2023

INVESTMENT REPORT
2023/2024

Transforming for competitiveness

2024

Chapter 3
Corporate investment

EUROPEAN INVESTMENT BANK INVESTMENT REPORT
2023/2024

Transforming for competitiveness

Part I Sustaining investment in challenging times

Chapter 3
Corporate investment

Investment Report 2023/2024: Transforming for competitiveness.
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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 Europe's transition to an innovative and green future. 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 Economics Department, Debora Revoltella, heads a team of 40 economists.

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Chapter 3

Corporate investment

European firms have just come through an unprecedented array of crises in a relatively short time. First they were hit with COVID-19 pandemic, then tensions with global supply chains, the energy crisis, Russia's invasion of Ukraine, and then war between Israel and Hamas. These crises caused surges in uncertainty and shaped a challenging environment. However, the real economy fared better than expected up to mid-2023, with firms' health and investment surprisingly resilient. Much of that resilience reflects the massive policy support deployed during the COVID-19 and energy crises, and it prepares the ground for a soft landing as the economy slows.

Firms' resilience and investment spending remained surprisingly strong during the energy crisis, but the energy shock is not yet fully absorbed. Energy bills rose more than one-quarter for 68% of EU companies – well more than in the United States (30% of firms). But this rise was still lower than expected, and a strong government response was able to prevent the worst-case scenario of blackouts and economic shutdown. The crisis also pushed firms to find ways to save energy and to invest in energy efficiency. However, international energy prices are well above pre-crisis levels, and higher prices caused by higher production costs are increasingly being passed on to clients as policy support is phased out. Uncertainty about the new, long-term level of energy prices prevails, which may affect certain parts of the EU economy.

During a period of high inflation, firms increasingly tapped their own internal means for any financing needs. The reopening of economies after the pandemic caused supply bottlenecks and the subsequent skyrocketing prices for raw materials and energy has triggered inflationary pressures not seen for a long time. Firms are confused about the nature and persistence of high prices. Some firms raised selling prices by more than input prices, increasing corporate profits and further fuelling inflationary pressures. At the same time, the profits firms made helped finance their capital expenditure.

The resilience of investment to sharp monetary policy tightening and the weak economic environment will be tested. An abrupt tightening of monetary policy and rising interest rates continued for most of 2023. Combined with tightening credit standards, the increase in interest rates has begun to negatively affect firms' financial conditions. In certain instances, firms were able to pay for investment with profits they had built up, substituting external finance. But cracks are showing, like the rise in corporate bankruptcy rates and the slowdown in investment.

The response of investment to these challenges is uncertain, in the present and the longer term. As capital spending is more geared towards the structural transformation of the economy, it may show some resilience to cyclical downturns. However, investment is threatened by looming uncertainty and structural bottlenecks. Government policies to support the economy will inevitably become more targeted as pressure on public spending increases. Those policies need to be directed to areas where the impact is stronger and catalyses investment, and they need to be complemented by measures to alleviate structural barriers and bottlenecks.

Introduction

This chapter focuses on corporate investment and resilience in the wake of the unprecedented array of crises that have hit the EU economy over the last few years: first the COVID-19 pandemic, then tensions in global supply chains, the energy crisis, Russia's invasion of Ukraine and, more recently, the war between Israel and Hamas. Government policies put in place to address some of these crises have successfully supported firms, and the result is that firms' investment reacted less than expected to the slowdown in economic activity. It continued to progress throughout 2022 and the first half of 2023. As of late 2023, EU corporate investment was above where it was before the pandemic struck, but well below the pre-crisis trend.

During the energy crisis, differences emerged between countries – even larger ones – and the increase in prices was clearly more pronounced in Central and Eastern Europe than in other regions. Looking ahead, countries will once again have to adhere to EU budget rules when the general escape clause of the Stability and Growth Pact is deactivated. The reinstating of fiscal and competition rules will likely call for much more targeted government intervention. On the one hand, investment needs are much clearer and substantial. There is a need to invest for the green transition, innovation or digitalisation, and to limit Europe's exposure to global supply chain disruptions.

On the other hand, firms' ability to continue investing is unknown, as their internal funding capacities are shrinking and their access to external finance is tightening. This chapter devotes special attention to whether firms will continue transforming in these challenging times, and how government intervention can best support this transformation when pressure on government finances is mounting.

The chapter consists of three sections and three boxes. The first section gives an overview of the ability of firms to invest and their vulnerabilities following the recent crises. It includes a box on electricity prices and their impact on competitiveness. The second section elaborates on the strength of firms' internal financing and discusses how it can soften the impact of worsening financial conditions for investment. It also includes a box on the impact of inflation on their investment. The third section discusses the need to remove structural impediments to unlock investment, while assessing the effectiveness of financial instruments and grants in supporting innovation and the green transition. It also looks at small and medium enterprises (SMEs) and the lack of financing for firms trying to scale up. It includes a box presenting the results of the European Investment Fund (EIF) Venture Capital Survey.

Legacies of the crises

The slew of crises of the past four years has shaped a novel environment of massive public support, inflationary pressure and sharp monetary policy tightening. This section reviews the latest developments in firm vulnerabilities and investment as European businesses navigate this challenging environment.

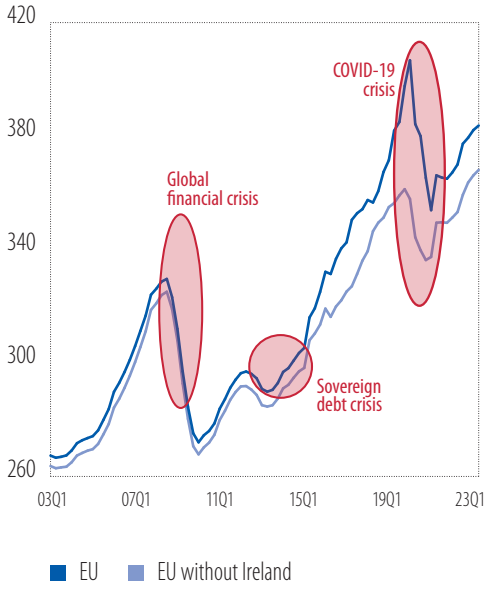
The worst-case scenario predicted last year during the energy crisis did not materialise, but the crisis did weaken firms. The slowdown in economic activity since the beginning of 2022 has also intensified, and fragilities have developed unevenly across sectors and countries. The corporate investment outlook remains cloudy in the short run and uncertain in the long run, with sources of energy shifting and new energy costs emerging.

The rise in energy prices has hit firms, albeit less than expected

Corporate investment continued growing in the first half of 2023. Firms' investment collapsed in 2020, then recovered from the COVID-19 crisis and returned to pre-crisis levels in the second half of 2022. Investment increased during the energy crisis (in contrast to the COVID-19 crisis), as the economy continued to grow during most of it (Figure 1). If anything, EU investment has remained surprisingly

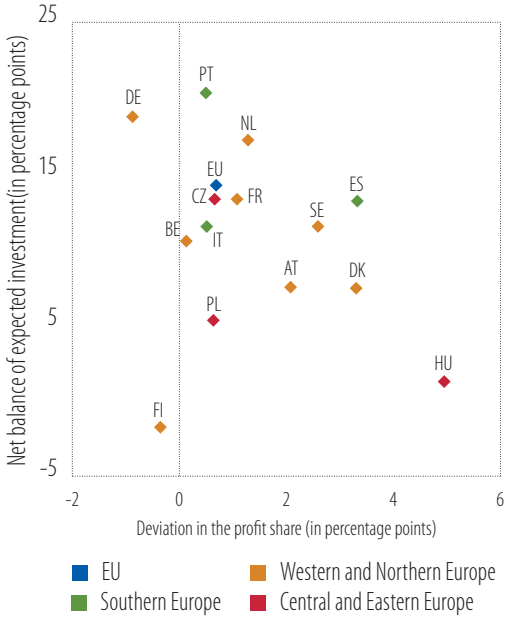
strong since the energy crisis began in mid-2021 (Kramer et al., 2023; Moll et al., 2023). In real terms, it is around 2% above levels right before the pandemic (from 2019) as of the second quarter of 2023.[1] As EU real gross domestic product (GDP) is 3% above the 2019 level, the share of corporate investment is only slightly below pre-crisis levels (at which time it was above the historical average).

Figure 1
Corporate investment (in real terms, 2005 EUR billion)



Source: *EIB staff calculations based on Eurostat data.*
Note: *Four-quarter moving average. The last data available are for the second quarter of 2023.*

Figure 2
Investment plans and deviation in the profit share



Source: *EIB staff calculations based on Eurostat and the EIBIS 2023.*
Note: *The deviation in the profit share of firms is measured as the difference in gross entrepreneurial income over value added between the second quarter of 2023 and the historical average over 2005-2019.*
Question: *Y-axis: For the current financial year, do you expect your total investment spend to be more than last year?*

This overall performance masks substantial disparities between and within regions. In Northern and Western Europe, corporate investment is now more than 5% above pre-crisis levels in Finland, France, Denmark and Sweden, but still below them in Belgium and Germany. In Southern Europe it is well above: 17% in Italy, and 5% in Portugal. In Central and Eastern Europe fewer countries report timely corporate investment data, but real corporate investment is 2% above pre-crisis levels in Poland, and on a par in Hungary.

There is evidence of investment trends normalising across countries. In Figure 2 we associate the deviation in a firm's profits compared to the historical average and the share of firms across EU countries expecting to accelerate investment, according to the EIB Investment Survey (EIBIS) for 2023. In the second quarter of 2023, the share of profit in EU GDP was 1 percentage point above the historical average. The share of profit in GDP is above the historical average in most EU countries, with the exception of Germany and Finland. Firms in most countries expect to accelerate investment, but there are large disparities. The

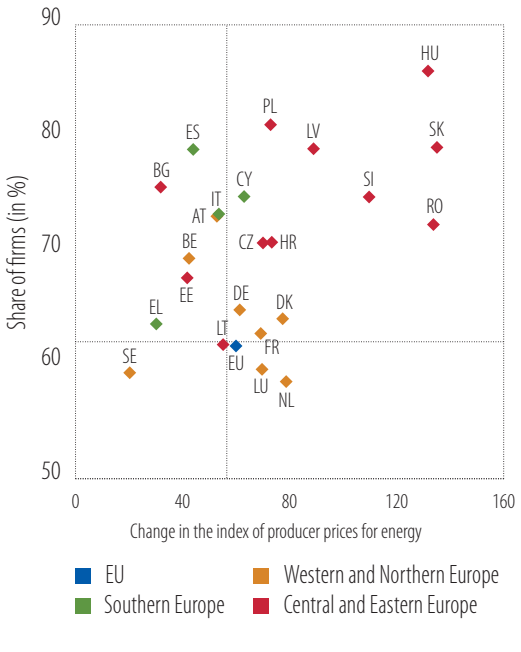
1 Investment in Ireland is influenced by specific factors that pushed up investment before COVID-19, so removing it from the European aggregates enables more accurate analysis. See Investment Report (2022), Chapter 2.

lower the profits share compared to historical average, the higher the net balance of firms expecting to raise investment across countries as the economy strengthens. Countries in Central and Eastern Europe tend to have more conservative investment plans. By contrast, investment in Southern European countries is set to accelerate.

The energy price rise was more pronounced in Europe than in the United States, with 62% of EU firms experiencing more than a 25% increase in their energy bill. Figure 3 plots the rises in energy prices as measured with hard data together with the results of the EIBIS. The signals received from the two sources are well correlated. Across countries, the stronger the increase in energy prices, the higher the share of firms reporting an increase above 25%. In Europe, in the second quarter of 2023, the energy price for firms was 60% above its 2021 level (before the energy crisis began), and 62% of EU firms were facing an increase of more than one-quarter of their energy bill – well above the 25% of US firms. Among firms recording any increase at all, the difference between the European Union and the United States is smaller: 93% of EU firms compared with 83% of US firms. Thus, larger increases were much more frequent in Europe than in the United States.

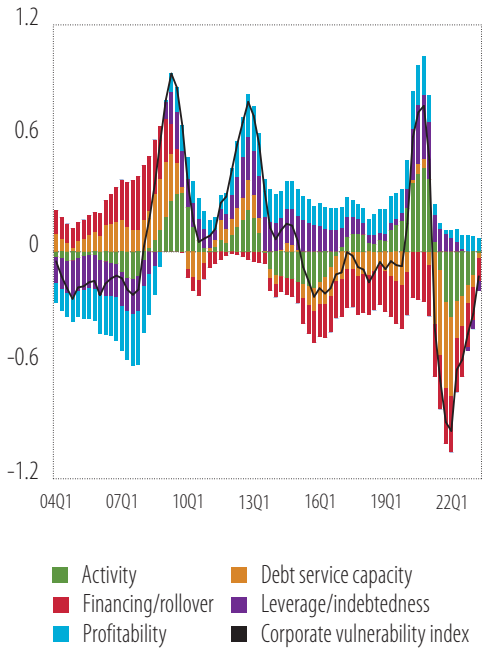
International energy prices have affected local prices differently from one country to the next. Changes in domestic energy prices paid by firms vary dramatically between EU economies, despite the common underlying changes in the international prices of energy from coal, gas and oil. The increase was clearly more pronounced in Central and Eastern Europe than in other regions. Figure 3 shows that energy price increases range from a low of 20% in Sweden to highs of above 130% in Hungary, Slovakia and Romania. This variety is partly explained by differences in the energy mix, but also by other factors like price settlement contracts, taxes, regulation, transportation costs and local margins. Finally, the intensity and the form of the policy support deployed during the energy crisis also made a difference.

Figure 3
Recent evolution in corporate energy costs



Source: *EIB calculations based on the EIBIS 2023 and Eurostat.*
Note: *The change in the producer price of energy is computed between the second quarter of 2023 and 2021. Y-axis is the share of firms reporting a more than 25% increase in the energy bill.*

Figure 4
Corporate vulnerability index



Sources: *EIB staff calculations based on Eurostat, see Alvares et al. (2024).*
Note: *Last data available are for the second quarter of 2023. The corporate vulnerability index is obtained as a weighted average of more than 20 data series related to EU firms' performance and balance sheet structure.*

Energy costs may continue rising in some countries. As shown in Figure 3, the propagation of changes in international energy prices to domestic prices has been uneven across economies. The impact of international prices on domestic prices was dampened and delayed by government support (International Monetary Fund (IMF), 2023). International energy prices have receded from their peaks, but they are still above pre-crisis levels. Comparing the level in the third quarter of 2023 to that in 2019, international prices of gas are 78% higher, of coal 63% and of oil 37% (see Box A for a focus on electricity prices). Thus, energy costs may well continue to increase in some countries, albeit at a much slower pace, as policy support is removed (Alessandri & Gazzani, 2023).

Fragilities have risen unevenly, weighing on the investment outlook

Corporate vulnerability has increased since the energy crisis began. Figure 4 plots the vulnerability indicator, a synthetic aggregator based on 24 data series related to corporate profits and losses and balance sheet structures reported at the country level for businesses (see EIB, 2022, for more details). As shown in the figure, the series assemble components related to activity, profitability, financing and the rollover of debt, the ability to service debts and overall indebtedness. During the COVID-19 crisis, the indicator rose to a level not seen since the sovereign debt crisis, as firms could not operate properly during economic shutdowns. However, the policy support deployed during the crisis enabled firms to tap loans and accumulate cash, fuelling the strong recovery in demand. Underpinned by the strong post-COVID-19 recovery, corporate vulnerability receded sharply. But at the beginning of the energy crisis the direction changed, and the indicator started rising again in late 2021. As of the second half of 2023, it is somewhat above the average since 2003.

The vulnerability indicator has evolved differently among countries. Figure 5 plots the level of and change in the vulnerability indicator from the end of 2021 (the start of the energy crisis) to the second quarter of 2023. Over this period, corporate vulnerability increased in most countries, especially those in Central and Eastern Europe. A stronger rise in vulnerability is recorded in countries where firms were already weaker at the start of the energy crisis.

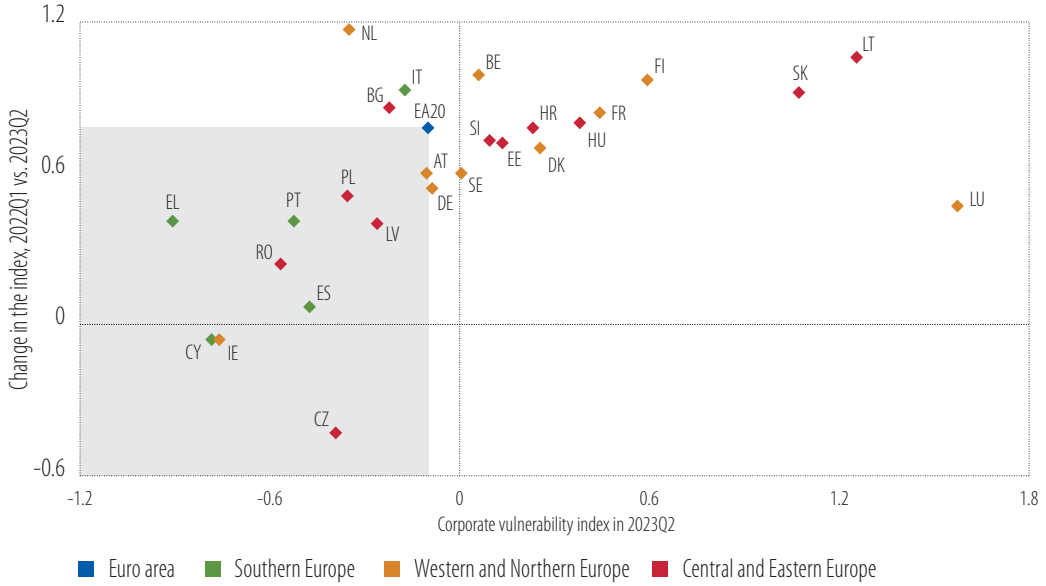
Insolvency and default risks are below expectations, but still above pre-crisis levels. Granular balance sheet data are released with a delay, and at the time of writing were available until 2021. Figure 6 plots the discrepancies among real data and previous expectations. During the beginning of the COVID-19 crisis in 2020, firms' profitability mainly declined due to the sharp drop in sales, just as expected – however, policy support helped stabilise the situation. Alongside strong subsidies for wages and deferred taxes, the moratorium on loan repayment implemented in all EU countries kept interest payments at sustainable levels (significantly lowering default risks based on the interest coverage ratio). Moreover, growth in firms' sales also exceeded expectations during the 2021 recovery, likely driven by stronger demand and higher prices (firms were able to pass on higher production costs caused by supply shortages).

The surge in energy prices affected firms' profitability, through higher costs and lower sales. As a next step, we simulate the changes in insolvency and default risks[2] for 2022 and 2023.[3] We rely on sector-level sales statistics from 2022 to mid-2023 to simulate firms' profits, thereby accounting for the net impact of higher prices on total sales. The change in sales balances out the direct impact of passing through costs to customers (the increase in the nominal value of sales through higher final prices) and its indirect impact through sales elasticity (lower demand and drop in sales because of higher prices). Despite being able to pass on higher costs to customers, the sharp rise in energy prices in the first year and sales drop in the second year weigh on firms' profitability, which is expected to decline. That will increase the risk of insolvency and default.

2 Insolvency risk is measured as the share of firms falling into negative equity when losses surpass the equity base. Default risk is measured as the share of firms for which profits and available cash do not suffice to cover financial expenses.

