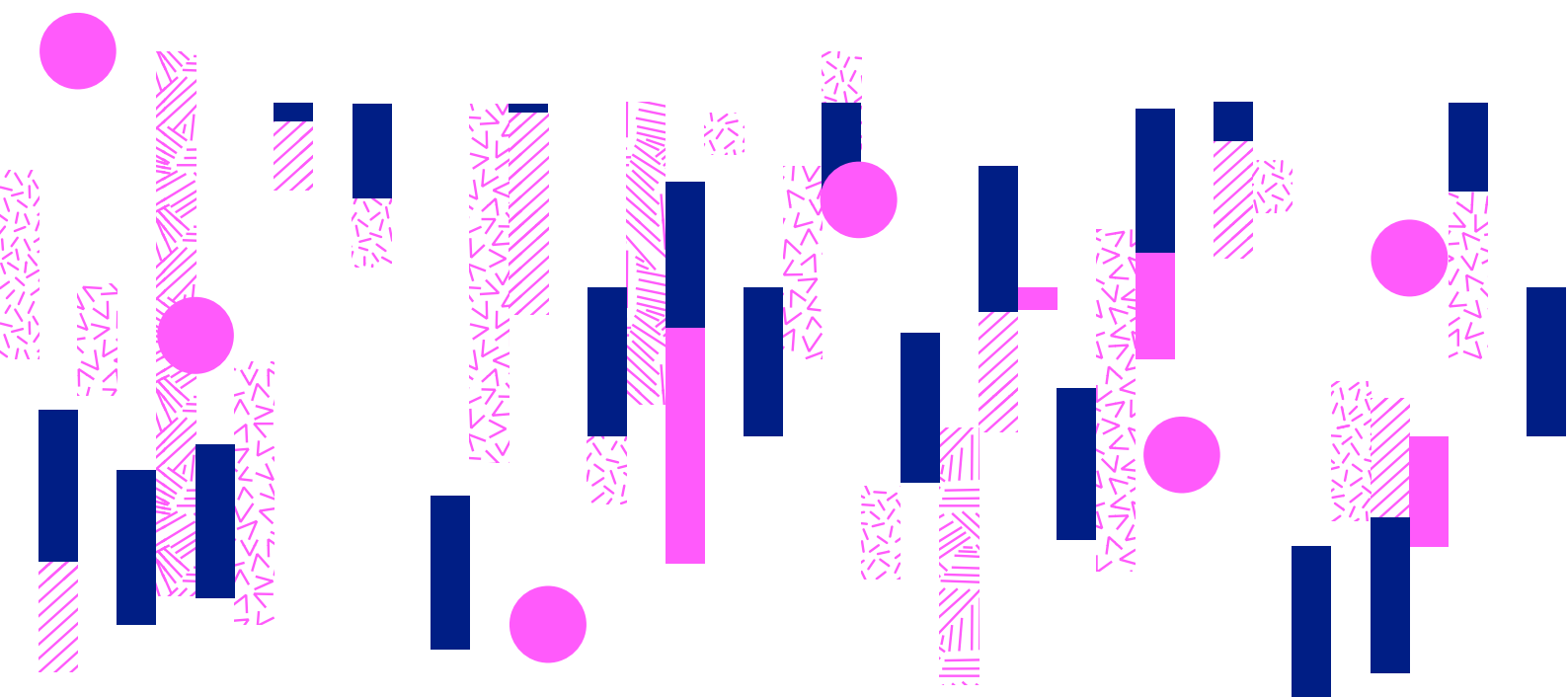


The European Small Business Finance Outlook 2022

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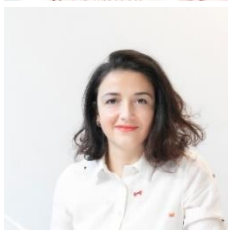
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Executive Summary¹

The European Small Business Finance Outlook (ESBFO) provides an overview of the main SME financing markets (Equity, Guarantees, Securitisation),² as well as some thematic areas (Inclusive finance, Fintechs, Green finance & investment) that are central to the European Investment Fund (EIF)'s mission as Europe's main public provider of financing solutions for SMEs and mid-caps. The current ESBFO publication constitutes an update of the October 2021 edition.

Economic outlook

- Since the publication of the previous edition of the ESBFO in October 2021, the economic outlook has deteriorated significantly, as a multitude of downwards risks are weighing heavily on global economic growth forecasts.
- Global supply chain issues have proven to be more persistent than anticipated and the Russian invasion of Ukraine has sent further shockwaves through global markets.
- This has resulted in severe inflationary pressures and a slow-down in economic growth, presenting central bankers across the globe with an unprecedented challenge, as tightening monetary policy risks pushing the global economy into a deep recession.
- The European economy has been hit disproportionately hard by the fallout of the Ukraine war and 2022 growth in the EU-27 is now forecasted at 2.7% (European Commission, 2022b), down from the earlier estimate of 4.5%.
- While the Russian invasion of Ukraine and its impact on energy prices led to the rapid acceleration of European inflation, price pressures were already mounting prior to the start of the Ukraine war, driven by supply chain issues caused by the Covid-19 lockdown restrictions.
- The European Commission's confidence indicators reveal an abrupt reversal in the post-pandemic revival of entrepreneurial optimism.
- Recently, most European countries are witnessing a rise in bankruptcies.
- Near-term risks are on the downside. A colder than expected winter will lead to elevated gas prices, further adding pressure to inflation. Furthermore, rising political tensions will

¹ This paper benefited from comments and inputs of many EIF colleagues, for which we are very grateful: Francesco Battazzi, Alicia Boudeau, Georgiana Buturoiu, José Cabrita, Jeoffray Cosson, Stephanie Descoubés, Carsten Just, Paolo Magnani, Diego Sanchez, Priscilla Schnepfer, Simone Signore, Matteo Squilloni, Arnaud Vanbellingen and Virginie Varga. We would also like to thank colleagues from AECM, AFME, ECB, EMN, GEM and the Invest Europe research team for their support. All errors are of the authors.

² We are using the term "equity finance" to combine semantically the areas of Venture Capital and Private Equity. However, if we refer here to equity activities, we mainly consider those of EIF's investment focus, which excludes Leveraged Buyouts (LBOs) and Public Equity. The term SME Securitisation (SMESec) comprises transactions backed by SME loans, leases, etc. The reader is also referred to the respective market glossaries in Annex 1 and Annex 2 in Kraemer-Eis et al. (2017).

strengthen the trend towards deglobalisation and lead to further disruptions to global supply chains.

SME finance environment

- The most recent update of the EIF SME Access to Finance (ESAF) index reveals that the decline in the use of (subsidised) debt-based instruments was the most important driving factor in determining SME access to finance issues in 2021.
- Following the steep rise in access to finance issues in the aftermath of the first Covid-19 wave, conditions improved significantly during the second semester of 2020 on account of the extensive pandemic liquidity support programs that were provided both at the national and the European level. The year 2021, however, provides a mixed picture.
- After a long period of either declining or stagnating interest rates, corporate borrowing costs have started to rise again recently, although they remain low according to historic standards.
- The increase in interest rates for corporate borrowers was most pronounced for loans with longer maturities.
- Banks have considerably tightened SME credit standards over the first three quarters of 2022, pointing to the general economic situation as an important contributing factor.

Private equity

- Over the past 25 years, the European private equity (PE) and venture capital (VC) activity exhibited booms and busts. The most famous peak periods were in 2000 and 2006. However, both booms were followed by significant downturns, i.e. the “dotcom crisis” in the early noughties and the financial and economic crisis from 2007 onwards. The severe crash of the European PE activity in 2008-2009 was followed by a rebound and PE fundraising and investments reached new record levels in 2019. During the Covid crisis, the market activity suffered only a temporary setback. The crisis was immediately followed by another record year in 2021.
- During the full year of 2021, the PE investments in portfolio companies based in Europe jumped by 51% to EUR 137.8bn. Investment grew strongly in the buyout segment (+28% to EUR 78.9bn) of the PE market. Considerable increases were also recorded for growth and replacement capital. VC investments, which are of particular importance for the financing of young innovative companies with high growth potential, skyrocketed by 71% to a new record level of EUR 20.4bn. Business Angel investments provided additional equity capital for ventures, as also shown by results of the *EIF Business Angels Survey 2021/22*.
- Total amounts raised by PE funds in Europe increased by 7% to a new all-time high of EUR 117.7bn in 2021. At the same time, VC fundraising increased by 14% to EUR 18.2bn, which constitutes the biggest level ever. During and after the various European PE/VC market crises of the past 15 years, the European ecosystem benefitted substantially from market-stabilising public intervention. Since 2012, a normalisation set in, although public support still plays an important role for further market development.
- In 2021, the PE exit market recovered from the sharp setback that it had suffered in the years before. The strong increase in the total PE divestment amount (+59% to EUR 41.2bn) was mainly due to substantially higher activity in the buyout (+75% to EUR

29.4bn) segment of the market, but also divestments in the growth (+46% to EUR 7.6bn) and venture (+16% to EUR 2.9bn) capital segments increased.

- EIF survey results indicate that the market sentiment has turned around in 2022. *EIF VC Survey* respondents reported important financing, market-related and operational issues for their investees in 2022, particularly with regard to securing equity financing and liquidity. At the fund level, alongside recurring challenges, respondents reported severe fundraising issues.
- The favourable developments in the PE/VC market during recent years have started to become contested by risks related to the geopolitical, economic and monetary environment. The PE/VC ecosystem will experience significant challenges in the near future. This indicates the need for continuous analysis of the market needs and for a strong policy response in support of the European PE/VC markets and its final beneficiaries, the European enterprises.

SME guarantees

- The lifting of the Covid-related restrictions and the resumption of economic activity meant that guarantee institutions could switch from crisis to recovery support.
- The year 2021 saw the gradual phasing out of the extensive support programmes that had been rolled out in response to the Covid-19 crisis as well as the early reimbursement of emergency loans that were no longer needed.
- Based on AECM data, the total outstanding guarantee volume decreased by 5.9% in 2021, following an all-time high in 2020.
- Contrary to the development of the volume of outstanding guarantees, the number of outstanding guarantees continued its increasing trend in 2021 – albeit at a much slower pace compared to 2020; and so did the total number of supported SMEs.
- The increased number of SME beneficiaries at times of crisis highlights the anti-cyclical role of guarantee institutions.
- The average size of outstanding guarantees in portfolio started its descend from the peak observed in 2020, but remained well above its pre-pandemic level.
- In light of the increase in GDP as European economies recovered in 2021, the relative importance of guarantees (both new and outstanding) over GDP decreased, but still exceeded the pre-pandemic levels.
- The volume of newly-granted guarantees in 2021 decreased by 67.5% over its peak 2020 crisis level, but remained more than two times its pre-pandemic level in 2019.
- The ratio of new to outstanding guarantees decreased substantially in 2021 (following the highest ever registered ratio in 2020), even below the pre-pandemic level.

SME Leasing

- Leasing is an important additional instrument to facilitate access to short- and medium-term financing for SMEs, ranked second after traditional bank-related products.
- During the second semester of 2021, Euro area SMEs stated that their financing needs for and the current availability of leasing or hire-purchase have remained relatively stable, on

balance, compared to other external financing sources; and that this will continue to be the case in the near future.

- Germany, Finland and Austria are the countries with the highest proportion of SMEs using leasing, contrary to countries in the south of Europe.
- Leasing as a financing source is more prevalent among industrial and construction firms.
- The use of leasing grows with firm-size.

SME securitisation

- Overall, the SME securitisation (SMESec) market in Europe is underdeveloped and continues to remain subdued; it has potential to grow and to help mitigate negative economic effects from the series of crises (i.e. Covid, war against Ukraine, and related consequences). Strengthening this market is an effective way to facilitate the flow of funds to the real economy, without creating distortions.
- In terms of new issuances, the visible SMESec market increased significantly in 2021 (+279% y-o-y to EUR 28.4bn). However, the increase was mainly driven by only one transaction. 2022 started slowly, with no visible issuance in HY1. However, over the recent years there was a significant rise in number and volume of synthetic SMESec transactions, which are not visible in the official statistics (e.g. unrated bilateral transactions).
- The impact of the recent and ongoing economic crises on SMESec asset quality and deal performance remains to be seen, as well as the strength of structural protection and their ability to buffer adverse economic effects. The impact on SMESec performance will vary by region, depending on many parameters like structure and flexibility of the economies (and the SMEs). Although the economic framework conditions worsened, SMESec market performance has been stable in the recent past.
- Many support measures are aiming at a market revival, amongst which are important regulatory adjustments. The market is now highly regulated; this results on the one hand in a high degree of transparency, but on the other hand also in securitisation becoming unviable for many market actors. Several market participants call for a balanced review of the regulatory securitisation framework.
- Driven in particular by investors' demand but also by risk aspects, the perspective of "sustainability" is gaining importance in securitisation - and in structured finance in general. The sustainable securitisation market is still in its early days but has the potential to play a significant role, in particular in the green transition. There seems to be plenty of investors' interest, but the supply side is constrained. Moreover, the further development of the overall EU securitisation market is a necessary condition for the emergence of an EU sustainable securitisation market.

Fintechs

- Fintechs are becoming an integral part of the European financial landscape.
- The post-pandemic recovery period has proven to be a fertile ground for EU Fintech companies, as VC and PE growth funding volumes boomed in 2021.

- The global importance of the EU Fintech market continues to increase. While the share of global funding accruing to European Fintech companies remained roughly constant throughout 2021, it is set to increase further in 2022.
- The growing importance of Fintech is evidenced by the widespread geographic distribution of new Fintech deals, with numerous recently funded Fintech investees headquartered in nearly every EU-27 country.
- EU-wide, payment solutions and banking remain the most important Fintech subsegment.

Green finance & investment

- Greentech innovation is a key element of Europe's net-zero strategy. By lowering the cost of greenhouse gas abatement or pollution reduction, it can ensure the EU reaches climate neutrality in a cost-efficient manner.
- Funding volumes for EU Greentech companies have risen strongly in recent years. Growth accelerated during 2021, as total funding amounts more than doubled.
- The data available at the time of writing seems to indicate that growth is likely to slow down in 2022, although funding volumes are nevertheless expected to match those of 2021.
- The European Greentech ecosystem has grown increasingly focused on mobility solutions in recent years, as investments in mobility and transport were the driving force behind the growth in investment volume.

