Chapter 3
## A corporate sector buffeted by shocks

EUROPEAN INVESTMENT BANK INVESTMENT REPORT
2022/2023

# Resilience and renewal in Europe

## Part I Investment environment in a time of crises

## Chapter 3
# A corporate sector buffeted by shocks

European Investment Bank

**Investment Report 2022/2023: Resilience and renewal in Europe.**


**About the report**
The annual EIB report on investment and investment finance is a product of the EIB Economics Department. The report provides a comprehensive overview of the developments and drivers of investment and investment finance in the European Union. It combines an analysis and understanding of key market trends and developments, with a thematic focus explored in greater depth. This year, the focus is on how Europe is progressing towards a digital and green future amid an energy crisis. The report draws extensively on the results of the annual EIB Investment Survey (EIBIS) and the EIB Municipality Survey, combining internal EIB analysis with contributions from leading experts in the field.

**About the Economics Department of the EIB**
The mission of the EIB Economics Department is to provide economic analyses and studies to support the Bank in its operations and to help define its positioning, strategy and policy. The director of the Economics Department, Debora Revoltella, heads a team of 40 economists.

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Chapter 3

# A corporate sector buffeted by shocks


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# Chapter 3

## A corporate sector buffeted by shocks

**The COVID-19 crisis was followed by a very sharp rebound in economic activity.** By the first half of 2022, economic activity in the European Union had rebounded to well above pre-crisis levels, but activity was still below the trend expected before the pandemic. The gap of expected output was shrinking with the economic recovery, but the Ukraine crisis reduced growth, and the gap is now expected to enlarge. At the same time, the economic performance of EU countries is fluctuating widely.

**While governments and EU policies supported the recovery in investment and shielded companies, pockets of vulnerability have developed.** The policy support deployed during the COVID-19 crisis was unprecedented and multifaceted. The strong response protected businesses and paved the way for a fast recovery. Before the war, governments had begun to debate how to phase out this support amid strengthening economies. Now, new areas of weakness are emerging. While bankruptcy levels remain surprisingly low overall, they have started to rise in the sectors most affected by the pandemic. At the same time, many companies have yet to repay the government-guaranteed loans issued during the COVID-19 crisis.

**Corporate investment is facing major, interconnected headwinds.** Chief among them are the harsh rise in borrowing costs and disruptions caused by the war in Ukraine, including the energy shock, huge uncertainty and trade disruptions. With inflation surging, monetary policy has entered a cycle of rising interest rates, and credit standards have tightened. This has hit firms financially. After years of low rates and abundant liquidity, investment could suffer. Its ability to absorb higher borrowing costs is unknown. The war in Ukraine is also pushing up production costs (especially for energy and raw materials), lowering profits and weakening the liquidity of companies in the most energy-dependent sectors.

**It is paramount that the adverse economic situation does not derail the recovery in investment.** Rising costs, reduced demand and more restricted access to credit make it more difficult for businesses to invest. Increased uncertainty cannot be allowed to cause financial fragmentation among EU countries. Credit must continue to flow between countries. Maintaining confidence in the integrity of the common market is vital to preventing liquidity and funding sources from drying up in many regions.

**Beyond the short- and medium-term challenges, the political agenda must continue to focus on long-term goals.** With the green and digital transition in full swing, investment needs remain high. Restricted access to finance will weigh on the twin transition and societies' welfare, hampering investment in several countries and for certain assets. To maintain investment momentum, Europe needs to continue to make progress on integrating its financial system. A more integrated and developed financial system will, in turn, support the far-reaching twin transition to more green and digital economies.

# Introduction

This chapter focuses on European companies, their resilience and the risks to their future investment from the challenging post-COVID-19 economic environment (with sharp monetary policy tightening and an ongoing energy crisis). Policy support enabled firms to navigate the COVID-19 crisis better than feared and corporate investment reacted less to the collapse in economic activity than might have been expected. This chapter reviews the major developments in corporate investment and financing in the European Union, with a view to assessing corporate vulnerability and challenges and gauging the likely impact on capital expenditure.

While the pre-war picture was generally positive, uneven trends among sectors and types of firms were already materialising. Policy support had been very successful in supporting the recovery. However, vulnerability had increased. It was far from clear whether the recovery was self-sustained. Following the Russian invasion of Ukraine, new types of vulnerability have emerged and economic forecasts have been revised downwards. This chapter analyses these new types of vulnerability and quantifies their unequal impact on economic sectors and EU countries.

The chapter consists of three sections and three boxes. The first section delves into the strong post-COVID-19 recovery. It includes a box providing new evidence on the uneven impact of the COVID-19 crisis on different firms. The second section shows how monetary policy tightening and the war in Ukraine are increasing firms' vulnerability. In this clearly adverse investment environment, maintaining confidence is key to avoiding financial fragmentation across the European Union. The third section focuses on the structural features of the EU financial system, the specific conditions faced by small and medium-sized enterprises (SMEs), non-bank finance and overall integration. It reviews the main findings of the EIF Private Equity and Venture Capital Survey. It shows why public intervention is required and why progress on Europe's capital markets union cannot be delayed. The first box in this section reviews estimates of credit gaps obtained from the Enterprise Survey. The second box shows how public financial instruments, such as guarantees or venture debt, crowd in investment in specific firms or specific assets.

# A steep but short-lived recovery between two major crises

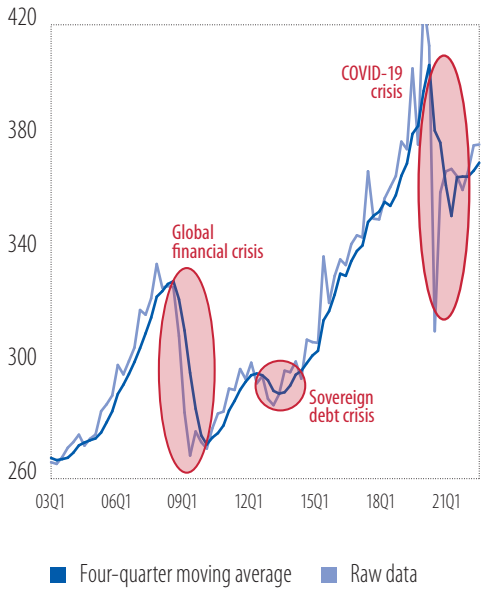
**Firms have been less scarred by the pandemic than previously feared.** On the back of strong policy support, internal funding sources remained resilient, while external funding continued to flow abundantly. This enabled firms to stockpile financial resources at the beginning of the crisis and paved the way for capital expenditure to rebound strongly later on. Looking ahead, information extracted from the EIB Investment Survey (EIBIS) shows that external financing sources are expected to dry up as public guarantees expire and the environment becomes more adverse.

## Policy support protected firms and laid the groundwork for a sharp investment rebound

**The recovery in corporate investment began in mid-2021, and it was still in full swing when the energy crisis hit.** In real terms, corporate investment was 20% higher in the fourth quarter of 2019 than in the third quarter of 2008 (before the global financial crisis) (Figure 1). During the COVID-19 crisis, however, corporate investment pulled back sharply. It eventually bottomed out at the beginning of 2021, declining to 13% below its pre-crisis level, a fall comparable to the global financial crisis. Investment then started to recover, but by the second quarter of 2022, annual flows were still 6% below levels recorded during the fourth quarter of 2019. The changes are less dramatic when Ireland is removed from aggregate figures for the European Union.[1]

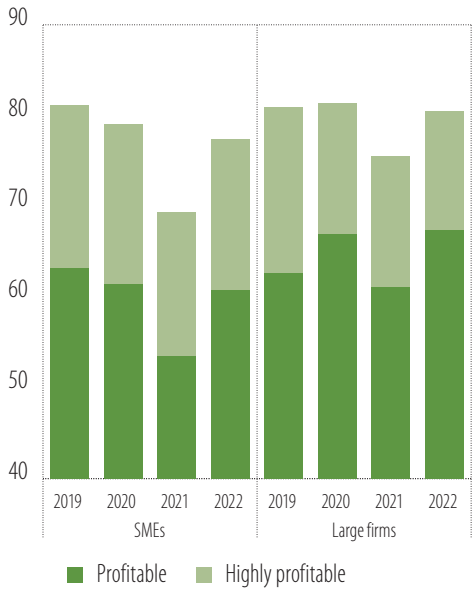
1 Prior to the crisis, European investment was boosted substantially by the repatriation of investments in Ireland (see Chapter 2 in EIB, 2022d).

**Figure 1**
**Real corporate investment** (real terms in 2005 euros)




*Source: EIB staff estimates based on Eurostat data.*
*Note: The most recent record is the second quarter of 2022. Seasonally and calendar adjusted data.*

**Figure 2**
**Share of profitable firms** (in %)




*Source: EIB staff estimates based on EIBIS 2019-2022.*
*Question: Did your company generate a profit before tax? Firms are defined as profitable if profits are below 10% of turnover, and highly profitable if above.*

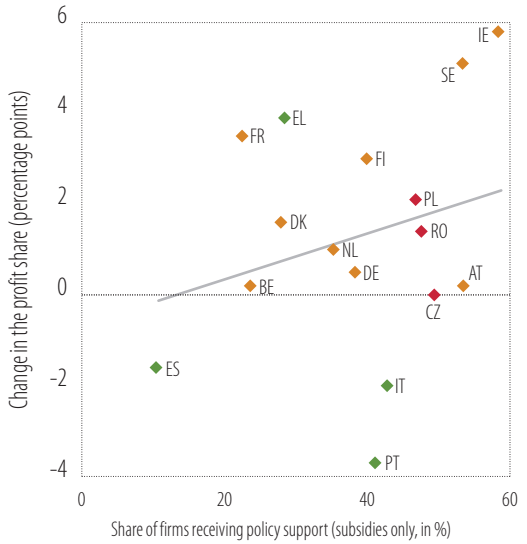
**The share of profitable companies recovered in 2022 and was slightly below pre-crisis levels for SMEs and large companies.** Figure 2 shows the share of profitable companies surveyed in the EIBIS. This share is normally relatively stable, but it fell sharply during the COVID-19 crisis (by 8 percentage points for SMEs and 6 percentage points for larger firms). Each category recovered, but only partially, filling around three-quarters of the gap created by the crisis. In 2022, 80% of European firms were profitable.

**Stronger policy support was associated with a quicker recovery in the share of firms making a profit.** Figure 3 associates the rebound in profits (using as a proxy the change in the share of firms making a profit before the crisis) with the share of firms that benefited from policy support in each EU country.[2] In most EU countries, the profit share is above pre-crisis levels. However, there is major disparity between countries, particularly those in different regions. The profit share is well above pre-crisis levels in all countries in Central and Eastern Europe, but this is not the case for most countries in Southern Europe (Italy, Portugal and Spain).

**The COVID-19 crisis stretched the distribution of firms' sales growth (Box A).** Weaker firms suffered slightly more from the COVID-19 crisis. At the same time, policy support was allocated to firms that were hit particularly hard, which appear on the lower and upper quantiles of the growth distribution, showing that support was somewhat targeted. Interestingly, digitalisation helped firms resist the crisis, with a small sample of fully digitalised firms seeming to have suffered less from the COVID-19 shock across all levels of sales and employment growth (all quantiles).

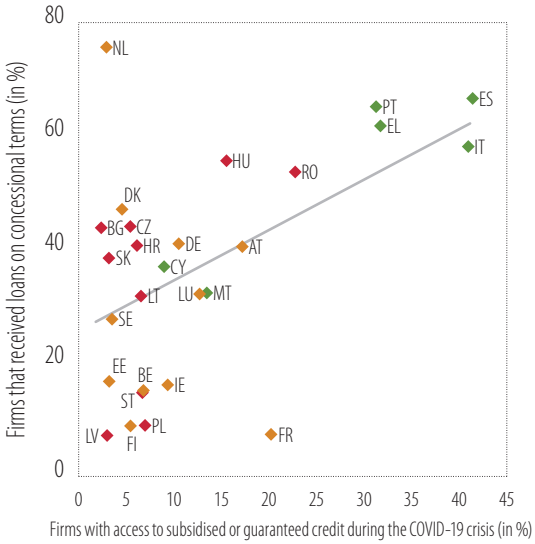
2 The profit share is obtained as the ratio of entrepreneurial income to the value added of non-financial corporates. The change in the profit share relates to the first quarter of 2022 (moving average of four quarters) to 2019.

**Figure 3**
**Intensity of the pandemic-related policy support and rebound in profits**




*Source:* *EIB staff estimates based on EIBIS 2021 and Eurostat profit data.*
*Note:* *Only subsidies are considered to be policy support.*

**Figure 4**
**Pandemic-related policy support and concessional lending**




*Source:* *EIB estimates based on EIBIS 2022.*
*Question:* *X-axis: Since the start of the pandemic, have you received any financial support? Answer A. Access to new subsidised or guaranteed credit that will need paying back in the future but may have preferential treatment. Y-axis: The share of firms that received loans on concessional terms among those that borrowed from bank loans in 2022.*

Southern Europe  Western and Nothern Europe  Central and Eastern Europe

**A substantial share of firms was still receiving pandemic-related support in mid-2022.** When the EIBIS was conducted in the middle of 2022, one-sixth of the firms that got help during the crisis were still receiving support. Around 60% of firms received support according to EIBIS 2021, meaning that one in ten European firms were still receiving some type of help in 2022.

**Much pandemic-related policy support came in the form of loans with a concessional component — in other words, better terms than the market was offering.** Figure 4 plots the share of firms that were able to access subsidised or guaranteed credit as part of the pandemic response, together with the share of firms reporting that they received access to loans on concessional terms. The shares vary widely among countries, ranging from 3% to 42% of firms with access to pandemic-related policy support and from 8% to 76% for loans on concessional terms. The positive slope of the line shows that the two elements go hand in hand.[3]

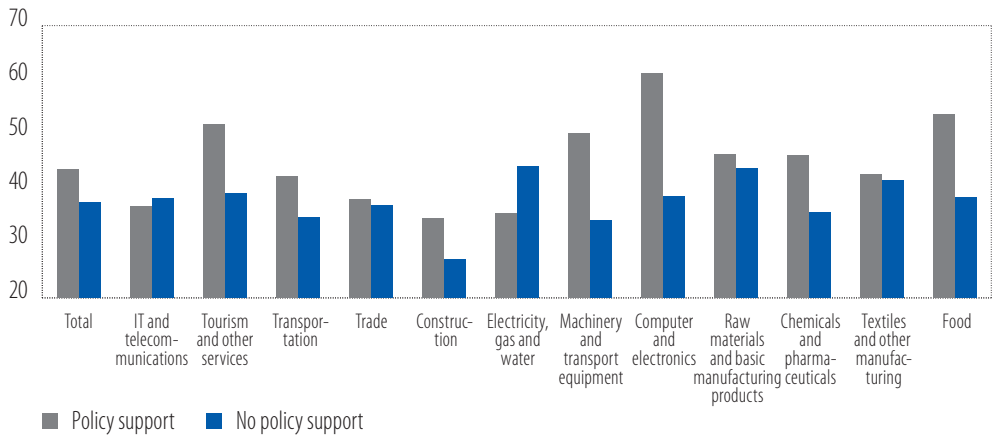
**Firms benefiting from policy support tended to increase investment to a greater extent.** Figure 5 shows the share of firms expecting to accelerate investment in the different sectors of the European economy. In most areas, firms that benefited from policy support were more likely to accelerate investment than those in the same sector that did not receive support. In the overall economy, the difference is 8 percentage points. This is consistent with earlier evidence of the positive impact of the policy support

3 The sample on which the share is computed changes, meaning that the correlation is not perfect. The share of loans at concessional rates for firms that benefited from bank loans is higher than the share of firms that benefited from guaranteed or subsidised credits in the overall population of firms. This also includes firms not using external finance and/or not using bank loans for borrowing.

(EIB, 2022d). Using more sophisticated techniques, Harasztosi et al. (2022) showed that among firms losing similar amounts of money, supported firms planned to raise investment more than unsupported firms. The difference is especially marked for companies whose sales declined heavily. In the computer and electronics sector, more than 60% of firms expected to expand investment after having benefited from policy support, around 20 percentage points more than those that did not receive such support.

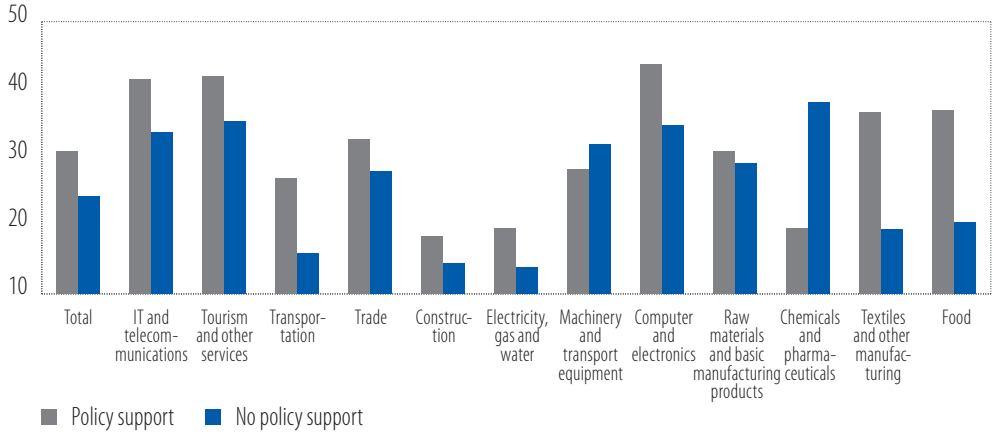
**Supported firms have more ambitious investment plans (Figure 6).** Moreover, the share of firms investing in the development of new products is higher for those that received support. In the overall economy, the average difference is 9 percentage points.

**Figure 5**
**Share of EU firms accelerating investment** (in %)




*Source: EIB staff calculations based on EIBIS 2022.*
*Question: For the current financial year, do you expect your total investment spending to be more than last year?*

**Figure 6**
**Firms investing to develop new products** (in %)




*Source: EIB staff calculations based on EIBIS 2022.*
*Question: And as a response to the COVID-19 pandemic, have you taken any actions or made investments to develop new products, services or processes?*

**While subsidies can have a sizeable effect on the investment of finance-constrained firms, this impact can be short-lived.** Focusing on the case of Hungarian firms, Goel et al. (2022) assess the effects of subsidies that did not need to be paid back on financially constrained and unconstrained SMEs. Using

bank queries to identify firms that applied for but did not receive a loan, the authors show that credit constraints may reflect other shortcomings, such as an absence of good management or viable projects.