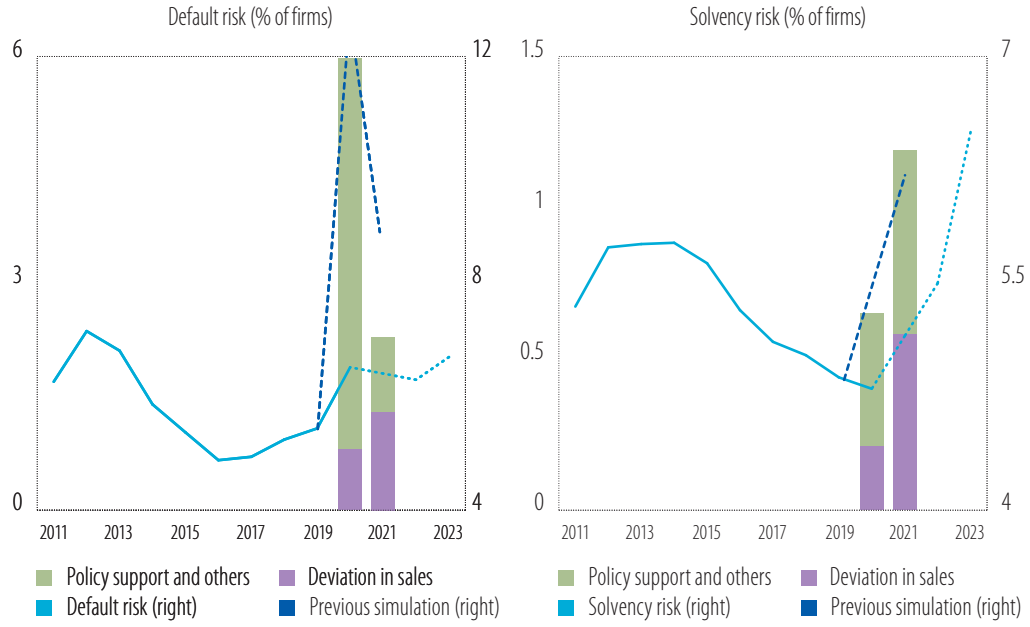
3 Granular balance sheet simulations based on price and demand assumptions are produced to simulate the change in risk metrics in the sample (Maurin & Pál, 2020 and Harasztosi et al., 2023).

Figure 5
Cross country dispersion of the corporate vulnerability index



Source: *EIB staff calculations based on Eurostat, the European Central Bank (ECB) and Alvares et al. (2024).*
Note: *The last data available are for the second quarter of 2023. The gray box covers countries with a lower vulnerability index compared to overall euro area and a lower change in the index compared to the euro area.*

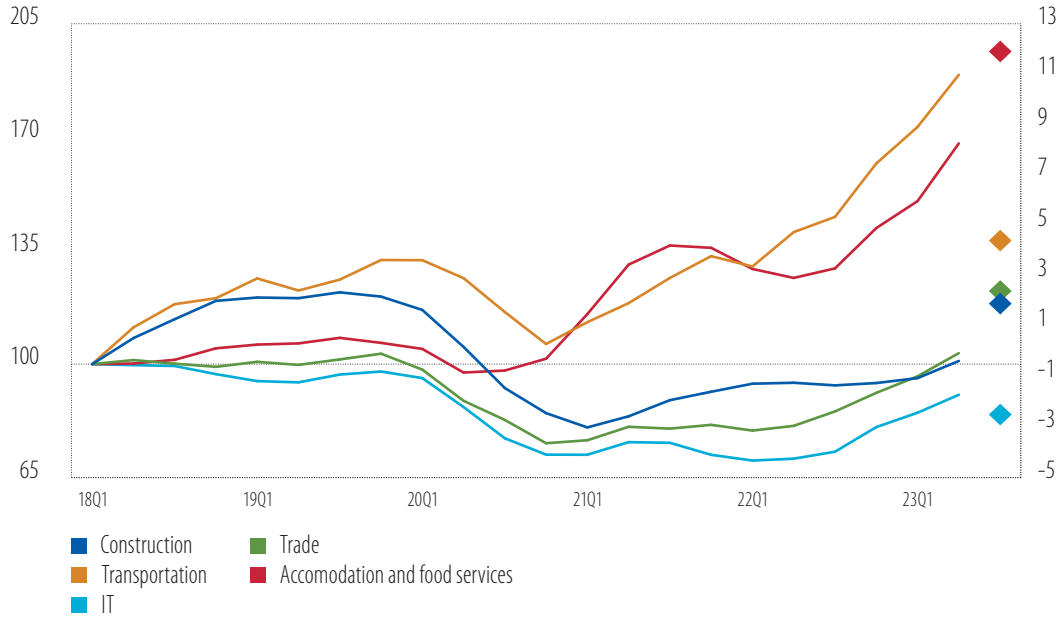
Figure 6
Risk metrics: history and simulations



Source: *EIB staff calculations based on Eurostat, EIBIS 2016-2023 and the Orbis database, Maurin and Pál (2020).*
Note: *Solvency risk is the share of firms with negative equity. Default risk is the share of firms with an interest rate coverage ratio below 1.*

Figure 7

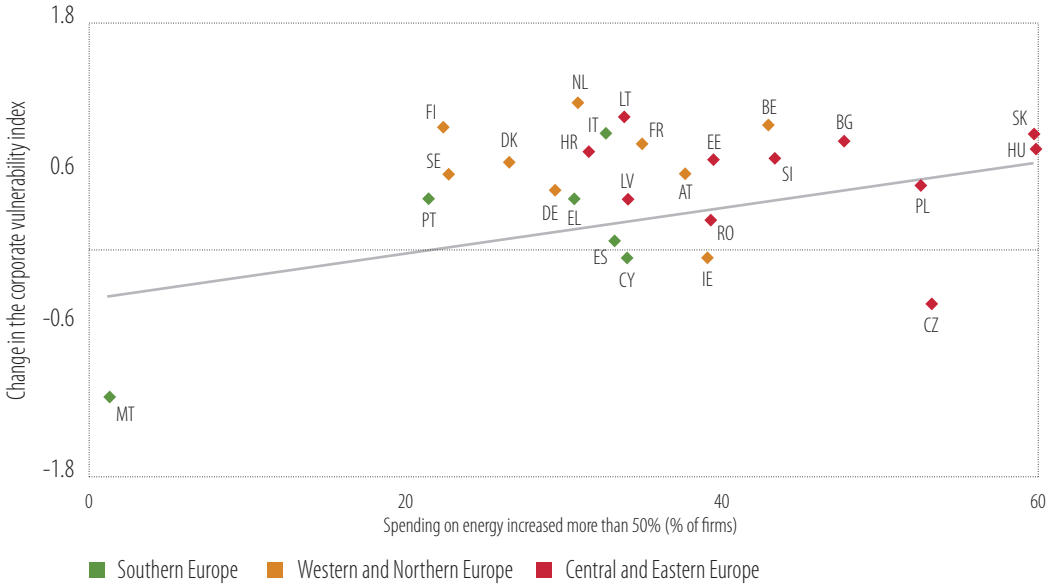
Firms ceasing to operate (left axis: an index, 2018Q1=100) **and weak firms across sectors** (right axis: percentage point change in share of firms at risk of default)



Source: *EIB staff calculations based on Eurostat.*
Note: *Four-quarter moving average. Firms ceasing to exist tracks the number of bankruptcies, which is indexed to the first quarter of 2018.*

Figure 8

Rise in the energy bill compared to corporate vulnerabilities



Source: *EIB staff calculations based on Eurostat, ECB and Alvares et al. (2024).*
Note: *The indicator replicates the EU indicator portrayed in Figure 5 at the country level. The last data available are for the change from the first quarter of 2023 compared to the same period a year earlier.*

Bankruptcy rates are rising. Figure 7 shows that bankruptcies declined during the COVID-19 crisis – despite the rise in vulnerability and risk metrics – because insolvency procedures were suspended in most EU countries. As normal procedures have been reinstated, weak firms are being wound down, and bankruptcies have been on the rise again since the beginning of 2022. In mid-2023, bankruptcies surpassed the rate before the pandemic as government support was removed and the decline in economic activity began to be felt.[4] Albuquerque and Lyer (2023) show that unproductive and unviable firms have been rising worldwide, especially since the global financial crisis and COVID-19.

The impact of COVID-19 continues to materialise across sectors, but the effect is now blurred by the energy crisis. Figure 7 focuses on five sectors and examines the evolution of bankruptcies since 2019 and sales losses due to COVID-19 expected in 2021. The higher the increase in the simulated default risk, the stronger the rise in bankruptcies. Clearly, in the sectors that were expected to be immune to the crisis (such as wholesale trade) or in those that benefited from it (such as information and communication), bankruptcies decreased. Conversely, the sectors most affected (such as accommodation and food service or transport) recorded an increase in bankruptcies compared to before the crisis (EIB, 2022). The energy crisis has tended to affect manufacturing sectors more. While tourism was the hardest hit by COVID-19, other sectors, such as transportation, show a deterioration in bankruptcies and in the simulated default risk indicator. Wholesale and retail trade sectors were also affected, while other sectors like information and telecommunications came through these two shocks relatively unscathed. Cross-sectoral results reinforce the concentration of vulnerabilities in specific sectors and regions (Archanskaia et al., 2022).

Box A

Electricity prices and perspectives on competitiveness

While natural gas prices dropped significantly in 2023, after surging in 2022 when Russia invaded Ukraine, the EU electricity prices remain considerably higher than those in the United States or China. The lower cost of producing renewable energy should start to bring down electricity prices in Europe around 2030.

Europe is struggling with high energy prices

In the summer of 2023, wholesale natural gas prices were EUR 30 to EUR 40 per MWh[5] and were much more stable than in 2022, a year marked by the volatility stemming from Russia's withholding of natural gas supplies. In the 15 years prior to the 2021-2022 crisis, prices were EUR 5 to EUR 35 per MWh. EU electricity prices for 2023 (driven by coal and gas) are EUR 120 to EUR 150 per MWh, vs. EUR 40 to EUR 60 per MWh from 2010 to 2021.

The gap between the prices European firms pay for electricity and those of their main international trading partners has increased (Figures A1 and A2). The energy crisis and the war in Ukraine has led to an exponential increase in natural gas prices and a convergence of the prices paid in Europe and Asia. It also led to a temporary exacerbation of high prices in European Union compared to the United States. Even before the peak in the summer 2022, EU electricity prices were two to five times higher than US prices, and gas prices were three to five times higher.

The deployment of renewable energy needs to be accelerated so that Europe can remove natural gas from the electricity mix as soon as possible. Under current projections under REPowerEU and Fit for 55, EU gas prices will continue to increase until 2030 as Europe weans itself off of foreign sources.[6]

4 The percentage of firms going bankrupt declines or increases with activity after some time. Under normal economic conditions – when GDP is around its full potential – 6% of firms typically record losses above the book value of their equity base, becoming technically insolvent. But although a corporation is technically insolvent when it has zero or negative equity, it may be still able to meet its payment obligations (see EIB, 2022).

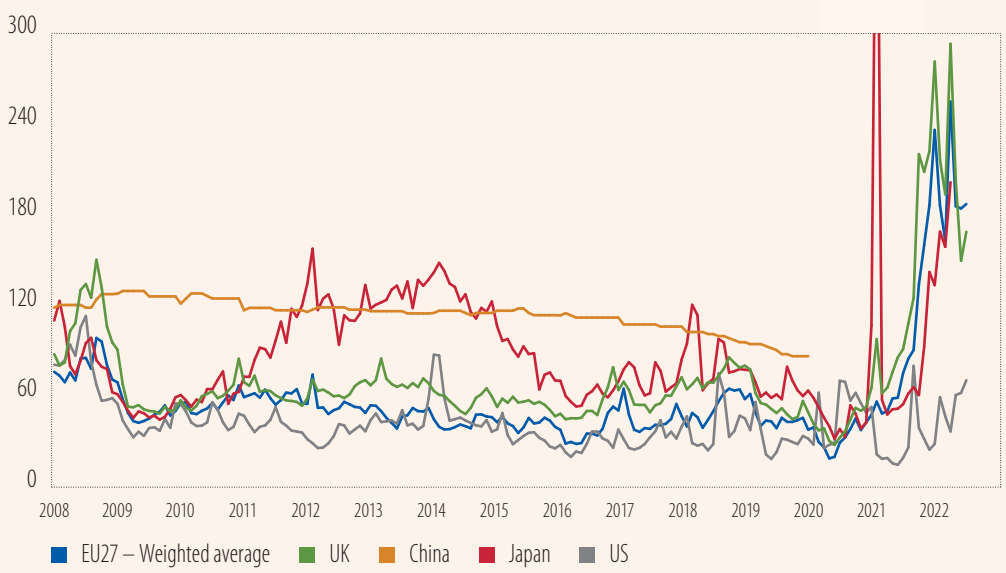
5 ACER liquified natural gas price assessment and benchmark at: Price assessments; Platts (S&P Global Commodity Insight) tracking Dutch Title Transfer Facility gas prices.

6 See the European Commission impact assessment.

Markets also anticipate that EU prices will remain above historical averages until 2025-2026, partly because of a tight global market for liquified natural gas. This means that the price difference with the United States (while much lower than during the crisis) could grow over time, with cheaper abundant gas relatively uninfluenced by liquified natural gas markets.

Figure A.1

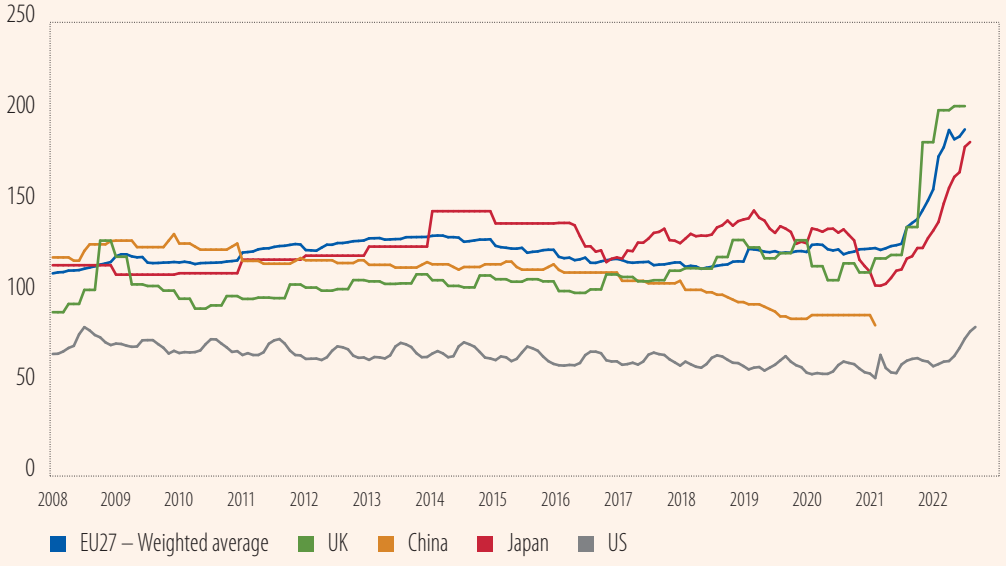
Differences in EU energy prices vs. global trading partners (EUR 2021/MWh)



Source: *2022 Energy Prices and Costs Report (forthcoming study by Trinomics et al., based on Eurostat, US Department of Energy, Enerdata and International Energy Agency (IEA)).*

Figure A.2

Industrial retail electricity prices: European Union vs. United States, United Kingdom, China and Japan (EUR2021/MWh)



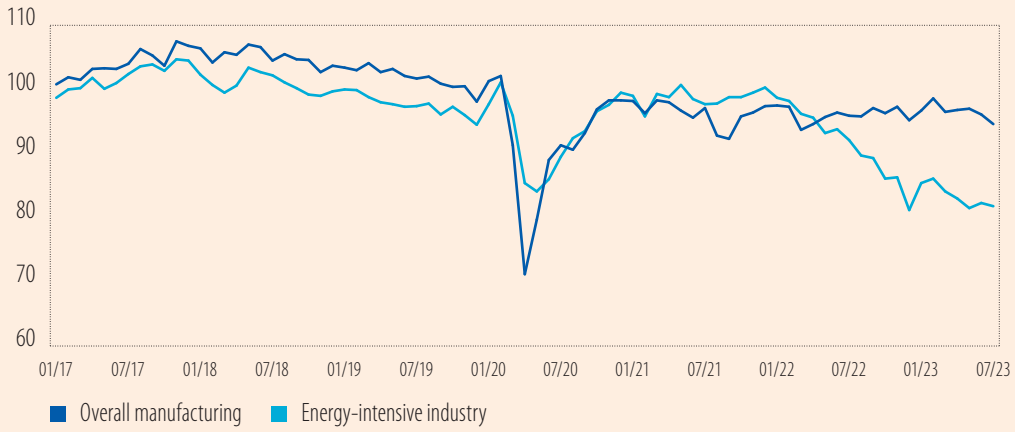
Source: *2022 Energy Prices and Costs Report (forthcoming study by Trinomics et al., based on Eurostat, US Department of Energy, Enerdata and IEA).*

Obviously, high prices hurt energy-intensive industries. The energy crisis has caused a drop in production in gas-hungry sectors that seems partly structural in nature, as there is no sign of it reversing even if prices decrease.

Demand has not only declined in industry, it has also weakened from consumers. While measures to save energy, in addition to reduced production of gas-intensive goods, are behind decreased demand for industry, the deployment of heat pumps and changing behaviours have contributed to the decrease in household energy consumption.

And yet overall manufacturing output remained relatively stable (Figure A3). National data from Germany show that from August 2022 to July 2023, the 20% average monthly reduction in gas consumption in industry came with just a 3% average monthly reduction in production. For energy-intensive industries, however, monthly output fell much more (on average 14% over the same period).

Figure A.3
Industrial production in manufacturing and energy-intensive industries in Germany (production index, 2015=100)



Source: *The Federal Statistics Office of Germany.*

The energy crisis in 2021-2022 could have fuelled structural changes on EU electricity markets. The crisis has shown that EU members using a higher share of gas for electricity generation, like Italy, pay higher prices than those relying on other sources, such as the Nord Pool power exchange in Northern Europe, which relies heavily on hydropower and wind. The rapid rise in natural gas prices has also widened the gap in electricity prices between countries, as prices are higher for those that rely more on natural gas.

EU countries that introduced measures to limit high natural gas prices being passed on to electricity markets managed to contain the spike in electricity prices, especially when natural gas was historically high. At the worst points of the crisis, the large differences in the prices of wholesale electricity gave a competitive advantage to Spain and the Nordic countries.