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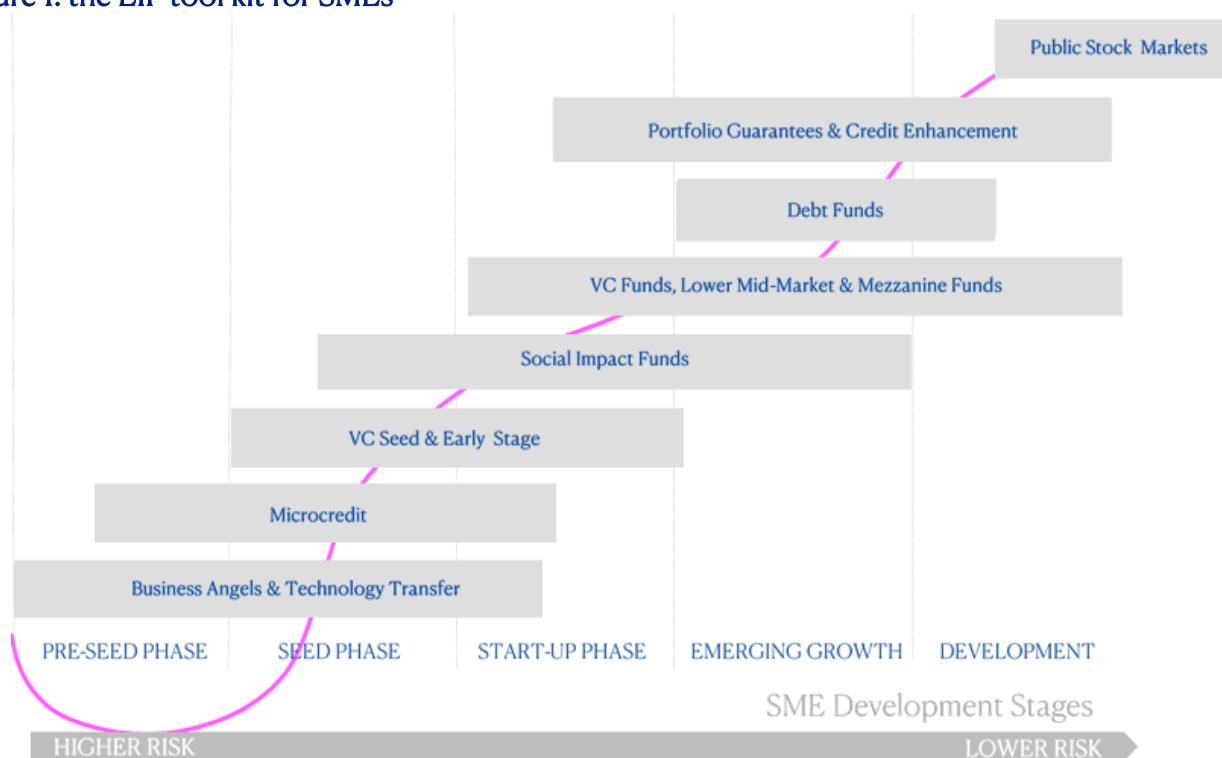
1 | Introduction

1.1 | The European Investment Fund

This European Small Business Finance Outlook (ESBFO) provides an overview of the main SME financing markets (Equity, Guarantees, Securitisation), as well as a number of thematic areas (Inclusive finance, Fintechs, Green finance & investment) that are central to the European Investment Fund (EIF)'s mission.

The EIF is the European Investment Bank (EIB) Group's specialist provider of risk financing for entrepreneurship and innovation across Europe. It focuses on the whole range of small and medium-sized enterprises (SMEs), starting from the pre-seed, seed-, and start-up-phase (technology transfer, business angel financing, microfinance and early stage VC) up to the growth and development stage (formal VC funds, mezzanine funds, debt funds, and portfolio guarantees/credit enhancement, Figure 1). It delivers the full spectrum of financing solutions (equity instruments, guarantee and credit enhancement instruments, as well as microfinance) through financial intermediaries.

Figure 1: the EIF tool kit for SMEs



By supporting entrepreneurship throughout Europe, the EIF contributes to the European Union's (EU) thematic priorities, by promoting innovation, inclusive growth, enhancing SME digitalization and helping Europe to achieve the environmental targets of the EU Green Deal.³

1.2 | SMEs in Europe

SMEs,⁴ the main target group of EIF's activities, are firms that employ less than 250 workers and have an annual turnover below EUR 50m or a balance sheet total below EUR 43m (Table 1).

Table 1: EU definition of SMEs*

	Employees	Turnover	Balance sheet total
Micro	<10	≤ EUR 2m	≤ EUR 2m
Small	<50	≤ EUR 10m	≤ EUR 10m
Medium	<250	≤ EUR 50m	≤ EUR 43m

*Within the category of non-SMEs, it is possible to distinguish between mid-caps and large corporates, the former being defined as enterprises that employ no more than 2,999 employees, with an additional distinction of small mid-caps, employing no more than 500 employees.

Source: European Commission (2022a)

Accounting for 99.8% of all non-financial enterprises in Europe, SMEs contribute significantly to European job creation and economic growth (Figure 2, panel a). In 2021, 22.8 million European SMEs employed around 83.2 million workers (64.4% of total employment) and generated 51.8% of European value added (EUR 3,338bn). SMEs' employment and value-added shares have fallen since 2010 and most recent data suggests this declining trend is set to continue, following a brief stagnation in the immediate aftermath of the Covid-19 pandemic (Figure 2, panel b).⁵

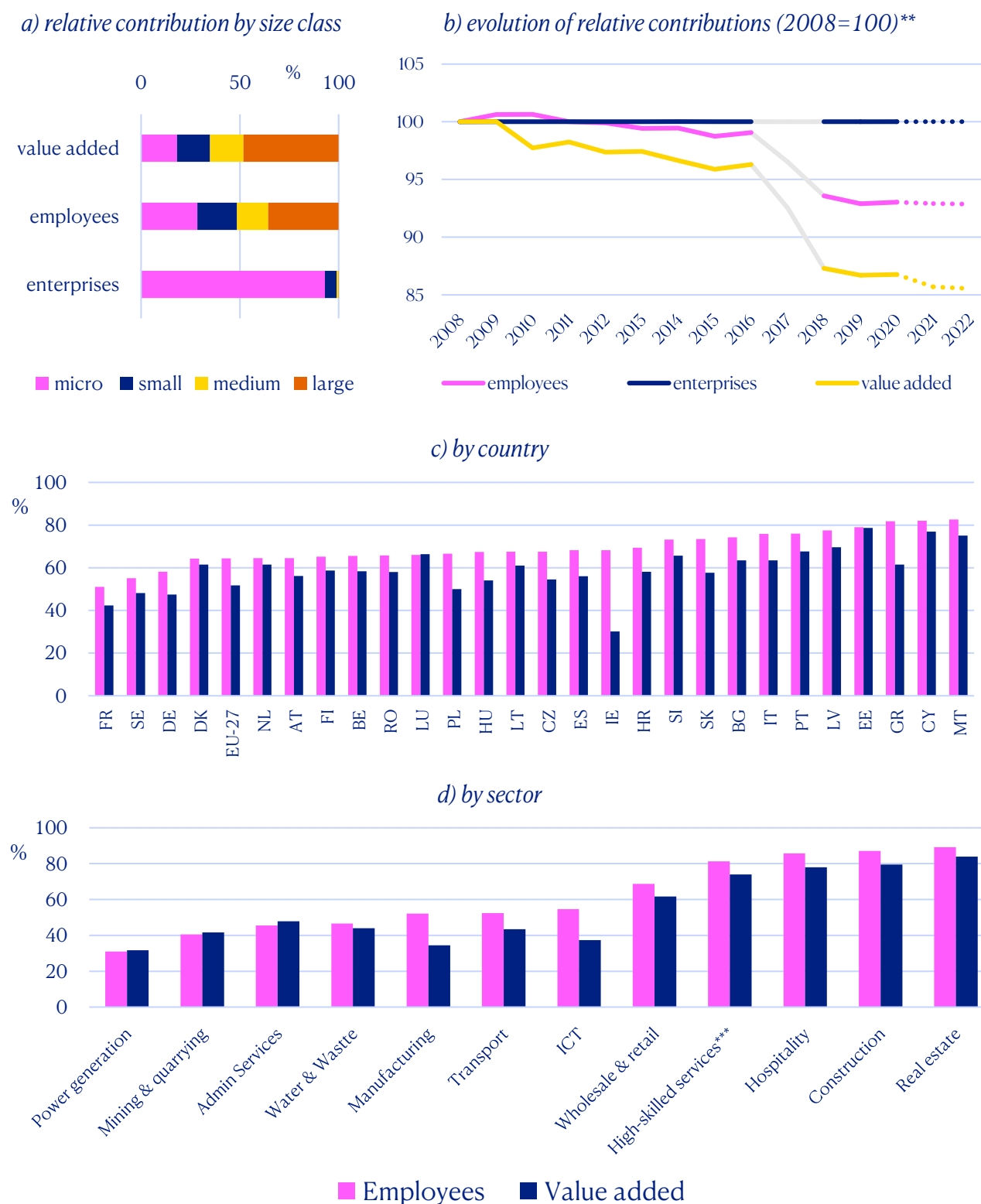
The relative importance of SMEs in national production and employment varies substantially between EU Member States (Figure 2, panel c). For example, Greek SMEs, employing more than 80% of the total workforce, contribute significantly more to aggregate employment than French SMEs, who only employ about half of the French workforce. Differences in the relative contribution of SMEs to national economies can reflect differences in national sectoral structures, as firm-size distribution differs widely across sectors (Figure 2, panel d). In particular for service sectors, SMEs are important job creators, with employment shares well above 80% in high-skilled services, the hospitality sector, construction and real estate.

³ For more information on the European Investment Fund and its mission, see www.eif.org.

⁴ As defined by the European Commission (Commission Recommendation 2003/361/CE of 6 May 2003).

⁵ Not accounting for the stark drop in measured shares driven by a change in the definition of what constitutes a corporate entity, which was implemented throughout the EU Member States between 2017 and 2018.

Figure 2: SME employment and value-added shares in the EU (2021)*



* Excluding financial services sectors.

** The decline of employment and value-added shares during 2017 and 2018 (grey lines) is driven by a structural break in the data, caused by a gradual switch from legal to statistical units as a proxy for an enterprise. Post-2020 data are forecasted values.

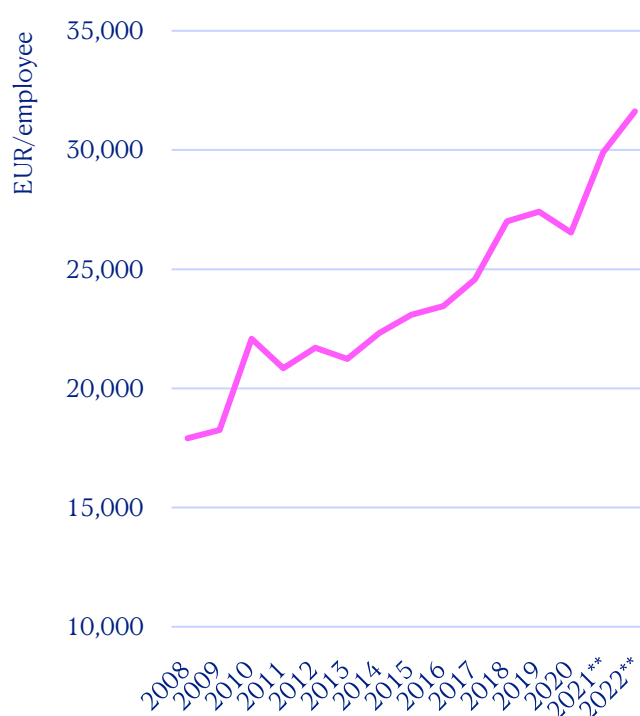
*** NACE section M: Professional, scientific, and technical activities.

While sectoral composition explains an important part of the observed country differences, cross-country heterogeneity in employment shares also exists within a given sector (see SME share matrices depicted in Annex 1). Hence, country-idiosyncratic elements, such as cultural attitudes towards entrepreneurship, legal frameworks, or other institutional differences, are also likely determinants of the relative contribution of SMEs to a country's economic structure.

Labour productivity is typically lower among SMEs, compared to large firms, as SME contribution to value added generally undercuts their employment contribution. The firm-size labour productivity gap in the EU, defined as the difference in Euro value added per employee between SMEs and large firms, is substantial and has increased strongly over time (Figure 3).

The productivity gap is particularly pronounced for Ireland and Greece. For Ireland, the relatively limited value-added contribution of SMEs manifests itself mostly in the industrial sector, and to a lesser extent in high-skilled services and ICT. One explanatory factor is the presence of highly productive, large, multinational corporations on Irish territory (OECD, 2019). For Greece, the relatively small value-added contribution of SMEs is common across sectors. This indicates, indicating that cultural or institutional factors could play a role in explaining the specificities of its firm-size distribution.⁶

Figure 3: Firm-size labour productivity gap* (EU-27)



* Defined as the difference between Euro value added per person of large firms and SMEs. **2021 and 2022 are forecasted values.

Source: European Commission (2022a), authors' calculations

Regardless of the cross-sector and cross-country diversity in SMEs' relative importance, their sizeable contribution to value added and employment evidence that small corporates form the backbone of the EU economy. Unfortunately, due to their nature, SMEs typically suffer from access to finance issues. Therefore, this publication aims to inform policy makers, professionals and academics on recent trends on SME external financing markets, in order to foster an informed public debate on SME financing, to the benefit of European SMEs.

⁶ See Annex 1 for a complete country-level overview of employment and value-added shares within the EU-27.

The remainder of this publication is structured around the financing instruments and thematic areas that make up EIF's most important target markets. Chapter 2 | and 3 | prelude instrument-specific analyses by providing a discussion of the current economic outlook and an overview of the recent SME business environment. Chapters 4 | and 5 | discuss recent trends on European private equity, guarantee, leasing and securitisation markets. Chapters 6 |, 7 | and 8 | provide an overview of some thematic areas that are central to EIF's public mission, such as inclusive finance, Fintech and green finance & investment.

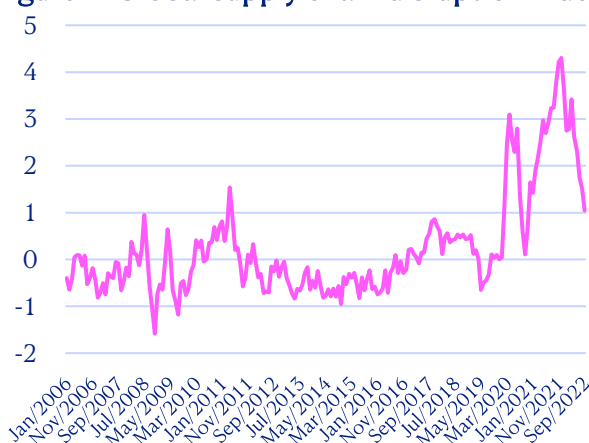
2 | Economic outlook

Global outlook

Since the publication of the previous edition of the ESBFO in October 2021, the outlook of the global economy has worsened considerably, as a multitude of downwards risks are weighing

heavily on global economic growth forecast. The IMF expects growth to slow down significantly, from 6% last year to 3.2% in 2022 and 2.7% in 2023 (IMF, 2022a).

Figure 4: Global supply chain disruption index



Source: Federal reserve bank of New York

Global supply chain issues have proven to be more persistent than anticipated, as evidenced by the evolution of the global supply chain index⁷ (Figure 4). Supply chain disruptions first spiked in 2020, as governments world-wide reacted to the initial Covid-19 outbreaks by introducing severe lockdown measures which fundamentally changed consumption patterns while crippling global production structures. As lockdown measures were lifted, disruptions initially eased, but quickly

intensified again, as demand re-gained momentum and suppliers grappled to meet with the surge in postponed consumption decisions. Only from November 2021 onwards, the situation started to improve. While the Ukraine crisis led to a brief resurgence of the index, the impact was negligible and supply chains continued to normalise throughout 2022.

The supply chain crisis led to a severe shortage of semi-conductors, delaying the production of many modern industrial products. It also resulted in a surge in price levels, mainly through a strong rise in the cost of shipping and basic commodities (IMF, 2022b). The cost of transporting a shipping container,⁸ for example, increased from USD 1,460 early 2020, to over USD 11,000 in 2022, while the price of lumber increased five-fold and the price of steel nearly doubled. The Russian invasion of Ukraine has sent further shockwaves through global markets, effectively bringing the post-pandemic recovery to a halt. In particular energy markets were impacted severely. This further added to the price pressure induced by Covid-19 supply chain disruptions and resulted in record inflation levels world-wide.

⁷ “The GSCPI integrates a number of commonly used metrics with the aim of providing a comprehensive summary of potential supply chain disruptions. Global transportation costs are measured by employing data from the [Baltic Dry Index \(BDI\)](#) and the [Harpex index](#), as well as air freight cost indices from the [U.S. Bureau of Labor Statistics](#). The GSCPI also uses several supply chain-related components from [Purchasing Managers’ Index \(PMI\) surveys](#), focusing on manufacturing firms across seven interconnected economies: China, the euro area, Japan, South Korea, Taiwan, the United Kingdom, and the United States.” (New York Federal Reserve, 2022)

⁸ Accounting for 90% of global freight transport.