**Box A**

**Where did COVID-19 hit the hardest?[4]**

The COVID-19 shock had a strong negative effect on aggregate economic performance, with the average firm taking a hit to its sales and financial performance. Little, however, is known about how the crisis affected firms depending on their characteristics. How did it distort growth? Were the firms that struggled most before the pandemic hit the hardest? Or did the COVID-19 shock disproportionately affect tomorrow's superstars — firms at the upper end of the sales distribution — thus hurting future growth?

This box analyses how COVID-19 support packages affected firms, sorting them by their pre-crisis sales performance. It is commonly assumed that negative macroeconomic shocks will hit poorly performing firms especially hard, while high-performing firms are more viable and therefore less likely to close (Kozeniauskas et al., 2022). The exit of poorly performing firms can stimulate the economy if the freed-up resources are reallocated to better-performing firms, but the reallocation process may be very long when a very large share of firms fail. During the COVID-19 crisis, policy support was deployed to prioritise speed over targeted support (Cirera et al., 2021). However, the firms most in need were more likely to receive support, suggesting that some targeting took place.

A subsample of digitalised firms was also included in the analysis to reflect concerns that the shock could have hit high-potential firms at the upper end of the sales growth distribution. For example, the COVID-19 crisis could have been particularly damaging for firms that made high-risk innovative investments to expand their capacity, only to be confronted with lower demand. The pandemic also could have been more damaging for high-growth firms (those in the upper quantile of the growth distribution), particularly since evidence suggests that seed money and early-stage financing were more affected by the COVID-19 shock than late-stage deals (Benedetti Fasil et al., 2021).

Quantile regression was used to perform an in-depth assessment of these effects. This analyses the effect of the COVID-19 crisis on the distribution of firms' growth rates for the whole sample, as well as for subsamples of firms receiving policy support and subsamples of digitalised firms. The impact of the COVID-19 crisis on firm outcomes was estimated using:

$$GR_i = a + \beta_\theta COVID_i + \varepsilon_{\theta i} \quad (1)$$

Where the quantile regression coefficient β_θ varies over the conditional quantiles θ (over the quantiles of ε_θi). [GR]_i corresponds to growth of sales.

Our results show that the crisis negatively affected firms across the distribution of sales growth, and that the impact on lower quantiles was slightly larger. This means that COVID-19 hit the sales of declining firms harder than growing firms (Figure A.1, blue line). Moreover, the subsample analysis shows that the pandemic affected firms receiving any type of policy support more strongly, especially in the lower quantiles. The coefficients are larger for firms that received policy support. The coefficients are about twice as large for declining firms (for example, coefficients of about -0.40, compared to coefficients of about -0.15 at the lower quantiles of Figure A.1). This confirms that policy support was targeted at least to some extent, and went to those most in need (Harasztosi et al., 2022).

4 This box is based on the forthcoming working paper Coad et al. (2023).

More digital firms resisted the shock better. Digitalised firms seem to have suffered less during the pandemic, presumably because online business models could better adapt to the sudden shift to social distancing and lockdown measures. Firms that have incorporated digital technology to a substantial degree (reporting that they have organised their entire business around it) appear to have been immune to the negative effects of the pandemic, especially at the higher quantiles in the distribution of sales growth (Figure A.2).

**Figure A.1**
**COVID-19 impact on sales growth, all firms and those that received support**

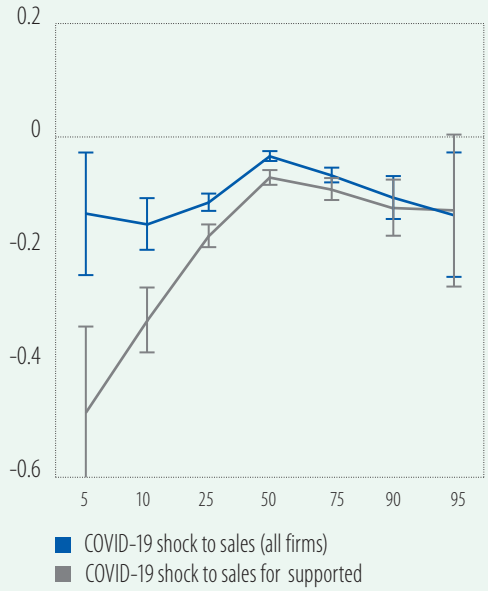
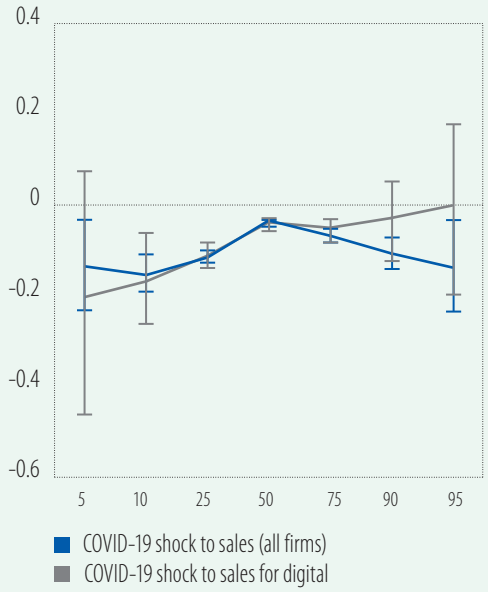



**Figure A.2**
**COVID-19 impact on sales growth, all firms and digital firms**




*Source: EIB staff estimates based on the EIBIS and Bureau van Dijk's ORBIS database. See Coad et al. (2023).*
*Note: Quantile regression results for equation 1. Sample of firms that implemented digital technology. The x-axis indicates the percentile distribution of sales growth. The y-axis indicates the COVID-19 impact on sales growth.*

**During the COVID-19 crisis, investment contracted to a greater degree than profits, raising firms' net saving rates.** Figure 7 shows the evolution of net borrowing over investment. The corporate sector is naturally a net borrower over time. However, an unusual pattern has unfolded in Europe since the global financial crisis, with investment falling short of corporate savings by around 10% across the European Union and by much more in Central and Eastern Europe[5], meaning that firms saved more than they invested in most years. Net corporate savings increased further during the pandemic and reached record levels in 2021, with non-financial firms increasing liquidity and capital buffers to better withstand future shocks. Since then, the strong rebound in investment has outpaced the growth in profits and, as a share of investment, net corporate savings have returned to averages seen after the global financial crisis.

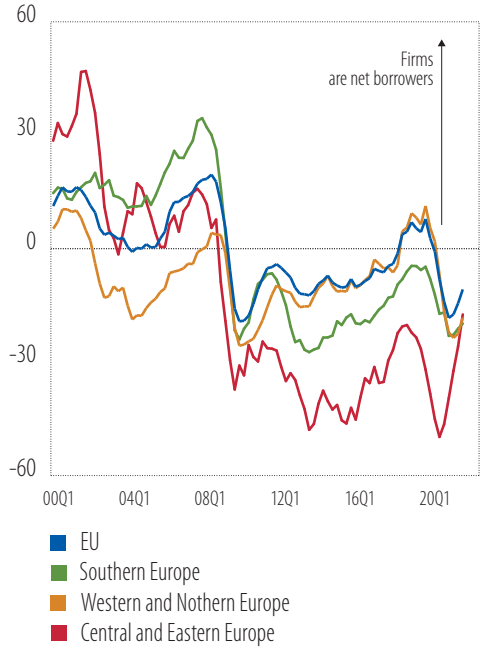
## The strong rebound in corporate profits is unlikely to last

**Profits have recovered strongly following the pandemic. Figure 8 shows how profits evolved during the global financial crisis and the COVID-19 crisis, two major episodes.** While profits slumped comparably during each event, activity collapsed to a greater extent during the COVID-19 crisis. Strong policy support,

5 These dynamics reflect a range of factors which have curbed investment and spurred savings (EIB, 2020).

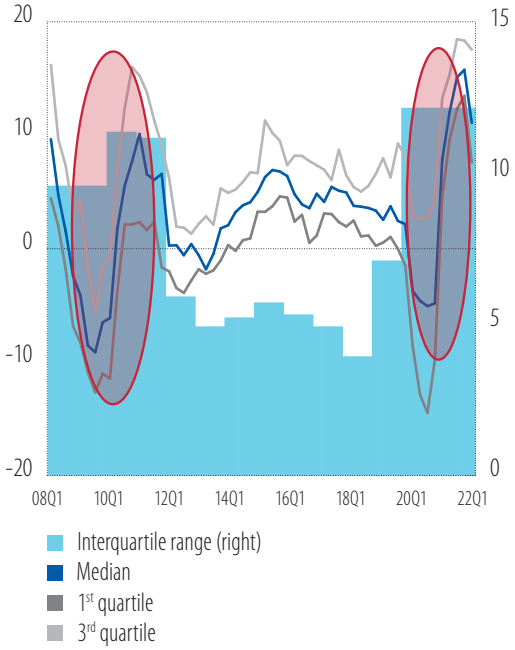
however, meant that profits shrank less than would be expected considering the decline in activity. Starting in the second half of 2021, profits rebounded at an unprecedented pace, from a contraction of 8% in the first quarter of 2021 to 15% growth one year later.

**Figure 7**
**Net borrowing as a share of investment** (in %)




*Source:* *EIB staff calculations based on Eurostat.*
*Note:* *Last record available is the second quarter of 2022. Non-financial corporate sector only.*

**Figure 8**
**Growth in entrepreneurial income and dispersion** (annual growth, in %)




*Source:* *EIB staff calculations based on Eurostat.*
*Note:* *Last record available is the second quarter of 2022.*

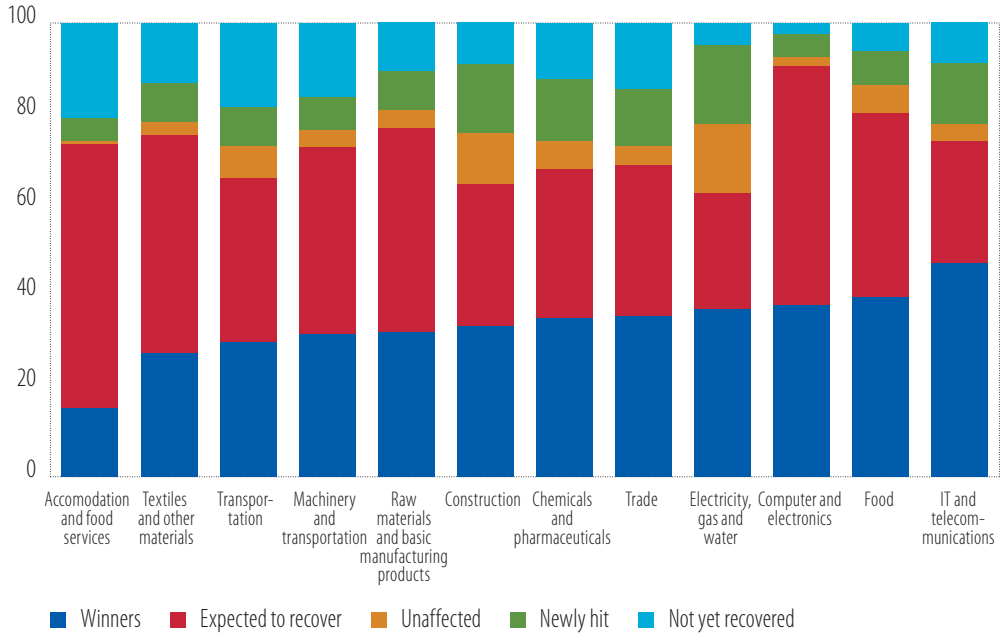
**A specific EIBIS question is used to assess the pandemic's impact on sales.** Chapter 2 separates firms into five groups depending on the evolution of profits since 2019: the winners, those expected to recover, the unaffected, the not yet recovered and the newly hit.[6] For one-third of firms ("winners"), sales never declined one year to the next, and those firms actually expected sales in 2022 to be higher than before the pandemic. For 38% of firms, sales were hit but were expected to return to 2019 levels in 2022. The pandemic barely affected 11% of firms, but those firms expected sales to be depressed in 2022. These firms were not (yet) showing other signs of distress. Nearly 13% of firms did not expect to recover from pandemic-related losses in 2022.

**The COVID-19 impact was clearly borne out in all sectors.** Figure 9 reports the share of companies falling into each of the five categories for 12 sectors. COVID-19 had a particularly pronounced effect on contact-intensive services sectors such as transportation, accommodation and food services. At the other end of the spectrum, the effect was benign or even positive for computer and electronics, as well as for IT and telecommunications (EIB, 2022). Figure 9 confirms this finding, showing that there were fewer "winners" in the service and transport sectors than in IT and telecommunications.

6 See Chapter 2 for more details on the classifications of the firms according to their profit evolution since 2019.

**Figure 9**

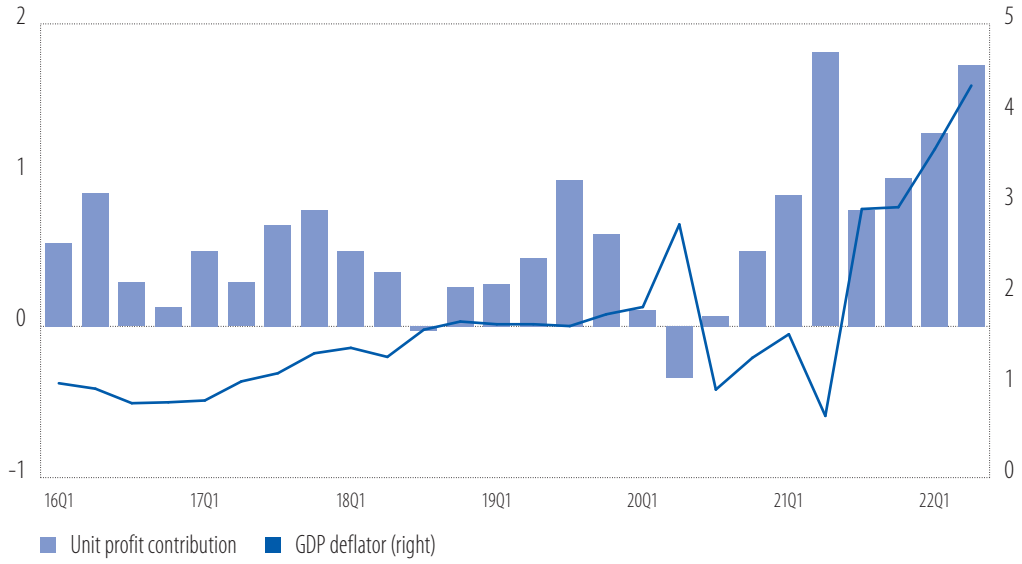
**Firms' share of sales in different sectors compared to before the COVID-19 crisis** (in %)




*Source: EIB staff calculations based on EIBIS 2022.*

**Figure 10**

**Contribution of firm profits to inflation** (left axis: contribution in percentage points; right axis: annual change in %)




*Source: EIB staff calculations based on Eurostat.*
*Note: Last record available is the second quarter of 2022. Prices are calculated using the value added deflator in the European Union. GDP stands for gross domestic product.*

**Rising prices have buoyed firms' profits, but they have also fuelled inflation.** Figure 10 shows the evolution of the value-added deflator and unit margins, which serves as a proxy for profits.[7] It appears that since the COVID-19 recovery, firms have been able to expand their unit margins amid strong demand. Until the middle of 2022, unit margins have continued to expand strongly, so that the impact of the energy crisis on profits has been contained.[8] Increases in costs have been passed on through selling prices, thereby mitigating the impact on firm margins and helping them to rebuild their balance sheets.

**Companies will have to learn how to navigate an inflationary environment, as higher inflation is likely to persist.** The short-term inflationary outlook is being driven by the strong post-crisis rebound and the energy crisis. However, several trends are likely to become more entrenched (Schnabel, 2022b), with increased market concentration, ageing, deglobalisation and the green transition potentially resulting in structurally higher inflation rates. As inflation intensifies, firms will begin to factor it into their development plans. Nonetheless, structural changes along with stronger policy frameworks and stable long-term inflation expectations make a return to stagflation less likely (Igana et al., 2022a).

**Looking ahead, the EIBIS provides a bleak outlook for investment finance (especially external sources).** Figure 11 shows firms' expectations regarding the internal and external capacity to finance investments. A negative number indicates that there are more firms expecting a deterioration than firms expecting an improvement. The figure shows that since 2016, firms have mostly been optimistic, with two exceptions: during the first year of the COVID-19 crisis, and during the last EIBIS wave in 2022. At these points, the net balances leaned mostly towards a worsening situation. After seeing an improvement during EIBIS 2021, firms now expect their financial resources to deteriorate. This is especially clear for external sources of finance.

**Figure 11**

**Expectations regarding sources of finance over time and by type of firm**
(net balance in percentage points)


*Source:* *EIB staff calculations based on EIBIS 2022.*
*Note:* *Net balance refers to the difference between the percentage of firms expecting an improvement minus and those expecting a deterioration.*
*Question:* *Do you think that each of the following will improve, stay the same, or get worse over the next 12 months? A. Availability of internal finance within the company (e.g. internal funds like cash). B. Availability of external finance (e.g. bank financing, private or public equity).*

7 The value-added deflator reflects the evolution of the price of one unit of goods consumed domestically. It takes into account changes in unit labour costs, unit taxes and unit profits.

8 In the euro area, the strong surge in selling prices has mitigated higher commodity prices and has boosted corporate profits in the sectors most heavily influenced by global demand (Schnabel, 2022a).

## Abundant credit is likely to dry up

**At the beginning of the crisis, borrowing enabled firms to pile up cash (EIB, 2022).** Later, bank lending remained strong and started to fuel firms' capital expenditure. Debt levels increased during the pandemic as many governments helped maintain access to credit, but since companies had parked the resources in cash, net indebtedness did not increase overall (EIB, 2021). However, an increase in corporate debt may affect investment over the medium term (Albuquerque, 2021). The bank lending survey by the European Central Bank (ECB) indicates that inventories and working capital drove the surge in demand for bank credit from the beginning of the COVID-19 crisis until the middle of 2021. It is only from the first half of 2021 that business investment started to grow, and it remained strong until the first quarter of 2022.

**In hindsight, the expected increase in non-performing loans proved overly pessimistic as the economy rebounded faster than expected (Enria, 2022).** Average bank asset quality continued to improve, but the quality of loans supported by previous measures remains a concern (European Banking Authority (EBA), 2022). Banks reported a non-performing loan ratio of 1.9%, down from 2% in the previous quarter. A possible rise in non-performing loans could cause credit conditions to tighten. According to the bank lending survey, credit conditions started to tighten in the second half of 2021.