It will take a while for renewable energy to bring down electricity prices

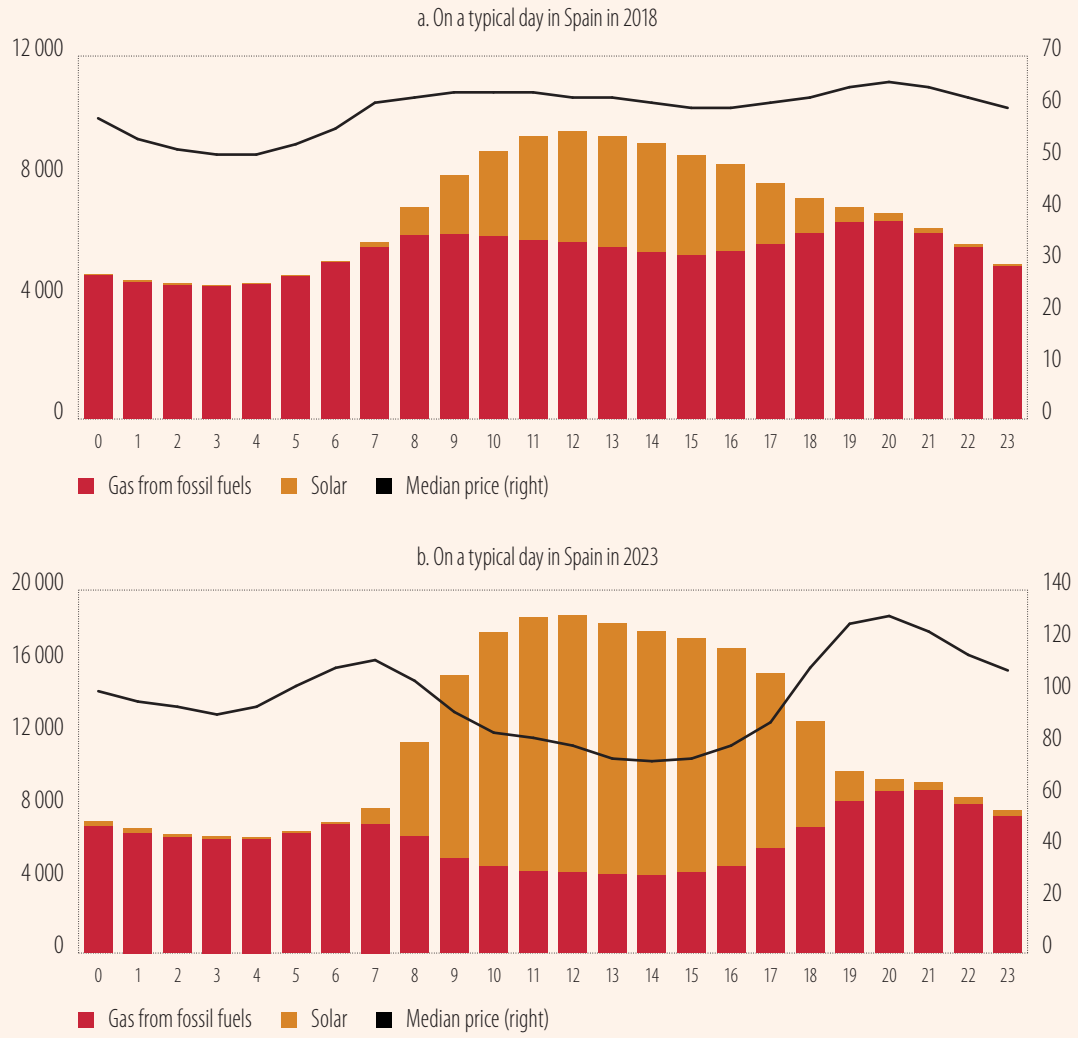
Europe's future competitiveness will depend on the speed with which it deploys renewable energy. At the current rate, renewable energy will not be able to replace fossil fuels until the 2030s, at least for the majority electricity consumption (Gasparella et al., 2023). However, pushing through the transition to clean energy as fast as possible will deliver clear benefits.

EU members that can remove fossil fuels from the electricity mix earlier will have a massive competitive advantage (Figure A4). While renewable energy generation is projected to grow from 46% to 67%

during the current decade (Gasparella et al., 2023), lower wholesale prices will take longer to materialise, partly because of limited storage capacity and the need for more flexibility in energy systems. The influence of renewable sources will become more apparent in the future, when projected renewable generation is able to fully meet EU demand.

Figure A.4

Price fluctuations in the daily production of natural gas vs. solar power (left axis: MWh; right axis: EUR/MWh)



Source: The European Commission's Directorate-General for Energy, based on the ENTSO-E Transparency Platform.

The future evolution of electricity prices in different EU members may affect where industry locates. Available data[7] suggest that from 2021 to the first quarter of 2022, energy-intensive sectors could see their energy costs increase 20-55% on average (like ferroalloys and silicon, primary aluminium, ceramics, container glass or zinc). Industries particularly dependent on electricity could suffer the most in the short term.

7 From the forthcoming 2023 Energy Prices and Costs Report by the European Commission, which is based on the upcoming Trinomics et altri (2023) study.

In the longer term, lower-cost renewable energy and corresponding lower electricity prices could support the production of hydrogen, which will be essential for decarbonising energy-intensive industries, especially gas-intensive ones. There will be economic incentives to produce and locate gas-intensive (and in the future hydrogen-intensive) manufacturing in countries with lower electricity prices – countries that have managed to deploy renewable energy on a large scale. That is unless hydrogen transport costs are low enough to ensure similar prices for manufacturers that are physically far away from renewable energy sources.

Uncertainty about the future prevails as the economy undergoes structural changes

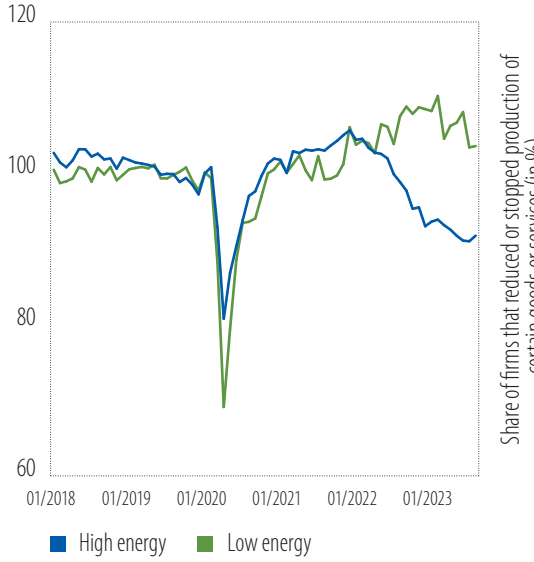
The recent rise in corporate vulnerabilities clearly reflects the energy crisis. The price of natural gas in Europe increased five-fold after Russia's invasion of Ukraine. The negative shock to gas supplies caused a decline in economic activity and a sizeable impact on companies (Alessandri & Gazzini, 2023). In Figure 8, we correlate the change in the vulnerability indicator with the share of firms in the EIBIS that report a more than 50% rise in their energy bill. The higher the share of firms reporting a large increase in energy costs, the stronger the rise in vulnerabilities. Countries in Central and Eastern Europe tend to have a larger manufacturing sector and an energy mix more reliant on gas and coal. Hence, most of them (such as Poland, Hungary, Slovakia, Bulgaria and the Czech Republic) reported a bigger increase in energy prices. As energy dependence is higher, they also recorded a sharper rise in corporate vulnerabilities.

Production paths have diverged according to energy dependence. As explained above, energy dependence varies from country to country. But overall, the energy bill has risen by 60% for EU firms during the energy crisis, clearly more than for the United States and other major trading partners.[8] Figure 9 looks closely at manufacturing, distinguishing high energy-intensive sectors from low energy-intensive sectors. The rise in energy costs had a greater impact on higher energy-intensive sectors (see Box A). In the second quarter of 2023, their production was still 14% below 2019 levels, much worse than the 4% for sectors that are not energy intensive.

Increases in the relative price of brown energy sources, like coal, reduce energy consumption in the short term. Barci and Maurin (2024) build a Brown Energy Price Index (BEPI) for EU economies and sectors. This index is then incorporated into panel vector autoregression (PVAR) models to analyse reactions to price shocks, impacts on economic activity and changes in the energy mix.[9] At the macroeconomic level, a positive shock to the BEPI triggers some substitution between brown and green energy. In fact, the EIBIS 2023 shows that energy efficiency investments have increased with the change in energy prices. As the substitution falls short of the energy needs, output contracts. Looking at the sector level confirms the substitution effect and an adverse impact on activity. Moreover, the magnitude of the response is correlated with the intensity of the sector's dependence on brown energy.

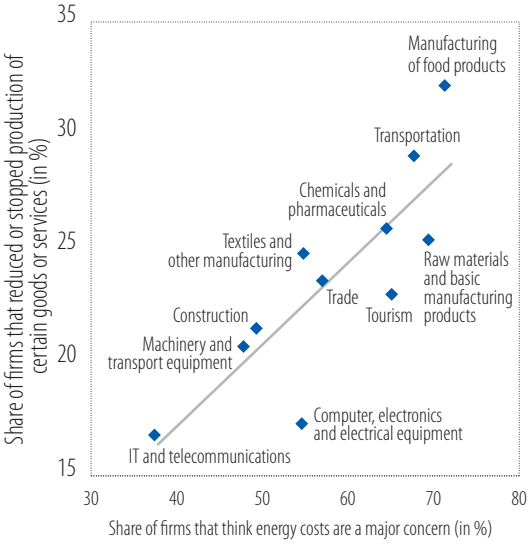
8 In 2023, the value of EU energy imports more than doubled compared to the pre-pandemic period, rising to EUR 776 billion in 2023 from EUR 328 billion in 2019.
9 The panel dimension comes from the 13 EU economies, and it is applied to five economic sectors.

Figure 9
Production of high and low energy intensive sectors (an index, 2019=100)



Source: *EIB staff calculations based on Eurostat.*
Note: *High energy intensive sectors are pulp and paper, coke, refined and petroleum, chemicals, non-metallic minerals, such as cement, basic metals and refinery. The other sectors are classified as low energy intensive. Last data available are for August 2023.*

Figure 10
Energy price as major concern and whether it caused firms to reduce or stop production



Source: *EIB staff calculations based on the EIBIS 2023.*
Question: *X-axis: Thinking about the energy shock, to what extent is your company concerned about energy prices?*
Y-axis: For the current financial year, do you expect your total investment spend to be more than last year?

As the green transition continues, higher energy prices may cause economic specialisations to change. Depending on energy intensity and on the nature of the energy mix, changes in energy prices ripple unevenly through sectors and countries (Barci & Maurin, 2024). As most EU energy is imported, a rise in prices resembles a negative supply shock. On the one hand, it harms the competitiveness of the most energy dependent sectors. If it is long lasting and perceived as permanent, heavily energy-dependent sectors may see their export performance weaken in the long term, and the sectoral structure of the economy may change. On the other hand, firms may record stronger productivity gains in the longer term. André et al. (2023) show that a shock corresponding to a 10% increase in energy prices is associated with an overall rise in productivity of around 0.9 percentage points four years after the shock. These gains are more likely in less energy-intensive sectors, but they tend not to materialise for larger shocks. There is some evidence that previous investments explain the productivity gains, since they are larger for firms that had invested in capital just before the shock. Energy prices in Europe will almost certainly stay above pre-crisis levels, as building renewable energy capacity takes time. In the long run, however, substituting renewable energy for brown sources should drastically reduce energy costs (see Box A).

Across sectors, energy crises may alter the structure of production. In Figure 10, we associate the share of firms reporting energy prices as a major concern with these firms' plans to stop or reduce certain goods or services to cope with recent energy developments. There is a clear positive association across sectors. Hence, production plans are shaped by energy concerns. Some changes in the production structure is therefore likely but it may be temporary, as firms expect energy prices to lower in the long term (when Europe begins to produce most of its energy from renewables). In fact, de Santis and Tornese (2023) show that energy supply shocks have a non-linear impact on output and prices.

External finance is harder to come by, but profits are higher

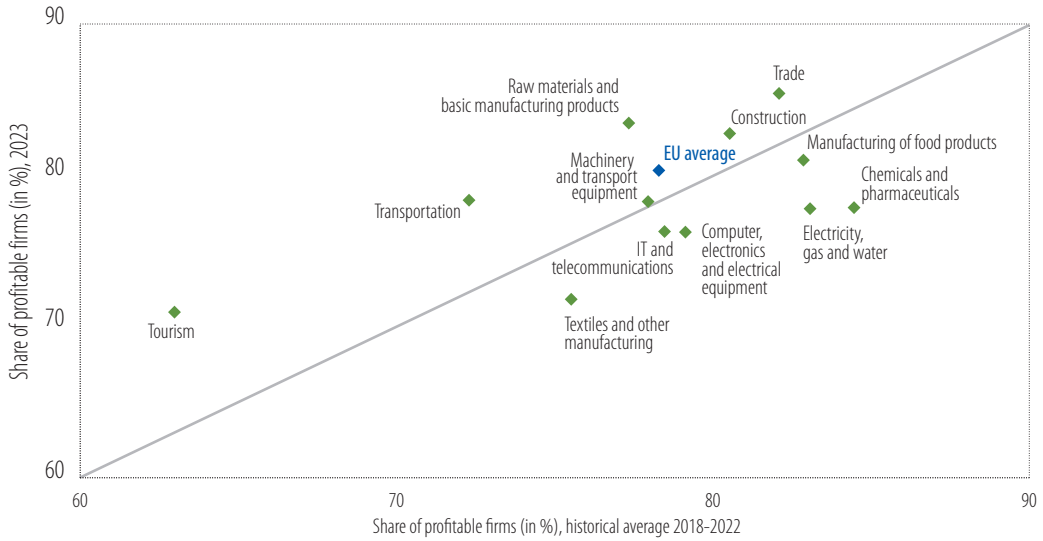
We review the latest developments in internal and external finance to show that internal funding sources have proved resilient, underpinned by strong government policies. This support has paved the way for capital expenditure to rebound strongly. However, the sharp tightening in monetary policy is likely to take a toll on corporate investment as firms burn through cash. In particular, we analyse how internal finance can cushion the impact of adverse conditions for external finance.

Firms recorded strong profits by passing cost increases on to clients

Profits rose strongly in the first half of 2023. In Figure 11 we report the historical average of profitable EU firms vs. the share of profitable firms in 2023 for 12 sectors of the economy. In 2023, 80% of European firms were profitable, compared with 78% historically. Thus, the 2023 share is 2 percentage points above historical average for the EU economy overall. This is consistent with statistical data showing that in the middle of 2023, the profit share of the EU firms was 1 percentage point above its historical average (Figure 2). The strong recovery in profits that started in 2022 (EIB, 2023a) a continued in the beginning of 2023.

Still, performance varies by sector. In Figure 11, the strong profit performance is particularly evident in the sectors that fall well above the 45-degree line, like tourism, food manufacturing or trade. Conversely, electricity, gas, and chemicals and pharmaceuticals fall well below the line. The first group of sectors benefited from reopening external trade and relaxing tensions in global supply chains, while the second group was hit hard by the energy crisis because production was highly dependent on energy.

Figure 11
Profitable firms in 2023 compared to the historical average



Source: EIB staff calculations based on the EIBIS 2018-2023.

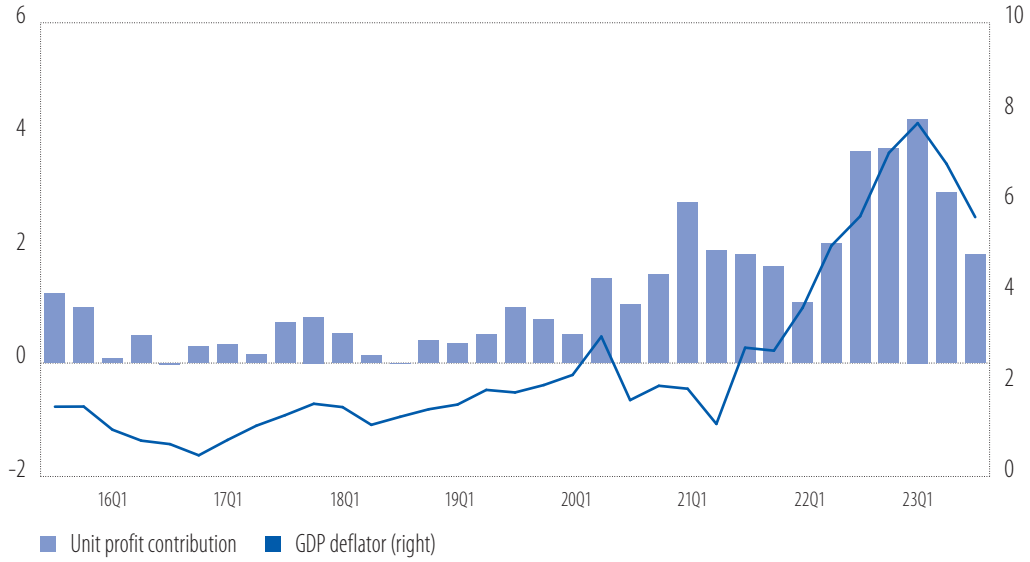
Profits have been buoyed by rising prices, but at the cost of fuelling inflation. Figure 12 shows the evolution of the value-added deflator together with a proxy for the contribution of profits represented by unit margins.[10] It appears that since the beginning of 2022, firms have been able to expand their unit

10 The GDP deflator reflects the evolution of the price of one unit of good consumed domestically. It results from changes in unit labour costs (compensation of employees per unit of real GDP), unit taxes (reflecting taxes on production, net of subsidies, per unit of real GDP) and unit profits (gross operating surplus per unit of real GDP).

profits in an environment of strong demand, despite rising energy prices. We see that since the beginning of 2022, the contribution of unit profits has been well above recent history, as the shock of higher costs has so far been neutralised, and unit margins have increased (see Box B) (Schnabel, 2023). While from 1999 to 2022, unit profits contributed around one-third to the GDP deflator, on average, over 2022 they contributed an average of two-thirds (Arce et al., 2023). Rising prices of final goods mitigate trade shocks and higher input prices and boost corporate profits. Higher costs are passed on to selling prices, thereby limiting the impact on profit margins and strengthening corporate balance sheets.

Figure 12

How profits contribute to inflation (left axis: unit profit contribution, in percentage points; right axis: GDP deflator, in %)



Source: *EIB staff calculations based on Eurostat.*
Note: *Last available data is for the second quarter of 2023. The GDP deflator is based on the EU value-added defalator.*

Box B

Investment decisions under high inflation

The high inflation that began in the second half of 2021 has started to affect real incomes, depleting household savings and depressing demand. This is expected to affect investment. Pressure on demand, as well as expectations of a worsening economic outlook, will likely prompt firms to pull back on planned investment (EIB, 2023a; Kolev & Randall, 2023). Past studies have shown that inflation rates above 10% are more likely to reduce investment (Asab & Al-Tarawneh, 2018; Fan et al., 2023).

Inflation can affect investment in two ways. First, higher inflation can directly hurt profitability, weakening internal financing (the main source of investment financing). Unless firms manage to adjust prices immediately, inflation will increase their material and labour costs compared to their revenues, squeezing profit margins and leaving fewer liquid assets available to finance investment.

Secondly, with central banks increasing interest rates to fight inflation, external financing is also challenging. The higher financial costs caused by higher interest rates directly affect firms' profitability and their ability to access external funding. Indirectly, the decelerating demand, tempered by tighter monetary policy, results in lower sales and therefore lower profits.

Thus, although high inflation and investment tend to share a negative relationship, a few drivers will maintain or even accelerate investment short-term, even when inflation is rising. These drivers explain the current situation of relatively resilient investments in a time of historically high inflation and tightening financial conditions.

The effect of inflation on investment is tested both across the whole sample (EIBIS 2016-2022) and separately for the post-pandemic period (EIBIS 2021-2022). We regress the probability of a firm in country i and sector j expecting more investment in the current financial year (compared to the previous one) on the inflation rate in the sector and the country, as measured by producer prices, lagged by two-quarters;[11] a matrix of firm-specific controls like profitability, external financing constraints, reporting uncertainty about the future as a major investment barrier, and the effect of government support; a matrix of country-level macroeconomic controls like GDP growth rate and monetary policy rate; and a set of country-, year- and sector-specific fixed effects. Empirical findings are summarised in Figure B1.

The empirical findings indicate that for 2016-2022, inflation at "very high" levels (annual rates of over 20%) presents a statistically significant and positive association with a firm's decision to invest. The probability of a firm increasing investment is 3.7 percentage points higher than in the baseline situation of "low" inflation (between 0% and 5% inflation) – rising from around 32.8% to 36.5%. This significant association persists even if the analyses are restricted to the post-pandemic period, when inflation rates began to surge (2021-2022). In the following paragraphs we provide some explanations for this positive relationship.