The combined emergence of inflationary pressures and looming economic uncertainty presents central bankers across the globe with an unprecedented challenge, as tightening monetary policy risks pushing the global economy into a deep recession. Meanwhile, the Covid-19 pandemic is regaining traction, as winter is approaching in the northern hemisphere, providing a fertile ground for renewed virus transmission. China also continues to grapple with the impact of Covid-19, pursuing a no-tolerance stance, imposing stringent lockdowns in attempts to suppress emerging outbreaks, which weighs significantly on Chinese economic growth. In addition, rising geopolitical tensions could strengthen the trend towards deglobalisation and further threaten the functioning of global supply chains.

European outlook

The European economy has been hit disproportionately hard by the fallout of the Ukraine war. Growth for 2022 is now forecasted at 3.3% (European Commission, 2022b), down from the earlier estimate of 4.5% put forward prior to the Russian invasion of Ukraine (European Commission, 2021c), but slightly above the summer predictions (2.7%). The EU is expected to enter into recession by the end of the year, with two consecutive quarters of contraction during Q4/2021 and Q1/2022. The latest estimates for 2023 revised growth expectation downwards significantly, to just 0.3% (European Commission, 2022c).

Table 2: European Commission EU Autumn 2022 forecast

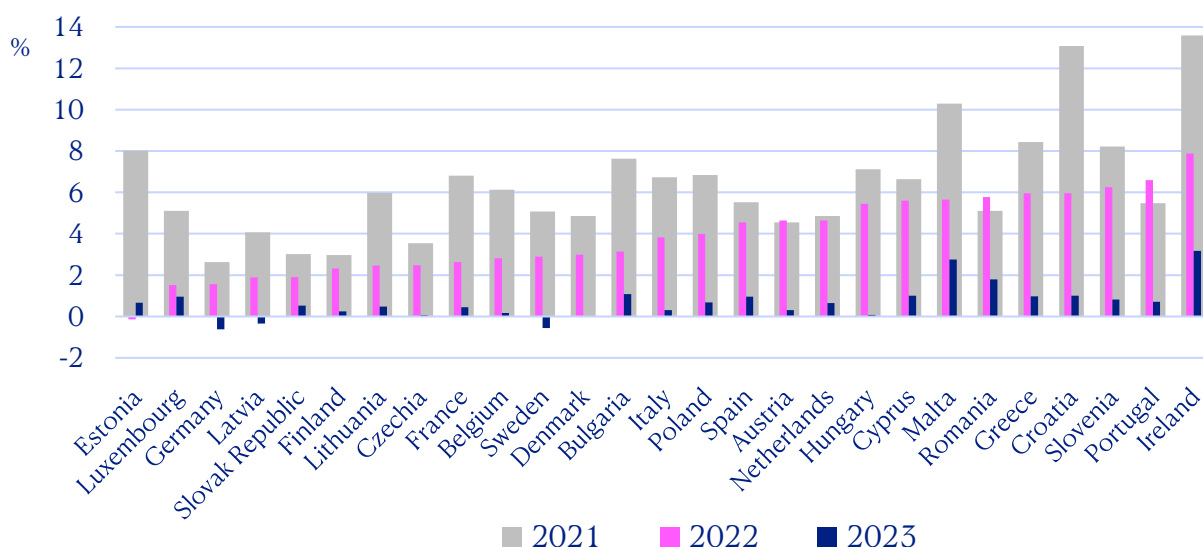
(Real annual percentage change, unless otherwise stated)	Forecasts					
	2018	2019	2020	2021	2022	2023
GDP growth	2.1	1.8	-5.9	5.4	3.3	0.3
Inflation	1.8	1.4	0.7	2.9	9.3	7.0
Unemployment rate (%)	7.2	6.7	7.2	7.0	6.2	6.5
Total investment	3.4	6.5	-5.4	3.6	3.0	0.5
Equipment investment	4.2	2.1	-10.8	8.9	3.7	0.1
Construction investment	4.1	3.6	-3.4	5.1	2.8	0.2
Public Investment (% of GDP)	2.9	3.0	3.3	3.2	3.3	3.4

Source: European Commission (2022b)

For a handful of EU countries (Germany, Latvia, Sweden, Hungary, Czechia), the economy is likely to contract or stagnate during 2023 (Figure 5). Only in two countries, Malta and Ireland, 2023 economic growth is expected to surpass the 2% barrier. While all countries will have reached pre-pandemic GDP levels by 2023, the pace of economic recovery has been unequal between EU Member States. Per 2022, economic output in four countries still fell below 2019 levels (Italy, Spain, Germany and Czechia), while Irish GDP already exceeded its pre-pandemic level by more than 25%.⁹

⁹ Although this is mostly explained by the disproportionate influence of large multinational enterprises, who produce 85% of Irish GDP and whose transactions lead to large volatility in national account data.

Figure 5: Country-level growth forecasts



Source: European Commission (2022b)

European unemployment dropped to 6.2% in 2022, undercutting its pre-pandemic low, and is expected to increase only marginally in 2023. Tight labour market conditions might further fuel inflationary pressures, as labour scarcity will lead to higher wage demands as workers seek to be compensated for increased consumption expenditures. However, average wage growth for 2023 is nevertheless expected to undercut inflation, effectively decreasing consumer purchasing power.

Growth in total investment is expected to decline significantly in 2023 to just 0.5%, driven by a decline in corporate investment, as rising borrowing costs, combined with higher material and labour costs are expected to reduce firms' financing capacity (European Commission, 2022b).

Inflation

European price levels have been on the rise since the second semester of 2021, driven by persistent supply chain issues and rising commodity and energy prices (Box 1). As record energy and commodity prices ripple through supply chains, inflationary pressures continue to mount. For 2022, EU inflation is expected to materialise at 8.3%, a level not observed since the 1970's oil crises.

Box 1: Energy price uncertainty, policy response and SME investment demand

In recent years, a perfect storm, created by the strong recovery of aggregate demand in the wake of the Covid-pandemic and the abrupt rise in geopolitical unrest due to the ongoing war in Ukraine, has led to extreme volatility on global energy markets, driving up prices of energy commodities to unprecedented levels. Due to the Russian strategy of energy weaponization and the EU's dependency on Russian supply of gas, European energy markets were hit disproportionately hard.

Box 1 continued:

Gas prices on the Dutch TTF trading platform increased by a factor 20, from just EUR 16 per MWh at the start of 2021 to nearly EUR 350 by September 2022. While price pressures have eased slightly since, they remain historically high. Elevated gas prices have also led to record-high electricity prices, which are typically determined through marginal-cost pricing and therefore strongly correlated with the price of gas.¹⁰ Given the current situation surrounding the Nord Stream gas pipes and Russian threats to completely eliminate the supply of gas to Europe, energy prices are expected to remain elevated throughout the European winter.

Figure: TTF natural gas price evolution (Q1/2023 futures)



Source: ICE

Given the importance of energy as an input in firms' production processes, the steep rise in energy expenditures is expected to have a significant impact on corporate outcomes in general and investment decisions in particular.

In the short run, it is likely that the current energy crisis will have a negative impact on corporate investment, as rising cost of production will exert a downward pressure on corporate cash flow. This negative income effect will lead firms to postpone investment projects. Moreover, price volatility itself, and the associated rise in uncertainty, has a detrimental impact on investment demand, as economic uncertainty decreases firms' propensity to invest (Henriques and Sadorsky, 2011).

¹⁰ Since electricity produced in gas plants typically carries the higher marginal cost of production and therefore determines the electricity market price.

Box 1 continued:

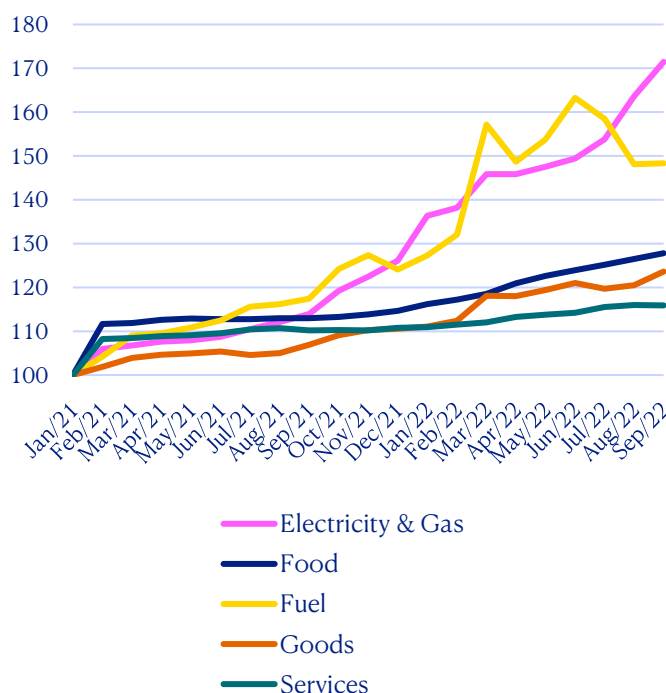
On the other hand, in the medium term, rising energy prices might have a positive impact on corporate investment demand, as long and persistent spells of elevated fossil fuel prices will incentivise firms to substitute away from fossil fuel sources and invest in small-scaled production of alternative energy sources, since rising energy costs increase the return of investment in energy efficiency measures. Which of the two effects will prevail is crucially contingent on the severity of the initial shock and the capacity of corporates to advance the large upfront capital costs associated with energy investment projects, which in turn is dependent on the availability of finance.

With REpowerEU, the European Commission has proposed an ambitious plan to reduce European dependency on Russian energy, by reducing energy consumption and accelerating the transition towards a carbon neutral energy mix. The package includes, among other things, an increase in the ambition of the energy efficiency targets contained in the 'Fit for 55' package of the Green Deal legislation, from 9% to 13%. Member states are also encouraged to use fiscal measures to stimulate energy savings. Furthermore, the EU Solar Strategy puts forward a doubling of solar photovoltaic capacity by 2025, for example, through the Solar Rooftop Initiative, which contains a legal obligation to install solar panels on commercial buildings. Other measures will target energy consumption in the industrial sector and an accelerated transition towards a European zero-emission car park.

Evidently, the proposed measures will have repercussions for European SMEs' green financing needs, many of which are still grappling to deal with the liquidity impact of the Covid-19 pandemic. Therefore, public policy support for SMEs' energy investments remains critical to ensure a successful implementation of the REpowerEU initiative.

While the Russian invasion of Ukraine and its impact on energy prices led to the rapid acceleration in European inflation observed in recent months, price pressures were already mounting prior to the start of the Ukraine war (Figure 6). Between January 2021 and February 2022, electricity and gas prices had already gone up by 38%, while fuel prices had risen by 32%. This confirms supply disruptions caused by the Covid-19 lockdown played an important role in the currently inflationary situation and were already impacting energy prices prior to the war in Ukraine. The price of electricity and gas continued to rise strongly throughout 2022, while fuel prices started to stagnate from Q3/2022 onwards.

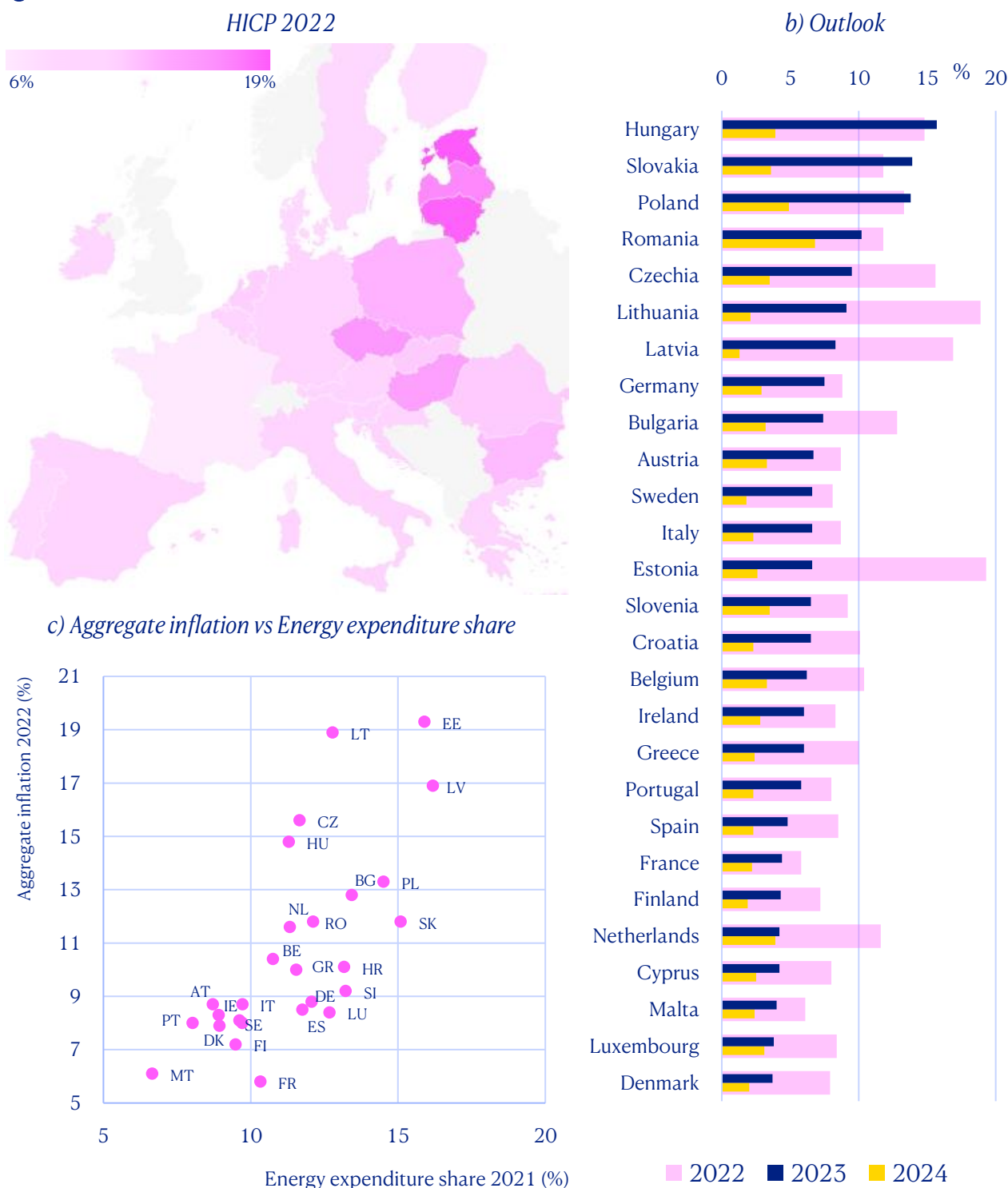
Figure 6: Price increases by HICP item (EU-27)



Source: Eurostat, authors' calculations

The price of food and industrial goods rose along with the price of energy. Price increases in the service sector have thus far been relatively modest but are likely to pick up as consumers will begin to internalise the new inflationary reality, adapt their inflation expectations for the medium-term and adjust their wage demands accordingly.