**It is unclear how the unravelling of state guarantees for loans will affect credit.** Figure 11 shows that expectations regarding external finance are somewhat more negative than those regarding internal profits. About 10% of firms continue to benefit from public support programmes being progressively wound down or transformed. While bankruptcies remain low overall, they could rise in the next few years, leading banks to tighten credit. Moreover, as interest rates rise, banks experience higher opportunity costs for maintaining credit to troubled firms. Finally, the rise in uncertainty also negatively affects the availability of credit.

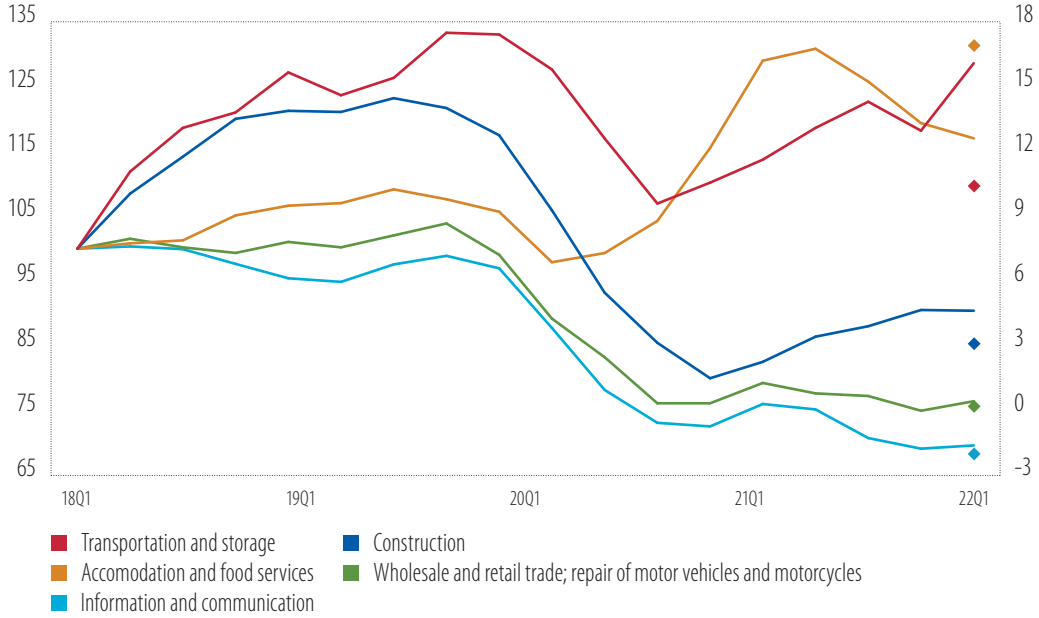
**Firm bankruptcies are clearly associated with expected losses from the COVID-19 crisis.** Figure 12 breaks down the data by sector, plotting the evolution of bankruptcies since 2019 against the sales losses caused by COVID-19 in 2021. Bankruptcies clearly decreased in the sectors less affected by the crisis (such as wholesale trade), and in those that benefited from it (such as information and communication). Conversely, the most affected sectors (such as accommodation and food services and transport) recorded an increase in bankruptcies compared to before the crisis. Pockets of vulnerability are concentrated in the hardest-hit sectors (Albrizio et al., 2022; Archanskaia et al., 2022b). Analysis of individual countries also supports this conclusion (Cros et al., 2021).

**Overall, a closer look at different economic sectors alleviates the concern that public support was too generous for firms during the COVID-19 crisis.** As yet, there is no clear sign that support reduced the exit of unproductive firms and prevented Schumpeterian creative destruction. Archanskaia et al. (2022a) show that the COVID-19 shock adversely affected the financial health of not only low-productivity firms, but also high-productivity ones. This means that the broad-based policy support did not impinge on productivity by preventing firms from exiting the market. However, the pandemic leaves a legacy of highly indebted firms that do not all look alike, and it is important to improve insolvency and restructuring proceedings and scale up efforts to collect real-time data on firm balance sheets to better direct fiscal support to viable firms (Albrizio et al., 2022).

**To compensate for firm exits and support economic growth, the number of new businesses being created must remain strong.** History would suggest that more firms are created in upturns and more are liquidated in downturns. Yet the recent COVID-19 recession is somewhat at odds with this simplistic view. While most nations suffered a deep economic contraction, the creation of new firms followed very different patterns depending on the country. Spain, for instance, experienced a sudden halt in the creation of new firms, while France had a boom, even if output fell by comparable amounts in both countries. Kharroubi (2022) argues that growth expectations drive the creation of new firms. He finds that the economic outlook influences whether new firms enter the market, mainly because of the effect it has on public and private investment. This suggests that policies focused on increasing private and public investment can often help increase the number of new firms and improve business dynamism.

**Figure 12**

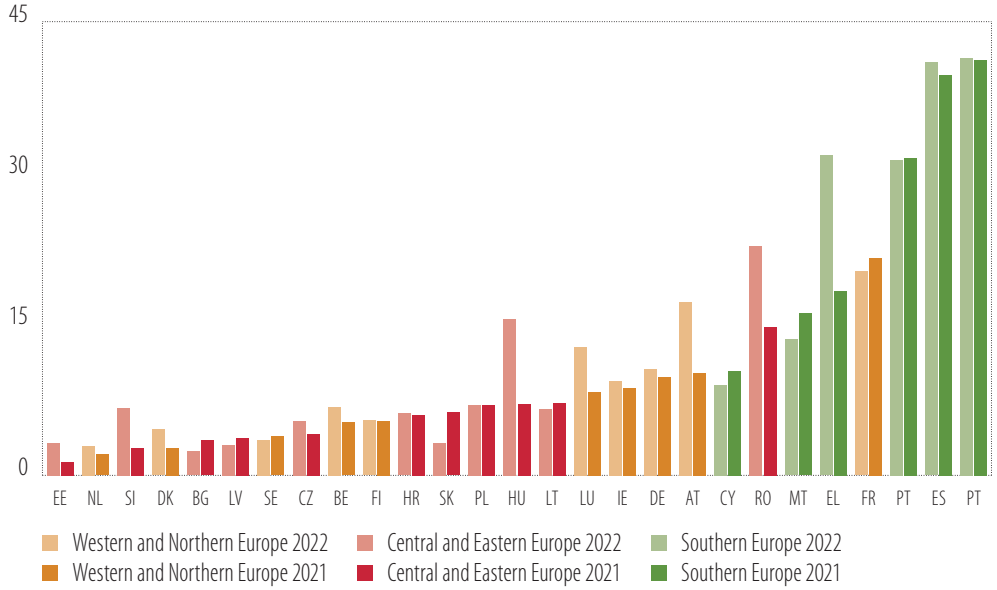
**EU firms ceasing to operate** (left axis: in %) **and expected losses related to COVID-19** (right axis: inverted scale)




*Source:* *EIB staff estimates based on Eurostat.*
*Note:* *See EIB (2021) for the expected losses related to COVID-19. The index of firms ceasing to operate uses a baseline of 100 reflecting the first quarter of 2018. The diamonds indicate the expected change in the share of firms losing money based on simulations done in 2021.*

**Figure 13**

**Share of firms having benefited from subsidised or guaranteed credit** (in %)




*Source:* *EIB staff calculations based on EIBIS 2021.*
*Question:* *Since the start of the pandemic, have you received any financial support? A. Access to new subsidised or guaranteed credit (loan, overdraft or credit card from a bank or other finance provider) that will need paying back in the future but may have preferential or reduced interest rates and/or an extended repayment plan.*

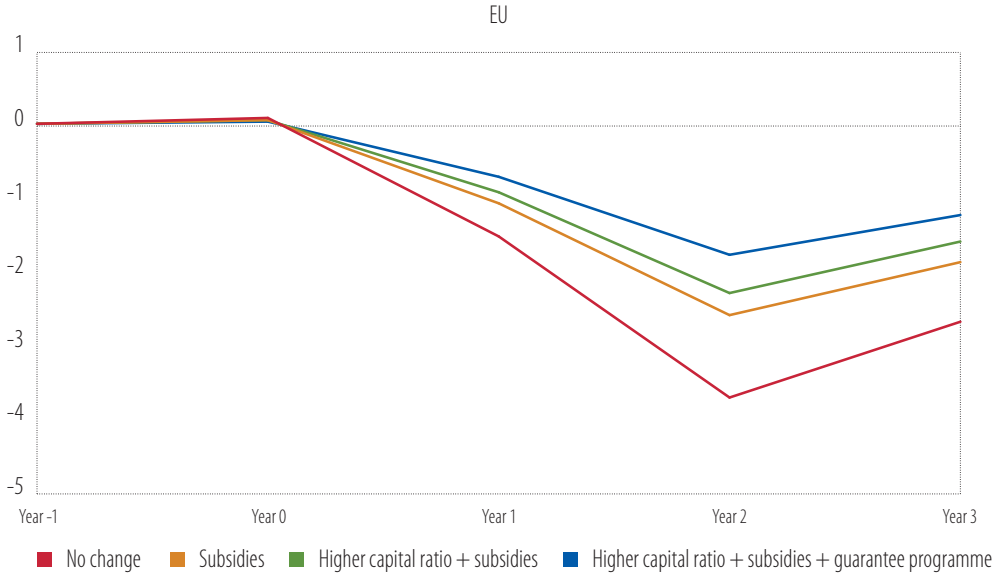
**It is important to disentangle the different forms of support and to look at the various compositions.** In Europe, about 60% of firms received support via at least one specific policy and 18% received public loan guarantees, helping to keep credit affordable for firms. Figure 13 shows that the nature of the support varies from jurisdiction to jurisdiction (guarantees were activated more in Southern European countries). EBA (2022) reports that in the euro area, the total volume of loans subject to public guarantees amounted to EUR 366 billion in the first quarter of 2022, with nearly 90% of public loan guarantees concentrated in three countries: France, Italy and Spain.

**Higher capital ratios and public guarantees can help the flow of credit during crises.** Bank-level information can be used to estimate how credit, particularly loans, react to a shock over time. The change in the ratio of non-performing loans can act as a proxy for the shock. Banks tend to lend less when their portfolios face higher risk. However, estimates show that loans are reduced by less when a bank's capital ratio is higher. The sensitivity of bank loans to risk is reduced when policy support comes largely from public guarantees, but it is unchanged when policy support is mainly deployed through subsidies.

**The policy support deployed during the crisis is softening the deterioration in credit conditions.** Figure 14 shows the change in credit supply growth from year zero (assumed to be 2022) to year four, following the gross domestic product (GDP) deviation from the trend in 2020-2021. A negative reading does not mean that loans are decreasing, but instead implies that bank credit is not supportive and holds back the issuance of new loans. Without policy support and with no change in capital ratios since the global financial crisis, the total loans issued from the start of the crisis until the end of 2023 would be almost 4% lower than in the three-year period before the pandemic. Subsidies alone dampened the impact, reducing it to slightly more than 2%. As banks were more capitalised, they were better able to withstand the crisis, although the impact of higher capitalisation was low. Cascarino et al. (2022) quantify the extent to which public guarantees created additional credit across programmes with different coverage ratios and over time. Credit was highest (around EUR 0.84 per EUR 1 of guarantees) for fully guaranteed loans originating in the first quarter of the programme (the second quarter of 2020).

**Figure 14**

**Credit supply sensitivity to risk depending on absorption capacity and policy support**




*Source: EIB staff estimates based on the forthcoming work Álvares et al. (2023).*

**ECB measures to provide banks relief by reducing their capital requirements during the pandemic successfully supported the credit supply, and the measures did not result in banks taking on undue risk.** Couaillier et al. (2022) found that while reduced capital requirements supported lending, allowing banks to operate below the Pillar 2 guidance had no significant impact on their lending behaviour.[9] Furthermore, banks appeared reluctant to draw on their existing capital buffers, implying that the positive effect of capital relief on lending was stronger for those with smaller capital reserves.

## New sources of vulnerability

**As explained above, corporate investment remained resilient until the middle of 2022, but companies now face a challenging environment.** The prevailing monetary policy and the war in Ukraine are likely to hurt firms and reduce their capital expenditure, while many of them are still recovering from the COVID-19 crisis. Although in broad terms, the COVID-19 crisis hit contact-intensive sectors like services and transport while the war is affecting energy-intensive sectors, the fallout of the two shocks on countries varies greatly. Countries in Southern Europe were harder hit by COVID-19, while the war poses more serious problems for economies in Central and Eastern Europe. With a view to illustrating the importance of safeguarding confidence in European economies, this section introduces a scenario simulating a situation in which a loss of confidence increases financial fragmentation and triggers a funding crisis.

### Firms face higher borrowing costs

**Central banks embarked on a very abrupt cycle of monetary tightening in the first half of 2022.** The sources of inflationary pressures differ on either side of the Atlantic, which explains why tightening started later in the euro area (when it became clear that the war in Ukraine would drive up energy prices over a longer period). Short-term rates in some Central and Eastern European economies have increased by far more than the 200-basis point rise in the euro area since July 2022. In addition to shifting the interest rate curve upwards, monetary policy tightening also steepened it. In December 2022, the shift up was around 300 basis points compared to the beginning of the year, an almost unprecedented rise in the euro area over such a short period of time.[10]

**As already clear in the bond market, borrowing costs are set to rise.** The sudden removal of accommodative financial conditions has fuelled a bearish bond market and 2022 was among its worst years ever. Figure 15 shows that since the start of 2022, corporate bond yields have increased by more than 300 basis points for 5-year debt. Since the global financial crisis, European firms have increasingly funded themselves by selling bonds (Andersson et al., 2022; Holm-Hadulla et al., 2022), but corporate debt issuance has been lacklustre since the start of 2021. It is almost at a standstill, with cash-rich firms preferring to dig into their pockets instead of paying high yields.

**Premiums paid for risky debt have widened.** Figure 15 shows that the spread between 5-year A and BBB debt has increased by 50 basis points, from 25 basis points to 75 basis points. This rise started at the beginning of the year, when it became clearer that central banks would start tightening monetary policy. Investors are effectively reassessing firms' ability to withstand much higher borrowing rates. After years of negative of very low market rates, firms must ensure they can sustain much higher borrowing costs. More heavily indebted borrowers are under pressure.

**Financial conditions are tightening overall.** Figure 16 reports an estimated index of financial conditions based on a large set of series related to financial prices and flows. Since the beginning of 2022, the index has risen as pressure on European financial markets has increased. Relatively accommodative conditions

9 The Pillar 2 guidance is a bank-specific recommendation that indicates the level of capital that the ECB expects banks to maintain in addition to their binding capital requirements. It serves as a buffer for banks to withstand stress.

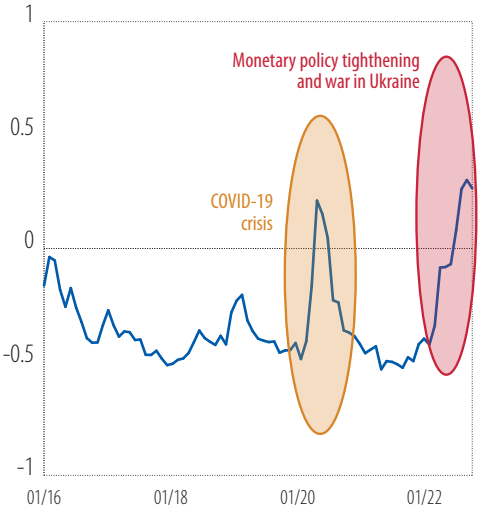
10 See Chapter 1 for more details on monetary policy and financial markets.

had tightened significantly by September 2022. This tightening is estimated to be stronger than at the beginning of the COVID-19 crisis. However, it comes after a long period of ultraloose financial conditions, and the index remains far below the high point recorded during the global financial crisis (0.4 vs. 2.4).

**Figure 15**
**Corporate 5-year bond yield and A to BBB risk spread** (left axis: in %; right axis: basis points)


*Source:* *EIB staff estimates based on Refinitiv.*
*Note:* *Last record available is August 2022.*

**Figure 16**
**Financial condition index in the European Union** (rise=tightening)




*Source:* *EIB staff estimates based on Andersson et al. (2021).*
*Note:* *Last record available is September 2022. An increase reflects tightening. The values are de-meaned over 2007-2022.*

**Rising market rates have started to spread to corporate bank borrowing rates.** Figure 17 reports the composite firm bank borrowing rates for the major euro area economies. These rates have remained comparable and almost unchanged since the start of the COVID-19 crisis, lingering at very low levels until the end of summer 2022 and rising sharply thereafter. Interestingly, the rates have remained similar for different countries, reflecting the flexible reinvestments of the maturing pandemic emergency purchase programme (PEPP) portfolio and the setup of the Transmission Protection Instrument, which ensures that monetary policy is transmitted smoothly across the euro area. However, rate hikes will feed into bank lending rates. Most empirical studies conclude that the rates will be fully passed on over time.[11] Given the prominent role of bank finance, higher rates will have a major impact on firms' external financing costs.

**In contrast to previous episodes of financial tightening in the euro area, bond spreads have not yet widened significantly (Figure 18).** Andersson et al. (2022) show that, when driven by a financial shock (such as during a crisis), tightened financial conditions hurt loan issuance and widen borrowing spreads for all countries and borrower sizes. However, this time the size spread (the spread between the borrowing costs for small loans and large loans) has not yet been substantially affected[12], and has remained in a very narrow range since the beginning of 2022.

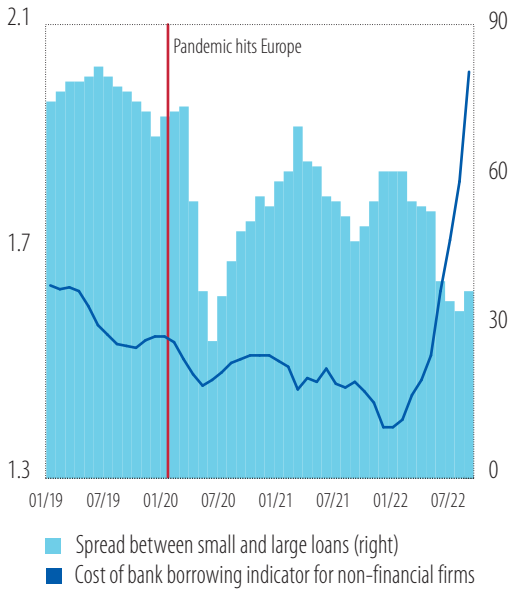
11 The length of the period depends on several factors specific to each country, such as the degree of competition in the banking sector, the share of loans at floating rates and/or their average maturity.