First, the recent inflation spike has been strongly driven by higher prices for energy and other inputs (like raw materials), which have pushed firms to invest in energy efficiency to save costs. We find evidence of a positive and statistically significant association between "very high" levels of inflation (over 20%) and higher probabilities of investment in energy efficiency in 2022 (a 9.2 percentage point increase compared to a "low" inflation period). Firms that view energy prices as a major obstacle are also more likely to invest in energy efficiency measures – by 7.1 percentage points in 2022. This is in line with previous studies showing that increased energy costs can prompt firms to invest in energy efficiency, and that energy-intensive firms are more likely to invest in energy efficiency (EIB, 2023a; Kalantzis & Niakaros, 2020). Moreover, policies like the European Green Deal have boosted investment in green measures, which may help explain the positive association (European Commission, 2021).

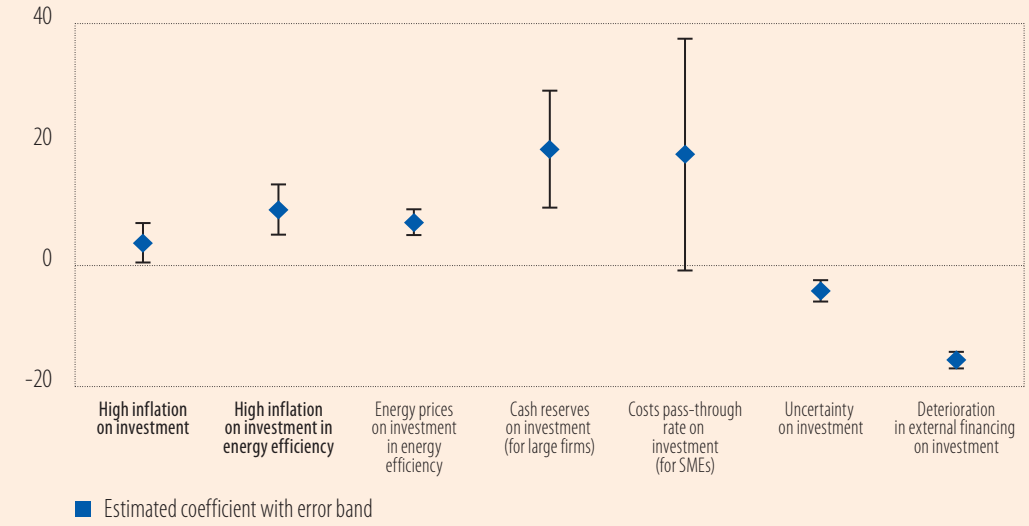
Second, firms with large cash reserves or easier access to external financing may weather this high inflation environment better (Cleary, 1999; Cleary et al., 2007). Liquid assets are more vulnerable to the negative impact of inflation, so investing them may protect from devaluation (Ferrando & Pál, 2024). Statistical data shows that European firms substantially increased their cash buffers before the energy crisis hit, helped in part by the massive COVID-19 support. These higher cash reserves might enable current investments to continue or necessary investments in energy efficiency to be made (Ampudia et al., 2023). Analyses show that 1 percentage point higher cash to total assets is associated with an increased probability of increasing investment of 18 percentage points for large firms, while the association is statistically insignificant for smaller businesses.

Third, we find a positive association between firms' ability to pass higher costs on to customers (pass-through) and the probability of making more investment in selected areas of manufacturing and infrastructure. The ability to pass through costs reduces the immediate negative impact on profitability, and internal sources of financing are less affected. The average marginal effect is to increase the probability of undertaking more investment in the current financial year by 11.3 percentage points across all firms and 18.4 percentage points for small and medium firms, and to decrease it

11 Producer prices are lagged by two quarters to allow firms to update their strategies. Producer price indices were collected for every quarter to create a lagged variable, and then aggregated at the annual level. Consumer prices, as measured by the harmonised index of consumer prices, is only available for months, so it was first aggregated quarterly to match the Producer Price Index, Services Producer Price Index, Consumer Price Index, and Labour Cost Index, and then annually, to be merged with the EIBIS dataset.

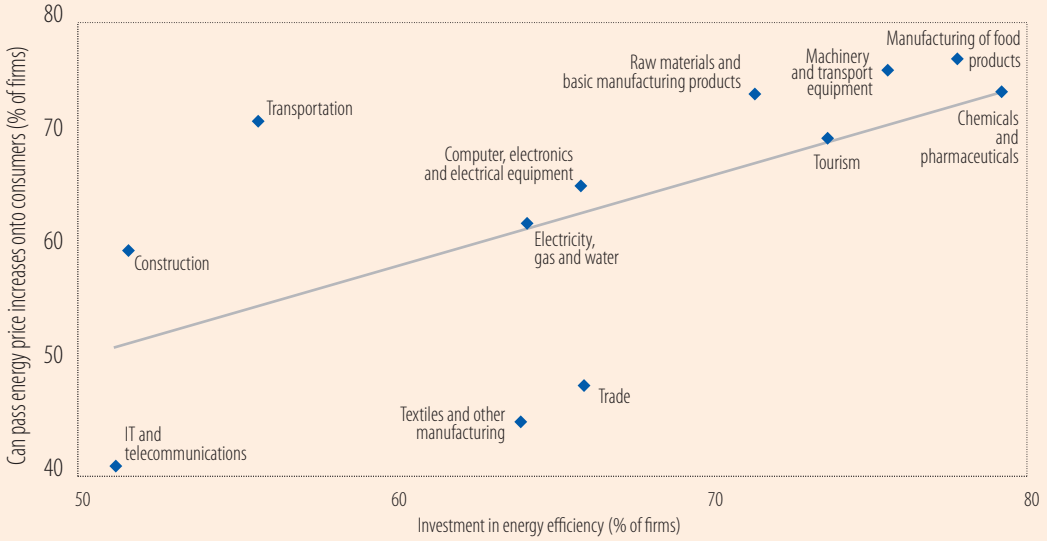
by 14.7 percentage points for large firms. This may suggest that because smaller firms do not have large cash reserves, they are more reliant on continuously generating revenue, which could be used to internally fund investment. Confirming the empirical results, Figure B2 presents the positive relationship between firms' passing on the energy price to customers and their capacity to invest in energy efficiency, based on EIBIS 2023.

Figure B.1
Determinants of increased investment or investments in energy efficiency



Source: *Schito et al. (2024).*

Figure B.2
Investment in energy efficiency and the ability of firms to pass energy costs onto consumers



Source: *EIB staff calculations based on the EIBIS 2023.*
Question: *X-axis: Is your company investing or implementing any of the following, to reduce greenhouse gas emissions? Answer B: Investing in energy efficiency. Y-axis: Which, if any, of the following, are your priorities/strategies to deal with the recent developments in the energy market? Answer D: passing increasing energy costs to customers*

Firms with the advantage of having accumulated cash or fixed-rate borrowing before monetary tightening took hold could continue investing in the short term. However, negative effects are expected to emerge in the medium to long term as financing sources diminish, even though the green and digital transformations will remain a priority. Moreover, once cash buffers thin and current financing matures, external financing for new investments would only be available at a cost significantly higher than in the previous period (more than double), and only projects with high profit margins would be eligible for new financing. Overall, the analyses show that the by-products of inflation – including higher interest rates, tighter external financing conditions and higher uncertainty – have a significant negative impact on firms' investment. That impact may become visible when economic conditions deteriorate.

Moreover, certain groups of liquidity-poor firms face structural bottlenecks (on top tighter monetary policy) that impede their investments. Firms that are small, young and innovative and have a higher share of less bankable intangible assets, or those that cannot pass higher cost onto their customers, may have more limited investment sources to turn to, resulting in delays or gaps in their development and transformation. Finally, some firms might be more affected by more difficult conditions for external finance because of weaker finances, like high leverage or lower profit margins, which can make it hard for them to afford new loans or other sources of external financing (Ferrando & Pál, 2024).

More challenging external financial conditions are affecting firms unevenly

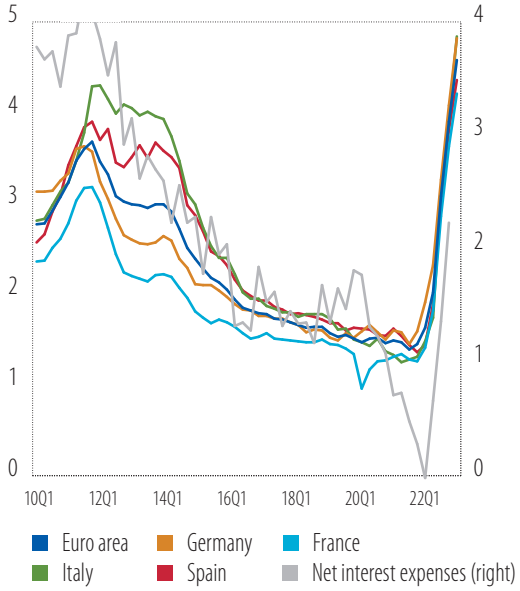
The abrupt move to tighter monetary policy that began in mid-2022 continued into late 2023. The relatively young euro area has come through just one previous cycle of tightening, from 2005 to 2008, and the current cycle is much sharper. Short-term rates in Central and Eastern European economies increased by more than 800 basis points, well above the 450 basis points for the euro area as a whole since July 2022.

Rising market rates spread to corporate bank borrowing, in line with historical patterns. Figure 13 reports the composite cost of bank borrowing for businesses in major euro area economies. From mid-2022 until the third quarter of 2023, monetary policy rates rose by 450 basis points in the euro area. Over the same period, the cost of corporate bank borrowing increased by 300 basis points. At close to two-thirds, the pass-through rate is in line with historical patterns (Lane, 2023). Although the sharp increase in borrowing cost is impressive for such a short period, it merely reflects the speed of the monetary policy tightening, which is unprecedented for the euro area.

Firms' borrowing costs beat their ten-year high and are set to exceed historical records. Borrowing costs reached their highest level of 6% in August 2008 when the rate on marginal refinancing operations rose to 425 basis points, after increasing 225 basis points during the cycle. Assuming monetary policy rates remained at September 2023 levels, the cost of bank borrowing for euro area firms would plateau at more than 6% in the beginning of 2024. So far, the transmission of monetary policy has proceeded very similarly across the major euro area economies.

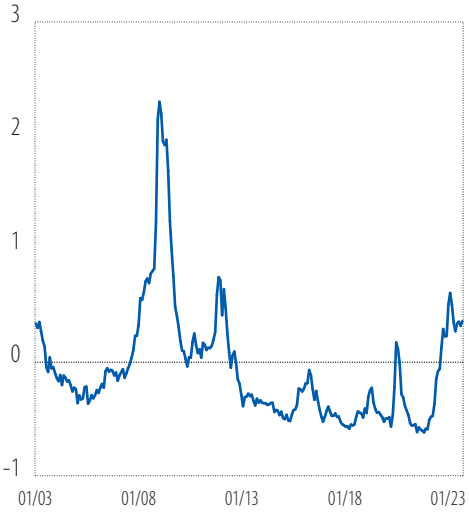
Following rate increases, net interest expenses started to surge, but remain below historical highs. Figure 13 plots the net interest expenses of non-financial firms as a share of GDP. As firms also receive interest revenue, for example from intra-trade credit, expenses must be netted out to analyse the impact on profit. Net interest expenses have risen from a low of close to zero in the beginning of 2022 to more than 2% of GDP in mid-2023. The percentage has now returned to the level recorded in 2014, well below the recent high of 4% reached in 2010. The delayed response reflects firms' having increased the share of fixed-rate financing when rates were ultralow (Figure 19). Net interest expenses will likely keep increasing as firms refinance loans at higher rates (Ampudia et al., 2023).

Figure 13
Corporate bank borrowing costs and interest expenses (left axis: in percentage points; right axis: net interest expenses, % GDP)



Source: *EIB staff calculations based on the ECB and Eurostat.*
Note: *Borrowing costs are based on a three-month moving average. Net interest income is interpolated from quarterly data. Lastest data for the cost of borrowing is the second quarter of 2023, and for net interest expense the first quarter of 2023.*

Figure 14
EU financial condition index (de-meaned)



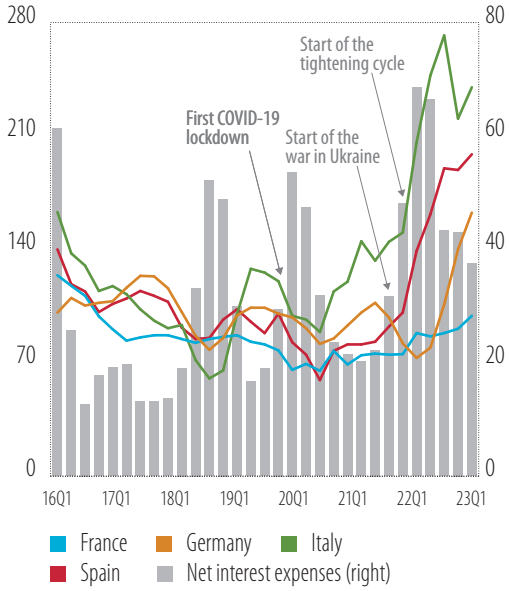
Source: *EIB staff calculations based on Andersson et al. (2021).*
Note: *An increase reflects a tightening. The values are de-meaned over the period 1999-2023. Last data available are for June 2023.*

Financial conditions tightened. Figure 14 reports an estimated index of financial conditions based on a large set of series related to financial prices and quantity (Andersson et al., 2021). From the start of 2022 until the very beginning of 2023, the index rose from softer-than-historical conditions to slightly tighter ones. The neutral line – the plotted historical average since 1999 – was crossed in September 2022. The latest record, 0.4, is slightly in tightening territory, but well below the high of 2.4 recorded during the global financial crisis.

The financial system withstood tightening financial conditions. First, as shown in Figure 14, financial market tensions recorded around the bankruptcies of Silicon Valley Bank and Credit Suisse in February and March 2023 are largely overlooked by the indicator. The pessimistic scenario of a large financial crisis that was depicted by some analysts did not materialise, as the regulatory reforms implemented since the global financial crisis have strengthened the resilience of banks and the financial system.

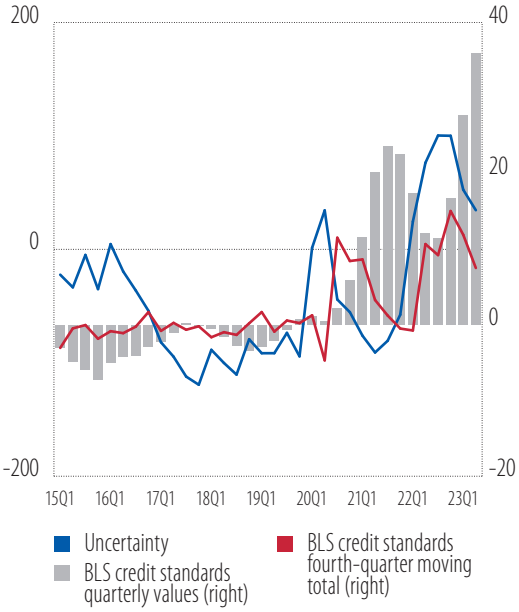
Risk premiums fell back from the highs recorded after the Russian invasion in Ukraine. Figure 15 shows that the spread between 5-year A and BBB bonds increased from 20 basis points to 70 basis points in mid-2022, when the risks of the war in Ukraine escalating were at their worst and when central banks started to tighten monetary policy. Since then, it has receded to around 40 basis points as investors realised that firms were adjusting to monetary tightening and were withstand higher borrowing rates for longer than initially thought.

Figure 15
Risk and size spreads (left axis: spread in borrowing costs, in basis points; right axis: spreads on bond yields, in basis points)



Source: *EIB staff calculations based on the ECB and Refinitiv.*
Note: *The size spread is the difference between the cost of borrowing on small and large loans (below EUR 250 000 and above EUR 1 million, respectively). The risk spread is measured as the yields on 5-year BBB corporate bonds minus that of A-rated corporate bonds issued in the euro area. Last data available are for the third quarter of 2023.*

Figure 16
Credit standards applied to corporate loans (left axis: uncertainty, in basis points; right axis: credit standard, in basis points)



Source: *EIB staff calculations based on ECB and Refinitiv.*
Note: *Uncertainty is calculated using the weighted average of bond and stock volatility and the ECB Composite Systemic Risk Indicator. Last data available are for the second quarter of 2023. BLS stands for Europe's Bank Lending Survey. An increase in the survey indicator reflects a net tightening.*

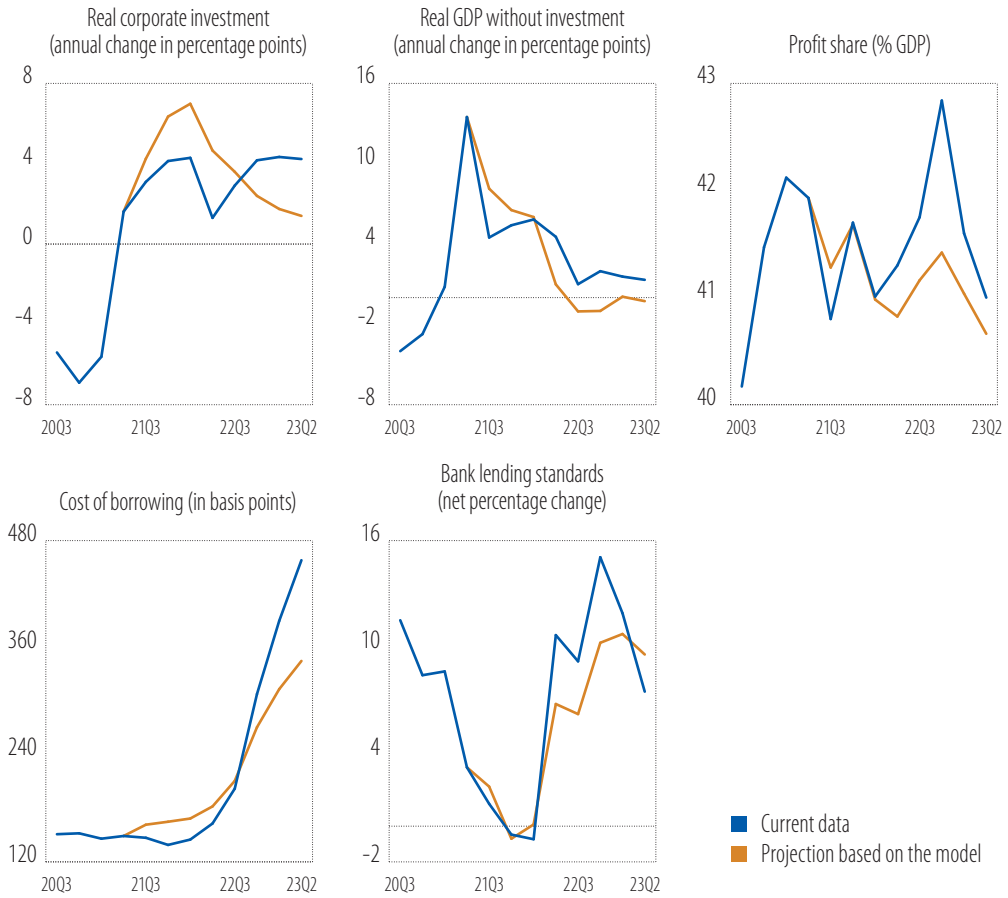
The spreads between the rates of euro area sovereign bonds widened but remain contained. As of the third quarter of 2023, compared to the last quarter of 2021, 10-year spreads with respect to the German sovereign bond are 10 basis points higher for France, 30 basis points for Spain and 50 basis points for Italy. Widening sovereign spreads could impair the European Central Bank's ability to influence monetary policy, fuel risk aversion and have varying effects on small and large bank borrowers.[12] Figure 15 shows that the size spread – the spread between the borrowing costs for small loans and large loans – ticked up until the end of 2022 (especially in Italy) and has stabilised or declined since then. The changes recorded in Italy and Spain are well below what was recorded during Europe's sovereign debt crisis in 2010-2012.