Figure 7: EU Inflation outlook

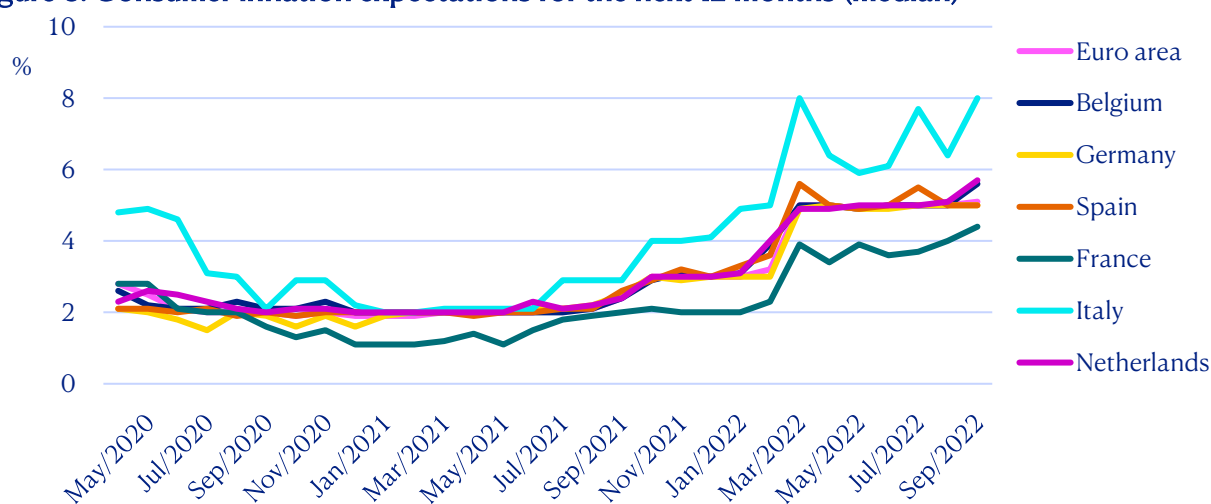


Inflation differs markedly between countries (Figure 7, panel a). Cross-country variation is to an important extent determined by differences in expenditure shares of different HICP items. In CESEE countries, for example, where expenditure shares on energy significantly exceed the EU average (Figure 7, panel b), inflationary pressures have been particularly pronounced, with inflation rates around 19% in Lithuania and Estonia. On the other hand, countries like France, Portugal and Austria, among others, have relatively low energy expenditure shares, which moderated aggregate price increases.

Assuming price conditions on the European energy market normalise, inflation is expected to decrease significantly in 2023, in particular in those with high energy expenditure shares. Temperatures have been exceptionally moderate throughout October 2022, which had a strong impact on near-term energy prices. However, gas price futures for Q4/2022 and Q1/2023 remain elevated and their evolution will depend crucially on average temperatures during winter months.

Inflation, and in particular second-round effects, depends crucially on expectations (Figure 8). The ECB's consumer expectation survey reveals that consumers have significantly increased their inflation expectations in recent months (ECB, 2022a). Whereas prior to the post-pandemic surge in price-levels, the European public believed the ECB would be able to maintain inflation at the 2% target level, this was no longer the case from the second semester of 2021 onwards. At the onset of the war in Ukraine, inflation expectations in the Euro area already increased by 50%, reaching as high as 5% in Italy. While the rising trend seems to be rooted in the Covid-19 supply chains issues,¹¹ the war in Ukraine fuelled inflation expectation further. During March 2022, near-term inflation expectations in the Euro area jumped to 5% and remained elevated throughout the remainder of the year, evidencing the challenge faced by the ECB in maintaining price stability.

Figure 8: Consumer inflation expectations for the next 12 months (median)



Source: ECB (2022a)

¹¹ See for example a recent study by the IMF (2022b), who found that increasing in shipping costs, as the one observed in the wake of the Covid-19 pandemic, could result in sizable increases in import prices, producer prices, headline and core inflation, as well as inflation expectations.

In the medium-long term, looking three years ahead, Euro area consumers are expecting inflation to stabilise around 3%, still substantially above the ECB 2% target. To curb inflation, it will prove crucial for the ECB to convincingly communicate to the public their commitment to maintain price stability in the Euro area around the 2% target. To confirm this commitment, the ECB's Governing Council decided on 27 October 2022 to raise the three key ECB interest rates by another 75 basis points, rendering the total interest rate increase from its recent low to two percentage points (ECB, 2022b).

Whether Europe is heading for a period of stagflation, as the one experienced during the 1970's oil crisis, is subject to discussion. Much like the seventies, current inflation woes are driven by sharp rises in the price of energy goods, triggered by geopolitical turmoil, pushing up prices of other commodities in the economy. However, there are also important differences between the 1970s and the present situation, some of which might contribute to stagflation pressures, while others might remedy them.

A number of important differences could prevent a period of stagflation to re-occur. For example, the EU economy grew significantly less energy intensive in recent decades, as old industrial structures have vanished and sectoral structures became more service oriented. In addition, European labour market institutions evolved to become less rigid, as formal wage indexation mechanisms are now less common and unionisation rates have declined (ECB, 2022c), reducing the strength of the transmission mechanisms that could result in a price-wage spiral. Finally, monetary policy frameworks have gained credibility, as anchoring inflation expectations around the 2% inflation target have become the key-priority (ECB, 2022c), although recent results of the ECB's survey indicate consumers do not expect the ECB will be able to maintain their intended target.

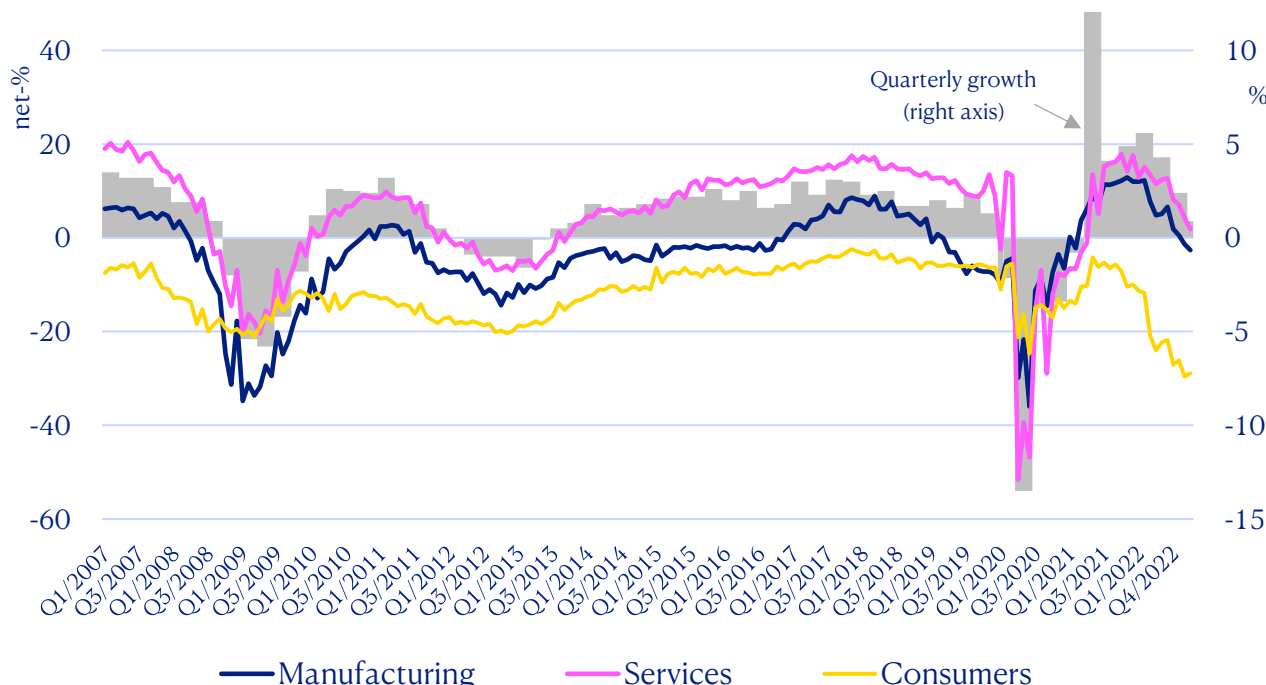
Other factors might add to the risk of stagflation. While the EU economy has become less energy intensive, and less dependent on oil, its gas-dependence grew substantially, relying heavily on gas import from Russia. In addition, decades long record-low interest rates have led to a large stock of outstanding debt, which could prove problematic in the face of tightening monetary policy. In addition, the EU economy continues to operate near full employment, which contrasts with the 1970s oil crises, which were characterised by high unemployment. On the one hand, this leaves more leeway to central banks to raise rates. On the other hand, this could lead to continued pressure on wages and hence, prices, further fuelling inflation. Finally, households' accumulated wealth during the Covid-19 pandemic might render consumption more resilient to price increases, which could, at least in the short run, potentially add to upward price pressures (European Commission, 2022b).

Economic sentiment indicators

In recent months, the European Commission's confidence indicators show an abrupt reversal in the post-pandemic revival of entrepreneurial optimism (Figure 9). Confidence declined across sectors, but was particularly pronounced among industrial companies, most likely reflecting the cost-impact of higher energy prices. Consumer confidence plummeted as well, reaching an all-time low, significantly undercutting the bottom values reached during previous crises periods

2008 and 2020, providing early warning signs of an ensuing slowdown in consumer demand and hence, economic growth for the period ahead.

Figure 9: EU-27 Economic confidence indicators and quarterly GDP growth*



* Growth numbers refer to year-on-year growth vis-à-vis the same quarter one year earlier. Q4/2022 and Q3/2022 GDP growth are forecasted values based on European Commission (2022b). Confidence indicators are survey-based measures constructed for each surveyed sector, and are calculated as arithmetic means of answers (seasonally adjusted balances) to a selection of questions closely related to the reference variable they are supposed to track (e.g. industrial production for the industrial confidence indicator).

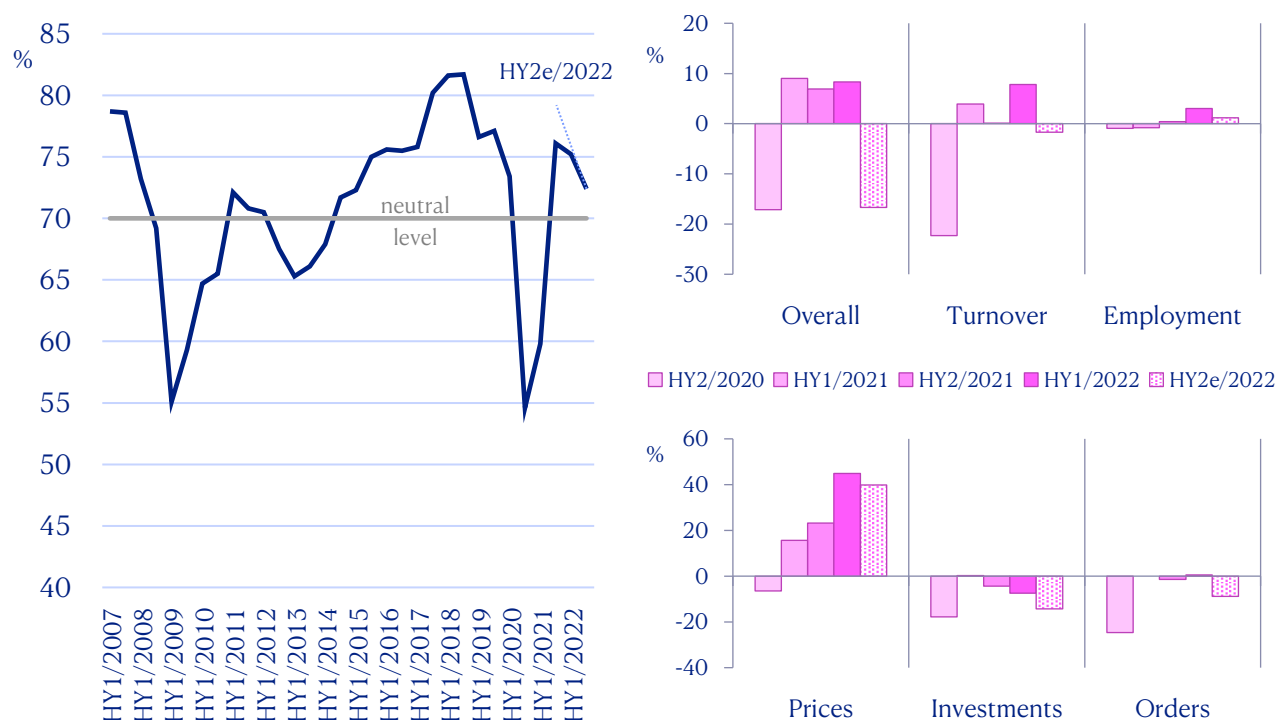
Source: Eurostat, authors' calculations

The Covid-19 crisis also weighed heavily on SME business owner sentiment, as the EU Craft and SME Barometer took a nose dive in the immediate aftermath of the pandemic (Figure 10, left panel).¹² However, the barometer improved rapidly as European vaccination campaigns progressed and the economic outlook improved. The index confirms the recovery has recently slowed down, although overall sentiment remains relatively positive, with a value exceeding the 70-neutral level.

SMEs already reported rising price levels early in 2021, as the value of the price-index turned positive in HY1/2021. Prices continued to increase during the subsequent semesters, and SMEs expect this trend to continue during the second half of 2022. Investments remain a cause for concern, reflecting the current uncertainty about the overall economic situation which weighs on firms' investment decisions. Investment sentiment is expected to further deteriorate throughout 2022.

¹² The EU craft and SME barometer is calculated as the average of companies that have reported positive or stable business situations and expect a positive or stable development for the next period. Therefore, the index can range from 100 (all positive or neutral) to 0 (all negative), see SMEunited (2022) for an elaborate description of the index.

Figure 10: SME Business Climate Index and the EU Craft and SME barometer HY1/2021

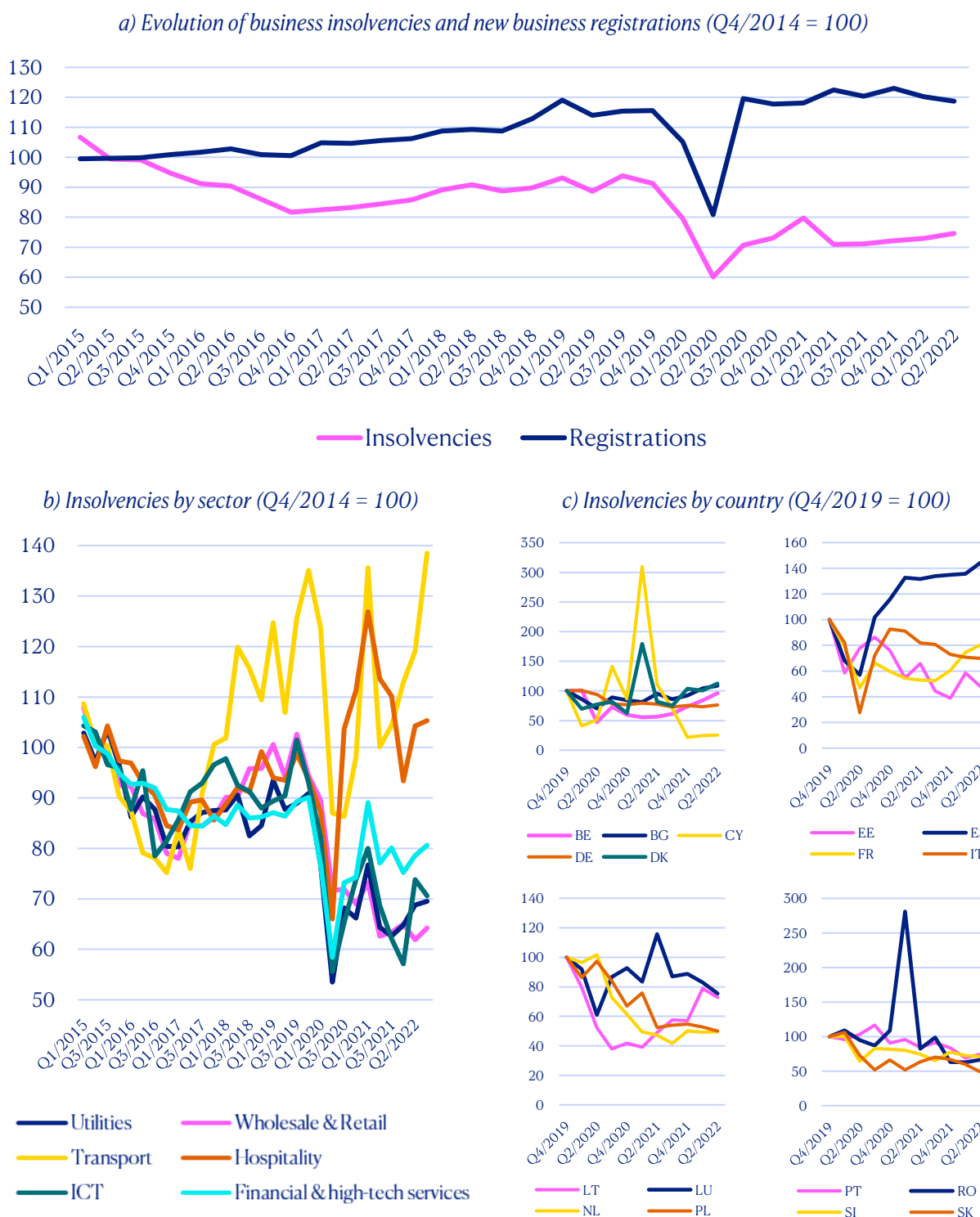


Source: SMEUnited Study Unit (2022)

Insolvencies

While the Covid-19 pandemic was initially feared to result in a strong surge in corporate insolvencies, the impact has thus far been limited (Figure 11). During the early phase of the pandemic, corporate bankruptcies unexpectedly declined considerably (-35% during the first half of 2020), due to newly introduced bankruptcy protection legislation and administrative delays in the registration of insolvencies during the lockdown periods. From the second semester of 2020 onwards, European insolvencies picked up, but remained below their pre-pandemic level in Q2/2022, although many of the pandemic recovery packages are currently in the process of being phased out. European business registrations stabilised over 2021 but declined for two consecutive quarters during the first half of 2022.