12 Small loans are those below EUR 250 000 and large loans those above EUR 1 million.

**Figure 17**
**Cost of corporate bank borrowing** (in %)


*Source:* *EIB staff estimates based on ECB data.*
*Note:* *Last record available is September 2022.*

**Figure 18**
**Overall cost of borrowing and spread**
(left: in %; right: in basis points)




*Source:* *EIB staff estimates based on ECB data.*

**Further monetary tightening is likely to reinforce rate hikes.** First, much of the analysis suggests that at the end of 2022, short-term rates were still below the terminal rate (the peak of rate hikes, estimated to hover above 250 basis points). Second, at the end of October, the ECB recalibrated the third series of targeted longer-term refinancing operations (TLTRO III) to strengthen its link with monetary policy tightening by indexing the interest rate on all remaining operations to the average applicable ECB interest rates. Finally, quantitative tightening (the unwinding of the asset purchase programmes) will also begin at some point. Each of these three measures will contribute to further monetary policy tightening.

## The impact of war-induced price rises and demand shocks

**The war in Ukraine is directly destabilising EU firms by reducing exports and by raising prices for energy and commodities, which is likely to compress profits (EIB, 2022a).** First, the war has led to a sharp reduction in exports to Russia and Ukraine, curtailing sales in these markets. Second, higher prices for energy and commodities are squeezing profits. The shock has spread unevenly among EU economies, due to differences in their export exposure, energy dependencies and energy mix.

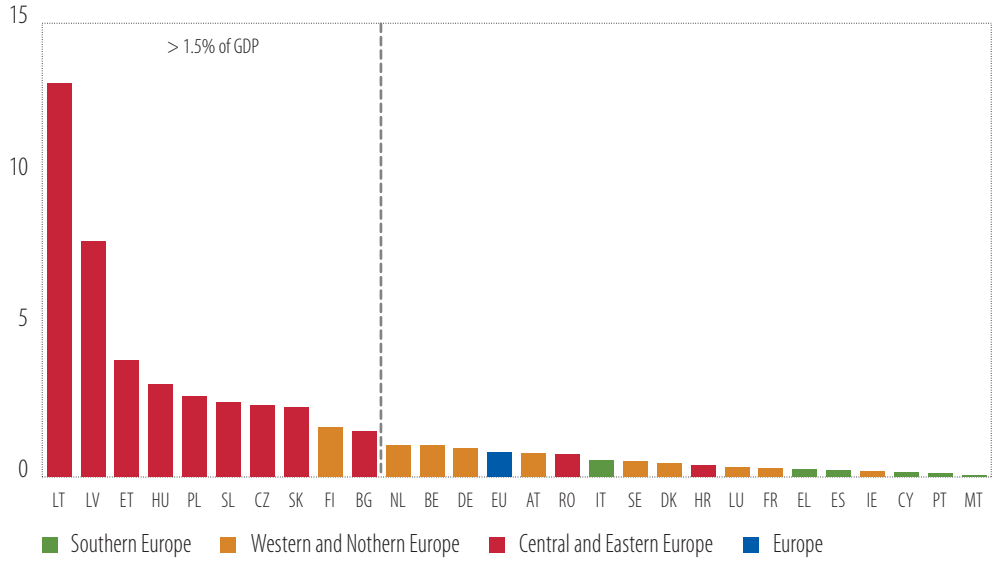
**Export exposure is generally low at the European level, although with large differences among countries.** Since the beginning of the conflict, EU exports to Russia and Ukraine have declined by about 40%, but overall EU export exposure to Russia and Ukraine is low (around 1% of GDP in 2019). However, this exposure varies greatly from country to country. As shown in Figure 19, exports account for more than 1.5% of GDP in ten EU countries and well above 5% in Latvia and Lithuania. In general, countries in Central and Eastern Europe export more to Russia and Ukraine, while Southern Europe is much less exposed.

**While EU energy dependence has declined, energy costs are still a major drag on companies' margins.** As European economies have grown, they have become more service oriented. Since services sectors tend to be less energy-intensive, Europe's dependence is less pronounced (Bjornland, 2022). Technological progress and heightened concerns about climate change have also increased energy efficiency. Yet despite these developments, Europe remains a very large energy importer. Its energy bill, which was

EUR 330 billion in 2019, doubled in the 12 months up to August 2022, largely because of higher energy prices. Rising energy costs have historically been associated with declines in firm profits, as shown in Figure 20. When energy prices reached record highs in 2012, which were nevertheless far below current levels, firm profits declined dramatically. More recent signs of less pronounced energy dependency are reflected in strong pricing power of firms during the COVID-19 recovery, as explained above.

**Figure 19**

**Share of exports to countries either sanctioned or involved in the Ukraine war,** (2019, % GDP)




*Source: EIB staff calculations based on Eurostat.*

**Figure 20**

**Energy prices and profit margin indicator** (left axis: inverse scale, 2015=100; right axis: percentage point deviation from 2015)

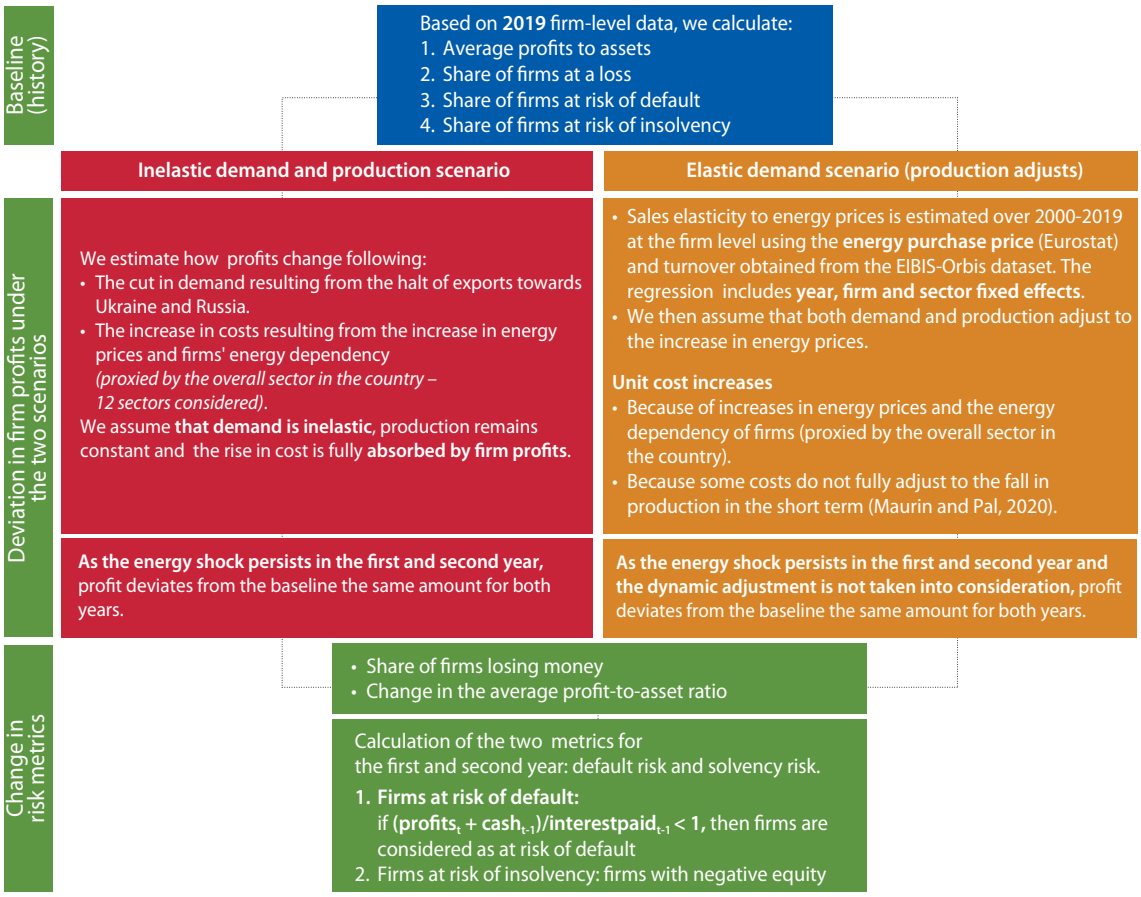

*Source: EIB staff calculations based on Eurostat.*
*Note: The raw margin indicator is the ratio between gross value added for the corporate sector and intermediary consumption.*

**In the current crisis, countries suffer more if their energy dependency is based on oil and gas (Zingersen, 2022).** In ten EU countries, Russia accounts for more than half of energy imports from outside the European Union.[13] Those countries tend to rely more on oil and gas. Given their higher dependency on Russian gas, Hungary, Slovakia, Italy, the Czech Republic, Austria and Germany are particularly vulnerable to reductions in Russian gas supplies. Conversely, the countries more reliant on renewable energies, biofuels and nuclear energy import less from Russia. Beyond the direct import exposure, countries' exposure to international markets is also key. Russia is a very important supplier. As the war limits Russian exports to Europe — owing to embargoes, capacity destruction, supply bottlenecks and military needs — prices have skyrocketed on international markets, meaning that countries with no direct imports from Russia are also affected.

**International energy prices flow through to domestic prices very differently in each EU country, especially in the short term.** As shown in Figure 21, the same change in international energy prices (coal, gas and oil) resulted in very different prices for companies in EU countries. Prices have increased by 80% in the European Union as a whole since 2021, ranging from a low of 10% in Luxembourg to a high of 140% in Denmark. As mentioned above, such wide fluctuations are partly explained by differences in the energy mix. However, other factors such as the period during which the energy price is fixed in the contractual agreement, taxes, regulation, transportation costs. Local margins play a role, too (Du Bella et al., 2022).

**Table 1**

**Transmission channels considered in the activity scenarios**




*Source:* *EIB.*

13 When ranking these countries from 50% to 100% dependence, Romania is followed by the Czech Republic, Poland, Lithuania, Bulgaria, Hungary, Finland, Estonia, Slovakia and Latvia.

**Table 1 illustrates the impact the rise in energy prices and the war in Ukraine will have on the economy.** The impact of the shocks to each country and sector is influenced by differences in their exposure to exports and increases in domestic energy prices, firms' dependence on energy by sector and country, and the initial balance sheet strength and profitability of each firm. The impact is estimated through the lens of scenarios that enable us to simulate the profit evolution of firms that have participated in at least one wave of the EIBIS, about 60 000 EU firms.

**Two possible situations are considered when simulating the change in profits resulting from the shocks.** In the "no reaction" case, it is assumed that besides a reduction in exports, demand is not affected by rising costs and selling prices are kept constant. Production is maintained and the energy shock is fully absorbed in companies' profit margins. In the "adjustment" case, part of the energy cost increase is passed on through higher selling prices, demand is reduced and production follows suit. As production is reduced, certain costs, such as employment costs, decrease, but do not react fully. To account for this imperfect reaction in the short term, we use the elasticities of cost components to demand estimated by Maurin and Pal (2020). The reaction of demand and production to energy costs is estimated for firms from 2000-2019.

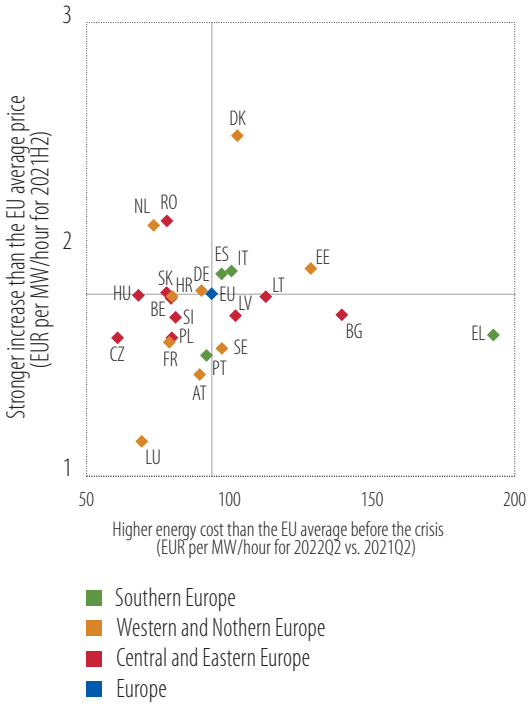
**The simulations show that the economic environment hit firms' profits substantially.** The consequences of a halt in exports and the increase in the energy prices seen since 2021 are explored in Figure 22.[14] Energy use accounts for 7% of the total output of the EU economy, meaning that the overall energy price increase of 80% will lead to a 6% decline in the value added by firms across the European Union. Figure 22 shows that after the shocks, the impact is substantial and stronger in the "no reaction" case. From 11%, the return on assets of EU firms falls by 3 percentage points for the "adjustment" case and 4 percentage points for the "no reaction" case. The share of firms losing money increases by 7 percentage points in the "no reaction" case, almost doubling compared to normal times, and by 5 percentage points in the "adjustment" case.

**The capacity to withstand the adverse environment depends on balance sheet strength.** The balance sheet strength of firms before the crisis is then taken into account to estimate changes in solvency and default risk. The change in profits is allocated to either cash holdings or to equity, linking the estimated change in firms' profits to individual financial and balance sheet conditions. Lower profits reduce a firm's ability to repay its debt, and therefore increase its risk of defaulting, especially when it cannot draw from liquid assets to fund its financial expenses. In parallel, higher losses also imply higher insolvency risks, and more firms with depleted capital. Default risk (the proportion of firms unable to pay back their financial expenses from their profits or cash position) rises from 5% to 8% or 9% in the first year and continues to increase the year after, reaching a ratio of up to 11% of firms in the second year in the most adverse situation. Insolvency risk (the proportion of firms with negative equity) also rises by 2 percentage points in the first year, from 4% to 6% (Figure 22). It increases to 7% in the second year. It increases further over time as some firms continue to lose money and deplete their equity.

**The result varies among sectors, and it is mainly driven by energy dependence.** Figure 23 associates the rise in firms' vulnerability — obtained by averaging the share of firms at risk, the insolvency risk and the default risk by sector, after standardisation. Overall, energy needs are particularly high for chemicals and pharmaceuticals, transportation and raw materials, sectors for which energy dependence is around 12%. These sectors are hit the hardest because of their energy dependence. Conversely, IT and telecommunications, construction, services and trade are less reliant on energy and therefore less affected.

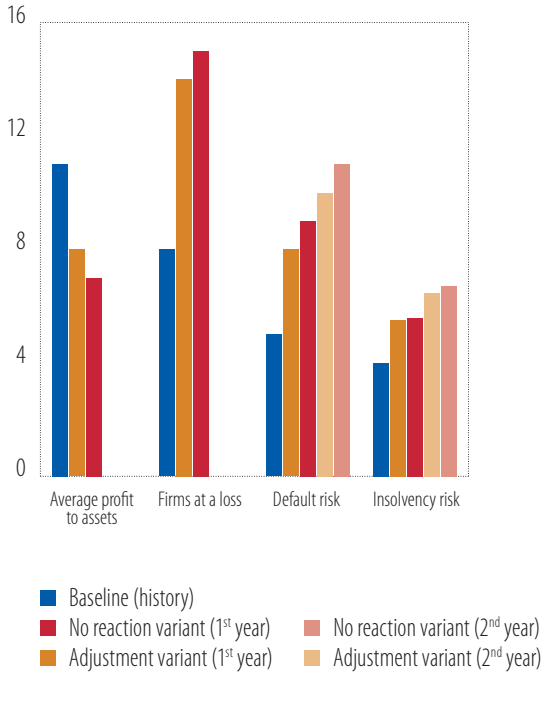
14 The shock is applied to the amount spent on energy overall, regardless of its nature or provenance. The simulations take into account the increase in energy prices at the country level, depicted in Figure 21. See EIB (2022a) for a scenario assuming a doubling of the energy bill for all countries.

**Figure 21**
**Energy prices paid by firms, before the crisis and the change**




*Source:* *EIB staff estimates based on Eurostat, European Commission.*

**Figure 22**
**Overall cost of borrowing and spread**
(in basis points)




*Source:* *EIB staff estimates based on EIBIS-ORBIS historical matched database and Eurostat turnover statistics.*
*Note:* *See EIB (2022a) and Harasztosi et al. (2022). The plain bars indicate normal times and the shaded bars indicate the value under the scenario.*

**Differences in domestic price increases, the composition of EU economies and the initial strength of the corporate sector explain the uneven impact in different countries.** In many countries, the share of firms losing money rises well above the usual 8% at the European level. The share increases by more than 8 percentage points in 12 countries. Composition also explains why different EU economies are more or less exposed to rising energy prices. Corporate dependence on energy differs depending on the economy, from a low of 2% of production in Luxembourg to a high of more than 14% in Lithuania, Greece and Croatia, reflecting sector composition and overall energy efficiency.[15] In general, economies in Central and Eastern Europe are more likely to be more dependent on energy. However, the largest EU economy, Germany, could be heavily affected because of its dependence on Russian gas (Bachman et al., 2022; Organisation for Economic Co-operation and Development (OECD), 2022; Deutsche Bundesbank, 2022). Conversely, countries like the Netherlands are less affected (De Nederlandsche Bank (DNB), 2022).

**Geographical proximity to Russia and Ukraine appears to have an effect, but is not the only factor.** Figure 24 uses colour coding to link the increase in risk in the vulnerability indicator with the location of firms. The vulnerability indicator is obtained by weighting the three risk indicators after they have been standardised. Location is clearly important, and geographical proximity with Ukraine is associated with higher vulnerability. Firms in Hungary, Poland, Latvia and Lithuania, all of which are closer to Ukraine, are more affected. However, firms in Greece, Croatia and Spain are also more affected than other EU peers.

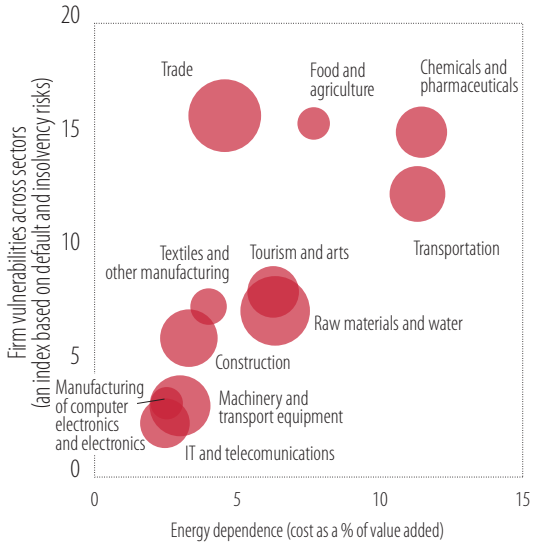
**The sectors most distressed by the war differ from those affected by COVID-19.** In Figure 24, the same synthetic vulnerability indicator is correlated with the deviation in expected 2023 real GDP as compared

15 We use the OECD (2018) input-output tables that relate to the 27 EU economies.

to European Commission autumn forecasts in 2021 and in 2019. This deviation between the two rounds of GDP projections measures the remaining COVID-19 impact on real GDP after massive policy support deployed during the crisis. In the analysis, the war leads to a slowdown in the recovery and produces new sources of vulnerabilities. Figure 24 shows that, at an EU level, these vulnerabilities are not closely correlated with those caused by COVID-19, but rather are additional weaknesses. This is a particular source of concern for countries approcahing the top-right quadrant of the chart, where economic activity was still well below levels before the COVID-19 crisis when the war broke out. In those economies, the war is heightening vulnerability, bringing it above the EU average.