Bank lending surveys indicate a tightening in credit standards across European countries. Since the end of 2021, in cumulative terms, euro area banks reported more onerous standards for loans or credit lines (Figure 16). From the end of 2022, the tougher conditions have been linked to the more restrictive monetary policy, as banks have become more concerned about firm risks and asset quality. The EIB's Central, Eastern and South-Eastern Europe (CESEE) Bank Lending Survey also shows that banks in the region that have tightened conditions are expecting to continue to do so (EIB, 2023b).

12 Andersson et al. (2021) show that when driven by a financial shock, as during the previous crisis, tightened financial conditions impair loan provision, widening borrowing spreads by country and by borrower size.

Investment has remained relatively resilient so far, outperforming historical trends. Figure 17 shows the projection of investment starting in mid-2021. From mid-2022 until mid-2023, firms' investment exceeded expectations. This is partly explained by more resilient economic activity (real GDP also outperformed expectations over the same period), and stronger investment that took place despite higher borrowing costs, which also exceeded expectations. The sharp increase in the firms' profits, which rose up to 2 percentage points above expectations in early 2023, explains these developments. In parallel, tougher credit standards align relatively well with the expectations derived from the model.

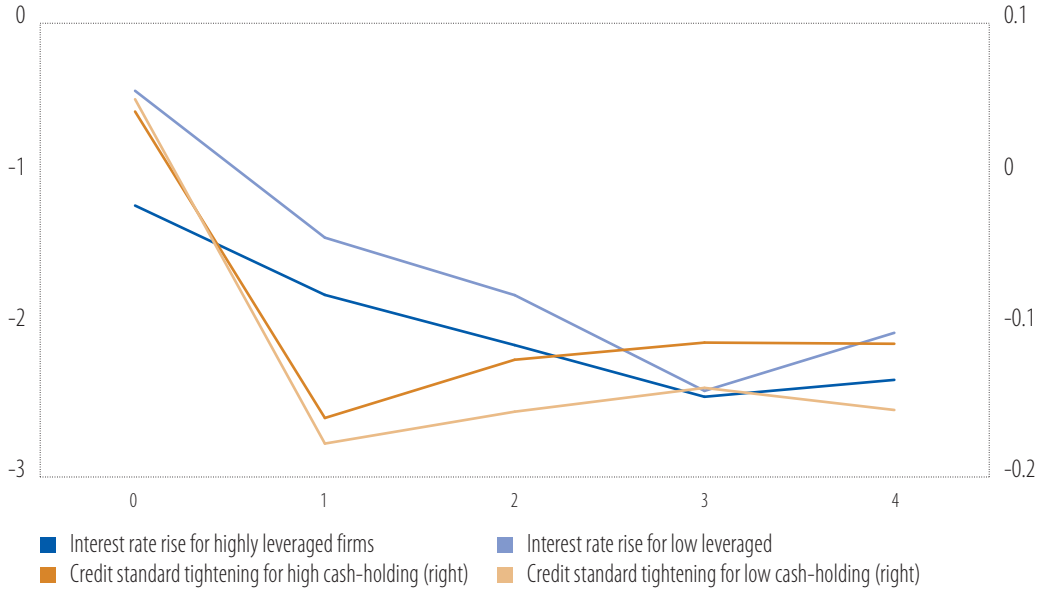
Figure 17
Impact of monetary policy tightening on investments and main financing variables



Source: *EIB staff calculations based on the ECB and Andersson et al. (2021).*
Note: *Bayesian vector autoregression (BVAR) estimations based on Andersson et al. (2021). The unconditional projection starts in the second quarter of 2021.*

The reaction of firms' investment to tighter monetary policy varies by type of firm. Figure 18 represents how investment reacts when interest rates rise 100 basis points or when the net balance of firms reporting tougher credit standards increases 10 percentage points (Alvares et al., 2024). In both cases, investment is negatively affected, but the response to interest rates is quicker. The investment rate decreases up to 3 percentage points the first year after the interest rate increase, and up 1.5 percentage points in the third year of tightening conditions. It is also interesting that in both cases, the negative response is more muted for firms with a stronger balance sheet, as these firms are less leveraged or have bigger cash holdings. Hence, the tightening in financial conditions is likely to hurt weaker firms more. Durante et al. (2020) also show that young firms and those producing durable goods are hit harder by monetary policy tightening.

Figure 18
How investment responds to interest-rate rises or credit tightening (left and right y-axes: the change in the probability of investing in percentage points; x-axis: years)



Source: *EIB staff calculations.*
Note: *See Alvares et al. (2024). The investment rate is measured as the relative change in firms' total assets.*

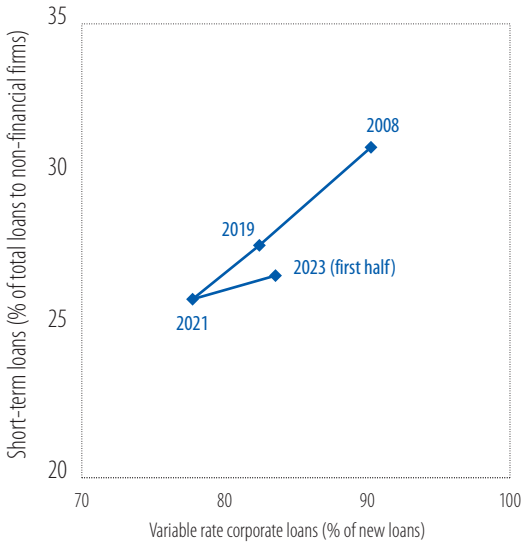
Finding alternatives to internal funding

Firms optimised their financial structure when rates were low, reducing their exposure to interest rate increases. Figure 19 shows the change in the shares of variable-rate loans and short-term loans. During the period of ultralow rates, firms restructured their bank loans to increase their maturity and lock them in at fixed rates. From 2008 to 2021, the share of variable rate loans declined from about 90% to 76%, and the share of short-term loans fell from 31% to 26%. Companies mainly have fixed rates with maturities of three to six years, which will gradually be refinanced at higher rates over time. Debt payments were less affected during the first period of monetary tightening[13] but the figure masks differences among EU countries. Fixed-rate loans are the norm in most euro area countries, while loans in Eastern Europe are more often based on variable rates, so the impact of tightening is more pronounced.

Firms' cash holdings are back to pre-COVID-19 levels. Figure 20 plots the cash position of firms over GDP. Following the pandemic support measures, firms tapped bank loans and built up cash in bank deposits (EIB, 2022). As the opportunity costs of holding cash rose, firms shifted into less liquid assets with better returns than bank deposit rates. Together with accumulated profits, cash and liquid asset holdings have financed the investment recovery, decreasing the cash firms have on hand. As of the first half of 2023, cash holdings are back on their pre-COVID-19 trend, down by 2 percentage points of GDP in late 2022.

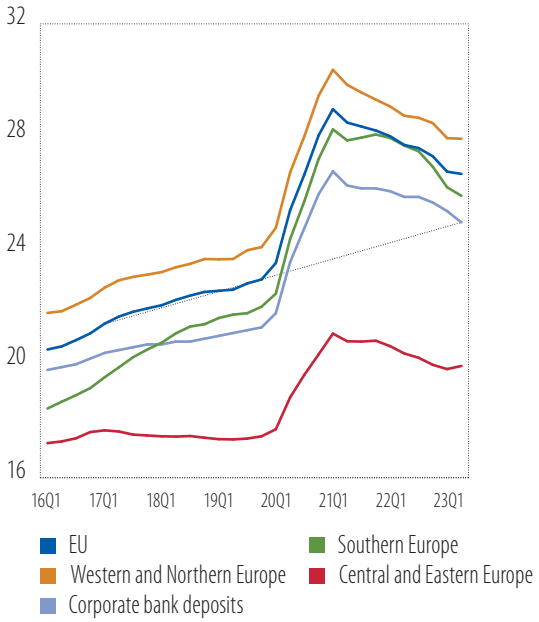
13 Ampudia et al. (2023) argue that the change protects firms against a sharp increase in financial costs/default and allows existing investment projects to continue. However, it still prevents new projects with substantially higher interest rates from being started.

Figure 19
Rates and maturities of corporate loans



Source: *Eurostat and EIB staff calculations based on the ECB.*
Note: *Short-term loans have an original maturity of less than one year.*

Figure 20
Cash and liquid-asset holdings
(% GDP)



Source: *EIB staff calculations based on Eurostat data.*
Note: *The light blue line expands the pre-COVID-19 trend.*

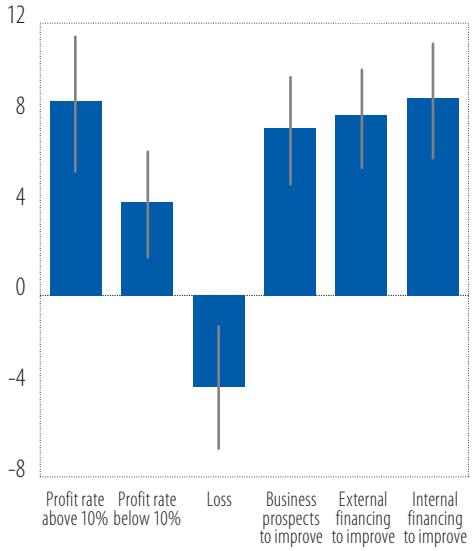
Firm characteristics influence the investment outlook. We use probit models to estimate the impact of financial indicators on investment plans, after controlling for several factors. The results are reported in Figure 21. Profitable firms are more likely to accelerate investment – up to 8 percentage points more for firms with high profits (of above 10% of turnover). Conversely, those that record losses are 4 percentage points less likely to raise investment. The impact of improving business prospects, access to external sources of finance and internal funding capacities are all positive and of a similar magnitude, around 8 percentage points. These effects, which are significant, confirm the role internal and external finance conditions play in investment decisions.

We look at two indicators of funding difficulties: one related to external funding and the other related to internal funding. Funding difficulties have a structural and a cyclical dimension. Structural barriers include how developed financial sectors are, or firm-specific characteristics like transparency, credibility, profitability or the share of tangible assets. But difficulties also vary with financial cycles. The "external funding difficulties" indicator is the share of profitable firms that need a loan but either were discouraged, did not receive it or received less than they needed, and the share of firms reporting that their external financing conditions worsened.[14] The "internal funding difficulties" indicator is the share of profitable firms reporting that their internal financing conditions worsened.[15]

14 When analysing for deteriorating external financing conditions, we account for financial viability by excluding firms if they have not been profitable for three consecutive years, as their lack of investment is likely the result of internal issues.

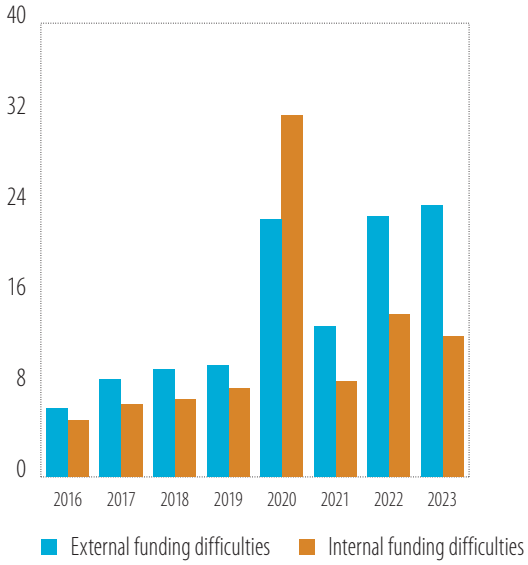
15 Again, to exclude the impact of unviable "zombie" firms, which are less likely to invest, only firms that have been profitable for three consecutive years are considered when analysing worsening financing conditions.

Figure 21
Impact on the probability of accelerating investment (EU estimates, percentage-point change in a firm's propensity to accelerate investment)



Source: *EIB staff calculations based on the EIBIS 2018-2023.*
Note: *For each impediment, a probit model is estimated to fit investment plans next year and over the three next years. Country, size, and sector dummies are used as controls.*

Figure 22
External and internal funding difficulties (% of firms)



Source: *EIB calculations based on the the EIBIS 2016-2023.*
Note: *See Ferrando and Pál (2024).*

External and internal funding difficulties evolve differently. Figure 22 shows the substantial variations in the indicators over time. The indicators tend to move in tandem. They react counter-cyclically with economic activity. Most of the time, external funding difficulties are more pronounced – except for in 2020 during the COVID-19 crisis, when profits slumped while external finance was supported by government guarantees. External funding conditions deteriorated even more recently, affected by sharp monetary tightening. This was much more pronounced than the deterioration in internal funding. Interestingly, the gap has widened since 2022 when the tightening started. In 2023, 14% of firms face internal funding difficulties, well below the 24% of firms facing external funding difficulties.

Both internal and external financing conditions have a bearing on investment. Ferrando and Pál (2024) estimate models with treatment effect methods to analyse the impact of internal and external funding difficulties on firm investments. The models control for firm characteristics and major investment barriers like uncertainty.[16] The results are reported in Figure 23. Firms facing external funding difficulties are 5 percentage points to 7 percentage points more likely to report an investment gap than those with no external funding difficulties. The effect is higher for firms with smaller cash holdings. In fact, a firm with external funding difficulties and low cash is 10 percentage points more likely to report an investment gap than one with external funding difficulties but a large cash buffer. The strongest impact is registered by firms with internal funding difficulties that are, on average, 14 percentage points to 23 percentage points more likely to report a funding gap.

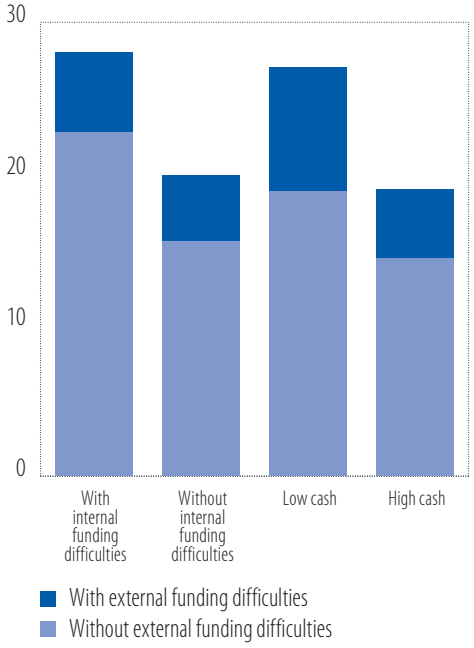
The combination of internal and external funding difficulties magnifies the impact on investment. Internal funding has supported investment, but that is changing. Figure 23 shows that internal funding

16 The investment gap is constructed from the EIBIS 2023 with the value one if the investment over the last three years was "too little." This can be considered a loss to potential investment or potential growth (although the firm may still have positive and increasing investment compared to the previous year).

conditions and the availability of cash are important drivers of investment. The negative impact of deteriorating external financing conditions on investment is magnified for firms with internal funding difficulties and low cash holdings. Thus, internal financing conditions and cash holdings soften the impact of external funding difficulties on investments, but cannot compensate fully. This impact is statistically significant even for cash-rich firms and those whose internal financing capacities have not deteriorated.

Figure 23

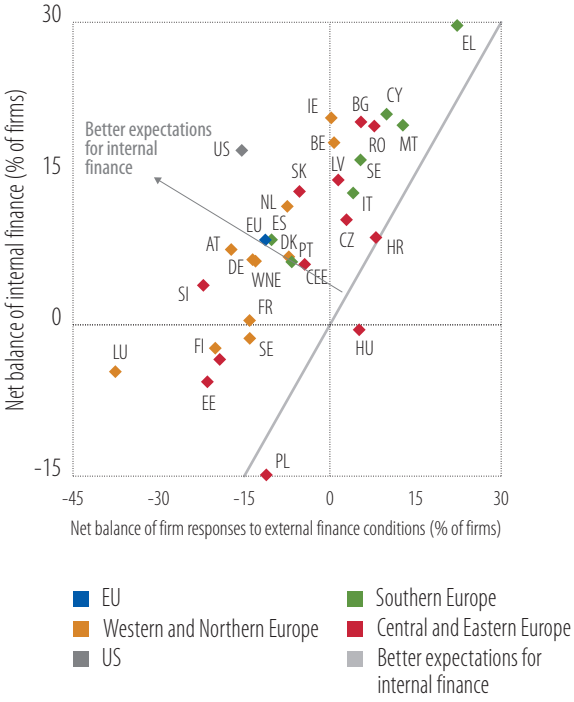
Impact of funding difficulties on the investment gap (% of firms)



Source: *EIB staff calculations based on the EIBIS 2016-2023 and Ferrando and Pál (2024).*
Note: *Estimation based on the treatment effect of external funding difficulties on the investment gap. Control variables include profitability, equity share, financial leverage, cash holdings and innovativeness and the main investment barriers, such as uncertainty, availability of skilled staff, market demand for products and access to digital infrastructure.*

Figure 24

Outlook for internal and external financing



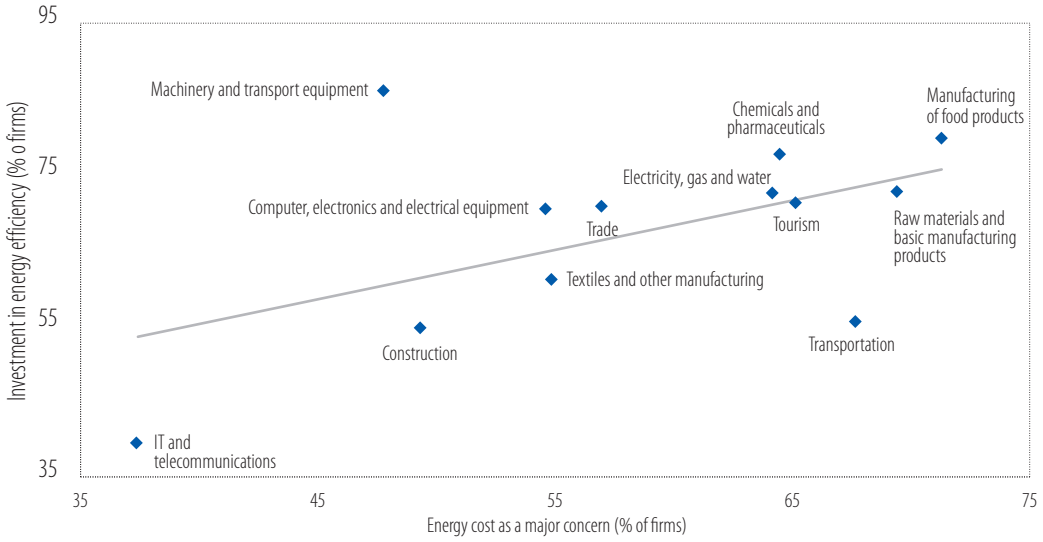
Source: *EIB staff calculations based on the EIBIS 2023.*
Question: *Do you think that each of the following will improve, stay the same, or get worse over the next 12 months?*

The outlook for external finance is bleaker. Figure 24 shows that for financing, expectations regarding the availability of external credit are more negative than those regarding internal profits. The willingness to rely on internal financing has increased in most countries across the European Union, from 16% in 2021 to 25% in 2023. This willingness is supported by strong profits. Firms' stronger reliance on internal funds is likely to continue as access to external funding toughens – however, cash buffers have shrunk.