Aggregate European bankruptcy data hides significant sector-level heterogeneity (Figure 11, panel b). Insolvencies in the hospitality sector have normalised in recent quarters, after having experienced a sharp rise during the first quarter of 2021, as many restaurants and hotels did not manage to successfully re-open their business following the subsequent lockdowns. The sector was facing headwinds already prior to the pandemic, as hospitality bankruptcies have been trending upwards since 2016. Insolvencies in the transport sector, typically characterised by large seasonal swings, have also risen sharply, as the impact of the current energy crisis has already started to manifest itself.

Figure 11: Business dynamics in the EU-27


* Bankruptcies are defined as the number of legal units that have started the procedure of being declared bankrupt, by issuing a court declaration, at any time during the reference quarter Q (which is often provisional and does not always mean cessation of an activity). New registrations are defined as the number of entered legal units in the registration register at any time during the reference quarter Q, according to the respective administrative or legal procedure. The data on the absolute number of registrations of new businesses and bankruptcies on quarterly basis is provided by the national statistical institutes of the EU and EFTA Member States to Eurostat, on a voluntary basis (Eurostat, 2021).

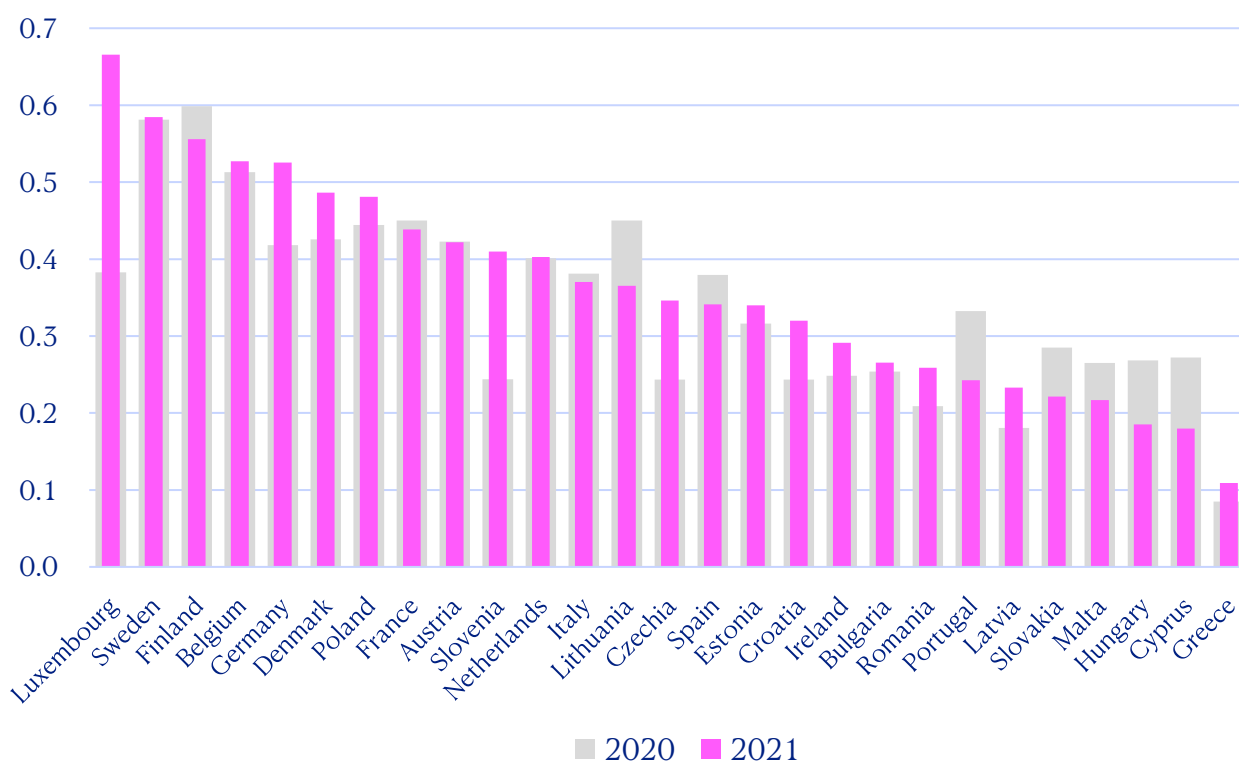
During the first quarter of 2021, a number of countries (Denmark, Bulgaria and Spain) experienced a pronounced post-Covid correction in bankruptcies, as support programs were being phased out and postponed bankruptcy proceedings were filed with a delay (Figure 11, panel c). Spain, for example, witnessed a strong surge in corporate bankruptcies in the immediate aftermath of the first wave of the Covid-19 pandemic. Instead of returning to their pre-pandemic level, they remained elevated and continued to rise steadily throughout 2021 and 2022. Spain was among the countries worst hit by the initial and subsequent waves of the pandemic and was consequently subjected to the harshest lockdown measures. In addition, Spanish policy makers only partly succeeded in compensating for associated impact on its businesses, with corporate income losses in 2020 close to 3% of Spanish GDP, exceeding all other countries in the Eurozone (ING, 2021). Noteworthy, the upward trend in Spanish insolvencies already initiated prior to the Covid-19 pandemic, suggesting the lockdown measures were not the sole factor driving it. In recent quarters, most other countries have also witnessed a trend reversal, as bankruptcies started to increase again. It is likely that the current energy crisis will further accelerate this trend, as companies across different sectors will struggle to pay the energy bills. However, insolvencies are still trending below their pre-pandemic level in all other countries.

3 | SME finance environment

3.1 | The EIF SME Access to Finance Index (ESAF)

The discussion on the general SME access to finance environment is introduced by the EIF SME access to finance index (ESAF). The ESAF is a composite indicator that summarises the state of SME financing for each of the EU Member States. Box 2 provides an overview of the ESAF's building blocks. The results for the year 2021 are presented in Figure 12.¹⁵

Figure 12: The 2021 EIF SME Finance Index (October 2022 update)



Source: Torfs (2022)

¹⁵ The results are based on the most recent data available at the time of writing (October 2022) and refer to the full year 2021, or the second half of 2021 for all survey-based indicators. Therefore, the results do not incorporate the impact of the Russian invasion of Ukraine and its effect on energy prices and inflationary pressures. Note that the ESAF Index is a relative indicator, which measures SME financing conditions for any given EU Member State, relative to other EU countries, and its interpretation should proceed accordingly. For more details on the ESAF and its interpretation, see Gvetadze et al. (2018).

Box 2: The four ESAF subindicators

Loans:

- Percentage of SMEs using bank loans in last 6 months
- Percentage of SMEs using grants or subsidised bank loans in last 6 months
- Percentage of SMEs not applying for a bank loan because of possible rejection in last 6 months
- Interest rate for loans under EUR 250k (floating rate with IRF up to 1 year)
- Interest rate spread (under EUR 250k vs over EUR 1m for floating rate with IRF up to 1 year)

Equity:

- Venture Capital Investments / GDP
- Value of IPO market / GDP
- Percentage of SMEs using equity capital in last 6 months

Credit and Leasing:

- Percentage of SMEs using bank overdraft, credit line or credit card overdraft in last 6 months
- Percentage of SMEs not applying for the above because of fear of possible rejection in last six months
- Percentage of SMEs using leasing or hire-purchase in the last 6 months
- Median interest rate charged to SMEs for credit line or bank overdraft application in last 6 months

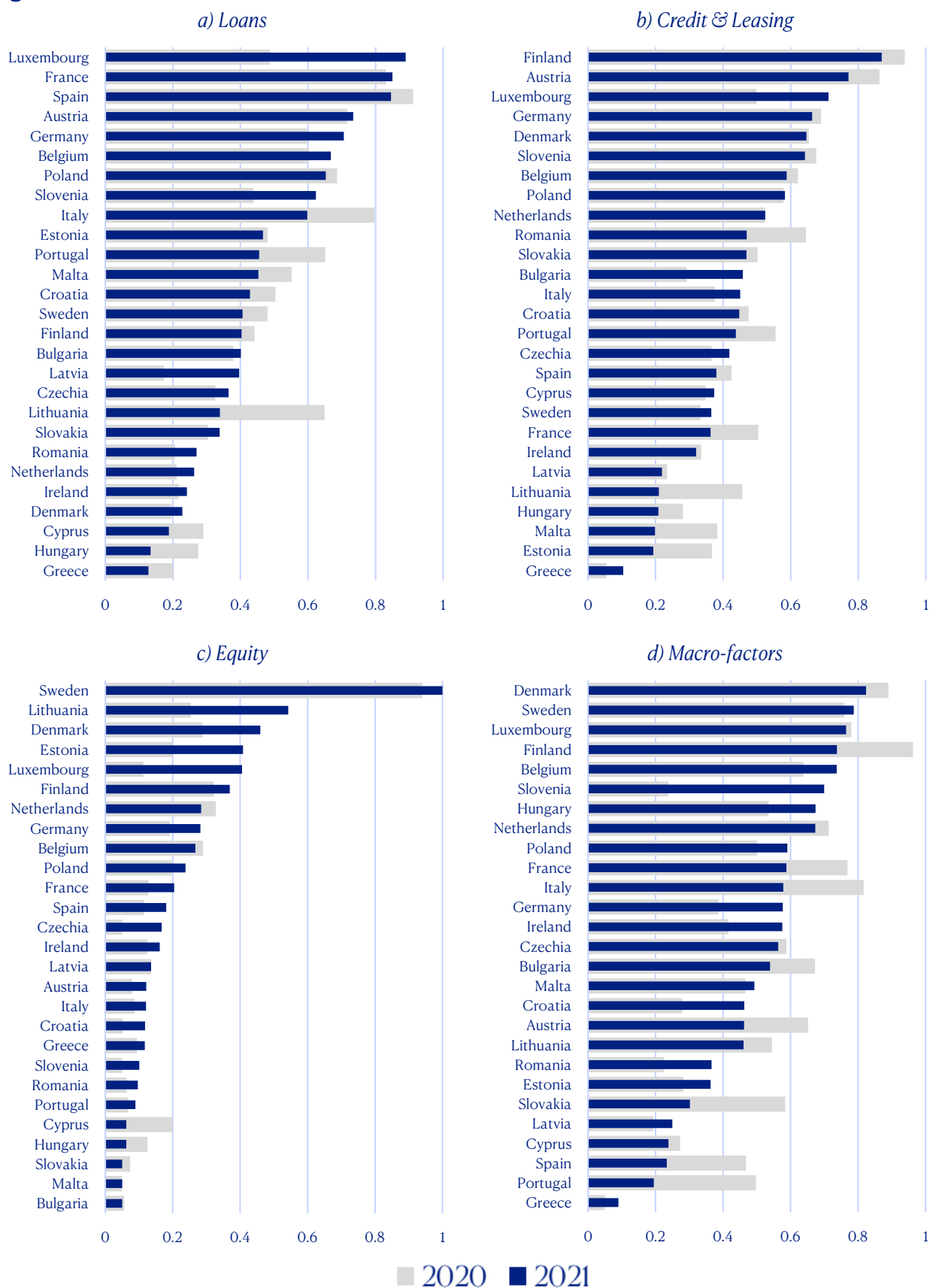
Macro Factors:

- Gap between actual and potential GDP
- Bank non-performing loans to total gross loans
- Percentage of SMEs feeling that there are no financing obstacles

Source: Torfs (2022)

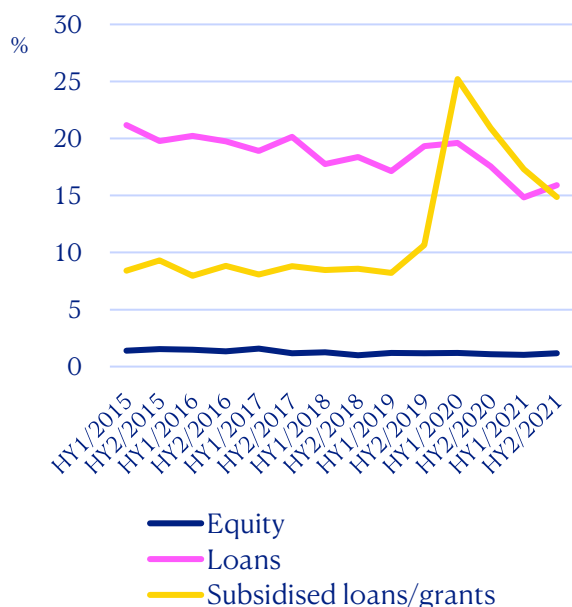
The most recent update of the ESAF incorporates the impact of Covid-19 pandemic and the subsequent public support measures. While some indicators might already be impacted by supply chain induced inflationary pressures during the second half of 2022, it does not yet incorporate the full impact of the war in Ukraine, which is expected to have a significant effect on SME financing conditions through its impact on inflation and interest rate.

Figure 13: The 2021 EIF SME Access to Finance sub-indexes



Dynamics in the 2021 update of the ESAF were driven to an important extent by changes in the loan subindex. One of the loan-subindex's indicators was historically high in 2020, as SMEs

Figure 14: Share of Euro area SMEs using...



relied heavily on public support programs to bridge the liquidity issues caused by the Covid confinement policies. This led the share of SMEs using subsidised bank loans and grants to increase sharply. However, many of those support programs got phased out over 2021, albeit not at the same pace across countries, leading to changes in the relative position of SME access to debt finance and hence, changes in the loan subindex country ranking.

The most important driver behind dynamics in the macro-subindex were national discrepancies in the pace of economic recovery, as documented in section 2 | and captured by the gap between potential and actual GDP.