**Figure 23**

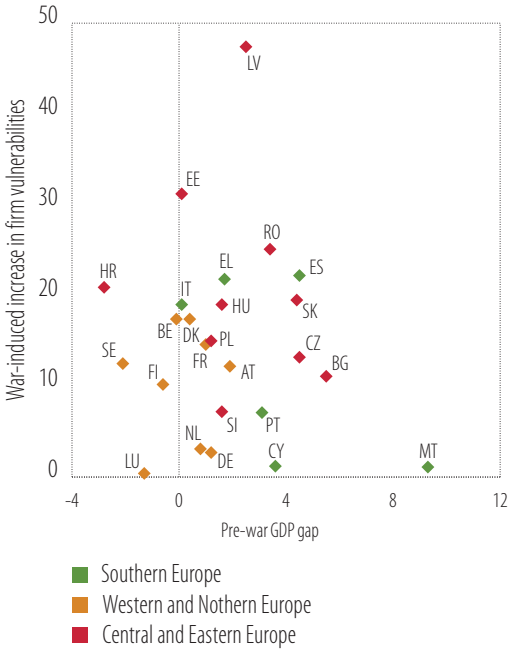
**Energy dependence and firms' vulnerability to rising energy prices**




*Source:* *EIB staff estimates.*
*Note:* *The size of the dot reflects the sector's share in the EU economy.*

**Figure 24**

**GDP gap before the Ukraine war and related increase in vulnerabilities**




*Source:* *EIB staff estimates.*
*Note:* *X-axis is the gap between real GDP in 2022 expected in the autumn 2019 and autumn 2021 European Commission forecasts. The y-axis reflects the increase in the share of firms at risk of losing money, insolvency or liquidity problems, rescaled by the minimum and the maximum.*

## High uncertainty and funding stress could further depress investment

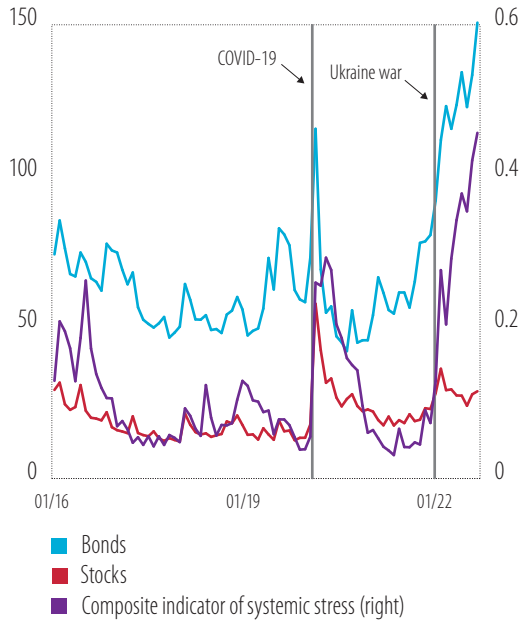
**A confidence crisis would exacerbate funding problems, as lenders would avoid risk.** The Russian invasion of Ukraine is a major source of uncertainty (Lane, 2022), and investment tends to react negatively to uncertainty (Kumar et al., 2022). Figure 25 shows various indicators of volatility and confidence. Higher uncertainty and the rise in volatility have been associated with a decline in stock prices and a rise in the premium paid for more risky equity investments (Gálvez, 2022). In the interbank market, the interbank spread (the difference between the 3-month Euribor rate and the euro short-term rate (€STR)) has moved upwards since the beginning of the invasion.[16] It rose from 2 basis points at the beginning of 2022 to 65 basis points in September 2022.

16 The €STR reflects the wholesale euro unsecured overnight borrowing costs of banks located in the euro area. It replaced the EONIA on 30 September 2019.

**Bank lending surveys indicate a tightening in credit standards in European countries.** Since the end of 2021, euro area banks have been reporting a net tightening of credit standards for loans and lines of credit (Figure 26). The net tightening accelerated with the start of the war in Ukraine. Since then, banks have become increasingly 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. The bank lending survey for Central and Eastern European economies also shows that banks are expecting to tighten credit (EIB, 2022b). Bank expectations in the region are souring, in part because of the market reaction to the crisis (Figure 26). Credit quality is also expected to suffer.

**Figure 25**

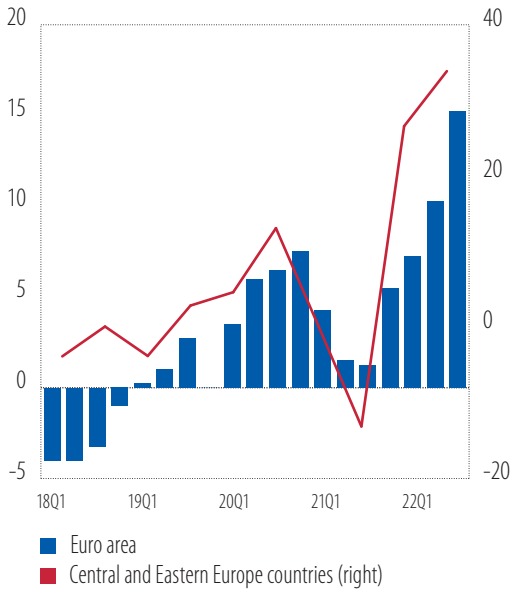
**Estimates of implied volatility and the composite indicator of systemic risk**




*Source:* *EIB staff calculations based on ECB and Refinitiv.*
*Note:* *For the Composite Indicator of Systemic Stress, See Kremer et al. (2012). Last record available October 2022.*

**Figure 26**

**Cumulated net tightening in credit standards on corporate loans** (% of banks)




*Source:* *EIB staff calculations based on ECB data.*
*Note:* *The fourth quarter of 2019 is used as the comparison point for any tightening. Four-quarter moving averages are reported.*

**Increased firm vulnerability will lead to a deterioration in the quality of bank loans and could trigger further tightening.** As explained above, the increased costs and reduced demand will affect firm liquidity and solvency differently depending on the sector and EU country. Banks more exposed to hard-hit sectors, such as food and agriculture, chemicals and pharmaceuticals, and machinery and transport, could be more affected. Figure 27 uses an index of bank vulnerability built by looking at banks' total loan exposure to these sectors, showing the results for the 27 EU countries. The banking systems on the right of the chart are more exposed to the deterioration in their loans than those on the left. While European banks have solid buffers to absorb losses, the expected deterioration of their loan book explains the tightening of credit standards.

**Table 2**

**Channels considered in the funding stress scenario**

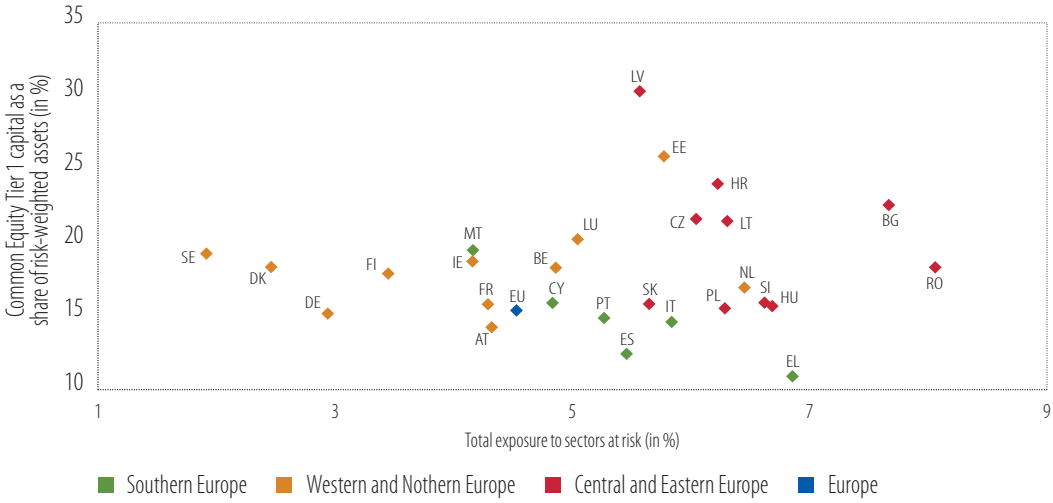
| Starting point | We assume that: | To cover the resulting liquidity needs and finance working capital, firms draw from their cash and liquid assets. |
|---|---|---|
| Debt-to-asset and cash-to-asset ratios at the firm level in 2019 | • In all countries, short-term debt is not rolled over for finance-constrained firms.<br>• In Central, Eastern and South-Eastern Europe, 20% of net trade credits are not rolled over. | • We calculate the cash positions one year later, and the share of firms that are running out of cash. |

*Source:* *EIB.*

**The next scenario — the funding stress scenario (Table 2) — illustrates the impact of the crisis on the funding position of EU firms through changes in short-term debt and trade credits.** It is assumed that in all countries, short-term debt is not rolled over for finance-constrained firms and that 20% of net trade credits are not financed in Central and Eastern Europe.[17] These two changes increase the cash needed to finance working capital and further deplete cash positions. Figure 28 reports the resulting increase in the share of firms running out of cash, which is well above 8% in seven countries. The simulation shows that increased aversion to risk, if not met with a sufficient policy response, would create further funding stress, potentially fragmenting European markets.

**Figure 27**

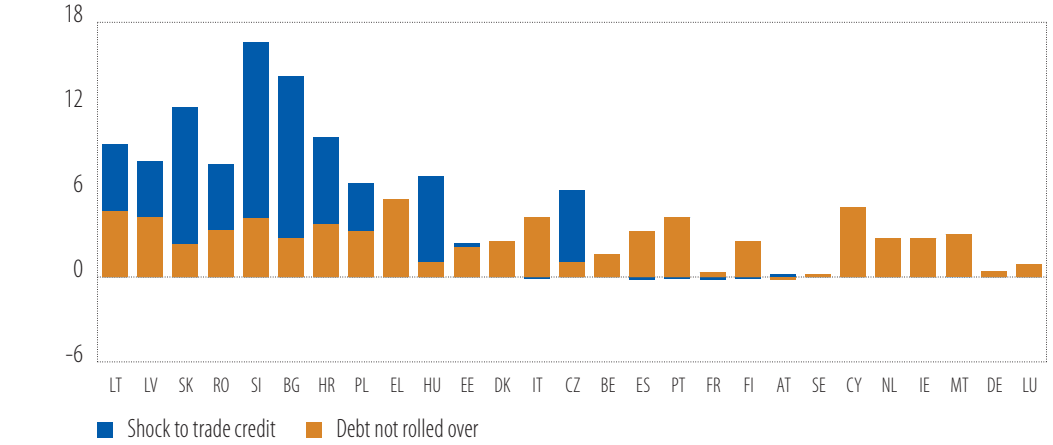
**Bank exposure to sectors at risk**




*Source:* *EIB staff estimates. and EBA.*
*Note:* *Estimates are based on the expected increase in vulnerability across sectors and countries and the loan book composition reported in the EBA Risk Dashboard (2022). The total exposure to sectors at risk calculates Common Equity Tier 1 capital as a share of risk-weighted assets.*

**Figure 28**

**Rise in the share of firms with liquidity problems in the funding stress scenario** (in %)




*Source:* *EIB staff estimates.*
*Note:* *Short-term debt of finance-constrained firms is not rolled over for all countries. 20% of net trade credits that are no longer financed is not rolled over for Central, Eastern and South-Eastern Europe.*

17 EIBIS waves 2016-2022 are used to distinguish finance-constrained firms. 20% is an estimate of subsidiary dependence from trade credit originating in regions other than Central and Eastern Europe. A shock is only applied to the net trade credit position for net debtor firms in Central and Eastern Europe.

# Staying on track for the twin transition

**For Europe to meet the sizeable investment needs of the green and digital transition, it must first address some financial weaknesses.** First, access to finance is uneven for different countries, types of firms and specific assets. Removing financial bottlenecks could unlock huge investment potential. Second, specific borrowers rely heavily on some types of products or markets. If these are underdeveloped in the European Union, it is important to support them with public policies or instruments. As illustrated below, EIB action can help catalyse private investment. Finally, while cross-border financial flows have withstood the COVID-19 crisis relatively well, the European financial system is not properly integrated. This section illustrates the benefits that further integration would bring.

## Some regions or specific investments have difficulty getting finance

**More firms are having difficulty accessing credit than before the COVID-19 crisis, and the share of finance-constrained firms is close to a record high since 2016.** After rising at the beginning of the crisis, the share of finance-constrained firms fell to a record low of 4.7% in 2021, when policy guarantee programmes supported credit. The share of finance-constrained firms increased substantially, to 6.2% in 2022, when some of these temporary measures were phased out. While the share remains relatively low, it has to be put in historical perspective. Since 2016, the share has vacillated from 4.7% to 6.8%. The level reached in 2022 reflects increased risk aversion and uncertainty, as well as the tightening in credit.

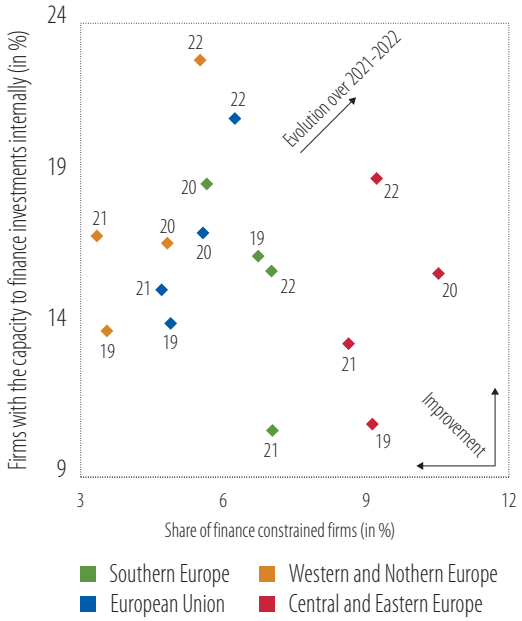
**The implications of new financial pressures are unclear, as the share of finance-constrained firms and the share of firms relying on internal finance increased.** In Figure 29, we correlate two results from the EIBIS: the financial constraints indicator and the willingness to use internal financing. Financial constraints are likely to affect investment less when firms are not so dependent on outside funds. A move towards the top or left of Figure 29 reflects an improvement in financing conditions. From 2021 to 2022, the willingness to rely on internal financing increased by around 4 percentage points across the board, supported by a strong recovery in profits. In parallel, a substantial increase in the share of finance-constrained firms was recorded. This change mostly originated from Western and Northern Europe, with little change elsewhere. This leaves a mixed overall picture of investment financing conditions.

**Access to external finance remains more problematic for some types of firms, and finance-constrained companies have a harder time investing.** Figure 30 depicts the share of firms reporting investment gaps over time.[18] It separates finance-constrained firms from non-finance-constrained firms. Overall, investment gaps are more frequently reported when firms are finance-constrained, and the difference tends to be stronger for firms investing heavily in intangible investment. Among these firms, finance-constrained companies reported investment gaps almost three times more in 2022, while firms in general were twice as likely to report gaps.

**The following section uses an indicator of structural and cyclical barriers to examine external funding tensions.** The share of profitable firms that are finance-constrained is used to reflect investment barriers related to financial sector characteristics and firms' specific features, while the share of firms reporting a worsening of external financing conditions is used to reflect the changes in the financial cycle. Figure 31 shows the substantial variation in the indicator. In EIBIS 2020, the first year of the COVID-19 crisis and before the implementation of the firm-level policy packages, the share of firms reporting external funding difficulties increased from around 10% to 22%. More recently, in 2022, the rise was even more significant. On both occasions, an expected worsening in external financing conditions fuelled the rise. Interestingly, the external funding index tends to be higher for smaller, younger and highly innovative firms.

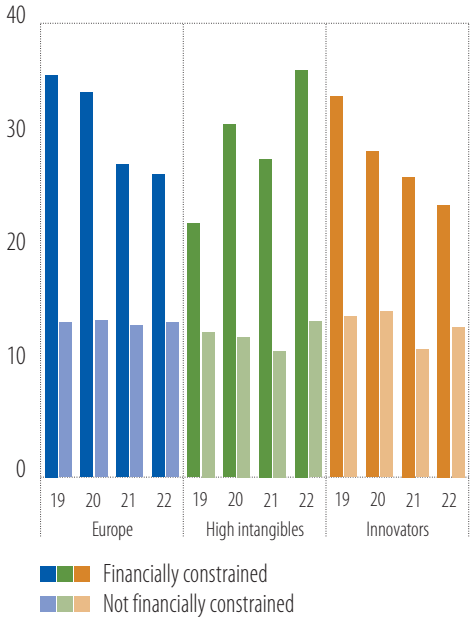
18 Investment gap is constructed from the EIBIS with value 1 if the investment over the last three years was "too little." This is considered as a loss of potential investment or potential growth (the firm might still have positive and increasing investment compared to the previous year).