Investment will become less cyclical and will be supported by the needs of the green transition. Corporate investment will slow down as tougher financing conditions take hold, and could possibly decline in 2024. But many firms view the green transition as an opportunity to increase investment, largely because those investments are boosted by national and EU strategic targets and support packages like the European Green Deal. Moreover, concerns over energy costs incentivised green investments, especially for energy efficiency. Figure 25 correlates the share of firms that see energy costs as a major concern and the share planning to invest in energy efficiency and generation for 12 sectors. Energy concerns increase the need for green investment, supporting investment to reduce the energy bill.

Figure 25

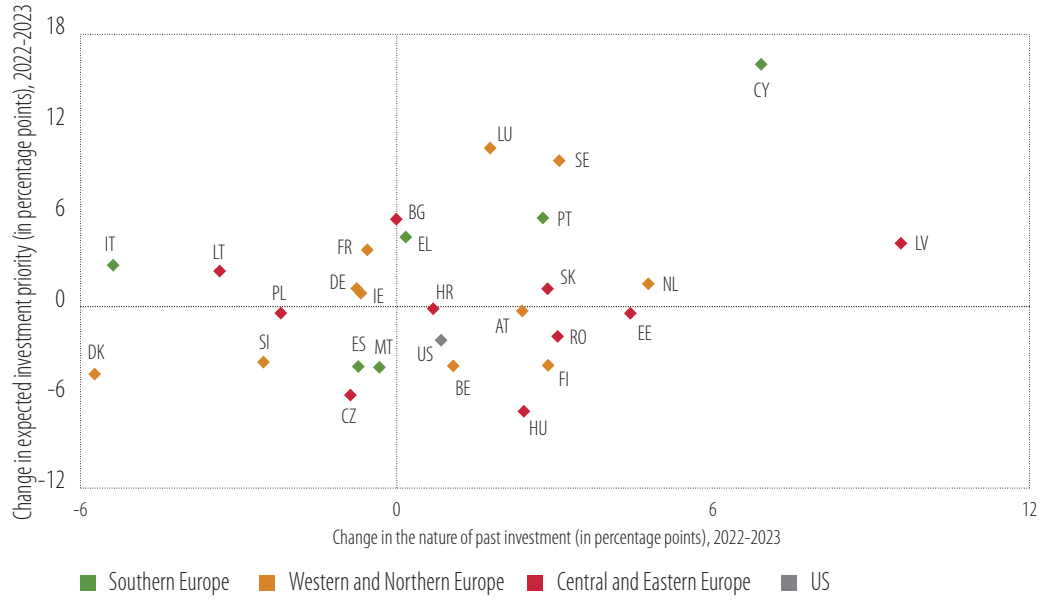
Energy prices as a major concern and investment in energy efficiency and/or energy generation



Source: *EIB staff calculations based on the EIBIS 2022-2023.*
Question: *X-axis: Thinking about the energy shock, to what extent is your company concerned about. A. Energy prices. Y-axis: Is your company investing or implementing any of the following, to reduce greenhouse gas emissions? B. Investing in energy efficiency; C. Onsite/offside renewable energy generation.*

Figure 26

New products: past change in the share of investment and expected to be a new investment priority



Source: *EIB staff calculations based on the EIBIS 2023.*
Question: *X-axis: What proportion of the total investment in last financial year OR the 2022/23 financial year OR the 2021/22 financial year was for. A. Developing or introducing new products, processes or services; Y-axis: And looking ahead to the next three years, which of the following is your investment priority. B. Developing or introducing new products, processes or services.*

Competitiveness and innovation also create a protective barrier for investment. Harasztosi et al. (2023) show that crisis can be catalyst for change, forcing firms to reprioritise investment. And firms have strengthened investment in digitalisation since the deployment of policies during the COVID-19 crisis. Figure 26 plots the past changes in the share of investment in new products against the change in priorities looking forward. The two dimensions are correlated. Firms that have invested more in new products want to continue doing so, as they are conscious of the need to transform their business. In 2023 most firms did, in fact, increase the share of investment in new products despite the economic slowdown, as this type of investment is less cyclical and more oriented towards the longer term.

Structural changes could make investment less sensitive to business cycles. Lagarde (2023) emphasises that in recent years global economies have undergone three shifts. First, profound changes in the labour market and the nature of work have altered the supply of workers and the composition of jobs. Second, the energy transition and accelerating climate change are triggering profound transformations in global energy markets. And third, a deepening geopolitical divide is causing the global economy to fragment into competing blocs, with rising levels of protectionism. Whether these shifts will be permanent is not yet clear. What is clear is that, in many cases, their effects have been more persistent than initially expected. These shocks can also trigger policy responses, which move the economy as well. Ploughing investment into the energy transition, the digital transformation and defence, for example, would make it largely insensitive to the business cycle.

Investment impediments and structural bottlenecks

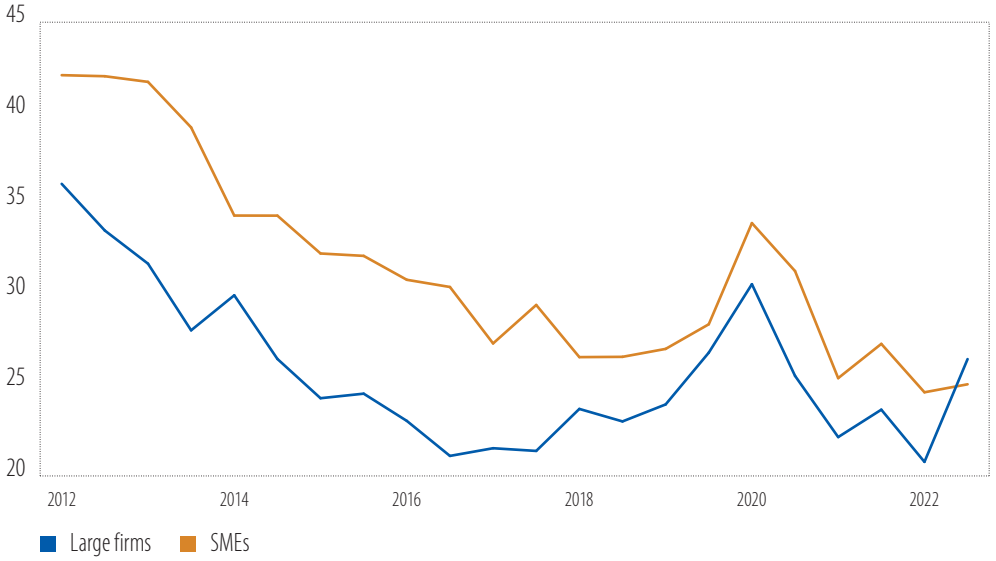
We show that the European economy is structurally more adverse for smaller firms, and that firms scaling up have a hard time finding finance. Part of the problem is that the EU financial system is underdeveloped for some types of products and markets when compared to more market-based financial systems like the United States. In parallel, firms surveyed in the EIBIS 2023 report structural barriers to investment. Some types of barriers are concentrated among firms with very strong capital expenditures, but the removal of these impediments would result in even higher growth for these already well-performing companies. However, most of the impediments limit capital spending resulting in low performance and below average growth, and their removal would unlock investments.

A proper securitisation market can improve small firms' access to finance

Access to finance is a structural problem for smaller firms. Financing providers are generally more reluctant to extend uncollateralised credit to SMEs, even at high interest rates. As a result, many smaller firms with economically viable projects cannot obtain the necessary financing from financial institutions. This phenomenon is often referred to as the SME financing gap – a market failure whose outcome is a sub-optimal equilibrium. It is rooted in the existence of information asymmetries, which lead to the rationing of credit either through the selection of low-quality borrowers or moral hazard issues, such as firms' taking on more risk when they receive loans, assuming part of the cost of default will be borne by the bank (Akerlof, 1970; Jaffee & Russel, 1976; Stiglitz & Weiss, 1981).

The extensive support programmes significantly improved the availability of finance after the pandemic (Figure 27). In the immediate aftermath of the pandemic, public support ensured that external finance remained available (attesting to the effectiveness of these policy initiatives). The majority of smaller European firms had access to some sort of government measure to ensure liquidity. These programmes mostly helped firms to finance working capital needs and meet their short- and medium-term obligations. Nearly half of SMEs reportedly tapped these programmes to pay for salaries (ECB, 2022).

Figure 27
Share of euro area firms that say access to finance is an important issue (in %)



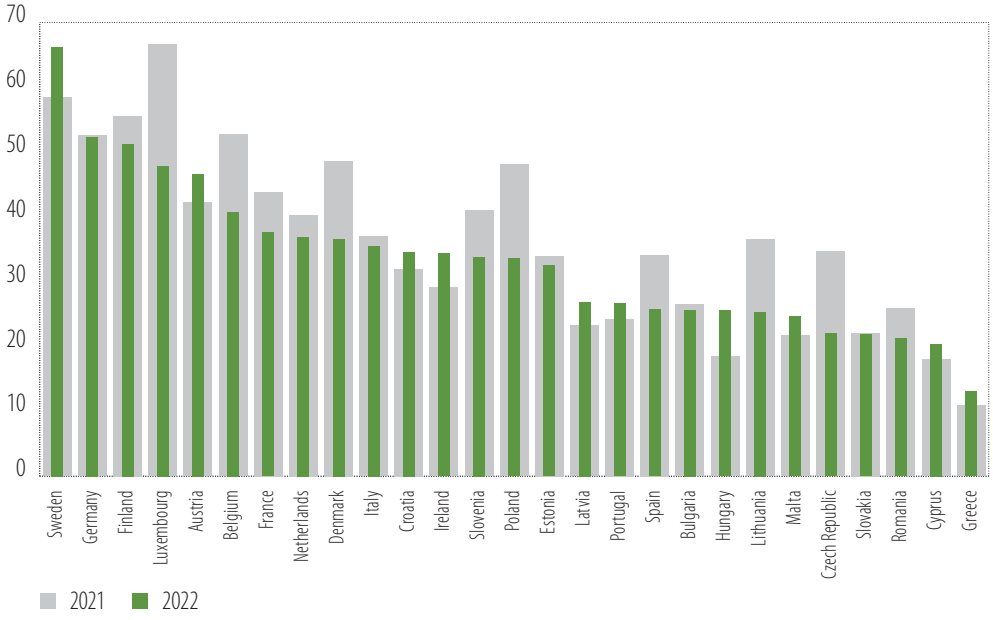
Source: *European Small Business Finance Outlook (Kraemer-Eis et al., 2023a) based on data from the Survey on Access to Finance for Enterprises by the ECB and the European Commission.*
Note: *Share of firms that ranked access to finance as an issue in the six preceding months, giving it at least a seven out of a maximum of ten.*

Small and medium firms' access to finance differs markedly across countries, as evidenced by the EIF SME Access to Finance Index. While smaller firms have better access to finance than in the past, mid-caps and large firms are encountering problems. During the second half of 2023, the share of firms ranking access to finance as highly important issue jumped nearly six percentage points, to 26.5%, the largest rise recorded in a single period since measurements began. However, the EIF SME Access to Finance Index (ESAF) shows that financial conditions differ markedly between countries (Figure 28).[17] Lately, the negative economic outlook and lack of public financial support have driven fluctuations in the index (European Central Bank (ECB), 2023).

European SMEs rely strongly on debt in general, and on bank lending specifically. Figure 29 shows the financial sources used by smaller firms. Overdrafts remain the most popular source of financing, with 27% of small and medium firms having used it during the last half of 2022. After support measures were introduced following the pandemic, subsidised financing products such as loans and grants briefly overtook leasing as the second most widely used source of external financing, with one in four SMEs in the euro area reportedly having used them in 2020. This share declined strongly as support programmes were phased out, but it appears to have stabilised in the course of 2022 (albeit above levels before the pandemic). The share of euro area SMEs using equity financing declined during the second half of 2022, from 1.3% to less than 1%, the lowest figure since the first Survey on Access to Finance for Enterprises (SAFE) was conducted in 2009.

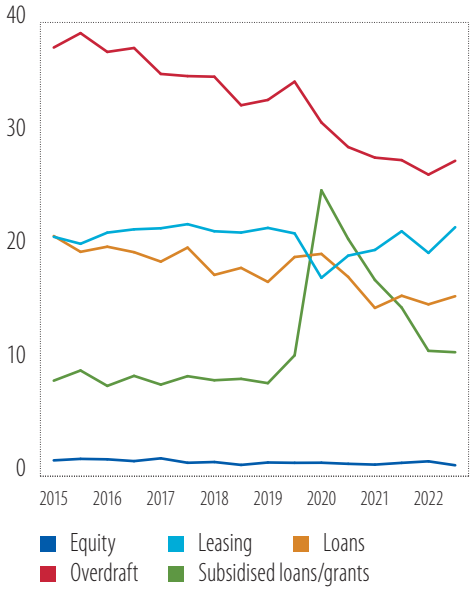
17 The ESAF is a composite indicator that summarises the state of SME financing for each of the EU Member States and covers different aspects of SME access to finance. It is composed of four sub-indices, three of which cover a specific SME financing instrument. The fourth sub-index covers the general macro-environment. See Torfs (2023).

Figure 28
EIF SME Access to Finance Index (% of firms)



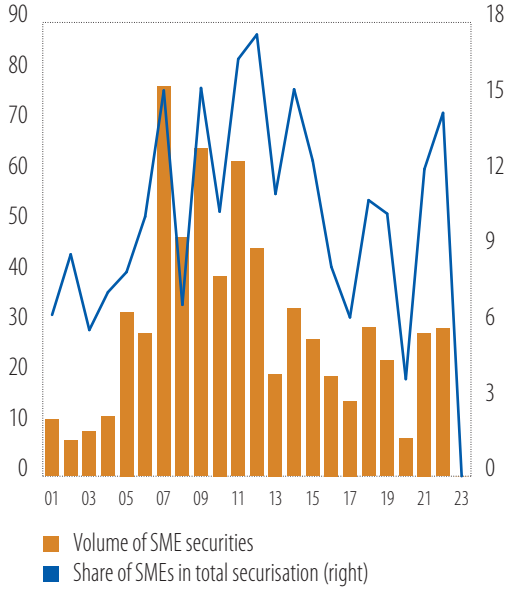
Source: *European Small Business Finance Outlook (Kraemer-Eis et al., 2023a) based on Torfs (2023).*

Figure 29
Sources of finance for small businesses in the last six months (% of firms)



Source: *European Small Business Finance Outlook (Kraemer-Eis et al., 2023a) based on SAFE data.*

Figure 30
Issuance of securities by small businesses (left axis: volume, in EUR billion; right axis: share of total securitisation, in %)



Source: *European Small Business Finance Outlook (Kraemer-Eis et al., 2022b) based on data from Invest Europe.*
Note: *Firms located in Europe only.*

A smoothly functioning securitisation market can transform illiquid SME loans into assets with sufficient market liquidity. SME securitisation grants smaller firms indirect access to capital markets, as it allows financial institutions to transfer credit risk from their SME loans to investors. In turn, it enables investors to access a diversified portfolio of SME loans, spreading risk across multiple borrowers and sectors. This securitisation can therefore improve the availability of finance. Securitisation transactions can be backed by a variety of debt instruments like SME loans, leases or other products.

Following a strong dip in issuance during the initial phase of the pandemic, the SME securitisation market quickly recovered to levels before the crisis (Figure 30). Market issuance volumes in 2022 (EUR 29.3 billion) matched those of 2021 (EUR 28.4 billion), driven entirely by activity in the fourth quarter. 2023 got off to a slow start, with no issuances in the first half of the year. However, it should be remembered that recent years have seen a significant rise in the number and volume of synthetic SME securitisation[18] transactions not visible in these official statistics (unrated bilateral transactions, for example).

European SME securitisation activity remains historically subdued. Issuance was still suffering from the after effects of the global financial crisis when COVID-19 broke out. This is unfortunate, as the resulting stain on the securitisation market's reputation is largely unjustified. This market has the potential to grow and help address the negative economic effects of the series of crises that have hit the EU economy (the COVID-19 crisis, Russia's war against Ukraine and related consequences). Securitisation can also play an important role in the green transition.

Driven by investor demand, but also by risk concerns, sustainable financing in compliance with environmental, social and governance criteria is gaining importance in securitisation, and in structured finance generally. The sustainable securitisation market is still in its early days, but has the potential to play a significant role in the green transition. On 5 October 2023, the European Parliament adopted a regulation creating a European standard for green bonds. For a bond to meet this standard, its proceeds must be used for green purposes, as defined in the EU taxonomy.[19] A bond must also be verified by a new type of agent, to be regulated by the European Securities and Markets Authority. Securitisations can be awarded the EU Green Bond Standard label, and therefore can be considered "green" for investment purposes regardless of the "greenness" of the securitised assets.

The lack of private equity and venture capital finance is weighing on promising firms

Private equity and venture capital are very important sources of finance for companies trying to scale up, but they are underdeveloped, and risk being hurt by high interest rates. Private equity is a form of equity investment in private companies not listed on the stock exchange.[20] It is a medium- to long-term investment characterised by active ownership – for example, by strengthening a company's management, improving operations and helping companies access new markets. Venture capital is a type of private equity focused on startups with high growth potential. It finances entrepreneurs who have innovative ideas for a product or service, and who need investment and expertise to grow their companies.

Some important EU sources of finance are underdeveloped

Young European firms need more financing to grow. Venture capital investment in fast-growing US firms, or scale-ups, is six to ten times greater than in their European counterparts. Controlling for the size of the economy, venture capital investment in EU scale-ups is about 2% of GDP, vs. 6% in the United States and 7% in the United Kingdom. While China currently invests only 1% of GDP in venture capital financing for scale-ups, this figure is bound to grow. The lack of financing in Europe has translated into fewer scale-ups,

18 In synthetic securitisation, the ownership of the securitised exposures remains with the originator, that is, the exposures remain on the balance sheet, and the credit risk is transferred with the use of credit derivatives or financial guarantees.

19 The EU taxonomy is a classification system for economic activities that are aligned with the European Union's net-zero carbon goals.

20 See Invest Europe .

fewer unicorns and fewer deals. European scale-ups are also less able to rely on venture capital financing than their US counterparts, and resort to other sources (such as private equity). In addition, they suffer from smaller capital markets. These constraints can push firms to relocate or search for foreign buyers.

The financing needs of firms scaling up remain large. While EU investment has remained resilient so far, the tightening of financing conditions has affected scale-ups disproportionally, further increasing the financing gap. Targeted support for this market segment would soften the effects of the cyclical contraction in investment and better equip scale-ups to compete on the global scene, while providing the innovation needed to support European goals like the green transition.

The gaps in scale-up financing are difficult to fill. The smaller European venture capital industry with its shorter track record (16% of EIF survey respondents), and the underdeveloped initial public offering (IPO) market (15% of survey respondents), were cited as the key reasons that fast-growing companies were not getting the funding they need. These respondents considered increased engagement by large institutional investors to be the most effective factor in bridging the late-stage financing gap.

The difficulties firms face in accessing venture capital finance limits their innovation and growth. Scale-ups are typically innovative firms, with high growth potential and the possibility of improving productivity and creating new businesses and industries. Underfinancing these companies has implications for growth in the European Union as a whole. In addition, the slowdown in venture capital investment observed recently in connection with tighter monetary policy has affected scale-ups more severely.