Source: ECB SAFE, authors' calculations

At the EU-level, 2021 was a good year for equity markets.¹⁴ The Covid -19 crisis brought about new growth opportunities and continued

record low interest rates provided fertile ground for VC investments and IPOs. Similar to earlier years, the equity subindex is an important source for cross-country heterogeneity in the ESAF, as equity markets continue to be relatively underdeveloped in many EU countries.

The above-described dynamics led Luxembourg to head the 2021 ESAF ranking, driven by significant improvements in its debt and equity financing markets, caused by a growing share of Luxembourgish SMEs using subsidised lending (against the EU-wide declining trend), a sharp rise in IPO funding and a significant increase in the share of SMEs that reportedly used equity financing. On the other side of the distribution, Greece continues to lag the ESAF ranking, despite a significant increase in the share of SMEs that did not experience financing obstacles (+10 percentage points to 20%).

Another notable shift in the ESAF ranking is attributed to Lithuania (-8 position), presumably driven by a strong phasing-out of its pandemic support programs, as the share of SMEs that had access to state-sponsored liquidity programs declined by more than 20 percentage points. Also in Portugal, SME financing conditions appeared to have deteriorated significantly, in part driven by a decline in the share of SME using subsidised lending.

¹⁴ See Chapter 4 for an elaborate overview of equity markets.

For more details on the 2021 ESAF Index update, readers are referred to the dedicated ESAF publication (Torfs, 2022), which provides an elaborate overview of the data underlying the recent update, its subindices and their indicators.

3.2 | SMEs' perspective on access to finance

The discussion on SMEs' perspective on access to finance opportunities is based on the ECB's SAFE survey (ECB, 2022d). At the time of writing, the most recent survey wave was administered among European corporates between the 7th of March and the 15th of April, during which SMEs are polled about their perception on access to finance during the period October 2021 and March 2022 (referred to as HY2/2021 in this chapter). Therefore, the results presented here incorporate the initial impact of the Russian invasion of Ukraine.

SME access to finance issues had increased sharply over the course of the pandemic. The share of SMEs that report access to finance to be a significant problem surged from 28% prior to the pandemic (HY1/2020), to 34% during the first semester of 2020, the largest increase recorded since the beginning of data collection (Figure 15, upper panel). The rise in access to finance issues was not unique to SMEs and was also experienced by larger companies, albeit to a lesser extent.

Following the initial steep rise in access to finance issues, conditions improved significantly during the second semester of 2020, on account of the extensive pandemic liquidity support programs that were provided both at the national and the European level. The year 2021, however, provides a mixed picture. During the first semester, SMEs continued to benefit from wide financial support and access to finance issues declined further, leading to a share of SMEs that experience significant issues in accessing external financing of 25.3% in HY1/2021, the lowest share recorded since the beginning of measurements. However, during HY2/2021, the declining trend reversed as pandemic supports programs were being phased out and the war in Ukraine erupted. Consequently, the share of SMEs reporting to experience severe issues increased by 2 percentage points, pointing to the lack of public support programs and the

The SME Financing gap

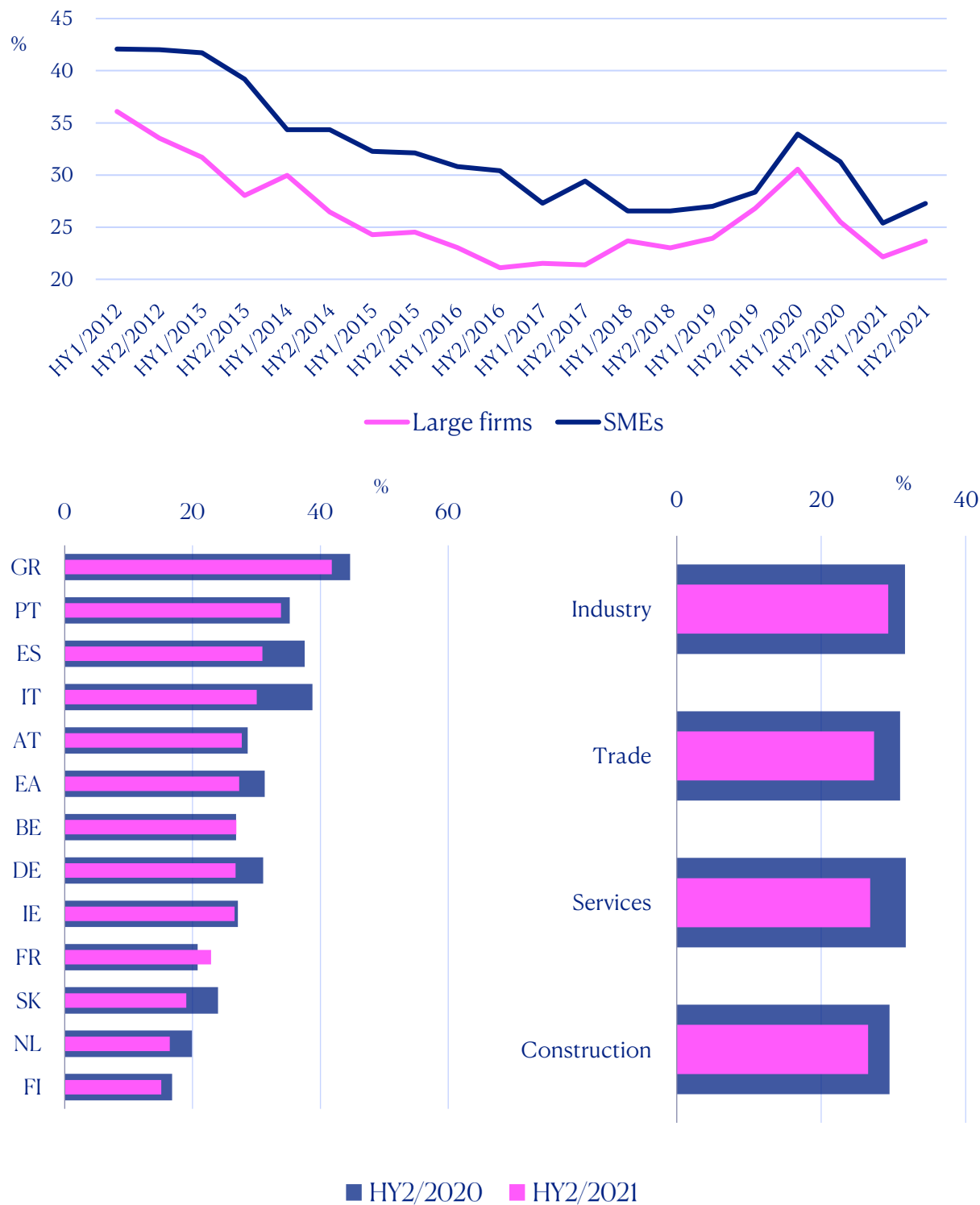
Access to finance is a structural problem for SMEs. Financial institutions are generally reluctant to extend uncollateralised credit to SMEs, even at high interest rates. As a result, many SMEs with economically viable projects cannot obtain the necessary financing from the regular system of financial intermediation.

This phenomenon is often referred to as the *SME financing gap*, a situation in which the market is not able to supply a sufficient amount of external financing to SMEs. This market failure, resulting in a sub-optimal equilibrium outcome, is rooted in the existence of information asymmetries, which lead to credit rationing either through adverse selection of low-quality borrowers or moral hazard issues (Akerlof, 1978; Jaffee and Russel, 1976; Stiglitz and Weiss, 1981).

This market failure warrants government intervention in SME capital markets, for example, through public support for the VC ecosystem (see Chapter 4 |) or credit guarantee schemes (see Chapter 5 |), among other policy measures aimed at vitalising the SME external financing ecosystem.

general economic environment as two important negative contributing factors to finance availability (Figure 16).

Figure 15: Percentage of SMEs reporting access to finance to be a highly important issue*



* Ranking it 7 or more on a scale up to ten, when asked how pressing of a problem access to finance was in the six preceding months.

Source: ECB SAFE (ECB, 2022d), authors' calculations

The optimism about the emerging economic recovery early 2021 was relatively short-lived and plummeted into negative territory during the second half of the year (Figure 16). As the HY2/2021 survey was partly administered in the immediate aftermath of the start of the Russian invasion, this reflects the impact of the ensuing economic uncertainty on sentiment, in combination with the sharp rise in inflationary pressures following the Covid-19 supply chain disruptions, as documented extensively in chapter 2 |.

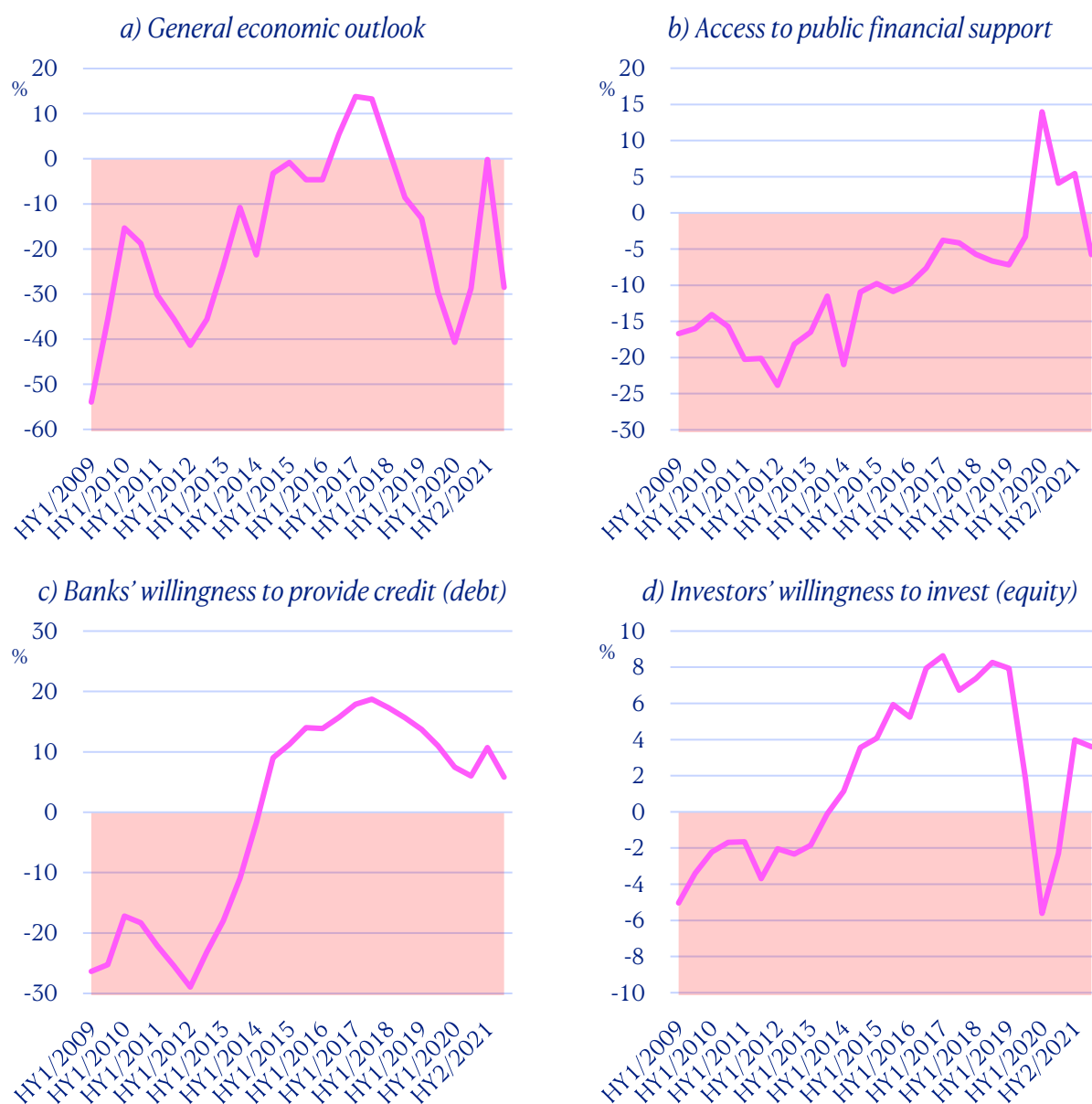
In the immediate aftermath of the pandemic, access to public financial support was an important positive driver of external financing availability, attesting to the effectiveness of the pandemic recovery initiatives, as the vast majority of European SMEs had access to government support schemes. These schemes mostly helped firms to finance working capital needs and meet their short- and medium-term obligations. For example, nearly half of SMEs used the financing received from those schemes to finance their wage bill (ECB, 2022d). More recently, many of those initiatives have been terminated, which is reflected by the observation that SMEs report a decrease in access to public financing support mechanism (Figure 16, panel b).

During 2021, SMEs considered both equity and debt financing to be a positive factor in access to finance, although for bank financing, there has been a declining trend since 2017 (Figure 16, panel c). More recently, SMEs have grown increasingly worried about the cost of bank financing, as a very high percentage of them reported to have experience increasing rates (ECB, 2022d). Equity investors' willingness to invest, after having plummeted in 2020, was perceived as favourable by SMEs throughout 2021 (Figure 16, panel d), although evidence from the most recent EIF VC survey wave indicates fund raising issues might imply a trend reversal for the period ahead (see Chapter 4 |).

SME access to finance conditions differ significantly between countries. In Belgium, the share of SMEs experiencing severe issues in access to finance remained roughly constant (27%), while in France, it increased slightly to 23%. Improvements were most pronounced for Italy (-8 p.p. to 30%), Spain (- 7 p.p. to 30%) and Slovakia (- 5 p.p. to 19%). From a sectoral perspective (Figure 15, bottom right panel), SME access to finance improved most for service sector SMEs, likely due to the fact they had been impacted most severely by the preceding Covid-19 crisis.

Also with respect to the contributing factors, important country heterogeneity emerges (Figure 17) in SME access to finance. Noteworthy, Finnish SMEs were most pessimistic about the general economic outlook, most likely reflecting its proximity to Russia and the associated impact of the rise in geopolitical uncertainty, but also in Spain, SMEs' perception of the impact of the general economic outlook on access to finance deteriorated markedly.