**Figure 29**
**Financial capacity of firms**



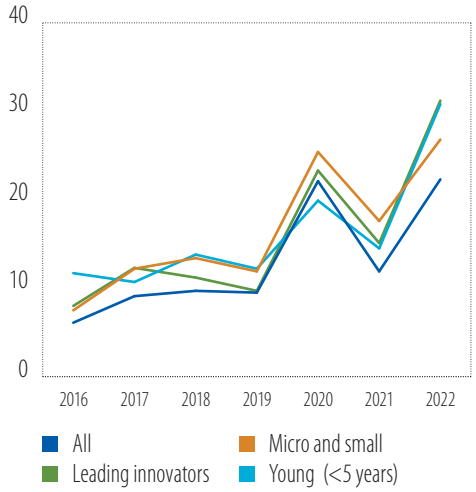

*Source:* *EIBIS 2019-2022.*
*Note:* *The numbers next to the diamonds indicate the calendar year.*
*Question:* *What was your main reason for not applying for external finance for your investment activities? Was happy to use internal finance/didn't need the finance.*

**Figure 30**
**Reported investment gaps, by type of firm** (in %)



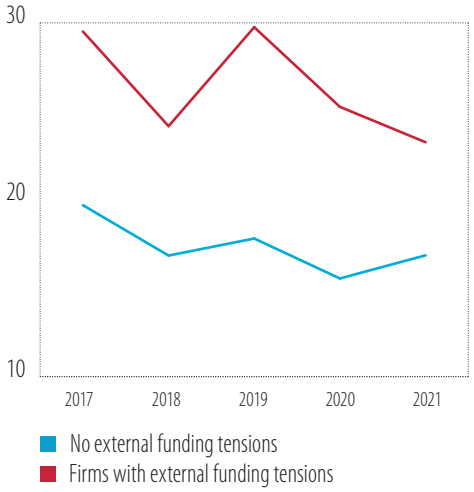

*Source:* *EIBIS 2019-2022.*
*Note:* *High intangibles refers to firms allocating more than 50% of their investment to intangible assets.*
*Question:* *Looking back at your investment over the last three years, was it too much, too little, or about the right amount to ensure the success of your business going forward?*

**Figure 31**
**External funding tension indicator** (% of firms)




*Source:* *EIB staff calculations based on EIBIS 2016-2022.*
*Note:* *Micro and small firms are those with fewer than ten and 50 employees, respectively. Leading innovators are firms with (substantial) R&D and products new to the country or the global market.*

**Figure 32**
**Proportion of firms reporting investment gap according to external funding tensions**




*Source:* *EIB staff calculations based on the EIBIS.*
*Note:* *The calculations isolate the causal impact of external funding difficulties on the investment gap.*

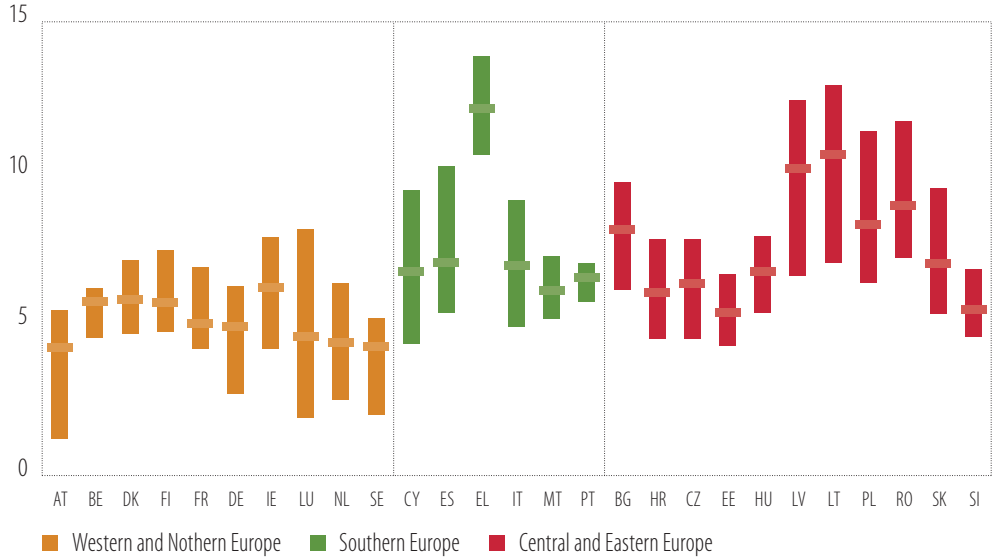
**The effect of external funding difficulties on potential and realised investment is sizeable.** Figure 32 estimates the impact of external funding difficulties on the investment gap[19] over time. On average, firms facing external funding difficulties are 7 percentage points more likely to report an investment gap than those with no external funding difficulties. Similarly, firms reporting external funding difficulties are on average more likely to report an expected drop in planned investments, by 8 percentage points, or to implement investments the year after, by 4 percentage points.

**Structurally, the EU economy invests less than the United States in productive assets.** Unlocking this financing could raise corporate investment by EUR 120 billion a year. Chapter 2 illustrates the substantial investment gap in the European Union. The literature has deployed various methodologies to estimate this gap (Box B). Correlating the answers received to various EIBIS questions and several more from the ECB Survey on the Access to Finance of Enterprises (SAFE) provides a range of estimates of the investment that would result from reducing financial friction. Figure 33 shows the results, isolating each EU macro-region and each country, averaging over the five years from 2016 to 2021. Overall, the median investment gap ranges from a low of 3% in Austria and Sweden to a high above 10% in Latvia and Lithuania. The average estimate is 6% of EU corporate investment, around EUR 120 billion. The results are comparable to other findings (FICOMPASS, 2019).

**Figure 33**

**Corporate investment potentially lost because of financial bottlenecks**

(% of existing corporate investment)




*Source:* *EIB staff estimates based on EIBIS, SAFE and Eurostat.*
*Note:* *The vertical bars represent the intervals obtained from several estimates (up to 28, depending on the country). The horizontal bars indicate the median estimates.*

19 We implement average treatment effect techniques and control for firm-level characteristics for size, profitability, liquidity, financial leverage and equity share. We also use sector-country dummies and take into account other investment barriers, such as availability of qualified labour force, uncertainty, demand for products and services and availability of digital infrastructure.

**Box B**

**Estimating investment bottlenecks by looking at credit gaps[20]**

A credit gap refers to the difference between the desirable level of credit and the actual level. Measuring credit gaps is an empirical exercise. Broadly speaking, two approaches have been deployed in the literature, namely: (i) a macroeconomic approach; and (ii) methodologies centred on firm-level data. The exercise proposed in this box uses the latter approach to quantify financing gaps in the European Union, based on the latest wave of the World Bank Enterprise Survey. The survey makes it possible to differentiate between firms that obtained credit and credit-constrained firms. Credit-constrained firms either had their loan application rejected or were discouraged from applying for a loan despite needing it.[21] Few studies employ this approach, which reflects a paucity of suitable data.[22] The exercise is conducted to illustrate the factors to be taken into account when assessing credit gaps for firms.

The credit gap proposed here estimates the amount of additional financing required to cover the needs of discouraged firms, taking into account their creditworthiness and adjusting for supply-side elements. The methodology applies a scoring model to assess the creditworthiness of discouraged companies. The financing needs of firms that pass this assessment form the credit gap. By doing so, the method screens out firms that would have been rejected had they applied for loans. It adjusts for observable firm-specific differences in the pool of non-applicants vis-à-vis the pool of applicants, while controlling for unobservable factors common to firms operating in given countries or sectors. The credit allocation rule trades off allocating credit to firms that are not creditworthy vs. denying credit to companies that are. The desired loan volume of discouraged firms is then approximated by the flow of credit to enterprises in the economy, scaled by the total employment of successful applicants.[23] As the size of the discouraged firms is known, the credit gap can be broken down into a small and medium business and corporate credit gap. By adjusting the credit gap for fundamentals, such as institutional quality or banking-sector characteristics, alternative measures can be derived, yielding a range of credit gap estimates.

Discouraged firms are on average less creditworthy than firms that apply for loans. Figure B.1 shows that on average around 1% of the firms have their loan application rejected. The estimated rejection rates for discouraged firms are much higher, except for Western and Northern Europe, and are a multiple of the observed rejection rates. The results suggest that the average quality of the discouraged firms is lower than of the average applicant, so that a significant share of discouraged firms would be denied credit. The share of discouraged firms that would obtain credit is therefore smaller than the share of firms that successfully applied for loans (Figure B.2). Figure B.2 also suggests that financial intermediation is most developed in Western and Northern Europe, which have the highest share of successful applicants, ahead of Southern Europe and Central and Eastern Europe.

Credit gap estimates range from 2.4% to 3.6% of EU GDP, with significant variation across regions. Expressed in euros, this translates to a range of EUR 323 billion to EUR 481 billion. Figure B.3 shows the credit gap ranges for each sub-region as a percentage of GDP. The Central and Eastern European credit gap is estimated at 3.5% to 4.9% of GDP, or EUR 48 billion to EUR 68 billion. The Western and Northern European credit gap ranges from EUR 73 billion to EUR 95 billion, which corresponds to 1.1% of GDP. Southern Europe has the largest credit gap, with estimates ranging from 4.8% to 10.9% of GDP or EUR 160 billion to EUR 360 billion. In the case of Southern Europe, the baseline estimate derived

20 This box is based on a methodology developed in the forthcoming working paper (Akbas et al., 2022).

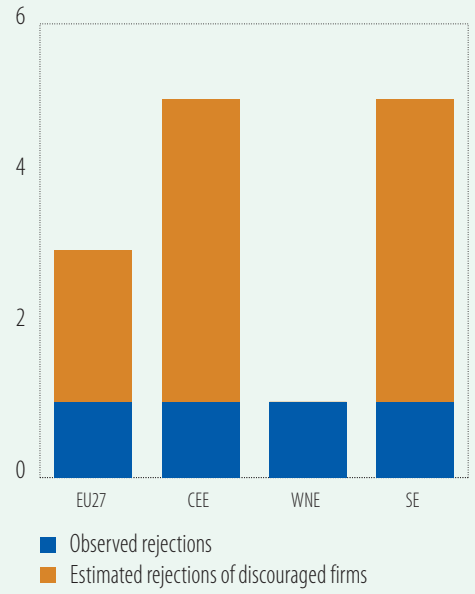
21 Discouraged firms need loans but have refrained from applying because of what they perceive as complex application procedures, unfavourable interest rates, high collateral requirements, insufficient loan amounts and fear of being rejected.

22 International Finance Corp. (2017) also exploits firm-level data and identifies a financing gap for micro, small and medium companies across 128 developing economies of around USD 5.2 trillion, or 19% of GDP on average. See also Lopez de Silanes et al. (2015) who quantify the financing gap for some EU countries making use of micro as well as macro data.

23 Data on outstanding amounts and transaction of credit to non-financial corporations come from the ECB and are adjusted with value-added shares to account for the sectors represented in the Enterprise Survey (such as services, manufacturing and construction). These account for roughly 87% of economic activity on average across EU27 countries. An estimate of the flow of credit is derived from data on the maturity of outstanding amounts.

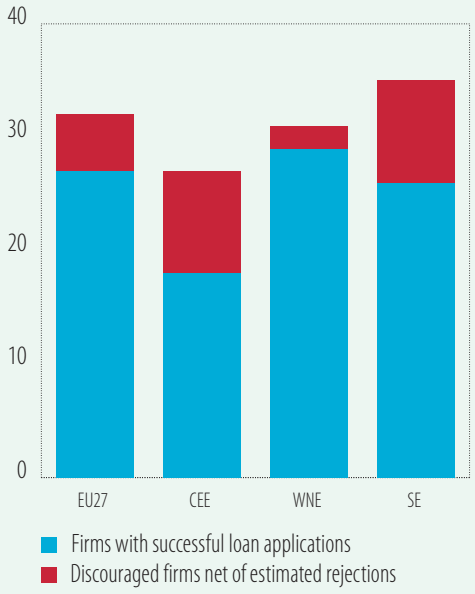
from the survey yields the upper bound, whereas the adjusted credit gap yields the lower bound. The high baseline estimate reflects a high share of discouraged firms in Italy as well as the weight of Italy in the Southern European aggregate.[24] The wide range indicates a high level of uncertainty regarding the estimates. Nonetheless, even the lower bound in Southern Europe indicates greater unmet financing needs than in Central and Eastern Europe and Western and Northern Europe. A limitation of this study is that the surveys in Western and Northern Europe were fielded later than those in Central and Eastern Europe and Southern Europe, and the low credit gap may partly reflect the extraordinary policy response to the coronavirus pandemic.

**Figure B.1**
**Observed rejections and estimated rejections of discouraged firms** (in %)




*Source:* *EIB staff estimates based on the Enterprise Survey.*

**Figure B.2**
**Firms that received loans and "acceptable" discouraged firms** (in %)



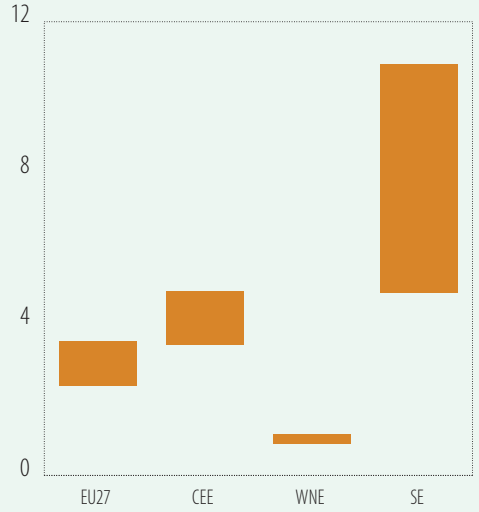

WNE = Western and Northern Europe
SE = Southern Europe
CEE = Central and Eastern Europe

*Source:* *EIB staff estimates based on the Enterprise Survey.*
*Note:* *Discouraged firms, after estimating rejections.*

These findings can be broken down further to obtain credit gap measures for small and medium businesses and corporates. Figure B.4 breaks down the baseline estimate into a small and medium business component and a corporate component. The small and medium business credit gap for the European Union is estimated at roughly 2.7% of GDP, or EUR 365 billion. The corporate credit gap, estimated at roughly 1% of GDP, or EUR 116 billion, is significantly smaller than the gap for small and medium businesses. Figure B.4 also shows that the sub-regional variation is driven mainly by the small and medium business segment, with the corporate credit gap ranging from 0.3% of GDP in Western and Northern Europe to 2.2% in Southern Europe. Financing gap estimates suggest that market imperfections are at work. Information is harder to come by in market segments and sub-regions where firms are more opaque. These numbers are not precise estimates. Overall, the methodology implemented in this box illustrates some of the factors that have to be considered when assessing firms access to bank credits.

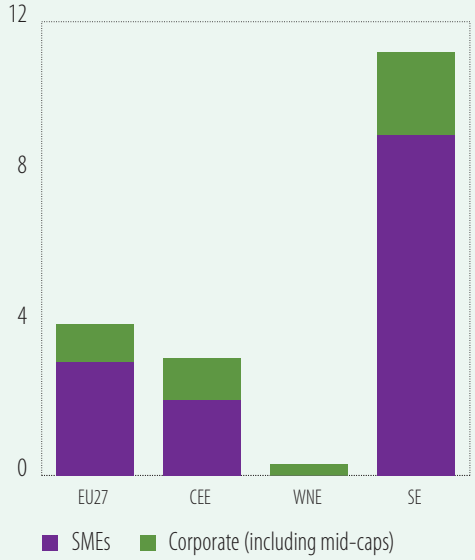
24 It is worth noting that aggregate non-financial corporation (NFC) credit in Italy has been on a declining trend since 2012 — the peak of the European debt crisis, with an average annual growth rate of approximately -3% from 2013 to 2021. By way of comparison, NFC credit has been growing annually by about 3% in Germany and 6% in France over the same period. This could explain the high share of discouraged firms in Italy.

**Figure B.3**
**Credit gaps** (% GDP)




*Source:* *EIB staff calculations.*
*Note:* *The bars represent a range of estimates. The estimates do not take the macroeconomic environment into account.*

**Figure B.4**
**Credit gap estimates** (% GDP)**, by firm size**




WNE = Western and Northern Europe
SE = Southern Europe
CEE = Central and Eastern Europe

*Source:* *EIB staff estimates.*
*Notes:* *The figures represent the total credit gap in a given region, and not the average credit gap for the country averages in each region. The estimates do not take the macroeconomic environment into account.*

**A lack of access to finance is still an acute problem for small and medium businesses.**[25] Financiers are generally more reluctant to extend uncollateralised financing to SMEs, even at high interest rates. As a result, many of these businesses with economically viable projects cannot obtain the necessary financing through usual channels. This phenomenon is often referred to as the SME financing gap, a market failure that results in a lack of market equilibrium. It is rooted in information asymmetry, which leads to credit rationing either through the adverse selection of low-quality borrowers or moral hazard. Figure 34 shows that the share of small and medium companies reporting finance as a highly important issue is on average 5 percentage points higher than for large enterprises. Extensive pandemic liquidity support programmes led to significant improvements in financial conditions during the second half of 2020. The trend reversed course in the second half of 2021, with the phasing out of pandemic support programmes and the outbreak of war in Ukraine. Since then, the share of small and medium companies reporting severe financing issues has increased slightly.

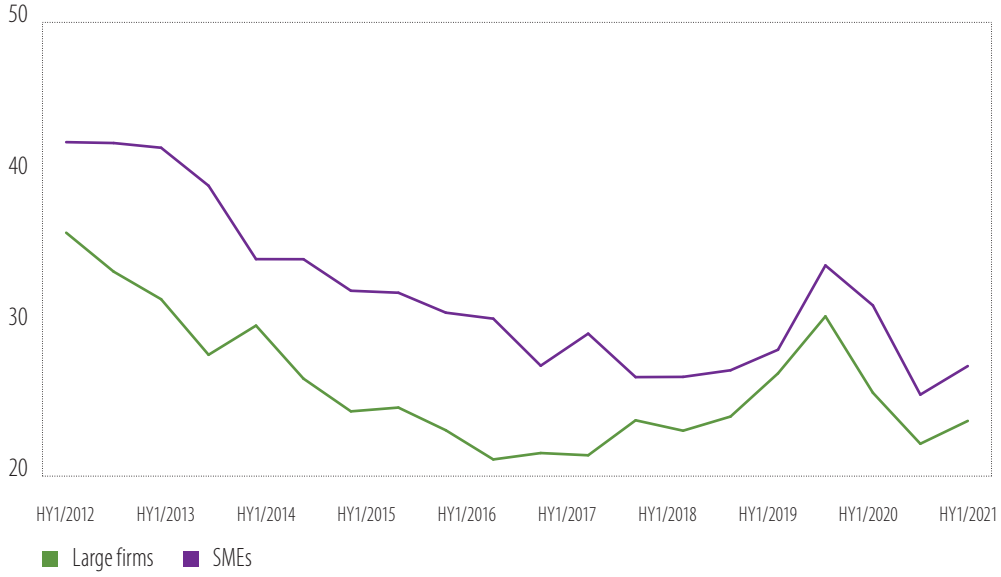
**Access to finance by small and medium companies differs markedly from country to country, as shown by the EIF SME Access to Finance Index (ESAF).** The results for 2021 are presented in Figure 35.[26] Recent changes in the ESAF have been driven to a great extent by changes in lending conditions. One of the loan sub-index indicators was at a record high in 2020, as small and medium companies relied heavily on

25 Small and medium companies make a massive contribution to job creation and economic growth in Europe (Kraemer-Eis et al., 2022b).
26 The ESAF is a composite indicator that summarises the state of SME financing for each of the EU members and covers different aspects of SME access to finance. It is composed of four sub-indices, three of which cover a specific SME financing instrument. The fourth sub-index covers the general macro-environment (Torfs, 2022).

public support programmes to weather the liquidity issues caused by COVID lockdowns. However, many of those support programmes were phased out during 2021, albeit not at different paces in different countries. This led to changes in the access small and medium businesses had to debt finance, and therefore to changes in the loan sub-index country ranking (Kraemer-Eis et al., 2022b).