The difficult economic environment is causing venture capital and private equity to shrink

Venture-backed startups are historically vulnerable to recessions and economic slowdowns. The dot-com crisis in the early 2000s and the global financial crisis of 2007-2008 led to significantly lower fundraising and investment volumes. This caused a near collapse of the European private equity market, as fundraising and investment declined by up to 75% of levels before the global financial crisis (Figure 31). Similar events occurred on the venture capital markets.

The latest waves of the EIF Venture Capital Survey and the EIF Private Equity Mid-Market Survey confirm that market sentiment deteriorated further in 2023. Geopolitical and macroeconomic uncertainties are straining the European private equity and venture capital markets. However, the EIF survey results also suggest that markets may have already hit bottom, and that a moderate upturn could be expected going forward. See Box B for details of the most recent results of the EIF Venture Capital Survey.[21]

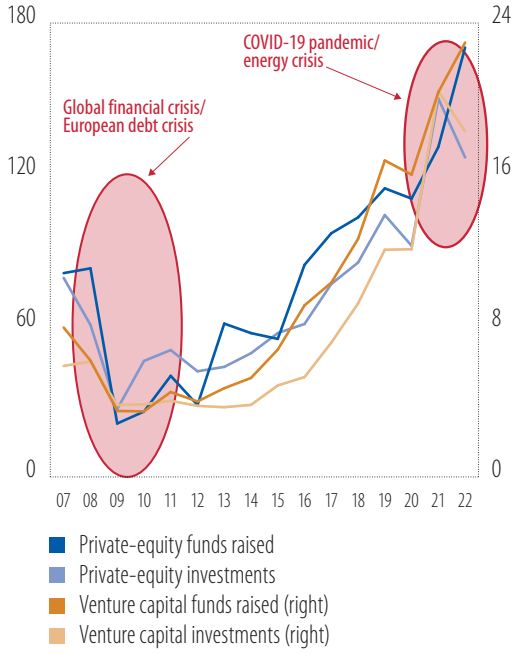
Investment in EU venture capital and private equity markets declined in 2022 (Figure 31). Compared to 2021, Europe's private equity investments declined 16% to EUR 127 billion. Venture capital investments evolved similarly, totalling EUR 18 billion in 2022. Although fundraising continued to grow significantly for both markets during this time, by the end of the year fundraising had dried up. Their multiyear upswing came to an abrupt halt amid high inflation and the resulting tightening in monetary policy and tougher financial markets.

Monetary tightening has caused venture capital investment to contract severely. In 2021, venture capital investment grew strongly, spurred by high liquidity and cheap financing (Figure 32, left side). Venture capital financing expanded 43% in 2021 compared to the previous year in the European Union (close to the 49% recorded in the United States), as non-EU investors and non-traditional investors like asset managers and private equity funds looked for attractive deals. A similar pattern can be observed for private equity financing. But venture capital and private equity investment pulled back in 2022, contracting 20% in the European Union, and 52% in the United States (Figure 32, right side). The higher cost of financing and a lower appetite for risky investment dampened interest. The negative impact of monetary tightening on venture capital investment continued in 2023, globally and in the European Union.

21 The EIF Private Equity Mid-Market Survey 2023 was performed in parallel to the EIF Venture Capital Survey 2023. The results of the EIF Private Equity Mid-Market Survey 2023 are being prepared for publication.

Figure 31

Funding provided by private equity and venture capital (left axis: private equity, in EUR billion; right axis: venture capital, in EUR billion)

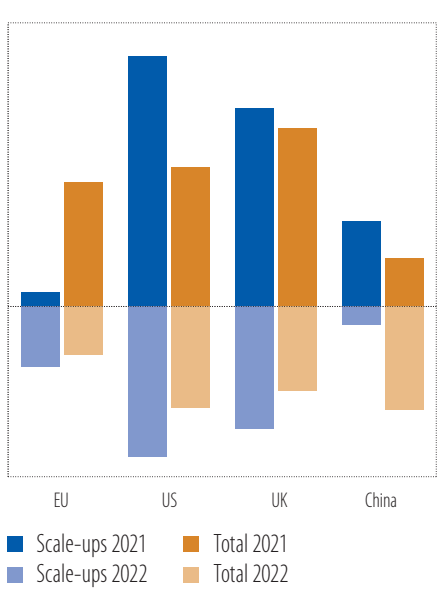


Source: *European Small Business Finance Outlook (Kraemer-Eis et al., 2023a), based on Invest Europe figures.*

Note: *Venture capital divestments are based on the European portfolio companies of private equity or venture capital firms worldwide, dependent on the availability of data.*

Figure 32

Venture capital investment based on firms' evolution (% change from a year earlier)



Source: *EIB staff calculations based on PitchBook data, Inc.*

Box C

Findings from the EIF Venture Capital Survey 2023

The EIF Venture Capital Survey and the EIF Private Equity Mid-Market Survey are unique sources of insight. When combined, they form (to the best of our knowledge) the largest regularly recurring survey of private equity and venture capital fund managers in Europe. The 2023 wave focused on market sentiment, financing for firms scaling up, human capital and skills. The survey results provide insights into the current market situation, developments in the recent past, and market participants' expectations for the future. The results are also summarised and compared over time and across crises.

Venture capital market sentiment deteriorated significantly

The venture capital survey results shed light on how the current macroeconomic environment affects the market sentiment of venture capital fund managers. The respondents' perceptions of the fundraising environment and the possibility of exiting investments are the lowest since the first EIF Venture Capital Survey in 2018. In 2023, the exit environment has become a big

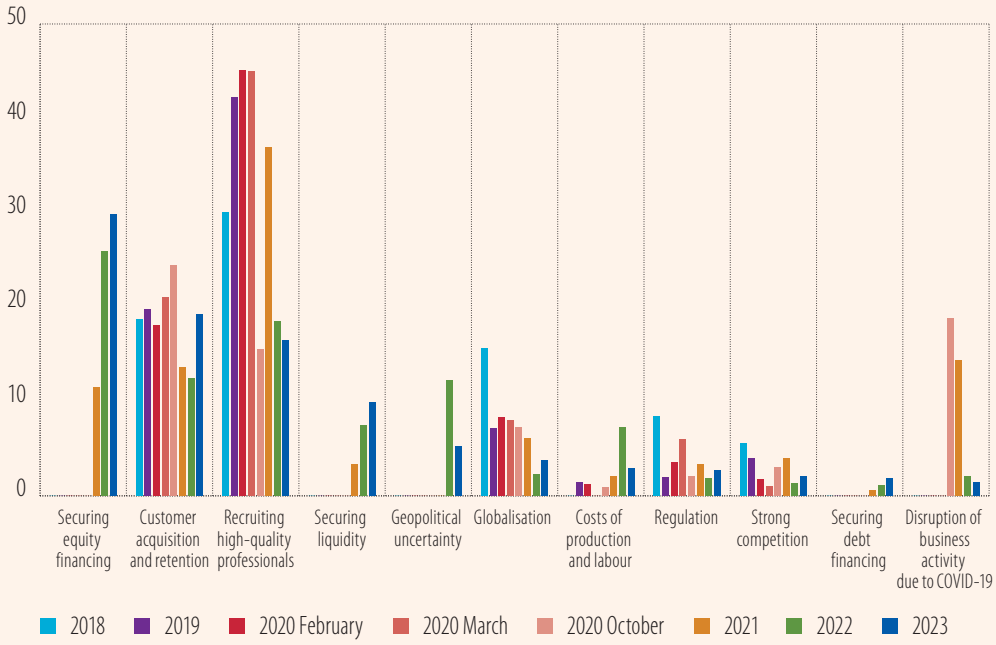
challenge for these fund managers. According to the majority of respondents, exit prices have further decreased, and they are suffering from insufficient liquidity in the IPO market and difficulty finding potential buyers.

This is compounded by the impact of interest rates on investment preferences. Venture capital fund managers are concerned that high interest rates will cause major investors to shift their focus to asset classes that offer better risk-reward. They also warn of the negative impact of rising rates on portfolio companies' performance. At the same time, they fear that a prolonged increase in interest rates could dampen investors' appetite for venture capital funds, as investors are lured by sectors and companies that are less sensitive to interest rate movements. While these results generally hold across sectors, venture capital fund managers investing in clean-tech companies, which provide the solutions and innovation needed for the green transition, are slightly more concerned about high interest rates hurting performance, and investors preferring activities that are less sensitive to interest rates.

While on average, respondents still reported a higher number of new investments, the pace has slowed considerably. In the same vein, a large share of venture capital fund managers cited difficulty finding co-investors. Consistent with these findings, the majority of respondents reported decreases in competition among investors and prices paid for investments in companies. High valuations of companies looking for investment are no longer a prominent challenge.

Figure C.1

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



Source: *European Small Business Finance Outlook (Kraemer-Eis et al., 2023a).*

Companies in venture capital fund portfolios performed worse than they did during the COVID-19 crisis, and respondents anticipate more insolvencies than in the previous year. Portfolio companies' access to external finance has worsened significantly. A record two out of three venture capital respondents reported a decrease in valuations of portfolio companies. Securing equity financing remains the biggest challenge for portfolio companies, followed by recruiting skilled professionals and customer acquisition and retention.

Investments are difficult to exit

The exit environment worsened significantly in 2023 according to almost 75% of venture capital fund managers. In fact, alongside fundraising, it has become their biggest obstacle. Regarding exit routes, the relative importance of IPOs and trade sales decreased, while insolvencies, secondary sales and sales to financial investors increased[22] IPOs and sales of listed shares were largely based on listings outside the European Union.

The key challenges of the exit environment are insufficient liquidity in the IPO market and difficulty finding potential buyers. Venture capital exit prices continued to decrease according to 77% of respondents (and as anticipated in last year's survey). Nevertheless, one in three managers expects prices to recover over the next 12 months.

In fact, although many market sentiment indicators from the 2023 survey had deteriorated further since 2022, expectations for the next 12 months have improved for most of the categories. However, time, confidence in the venture capital industry's long-term growth prospects declined in 2023.

Firms have difficulties finding scale-up financing

In addition to the above challenges, venture capital fund managers say they are facing severe fundraising issues and having difficulty finding private investors for their funds. Insufficient scale-up finance for venture-backed companies, as well as limited investments by partners, are further exacerbated by the difficult exit environment. Respondents say that for firms to effectively scale up, they need more global investors in EU venture capital markets and better options for taking companies public.

European firms trying to scale up are particularly squeezed by monetary tightening. In the United States the 2021 expansion and the 2022 contraction in venture capital investment were driven by deals with scale-ups. But the abundant liquidity of 2021 passed EU scale-ups by, with venture capital investment in these firms growing just 5% that year (well below average for previous years). Then in 2022, the drying up of liquidity caused venture capital investment to decrease more than the rest of the market, as the number of deals and venture capital funds shrank.

The lack of exit options for investors will likely hit scale-ups harder. Barriers to finding alternative financing present another challenge for scale-ups. Those barriers include the general indebtedness of firms and less lucrative exit options linked to a 50% decline in IPO activity in 2022 and lukewarm activity in 2023. Mergers and acquisitions were a relatively attractive exit option in 2022, and they remained stable, with large firms seizing on reduced market valuations and liquidity that was available to acquire smaller ones.

Capital raised for scale-up firms has also decreased. Capital raised by venture capital funds specialising in the European Union – a leading indicator for future venture capital financing – decreased by 34% in 2022, and particularly slumped for later-stage funds. Thus, while venture capital expectations for the next 12 months have improved, the current decline in fundraising will likely continue to affect venture capital-backed companies (and especially scale-ups) going forward.

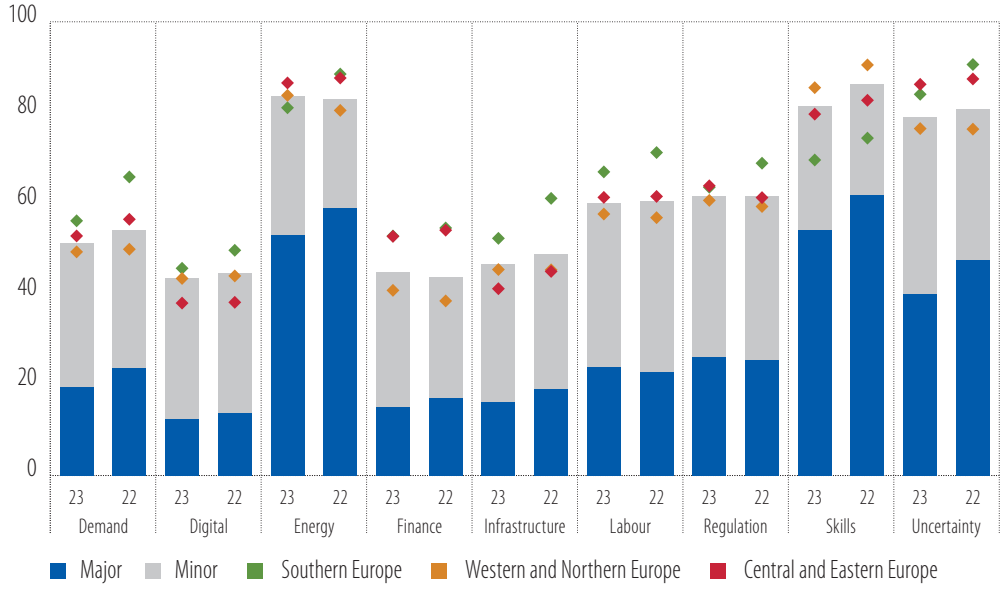
Overall, the gap in finance for firms scaling up reflects delays in the Europe's capital markets union. Limited exit options, as well as the limited size and strength of funds for scaling up companies are constraining the development of a robust private equity market.

22 See Kraemer-Eis et al. (2023a). Definitions of the exit routes are available at www.eif.org/research.

Removing structural impediments would unlock investments

We investigate the link between firms' investment and the obstacles they perceive. It is unclear whether investment obstacles can explain investment gaps. First, there is no one-to-one relationship between the business environment and how it is perceived. An environment that is perfectly acceptable to an entrepreneur in one country may be viewed as problematic by an entrepreneur in another. Furthermore, while all obstacles can constrain investment, there are questions of causality, as firms that see opportunities to invest may encounter more obstacles. This subsection documents the association between investment obstacles and corporate investment behaviour. To set the stage, it first describes the investment obstacles considered in the EIBIS 2023.[23]

Figure 33
Investment obstacles (% of firms)



Source: *EIBIS 2022-2023.*
Question: *Thinking about your investment activities, to what extent is each of the following an obstacle? Is it a major obstacle, a minor obstacle or not an obstacle at all?*

In 2023, the most frequently cited investment obstacle is a lack of staff with the right skills. Figure 33 shows that in 2023, 54% of companies viewed skills as a major obstacle to investment, down from 62% in 2022. This is consistent with tight labour markets as reflected in a historically low EU unemployment rate. The decline from the last survey likely reflects a slightly reduced demand for skills as the EU economy has softened. Access to skills is a particular concern in Western and Northern Europe (59%), compared with 44% in Central and Eastern Europe and 43% in Southern Europe, where labour markets have greater slack.

Firms also cite energy costs and uncertainty about the future as major obstacles to investment. The share of firms concerned about energy costs has declined to 53%, down from 59% last year. Energy costs became a major concern after Russia invaded Ukraine, but they are now the most frequently cited major investment obstacle in Central and Eastern Europe (60%) and Southern Europe (58%). As for uncertainty, around 40% of firms view this as a major obstacle to investment, down from 47% last year. Logically, the share of firms citing uncertainty as an obstacle is high in times of crisis. In 2020, the first year of the

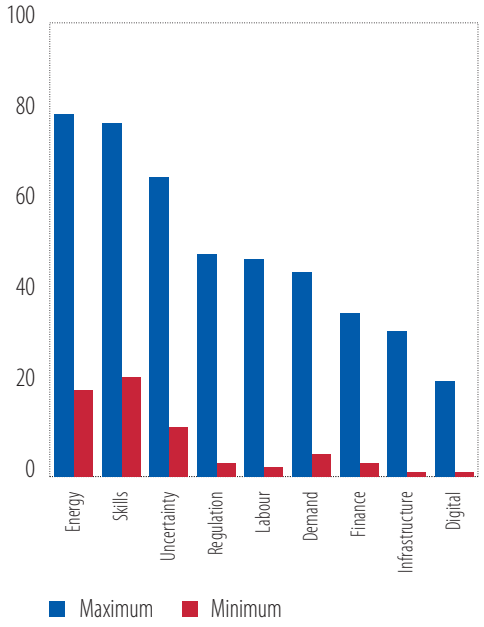
23 Every year the EIBIS survey has asked to what extent respondents view the following as obstacles to investment: (1) demand for products and services; (2) availability of staff with the right skills; (3) energy costs; (4) access to digital infrastructure; (5) labour market regulations; (6) business regulations and taxation; (7) availability of adequate transport infrastructure; (8) availability of finance; and (9) uncertainty about the future. This is asked with respect to investment activities in the country of interview. Respondents indicate whether each item is a major obstacle, a minor obstacle or no obstacle at all to investment.

COVID-19 pandemic, more than 50% of firms considered uncertainty a major obstacle to investment. The reading this year is comparable to 2021. However, more firms are concerned about uncertainty as a major obstacle in Central and Eastern Europe (45%) and Southern Europe (56%) than they are about skills.

The importance of investment obstacles differs from country to country. Figure 34 compares the largest percentage of firms citing each obstacle (whether as major or minor) with the smallest percentage. For example, in the country where energy costs are most frequently cited, 80% of firms in total consider it a major or minor obstacle. In the country where energy costs are least important, only 19% of firms view them as a major or minor obstacle. This variation is perhaps unsurprising, given that the survey question specifically refers to investment obstacles in the relevant country, and business environments typically vary more between countries than within them.

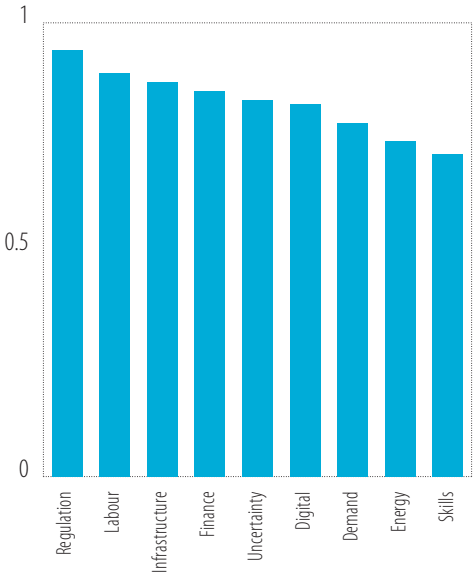
In sharp contrast, the ranking of obstacles is rather stable through time. Figure 35 displays the Spearman rank correlation coefficient for each obstacle at the country level. The correlation coefficient ranges from 0.70 for skills to 0.92 for regulation. This suggests that, for better or worse, the investment environment is evolving slowly.