Figure 16: Factors driving the availability of external financing to Euro area SMEs*

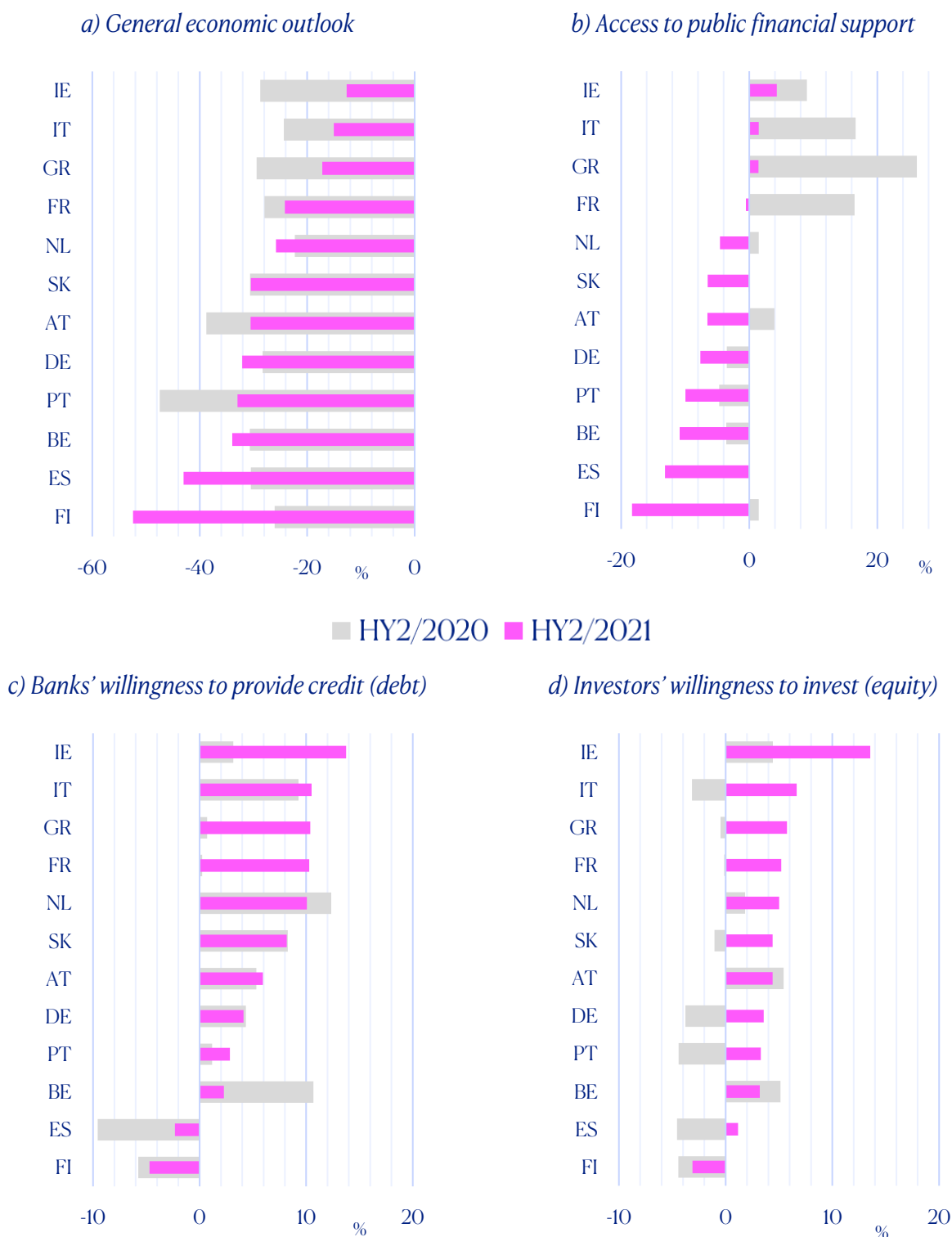


* Net-percentages, calculated as the difference between the share of positive vs negative respondents, based on the SAFE Survey question 11: For each of the following factors, would you say that they have improved, remained unchanged or deteriorated over the past six months? The outcome is to be interpreted as a rate of change, for example, a positive percentage implies that on aggregate, conditions related to that factor have improved during the considered time period.

Source: ECB SAFE (ECB, 2022d), authors' calculations

Access to public financial support was only perceived as a positive contributing factor in three countries, although its impact decreased sharply, in accordance with the Euro area trend. The willingness of private credit providers (both debt and equity, bottom panels Figure 17) provides a mixed picture, both in terms of level and in terms of evolution compared to the same semester one year earlier.

Figure 17: Factors driving the availability of external financing by Euro area Member State*



* Net-percentages, calculated as the difference between the share of positive vs negative respondents, based on the SAFE Survey question 11: For each of the following factors, would you say that they have improved, remained unchanged or deteriorated over the past six months? The outcome is to be interpreted as a rate of change, for example, a positive percentage implies that in the aggregate, conditions related to that factor have improved during the considered period.

In sum, the recent wave of the ECB's SAFE survey provides a first glimpse of the impact of the Ukraine war and the ongoing supply chain disruptions on SME access to finance in the Euro area. While the widespread availability of public finance support programs sheltered European SMEs from the worst of the crisis in the immediate aftermath of the pandemic, recently, SME access to finance conditions have started to deteriorate again. As central banks are tightening monetary policy to combat mounting inflationary pressures, interest rates are likely to increase further throughout 2022, further adding to the challenges SMEs face in accessing bank financing.

3.3 | Bank lending activity & SME bank financing conditions

The bank-lending channel has traditionally been the most important source of external financing for SMEs, particularly in Europe, where SMEs rely disproportionately on bank-based debt instruments to finance working capital needs and long-term investments. Corporate debt-reliance further intensified during the Covid-19 pandemic, as European SMEs relied heavily on public financial support, such as public guarantee schemes or subsidised lending, to meet with their urgent, short-term liquidity needs.

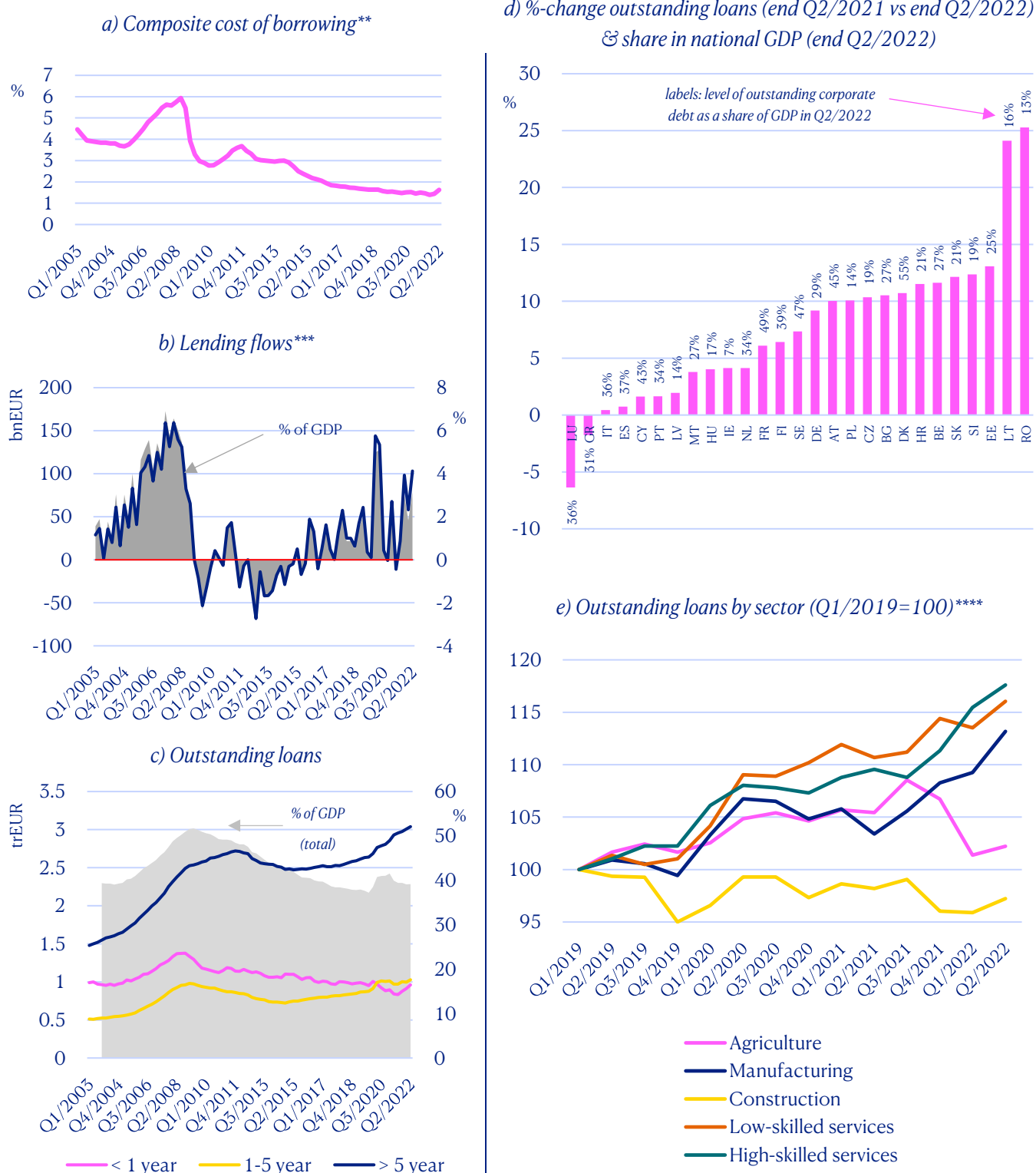
Aggregate corporate lending activity

After a long period of either declining or stagnating interest rates, corporate borrowing costs have started to rise again recently (Figure 18, panel a). By the end of 2021, the ECB's corporate borrowing cost indicator¹⁵ bottomed at 1.36%, after which it increased again by 50 basis points, reaching 1.86% by August 2022, representing the steepest increase of the last decade. While corporate borrowing costs remain relatively low from a historical perspective, they are expected to increase further in the near future, provided the ECB might introduce more rate hikes in their efforts to curb European inflation.

Lending flows rose sharply in the immediate aftermath of the first Covid-19 outbreak as governments across Europe rolled out extensive liquidity support measures (Figure 18, panel b). Throughout 2021, flows returned to the trend path it they were on since 2013 and continued to rise throughout 2022, despite the recent increase in rates. Consequently, outstanding corporate debt expanded, in particular for long term loans (Figure 18, panel c). However, expressed as a share of GDP, corporate indebtedness remains far below the levels observed leading up to the financial crisis.

¹⁵ As indicated by the ECB's composite cost of borrowing indicator, which calculates borrowing costs to Euro area corporates as a volume-weighted average across all maturity and loan size segments.

Figure 18: Lending activity of private lenders to non-financial corporations (Euro area)*



*Monetary financial institutions, credit institutions, other financial intermediaries and electric money institutions, excluding central banks. GDP normalisation proceeds with quarterly GDP data for quarterly lending flows, and with a 4-quarter moving-sum for quarterly data on outstanding loans. **To Euro area non-financial corporations. ***Lending flows are defined as the balance between new business volumes and repayments. ****Low-skilled service sector: NACE sections G to J; High-skilled service sector: NACE sections L, M and N.

In all but two countries (Greece and Luxembourg), the corporate loan stock increased during the twelve months preceding Q2/2022 (Figure 18, panel d), mostly so in CESEE countries. In Romania and Lithuania, for example, the loan stock rose by about 25%. However, at just 13 and 16% of GDP, respectively, corporate indebtedness remained significantly below the EU average, leaving more leeway for a rise in leverage.

The Danish corporate debt stock, prior to the pandemic already among the highest of all EU countries, also expanded, exceeding 55% of GDP by Q2/2021. Also other Scandinavian countries' corporate sectors are relatively indebted. This does not necessarily pose a problem, provided the corporate sector is sufficiently competitive to meet with the associated debt obligations, which arguably is the case for Scandinavian countries. However, the relatively high amount of outstanding corporate debt in vulnerable economies like Italy and Spain, and to a lesser extent, France, could be a potential cause for concern in the long run.

From a sector-perspective, the outstanding loan stock continued to increase for the service and manufacturing sector (Figure 18, panel e). For the construction sector, a stagnation occurred, while for agricultural companies, the stock of bank loans declined significantly from Q4/2021 onwards. Many agricultural business models, often low-margined, tend to be energy-intensive. Therefore, the decline could reflect the impact of rising energy prices and looming uncertainty on agricultural investments, and hence agricultural loan demand.

Corporate borrowing costs

According to the ECB's composite cost of borrowing indicator (Figure 18, panel a), corporate borrowing costs are still historically low, despite the recent increase in interest rates. However, the aggregate indicator is based on a volume weighted aggregation of interest rates of loans with different sizes and maturities and therefore hides

Borrowing costs by maturity and size segment.

The ECB provides data on interest rates for lending activity by loan size and maturity. The interest rate on short-term loans serves as a proxy for short-term working expenditures, while interest rate on longer term maturities are a better proxy for the cost of durable investments. The interest rate size spread is defined as the excess interest rate charged on loans smaller than EUR 0.25m compared to loans with a value exceeding EUR 1m. Assuming lending below EUR 0.25m provides a good proxy from SME lending, a high size-spread indicates a disadvantaged competitive position for SMEs vis-à-vis larger borrowers.

Small loans typically carry higher interest rates. This conflicts with traditional finance theory, which suggests that the risk of default increases with loan size. This could evidence the presence of fixed screening costs, or it could indicate that small loans are used for riskier purposes, such as financing working capital. The fact that the size spread is particularly high for short-term loans, provides some support for the latter argument. Another explanation is that banks possess a higher degree of market power in the small loan market segment, increasing the cost of obtaining bank finance for SMEs.

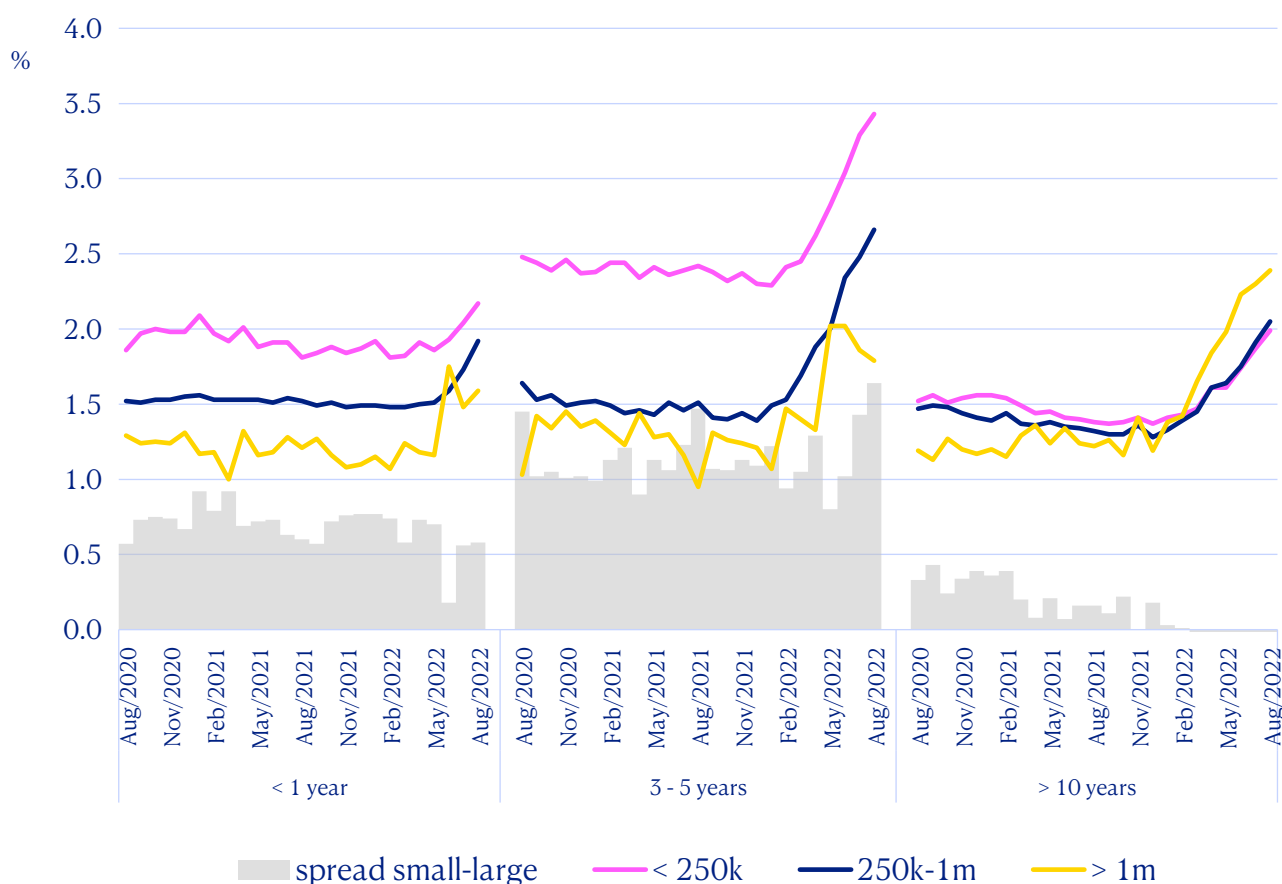
There is also an anomaly in the maturity spread of small loans. As liquidity decreases with loan maturity, long-term loans should carry higher interest rates. This holds indeed true for medium-sized and large loans, but for small loans, however, short-term lending is in fact more expensive. This too can be interpreted as evidence for the presence of a fixed cost element related to screening.

significant disparities across loan segments. During the twelve months leading up to August 2022, borrowing costs for non-financial corporations have undergone contrasting evolutions, depending on loan size and maturity (Figure 19).