**Figure 34**

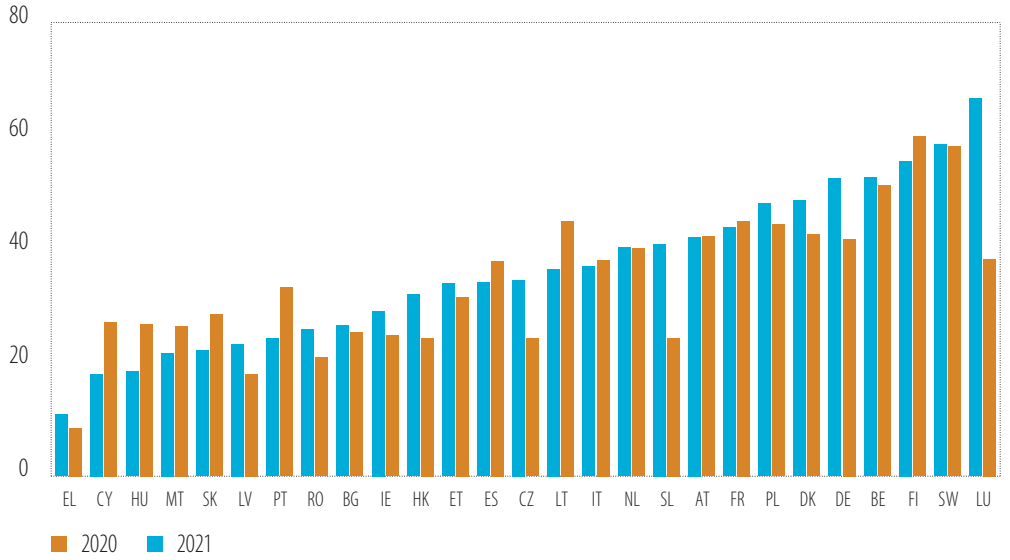
**Corporate investment potentially lost because of financial bottlenecks**
(% of existing corporate investment)




*Source: The European Investment Fund's European Small Business Finance Outlook (ESBFO) (Kraemer-Eis et al., 2022b).*

**Figure 35**

**Small firms' access to finance,** (in %)

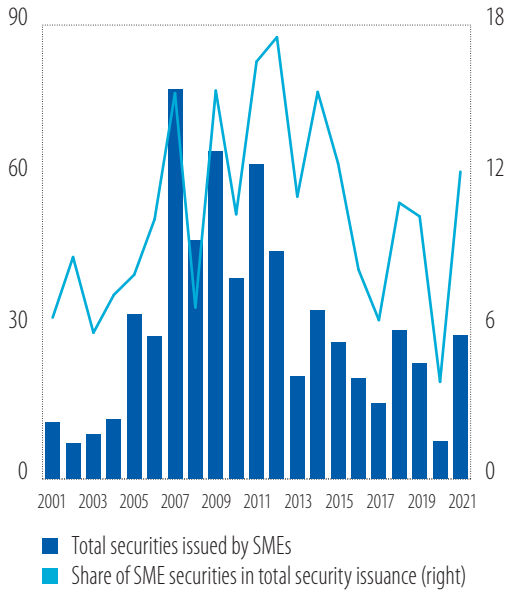



*Source: The EIF SME Access to Finance Index, as published in Torfs (2022).*

**A well-functioning securitisation market can alleviate some of the financial constraints faced by small and medium companies.** Securitisation transforms illiquid SME loans into an asset class with adequate market liquidity. SME securitisation, which includes transactions backed by SME loans, leases and other products, can provide indirect access to capital markets for small and medium companies.[27] European SME securitisation activity remains historically subdued (Figure 36). The downward trend that began in the aftermath of the global financial crisis continued until 2017, and volumes have not yet returned to their pre-crisis levels. While SME securitisation declined sharply during the initial phase of the coronavirus pandemic, it increased significantly (by around 270%) thereafter, to the extent that its share of overall securitisation issuance jumped to 12%. This was mostly due to a very large operation that was fully retained. Only a very small fraction of the issuance has been placed with investors (Kraemer-Eis et al., 2022b).

**Figure 36**

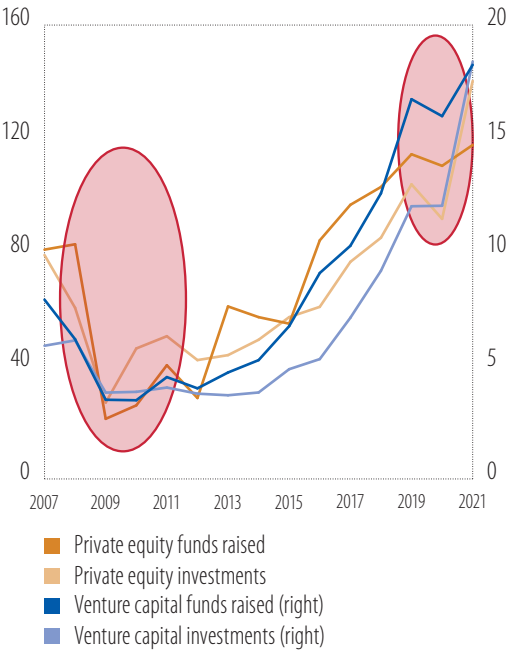
**Issuance of small business securities in Europe** (left axis: EUR billion; right axis: in %)




*Source:* *ESBFO (Kraemer-Eis et al., 2022b), based on the Association for Financial Markets in Europe.*
*Note:* *Last record available is for the first half of 2022. Data is for Europe only.*

**Figure 37**

**Private equity and venture capital activity** (EUR billion)**, 2007-2021**




*Source:* *ESBFO (Kraemer-Eis et al., 2022b) based on data from Invest Europe.*
*Note:* *Data is only for firms located in Europe.*

**Business angels are key financiers for startups and young innovative companies with high growth potential.** The latest EIF Business Angels Survey shows that business angel activity fared relatively well in 2021.[28] At the time the European Investment Fund (EIF) conducted the Business Angels Survey, respondents' perception of the environment for business angel investing was back to pre-COVID levels, with half expecting improvements over the following 12 months. In 2021, the majority of business angels (63%) did not expect the pandemic to cause any insolvencies of their portfolio companies. 39% of business angels considered the average impact of the pandemic on performance to be negative — far

27 When analysing SME securitisation, it is important to look not only at bank lending, but also at leasing companies, which form part of the securitisation market (Kraemer-Eis and Lang, 2012). Given that bank financing has been less available for leasing companies since the crisis, securitisation is likely to become even more important for leasing.

28 Botsari et al. (2022). The survey was conducted between 15 November 2021 and 5 March 2022, and therefore does not take into account the challenging environment resulting from the war in Ukraine and the strong acceleration in inflation.

below the 59% in autumn 2020 — and almost half expected a neutral effect on the final performance of their portfolio. Concerning opportunities in the COVID-19 crisis, respondents reported digitalisation, healthcare and sustainable approaches to be the most promising areas for business angel investments.

**Companies continue to have difficulty scaling up.** The smaller European venture capital industry with its shorter track record (16%) and the underdeveloped initial public offering market (15%) were seen as the key reasons for investment gaps in later stages. Business angels said increased engagement by large institutional investors would be the most effective way to bridge the late-stage financing gap.

**The 2022 EIF Venture Capital Survey and the EIF Private Equity Mid-Market Survey show that venture capital sentiment has deteriorated significantly compared to 2021.** The fundraising environment deteriorated, and the majority of venture capital firms surveyed expected it to weaken further in the coming year. In addition, venture capital firms are having difficulties finding co-investors. This situation is expected to worsen as well.

**The 2022 wave of the EIF Venture Capital Survey indicates that the current crisis is affecting new investments less than the COVID-19 crisis did.** Nevertheless, a quarter of venture capital firms expect investments to decrease over the next year (four times as many as in 2021). Investor competition for investee companies has collapsed, and many expect it to further decline. About half of venture capital firms report that entry prices have decreased more than during the COVID-19 crisis and the majority expect them to further decrease next year. In the same vein, high investee company valuations are no longer a significant issue for venture capital firms, despite being seen as the biggest challenge facing the venture capital business in 2021.

**The venture capital exit environment suffered a shock that was in some ways even worse than during the COVID-19 crisis.** After the recovery in 2021, half of venture capital firms reported a significant deterioration of the exit environment. Even more expect it to further deteriorate over the next year — twice the share recorded during the COVID-19 crisis. The prices venture capital firms receive when selling their investments decreased during the current crisis. While only 6% of companies expected exit prices to decrease in 2021, this percentage has increased tenfold in 2022 (for the coming year). Key challenges in the exit environment include insufficient demand for initial public offerings and difficulties in finding potential buyers.

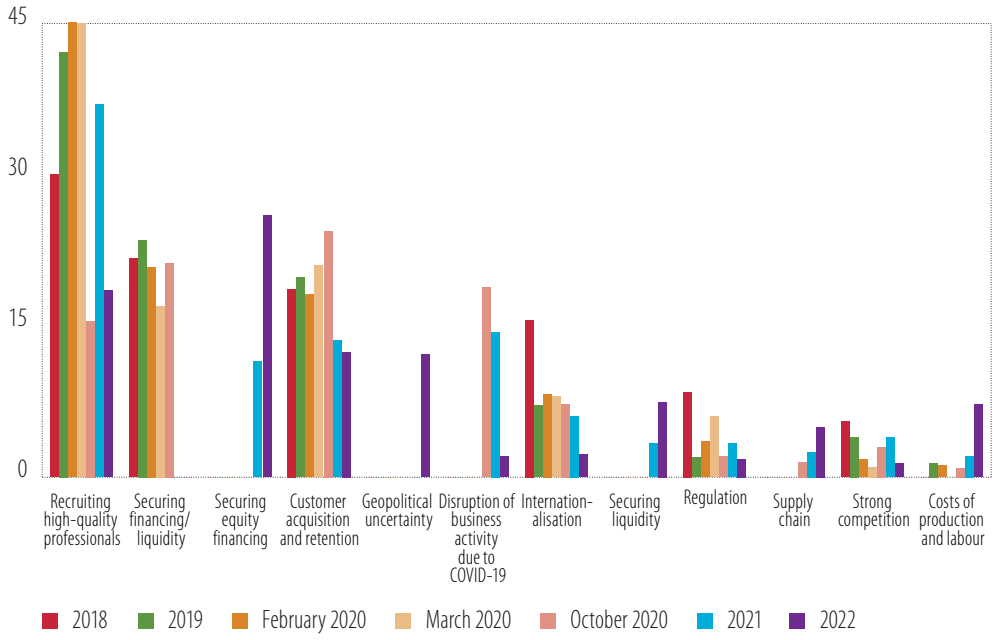
**Securing equity financing and recruiting high quality professionals are the biggest challenges facing companies in venture capital portfolios (Figure 38).** Securing equity financing is threatening the survival of investees at almost one-quarter of venture capital firms. Geopolitical uncertainty and its consequences (including the difficult macroeconomic environment) and the overall weak exit environment are currently the most serious challenges affecting venture capital.

**Venture capital firms changed how they selected investments as a response to the current geopolitical and macroeconomic situation.** Alongside the management team, scalability potential and technology, financial criteria such as valuation and deal terms, cash-generating capacity and profitability became more important. At the same time, the importance of environmental, social and governance considerations increased considerably, too. Venture capital firms also changed their investment strategy to some extent, emphasising an entrepreneur's experience and the sector or industry.

**Venture capital firms also report severe fundraising and operational issues.** Great aversion to risk is weighing on venture capital funds, as are investors leaving the market, rising interest rates and rising levels of inflation. Banks, insurance companies, high-net-worth individuals, pension funds, family offices and corporate investors are less willing to invest in venture capital. In contrast, government funds' interest in venture capital has changed only slightly. Venture capital is also facing operational issues, such as the liquidity needs of portfolio companies, reduced divestment and exit opportunities, more regulation and bureaucracy in fund management, and lower performance of portfolio companies.

**Figure 38**

**Biggest challenges faced by venture capital portfolio companies over time** (% of respondents)




*Source:* *ESBFO (Kraemer-Eis et al., 2022b).*

**Box C**

**Using public sector financial instruments to crowd in investment in small businesses and mid-caps**

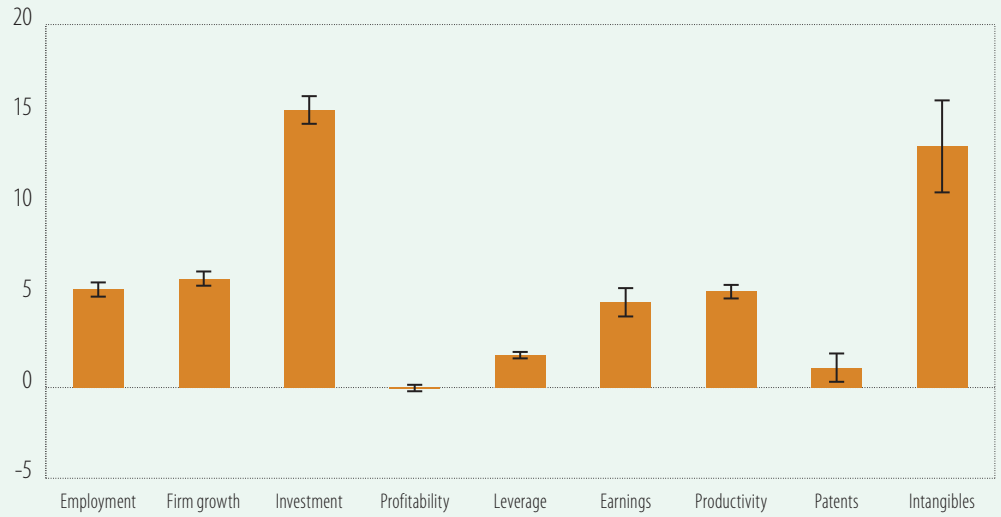
Public policies can help deploy a range of financial instruments to support small and medium business and mid-size firms. Financial instruments fall into three categories — loans, guarantees, and equity or quasi-equity — and are then further sorted into instruments that require a financial intermediary. EIB Group activity consists of a mix of loan, guarantee and equity or quasi-equity products being employed in pursuit of several policy goals, including supporting small and medium companies. This approach ensures that products are developed for enterprises of different sizes, with different business models and at different stages of their life cycle, while also providing the flexibility to react to changing economic and financial circumstances and policy imperatives.

The EIB Group supports access to finance for small and medium companies, using commercial banks as intermediaries. The EIB's multibeneficiary intermediated loans require financial intermediaries to pass on some of the advantageous funding terms they receive to borrowers, contributing to better economic performance of small and medium firms. In addition, EIB intermediated loans alleviate the credit constraints these companies face. A number of microeconomic impact assessment studies confirm this (Amamou et al., 2022; Barbera et al., 2022; EIB, 2023). Firms receiving EIB lending increased their employment by an average of 5% relative to comparable peers without EIB financing (Figure C.1). The studies also showed a substantial, positive impact on recipient firms' investment, reaching 15%, indicating that the beneficiaries typically used the loans disbursed for investment purposes. Furthermore, the findings showed that the impact on firm growth tended to be greater for firms that faced financing constraints prior to receiving the loan.

Credit guarantees are another important policy tool that supports credit for small and medium companies, particularly during economic downturns. The EIF, the risk-financing arm of the EIB Group, implements and manages credit guarantee programmes on behalf of the European Union. EIF-guaranteed loans have been shown to have several positive effects (Asdrubali and Signore, 2015; Bertoni et al., 2019; Brault and Signore, 2019), such as increasing beneficiary firms' assets by 7% to 35% and employment by 8% to 30%. Moreover, EIF guarantees caused a decrease in bankruptcy rates by about a third, and by as much as half in some countries. Unsurprisingly, the positive impact of credit guarantees appears to be stronger for younger and smaller firms, which typically experience more severe credit rationing in times of economic stress.

**Figure C.1**

**Estimated impact of EIB intermediated loans** (% change)




*Source: EIB staff estimates based on EIB data linked to firms' financial results from the Orbis database.*
*Notes: The bars represent the estimated effect of EIB loans on beneficiaries compared to the firms in the control group in the three years after the loan. The bands show the 95% confidence intervals of the estimates.*

Support for venture capital funds plays an important role in fostering the growth of innovative small businesses in the European Union. Today, the EIF is the largest public investor in European venture capital funds. To examine the impact of EIF-supported venture capital investments on the financial growth and performance of young and innovative firms, researchers have compared venture capital-backed firms with a comparable group of firms with no such backing (Pavlova and Signore, 2019, 2021). The results confirm that EIF-supported venture capital investments have had a positive impact on the growth of startup firms. After five years, supported firms had higher capitalisation, higher revenues and faster job creation. Over the same time, startups backed by EIF venture capital had a 10.3 percentage point higher chance of being acquired and a 1.7 percentage point higher rate of going public than similar firms not backed by venture capital.

To further narrow the scale-up financing gap in Europe, the EIB has recently also created a venture debt product for innovative European small and medium companies in need of more flexible debt products. Lack of sufficient collateral and asymmetric information are among the two biggest market failures preventing young and innovative small and medium companies from accessing traditional bank lending finance. Venture debt is a quasi-equity financing instrument that addresses the funding needs of fast-growing, innovative companies by providing them with greater flexibility and a less constraining repayment structure than more traditional senior debt. The instrument targets firms that have already raised venture capital (mainly later stage series B or C funding) and that want to avoid the ownership dilution associated with additional equity injections.

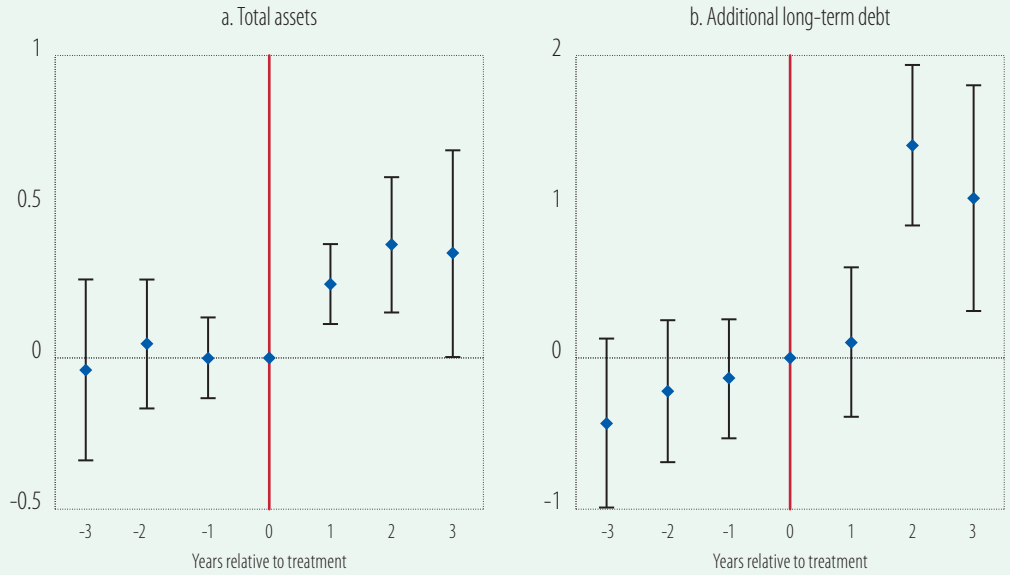
The EIB venture debt programme has been implemented as part of the European Fund for Strategic Investments (EFSI), a partnership between the European Commission and the EIB that offers alternative financing for European small and medium businesses. Rolled out in 2015, the programme saw constant growth over the ensuing years, with the EIB venture debt portfolio reaching a total of EUR 2.65 billion in loans by June 2021. Concerning sector coverage, the EIB venture debt portfolio has a strong focus on investments that benefit society, including health — for example COVID-19 vaccine development — e-mobility and sustainability.