Figure 34
Cross country variation (% of firms)



Source: *EIBIS 2023.*

Figure 35
Persistence of investment obstacles
(Spearman correlation)



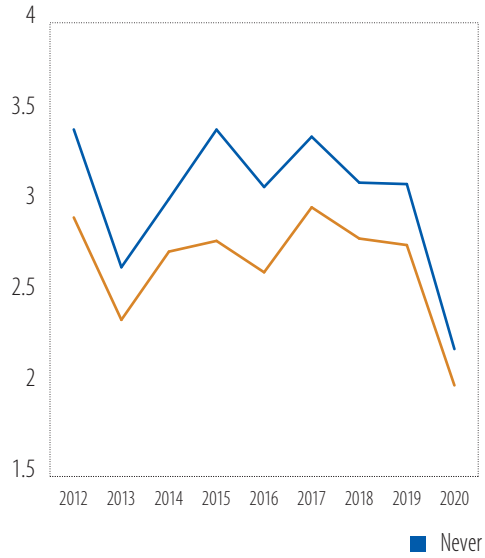
Source: *EIBIS 2016-2023.*
Note: *The Spearman correlation coefficient indicates the persistency of the obstacles over time.*

Firms that view demand as a major investment obstacle invest less. Below, demand is used as an example to discuss the link between obstacles and investment behaviour. Figure 36 presents the median ratio of gross investment to total assets for EIBIS firms. Firms that cited demand as a major obstacle in any survey also invested less than firms that never complained about demand. This pattern is intuitive, and in line with standard models of demand. However, the association also attests to the persistence of investment obstacles documented in Figure 35.

Firms that view skills as a major obstacle to investment invest more. Figure 37 presents evidence on skills shortages as an investment obstacle. Firms that perceive it as a major obstacle have higher median investment rates than firms that do not. In contrast with firms citing lack of demand as major obstacle,

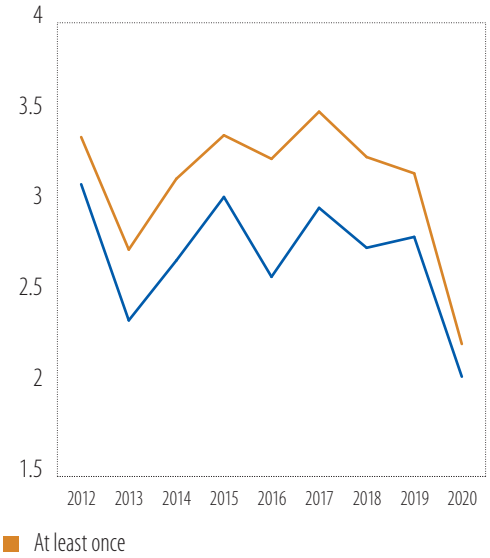
those citing a lack of skills seem to have opportunities to invest, and to more often encounter skills shortages as they try to realise those investment plans. It is tempting to suppose that skills shortages are relatively unproblematic because affected firms invest regardless, but this thinking is flawed. On the contrary, these firms would likely invest even more if the shortages were resolved.

Figure 36
Investment obstacles – demand (investment to total assets, in %)



Source: *EIBIS 2016-2023 and the Orbis database.*
Note: *The plot compares the median ratio of investment to total assets firms that said at least once that demand was an obstacle to investment compared to EIBIS respondents who never said demand was an obstacle.*

Figure 37
Investment obstacles – skills (investment to total assets, in %)



Source: *EIBIS 2016-2023 and the Orbis database.*
Note: *The plot compares the median ratio of investment to total assets for firms that said at least once that skills were an obstacle to investment compared to EIBIS respondents who never said skills were an obstacle.*

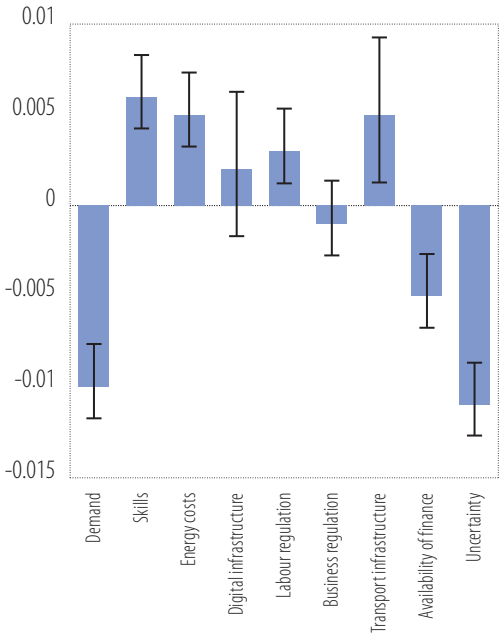
Regression analysis confirms the results on demand and skills. Figure 38 graphically represents a regression of investment obstacles in the previous period. By comparing firms by country, the regression also controls for unobserved factors that vary at the country level and are correlated with the business environment. This gives a more systematic account of the link between investment obstacles and investment than the bivariate evidence presented in Figure 36 and Figure 37. On average, firms that cite a lack of demand as a major obstacle invest 1 percentage point less in the subsequent period, while firms that complain about skills invest 0.5 percentage points more.

The relationship of perceptions and behaviour varies across the investment obstacles surveyed in the EIBIS. Like those concerned about skills, firms that view energy costs or transport infrastructure as major obstacles invest at a rate that is 0.5 percentage points higher than other firms. Those citing labour shortages also have significantly higher investment rates, though the estimated coefficient is smaller. Conversely, investment rates are lower for firms that view access to finance (0.5 percentage points) and uncertainty (1 percentage point) as major obstacles. There is no statistically significant association between investment and digital infrastructure or business regulation.

Economic theory can help clarify the regression results. According to theory, corporate investment policy equates the marginal cost of investment with the marginal increase in the present value of expected profits, typically referred to as marginal q (Hayashi, 1982). Profits accruing over a specific time are given by revenues minus production costs. Under certain assumptions, marginal q contains all information

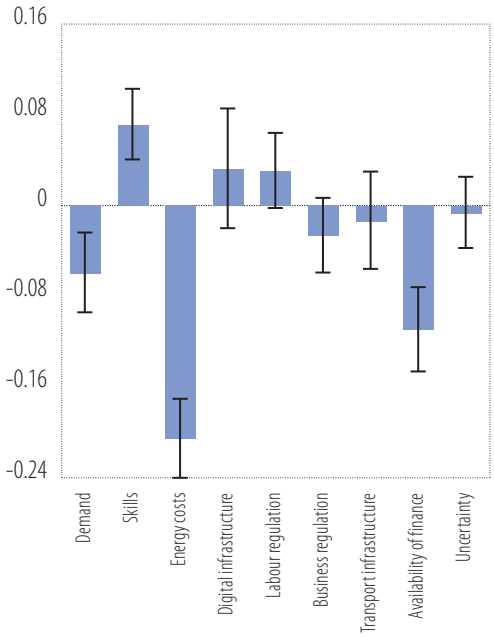
about a firm's investment opportunities. Unfortunately, marginal q is unobservable to the analyst.[24] Still, it can be useful to interpret the regression results through the lens of marginal q.

Figure 38
Investment obstacles – regression results



Source: *EIBIS 2016-2023 and the Orbis database.*
Note: *The chart presents coefficients from regressions of fixed investment to total assets on the respective investment obstacle. The error bars indicate 95% confidence intervals. All specifications control for country-time and country-sector fixed effects. Standard errors are robust with regard to heteroskedasticity.*

Figure 39
Investment obstacles and revenue productivity of capital – regression results



Source: *EIBIS 2016-2023, the Orbis database.*
Note: *The chart presents coefficients from regressions of marginal revenue productivity to total assets on the respective investment obstacle. The error bars indicate 95% confidence intervals. All specifications control for country-time and country-sector fixed effects. Standard errors are robust with regard to heteroskedasticity.*

Investment obstacles affect profits through various channels. A negative shock to demand puts downward pressure on prices, thereby reducing revenues. If skills are scarce, wages are set to rise. The same applies to energy costs. The availability of infrastructure and the quality of regulation affect the efficiency with which capital and labour can be converted into output. The regression coefficients reflect the relative strength of the firm's investment opportunities on the one hand, and of the obstacles on the other. Firms that invest more than the average despite encountering obstacles are likely to have plenty of investment opportunities. Alternatively, the obstacles may have a comparatively weak impact on marginal q. The opposite applies to firms that invest less than the average. Note that the estimates in Figure 38 have not been derived from a structural model of investment, and should therefore be considered purely informational.

The results on access to finance and uncertainty are in line with the literature. Models of credit rationing can generate underinvestment (Stiglitz & Weiss, 1981) as well as overinvestment (De Meza & Webb, 1987). However, a large body of empirical literature (Cingano et al., 2016; Berg, 2018; Ferrando

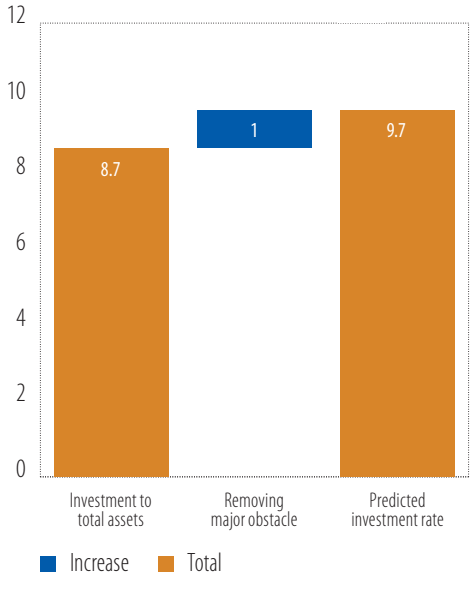
24 For listed companies, Tobin's Q (the ratio of the market value of existing capital to its replacement cost) is observable and, under certain assumptions, equal to marginal q. However, regressing average q on the obstacles is not a viable empirical strategy, as average q is only available for listed companies and the majority of EIBIS companies are unlisted.

& Mulier, 2022) finds that credit-rationed firms invest less. The result in Figure 38 is consistent with the literature. Uncertainty about the future, combined with the irreversible nature of the costs related to some decisions (such as hiring new workers), incentivises firms to postpone decisions until uncertainty is at least partially resolved (Dixit et al., 1994). This prediction is supported by empirical studies (Guiso & Parigi, 1999; Gulen & Ion, 2015) and Figure 39.

Firms that cite demand and access to finance as major obstacles to investment are less productive on average. Figure 39 presents results from a regression of the marginal revenue productivity of capital on investment obstacles. This is a first attempt to explore the link between the investment obstacles and allocative efficiency. In a context of decreasing marginal returns to capital, it is not problematic for a firm that is less productive to invest less. On the contrary, it is desirable for the firm to shrink and, in this way, to free up resources that can be put to more productive use elsewhere. This appears to apply to firms that view lack of demand and access to finance as investment obstacles. Firms that complain about energy costs seem more problematic, exhibiting above-average investment despite below-average productivity. However, it can be shown that these firms have below-average growth of total assets over a three-year horizon. On the other hand, firms that complain about a lack of skills have a higher revenue productivity of capital. For output to grow, these firms should expand. This makes it even more important to address skills shortages.

Figure 40

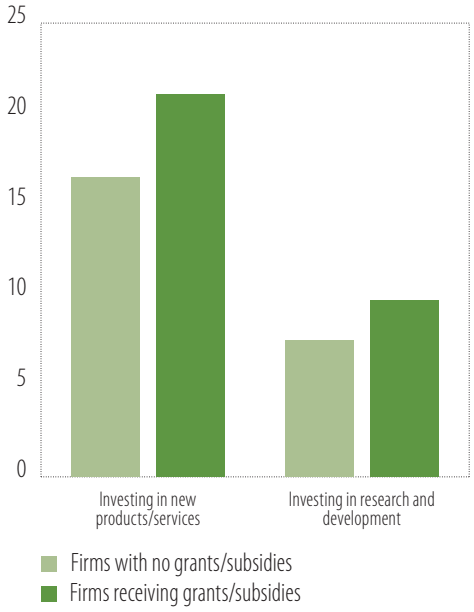
Impact of removing an investment obstacle on investment (in %)



Source: *EIBIS 2016-2023 and the Orbis database.*
Note: *The chart represents the impact of removing a major investment obstacle, derived from an instrumental variable regression of the ratio of investment to total assets on the number of major investment obstacle experienced by the firm.*

Figure 41

Firms receiving grants also invested more in R&D and innovation in the last year (% of total investment)



Source: *EIBIS 2016-2023 and the Orbis database.*
Note: *Limited to firms that invested at least EUR 500 per full-time equivalent employee and further excluding those that did not respond or refused to respond. The statistics are weighted by firms' value-added.*

Removing a major investment obstacle could increase corporate investment by 12%. Figure 40 illustrates the impact that removing a major investment obstacle could have on investment. The results are based on an instrumental variables regression of investment on the number of major investment obstacles that a firm perceives. The instrument is given by an indicator of whether, over the last three

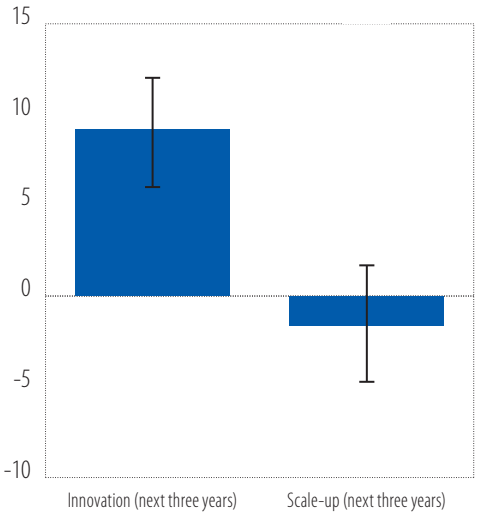
years, the company invested too little to ensure its success going forward. The specification is conditioned on a range of firm characteristics, including size, age, profitability, leverage and past asset growth. The results suggest that one additional major investment obstacle reduces investment by 1.3 percentage points. (Note that around 23% of firms perceive no major obstacles to investment, so their behaviour would not be affected by removing one.) Thus, removing a major obstacle to investment could increase investment by one percentage point. Since the average rate of investment to total assets amounts to 8.7%, removing a major obstacle would push up the average investment rate by 12%. However, as not all firms are affected by the same obstacle, this estimate is best seen as providing an upper bound of the impact.

Targeted support to boost investments and transformation

After years of generalised policy support, government's fiscal constraints will push them to target much more any further intervention. Understanding the basics of what works and what does not, as well as the relevance of EU instruments, is crucial.

Figure 42

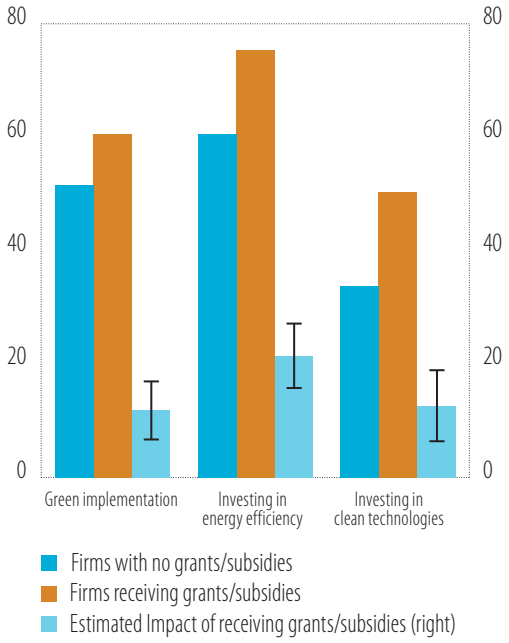
Grants have a positive and significant impact on innovation in the next three years (change in the probability of investing, in percentage points)



Source: *EIBIS 2016-2023 sample, restricted to only firms that invested at least EUR 500 per full-time equivalent employee.*
Note: *Estimated impact of receiving grants on the probability of investing. The black lines represent confidence intervals at the 95th percentile.*

Figure 43

Grants and subsidies have the highest impact on the adoption of energy efficiency measures (left axis: % of firms; right axis: change in percentage points)



Source: *EIBIS 2020-2023 for green implementation and the EIBIS 2022-2023 for investments in energy efficiency and clean technologies, restricted to only firms that invested at least EUR 500 per full-time equivalent employee.*
Note: *Estimates of the impact of grants and subsidies are based on a logistic model that controls for firm characteristics, sectors, countries and years, weighted by firms' value-added. The black lines represent confidence intervals at the 95th percentile.*

Targeted public support in the form of grants and subsidies can lighten the impact on government finances. In Figure 41, we focus on investment to promote innovation. We show that firms receiving grants and subsidies invest more in new products, and in research and development (R&D). These results, based on the large number of answers received in the EIBIS 2023, are unconditional of other factors that can affect investment (such as sector, country or sales expectations). They illustrate how public financial instruments can support specific types of investments.

The impetus from grants is especially pronounced for innovating and growing companies. Figure 41 shows that EU enterprises receiving grants are likely to invest more in R&D than those that do not. Figure 42 distinguishes the impact across company life cycle. Firms in the early stages of investing in new products and services are more likely to benefit from additional grants. Conversely, there is no significant impact of grants on firms that are trying to scale up in the near future. Thus, grants are effective when deployed for young companies.

Government subsidies and grants are important drivers of the green transition, especially for investments in energy efficiency. Figure 43 shows that more than 75% of firms receiving grants and subsidies invest in energy efficiency – well above the 60% recorded for those not receiving them. A similar pattern is found for investment in green projects and in clean technologies, albeit with smaller differences. Regression estimations, controlling for firm characteristics and their specific sectors and countries of operation, confirm the positive impact of grants for climate-related activities. In particular, firms that receive subsidies are 20 percentage points more likely to invest in energy efficiency than those that do not. This figure, shown by the grey bars, is also relatively high for companies investing in clean technologies (almost 13 percentage points) and those implementing green investment (12 percentage points).

Conclusion and policy implications

EU businesses came through the energy crisis better than feared, but vulnerability is on the rise as government support is progressively being removed. Investment continued to increase until the first half of 2023. This relatively favourable development is explained by national policies to support firms, which dampened the impact high energy prices had on firms. Still, firms' vulnerability and exposure to risk rose too, and will continue to rise as policy support is removed and firms feel the pinch of higher energy costs.

Firms' own funds, which increased during the COVID-19 crisis, have supported investment in a time of monetary policy tightening. Since the tightening began, corporate bank borrowing costs have risen sharply and credit standards have become stricter, in line with historical patterns. Supported by internal financing, investment has outperformed. But firms' cash buffers are dwindling and external finance is becoming more difficult to obtain as tighter monetary policies push up rates. Investment could slow if economic activity weakens, uncertainty persists about long-term energy prices and geopolitical risks rise.

Europe's support for top priorities, such as the green transition and digitalisation, could build a protective wall around investment and dampen the impact of a weaker business cycle. On the one hand, the difficult environment increases the risk of gloom among entrepreneurs and investors, and fears of entrenched inflation. On the other hand, the huge economic challenges of cohesion, innovation, competitiveness, greening and resilience will persist for years, and should catalyse a structurally higher rate of investments.

The challenging environment could bring about needed change, but policy support needs to be better targeted. The policy support deployed during the COVID-19 crisis spurred the lasting digitalisation of firms. The support from the energy crisis has cemented green investment. But as this support now comes at a higher opportunity cost for public finance, it is important to better target and condition it.

It is important to support the funding firms need to scale up, now and in the future. The overall difficult funding environment is weighing on private equity and venture capital finance. As these sources are key to financing promising, innovative companies, proper policies are needed to support firms that are crucial to long-term EU economic growth. These policies must overcome structural market weaknesses. This includes deeper involvement by private, long-term investors who stay in the market even during downturns; initiatives to encourage the financing of fast-growing European firms; and better conditions for exiting investors, which would support a thriving, resilient venture capital market that can nurture the tech champions of tomorrow.

The European Union and its members need to provide firms with long-term guidance, and push through important structural reforms. Clear, credible policies are needed that signal the EU commitments and paths to firms and investors. This is especially important in times of uncertainty and/or technological change. Structural bottlenecks to investment must also be removed to create a more business-friendly environment. Finally, the structure of the financial system must be improved, as some critical areas important for businesses to grow and transform remain woefully underdeveloped.

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