A recent empirical study, one of the first to estimate the effectiveness of venture debt on firms' growth and performance, shows that the EIB's venture debt positively affects beneficiaries (EIB, 2022c).[29] The results in Figure C.2 show a strong and positive impact from EIB venture debt on firm growth. Panel (a) shows that EIB venture debt beneficiaries report one-third more total assets on average compared to firms that did not receive any venture debt. Panel (b) shows that the increase in total assets is partially driven by additional debt funding. Taken together, these results suggest that EIB venture debt beneficiaries experience higher growth due to the crowding-in of additional debt. In addition, EIB venture debt recipients report an average reduction in the cost of debt, defined as the ratio of interest paid over long-term debt, of 14% upon receiving venture debt (a price effect), although this result was not statistically significant.

The analysis also shows positive and significant results for the firms' value added, while results on turnover, employment and innovation are positive but not statistically significant. This likely reflects the small sample size and the recent nature of the programme. Since venture debt is a recent product with data for a limited number of years after signature, the study only considers short-term results (one to three years). Nevertheless, the current study indicates the strong initial value of the EIB's venture debt programme for recipient firms.

**Figure C.2**

**Estimated impact of subscribing to venture debt**




*Source:* *EIB estimates based on EIB allocation data linked to corporates' financials in ORBIS.*
*Notes:* *Dots represent the estimated effect for EIB beneficiaries compared to the ones in the control group, at each point in time. The effects are normalised to zero in the year prior to loan signature (t=-1) and can thus be interpreted as relative to the year immediately before signing the contract. The bands around the dots show the 90% confidence intervals of the estimates.*

29 The report compares 133 EIB beneficiaries to a control group made of firms that are similar to those that received venture capital, but did not get any venture debt (although these firms may still receive other forms of finance).

## Stronger cross-border financial integration would bring benefits to the European Union

**Financial integration requires long-term stability, which is hampered by recent political upheaval.** During the soverign debt crisis, financial integration receded drastically. EIBIS 2022 shows that the war in Ukraine has increased precisely this kind of uncertainty. Cross-border financing may tighten as a result, especially in countries close to the conflict. The analysis above shows how that tightening would be determinental to the European financial system.

**Integrated capital markets facilitate private risk sharing and therefore affect economic stability and resilience.** Holding a more geographically diversified portfolio of financial assets provides asset returns that are not only less volatile but also less correlated with domestic income. When a country is hit by an economic shock, cross-border flows enable households and investors to lend or borrow to offset the shock's impact. Improving funding diversification therefore enhances cross-border risk taking and enables capital markets to play a greater role in reducing the domestic impact of a shock.

**For economies to be resilient and able to absorb shocks, they require well-functioning risk-sharing arrangements.** This is particularly important for countries in a monetary union where specific individual monetary policies cannot be deployed to dampen the shock. In the recent past, European countries have faced large common shocks triggered by the global financial crisis, the sovereign debt crisis and the COVID-19 crisis. Yet the impact of those shocks has varied substantially from country to country, suggesting limited risk sharing. Giovanni et al. (2022) look at public and private risk sharing in the euro area to analyse whether they complement each other or rather can substitute each other. Overall, the authors conclude that public risk sharing and the overall degree of risk sharing among countries are still comparatively low.

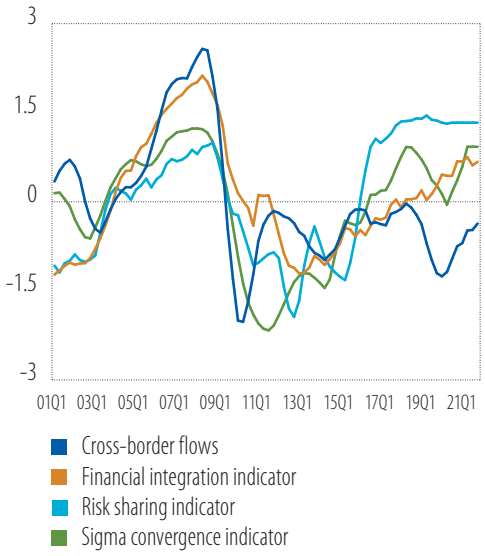
**In Europe, cross-border financial integration rebounded following the global financial crisis and sovereign debt crisis and remained resilient during the COVID-19 crisis.** Figure 39 shows two measures of financial integration (gross cross-border financial flows and financial integration indicators) together with two indications of the change accompanying integration: sigma convergence and risk sharing.[30] As explained above, greater integration increases risk sharing, and it reduces the correlation between domestic output and consumption. Decreasing sigma convergence indicates a reduction in the dispersion of GDP per capita. To make them comparable, the indicators are all de-meaned and standardised.

**The estimated financial integration indicator evolves in a similar way to gross financial flows, while being less volatile.** First, a rise in integration is associated with a rise in the intensity of cross-border financial flows. Second, the indicator correlates rather well with the other indicators. It is associated with an increase in risk sharing and in sigma convergence. Third, the indicator is less volatile than cross-border financial flows: The highs and lows were not as extreme. Interestingly, the sharp decline in flows at the beginning of the crisis was not shared by the other indicators, which continued to move upwards.

**The indicator shows that financial integration in the European Union at the end of the period is still only around the levels of the mid-2000s.** While the four indicators move together, actual cross-border financial flows tend to be more volatile. So far at least, the recovery in financial integration to levels before the COVID-19 crisis has persisted despite the removal of the unprecedented fiscal, monetary and prudential policy support deployed during the crisis. Borgioli et al. (2020) also find that the slump in financial integration after the COVID-19 crisis has been less marked and much shorter than after the global financial crisis or sovereign debt crisis. The substantial variability in the indicator is at odds with the view that financial integration is steadily improving in Europe.

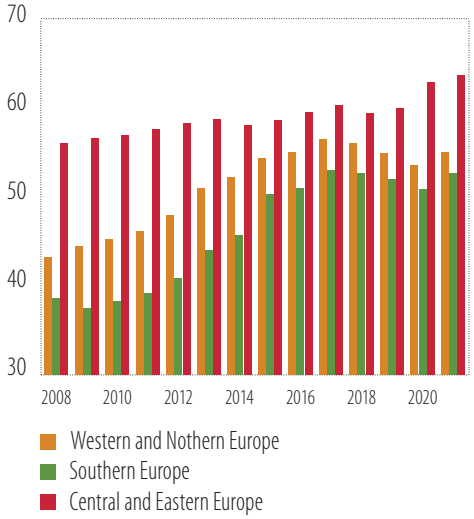
30 As the geographical breakdown of balance of payments is not published for most EU economies, gross flows relate to flows inside and outside the European Union. See Lake et al. (2022) for the construction of the financial integration indicators. The financial integration indicator is built using a Bayesian Factor Vector Autoregressive model (BFAVAR) and auxiliary dataset comprising around 100 series. The risk sharing indicator is obtained by estimating the correlation between GDP growth and aggregate consumption growth for a panel of 12 euro area countries excluding Ireland. The time series is constructed by concatenating panel fixed-effect regression coefficients in a 12-quarter rolling window. Sigma convergence is computed as the coefficient of variation of GDP per capita (the ratio between its weighted standard deviation and its weighted average). A lower value indicates a convergence of GDP per capita across countries. To make series comparable on Figure 38, the indicator is reported in reverse order. An increasing value indicates a reduction in disparities.

**Figure 39**
**Financial integration indicators** (de-meaned and standardised)




*Source:* *EIB staff calculations based on Lake et al. (2022), IMF and Eurostat.*
*Note:* *Gross capital flows equal the sum of inflows and outflows of direct, portfolio and other investments. Last record is the fourth quarter of 2021. The indicators have been de-meaned and standardised.*

**Figure 40**
**Share of equity in foreign positions** (% of external assets and liabilities, average over two years)




*Source:* *EIB staff calculations based on IMF data.*
*Note:* *Average share of foreign direct investment and portfolio equity in international holdings. Data is only available until the fourth quarter of 2021.*

**Structural and cyclical factors explain movements in cross-border capital flows and in financial indicators.** Estimated financial integration increases during upturns and recedes in downturns, and therefore contains a very strong cyclical component. True financial integration must be dissociated from boom-bust cycles (EIB, 2020; Lake et al., 2022). Sign restrictions are implemented in the BFAVAR model to disentangle the boom-bust component from the slow-moving process of true integration. The results show that financial integration was previously overestimated, as a substantial share of the hike was cyclical. Conversely, the drop during the global financial crisis and sovereign debt crisis was overestimated.

**The quality of integration has improved in lockstep with the increase in equity's share of financial flows.** Cross-border flows consist of foreign direct investment, equity and debt instruments in international portfolios, as well as other investment (encompassing mostly bank flows). Moreover, recent dynamics suggest that the quality of integration is improving much faster than the rebound in cross-border flows. Although all types of flows have been affected by the slowdown, some (foreign direct investment and portfolio equity) have proved more resilient than others (portfolio debt and other investment). This has resulted in a marked change in the composition of financial flows (EIB, 2018). Over time, the share of cross-border flows in foreign direct investment and portfolio equity flows has increased in the European Union as a whole and across the three regions (Figure 40).

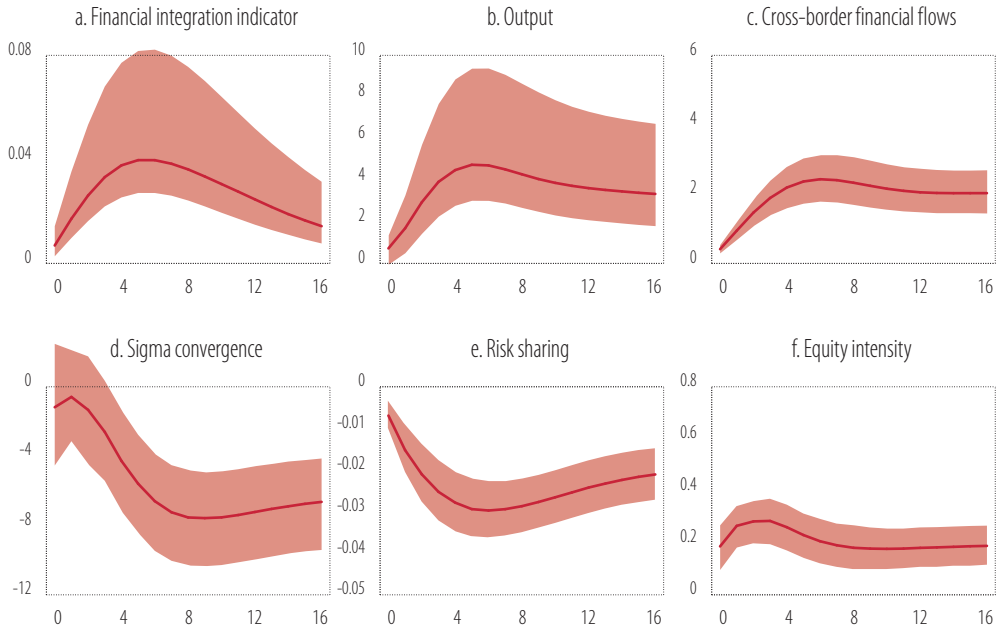
**Financial integration raises output and fastens convergence within the European Union.**[31] In Figure 41, the financial integration indicator grows more smoothly and peaks at 0.04 after around a year and a half,

31 A structural shock affecting financial integration over the long term and a true integration shock distinguished from a boom-bust shock underpinning the cyclical component are identified here. The financial integration shock is identified by remaining agnostic on the effect of all the variables in the short run, but by imposing sign restrictions in the long run. The shock positively affects the financial integration indicator, cross-border financial flows and equity intensity. Conversely, the last variable is expected to increase in response to a boom-bust shock. Indeed, the equity intensity indicator captures the idea of solid and structural integration. It is reasonable to think of this process as something that reduces financial fragmentation, not by purchasing cross-border debt, but especially by increasing cross-border equity holdings. This shock should also decrease disparities among EU countries and the extent to which they absorb the risk of their common financial market in the long run. Thus, given how the two indicators are built, the shock's impact is negative on both indicators. Lastly, an agnostic approach is applied to the effect of this shock on output, in both the short and the long run.

accounting for around a 13% increase from the last observed value of the series. The response is always positive and significant, and it approaches a steady state only at the end of the horizon period, exhibiting a longer-lasting shock effect. Output behaves in a very similar fashion, peaking at 0.4 percentage points after around five quarters, yet showing much greater persistence. Cross-border financial flows also increase more persistently, with their ratio to GDP peaking at around 2 percentage points around six quarters after the shock. In addition, unlike the previous shock, true integration produces significant responses to the sigma convergence and the risk sharing indicator. The sigma convergence is negative and significant over the long term, indicating a reduction in income disparities, and the risk sharing indicator is also negative and significant for the whole response horizon, showing evidence of risks being better absorbed by cross-border flows. Lastly, equity's share of those flows grows significantly, suggesting strengthened financial integration via increased cross-border equity holdings.

**Figure 41**

**Financial integration benefits** (response to an integration shock, percentage point deviation from baseline)




*Source:* *EIB staff calculations based on Lake et al. (2022).*
*Note:* *The solid red line is the posterior median response whereas the red shaded area corresponds to the 20% and 80% posterior percentiles.*

**Along with the regulatory overhaul and the new institutions created after the global financial crisis and sovereign debt crisis, Europe's financial system was moving decidedly toward integration.** Financial integration has increased to a moderate degree since the beginning of the 2000s. Besides enlargement, very little changed in the European Union regarding regulation and access to markets between the beginning of the 2000s and the global financial crisis. Financial integration continued to rise in the early 2000s (mostly following the introduction of the euro), but was not triggered by major changes.

**The creation of the EU banking union in 2012, which responded to the sovereign debt crisis, still appears to be the force behind true integration (Coeure, 2013).** This call for banking policy integration resulted in the establishment of the Single Supervisory Mechanism and the Single Resolution Mechanism in 2014. The Single Supervisory Mechanism enhances financial stability and integration by implementing common supervisory rules across all EU countries, and the Single Resolution Mechanism, including the Single Resolution Fund, resolves financial transactions for entities under the supervision of the ECB. Also, on the legislative side, the implementation of the Single Rulebook governing EU laws on the financial

sector contributed to integration. The implementation of the Capital Requirements Directive IV (CRD IV) was a critical step, as it implements Basel III. Together with more recent micro and macro policies, CRD IV protects EU financial institutions from systemic risk and financial contagion.

**The regulatory overhaul and strengthening of the EU framework conducted since the global financial crisis further pushed European financial integration and helped financial systems withstand the coronavirus pandemic.** However, while the banking sector is more resilient, the banking union, a process that is still unfolding, has not fostered much integration or generated gains in cross-border consolidation and portfolio diversification. Some components of the banking union (such as the European Deposit Insurance Scheme) have yet to be agreed. Moreover, progress on the banking union has been dwarfed by other events such as Brexit.

**To further integrate the European financial system, policies must be implemented on several fronts.** Guindos (2022) summarises the three directions that policymakers should prioritise. First, insolvency rules and withholding tax regimes need to be harmonised. Second, equity and risk capital markets must be supported by reducing European bias for debt-equity and to harmonise the venture capital frameworks of different EU members. Third, a reliable and transparent regulatory framework — such as sustainability disclosures and reliable standards — is needed to ensure faster progress on sustainable finance in the European Union.

## Conclusion and policy implications

**With the right policies, challenging environments can be transformed into opportunities for change. Empirical analysis shows that the policies and programmes deployed during the COVID-19 crisis have helped increase firms' resilience.** Those policies and programmes enabled firms to transform and adapt to the new environment by accelerating digitalisation. Lessons learned during the pandemic could be useful tools for calibrating new policies to address the energy crisis and green transition. The energy crisis and the green transition are emerging as short- and long-term challenges for firms, and targeted support is needed to compensate vulnerable companies in the short term. Credible commitments to the net-zero transition could also serve as a signal to markets and could guide investors, particularly in such uncertain times.

**The challenging environment raises the risk of entrepreneurs and investors developing an overly negative outlook.** To avoid another decade of sluggish corporate investment, as was seen after the global financial crisis, progress must be made on structural changes to the European financial system. Policies need to focus on the huge challenges of cohesion, digitalisation and the greening of the European economy.

**Access to finance might constrain firm development and growth, even when liquidity is abundant.** Initial fears of massive bankruptcies during the COVID-19 crisis did not come to fruition, but the war in Ukraine is another shock adding to existing vulnerability. The relatively favourable developments seen so far rely heavily on the massive policy support still partly in place. This support is not tilted towards firms that were already weak before the COVID-19 crisis, but rather to those hardest hit. With monetary policy tightening and costs rising because of the war, how long will the mounting vulnerability take to materialise? Access to finance could (once again) become an issue, especially in Central and Eastern Europe. Firm profits — and therefore cash and solvency positions — will be affected just as banks potentially start to tighten credit.

**Targeted financial support for firms has proven to be effective.** Analysis of the policies deployed during the COVID-19 crisis broadly confirms that, in net terms, the policy support was highly beneficial to the economic system. In normal times, barring economy-wide shocks to demand, specific types of firms find it difficult to finance their investment plans, even when liquidity is abundant. For these firms, analysis shows that well-targeted financial instruments can help address liquidity issues. New emphasis on venture debt and support for venture capital funds are promising developments.

**Faster and more wide-ranging European financial integration is a must.** As explained throughout the chapter, many signals indicate that the level of productive investment is below optimum. In normal times, Europe is a net saver. It is therefore important to improve the circulation of private savings across the European Union, so that money can be allocated to projects across countries. Because savings accumulated are not necessarily matched to investment opportunities at the country level, facilitating financial flows is key. For this to happen, work on the Capital Markets Union 2.0 should be a top priority.

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