In the immediate aftermath of the first pandemic wave early 2020, interest rates have either declined, or stayed constant, over each considered submarket. Borrowing costs declined most strongly for medium-term small loans (<EUR 0.25m), which is consistent with available evidence on the average maturity of Covid-guaranteed lending programs, and the fact that such programs targeted mostly smaller borrowers.

Recently, corporate borrowing costs have increased sharply. This increase was particularly pronounced for medium-term segment (3-5 years), where rates are strongly correlated with inflation expectations (IMF, 2021). The rise was most pronounced for smaller loans. A small loan with an initial rate fixation of 3-5 years was 50% more expensive in August than it was in January, as rates rose to 3.43%. Also long-term interest rates rose significantly throughout 2022. In contrast to the medium-term segment, the sharpest increase occurred for larger loans (> EUR 1m), significantly adding to the financing cost for large, debt-financed investment projects.

Figure 19: Interest rates by loan size and maturity,* and the interest rate size spread



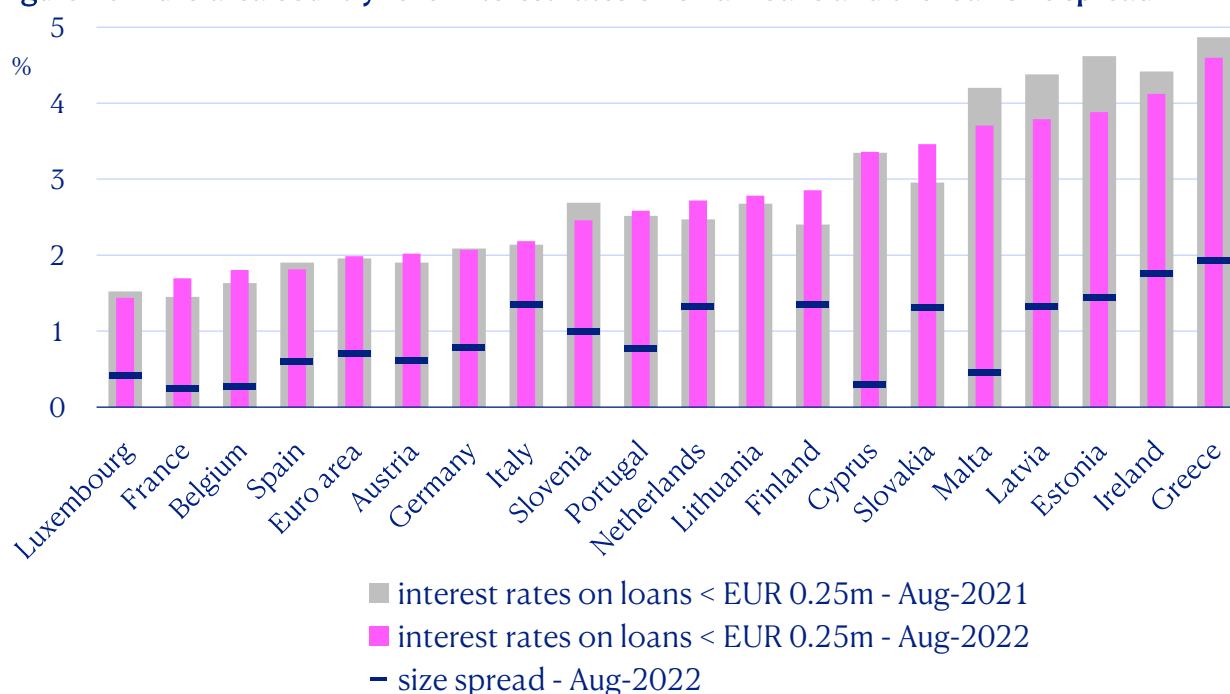
* Maturities refer to the initial rate fixation period.

Source: ECB, authors' calculations

Borrowing costs for small borrowers are characterised by a significant degree of heterogeneity across the EU (Figure 20).¹⁶ Averaged over the twelve months prior to August 2022, lending conditions were most favourable for small corporate borrowers in Luxembourg, France and Belgium, and most costly in Estonia, Ireland and Greece.

Interest rates did not increase in all countries and even declined significantly in some. Interestingly, financing costs for small borrowers decreased for the five countries with the highest interest rates, while stagnating or increasing for those countries with the lowest rates, leading to a reduction of within-Euro area disparities. Country-specific rates are aggregated over maturities and therefore mostly reflect evolutions on the segment for short-term lending, where volumes significantly exceed those of other maturity segments (see also Figure 21) and rates have not increased as strongly.

Figure 20: Euro area country-level interest rates on small loans and the loan size spread*



* The spread is calculated as the percentage point difference between loans exceeding EUR 1m and loans smaller than EUR 0.25m. Twelve month backward moving averages were used to eliminate the influence of monthly outliers as well as seasonal influences and focus on the underlying trend. Countries or data points for which no sufficient data was available are omitted.

Source: ECB, authors' calculations

While cross-country heterogeneity in interest rates on small loans could be explained by differences in the risk-profile of local SMEs, a recent study found that such factors were only weak predictors of small loan rates (Caroll and McCann, 2016). Controlling for individual risk factors, the authors conclude that national differences in the cost of SME lending are associated with institutional characteristics, such as the recoverability of collateral and lack of competition in the banking sector, rather than firm-specific risk factors. Competitive pressure in the banking

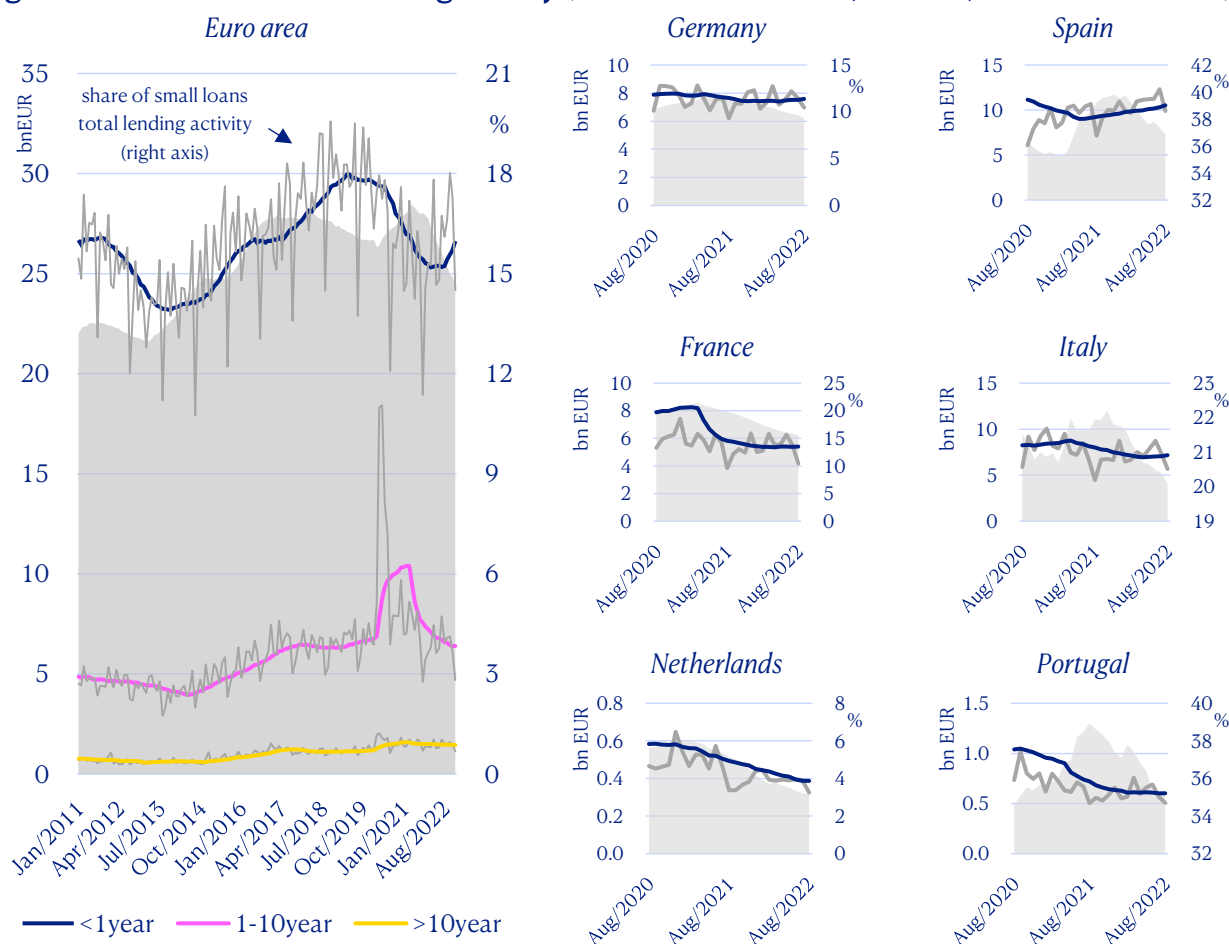
¹⁶ In this context, see Wagenvoort et al. (2011) who show that the European market integration for small loans, in particular with a short rate fixation, has not yet been achieved, explaining the non-uniformity of bank lending rates on small loans across Europe.

sector was found to be of particular relevance in explaining the interest rate size-spread documented in Figure 19 and Figure 20. Large firms, having greater bargaining power in the bank-client relationship, can still negotiate lower interest rates in non-competitive banking markets, whereas SMEs face higher borrowing costs, in absence of alternative outside options (Berger and Udell, 2006; see as well Affinito and Farabullini, 2009).

SME lending activity

Banks' new issuance of small loans to Euro area corporates (< EUR 0.25m, a common proxy for SME lending¹⁷) rapidly expanded during the initial phase of the Covid crisis, peaking at EUR 50bn worth of new loans in April 2020 (Figure 21), driven almost entirely by a sharp rise in the segment of medium-maturity loans (1-10 year).

Figure 21: Evolution of SME lending activity (new business volume, bn EUR, selected countries)*



* As approximated by the evolution of small lending activity (<EUR 0.25m), new business volume of loans to NFCs, other than revolving loans and overdrafts, convenience and extended credit card debt. To extract medium term trends, the coloured lines plot 12-months backward moving averages of the raw new business volumes series, the latter being characterised by large monthly fluctuations.

Source: ECB, authors' calculations

¹⁷ Huerga et al. (2012) show that small loans are a good proxy for the SME lending market.

While medium-term SME lending activity remained elevated throughout 2020 and the first months of 2021, it reverted to its pre-Covid level mid 2021 and has been declining ever since. A similar evolution occurred on the segment of small, long-term loans, although the decline has been less abrupt. In contrast to the other maturity segments, short-term bank liquidity did not expand on the account of the extensive pandemic support programs. In fact, short-term lending volumes declined throughout the Covid-19 pandemic and only recently started to increase again.

Combined over all maturities, the aggregate market for small loans declined in relative importance, as evidenced by a significant decrease in the share of small loans in total new business volume to 14.7%, its lowest value since 2014. While lending amounts rose in some countries over the course of 2022 (eg, Spain and Germany), the declining trend in the share of small loans is common across countries, providing a potential indication the supply of credit to SMEs is decelerating.

Guaranteed lending activity¹⁸

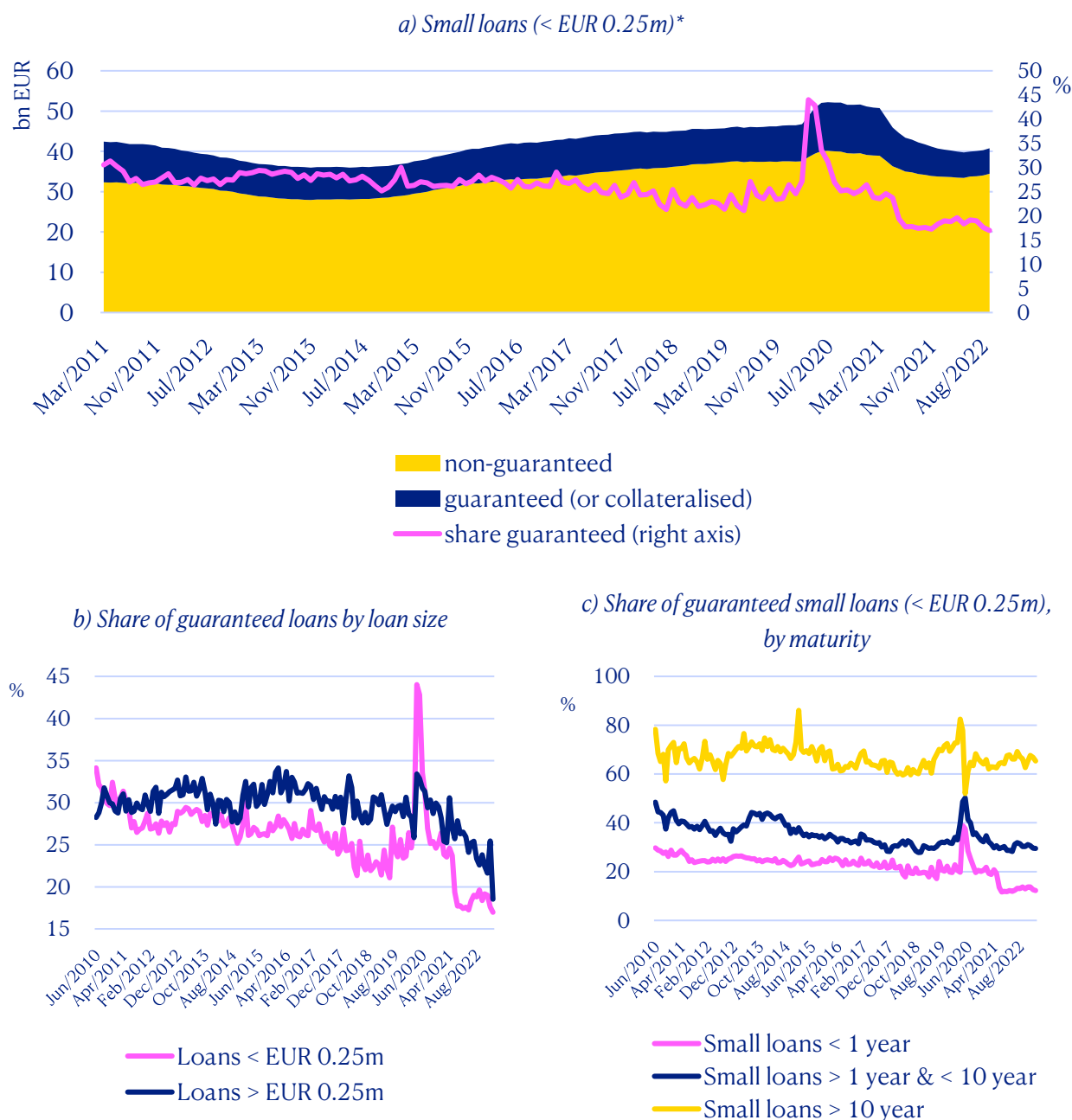
In the wake of the Covid-19 pandemic, government-backed credit guarantee schemes contributed significantly to liquidity support for European corporates (Figure 22). In the immediate aftermath of the pandemic, activity on the bank lending market for loans backed by a guarantee or collateral spiked, in particular for loans smaller than EUR 0.25m. Recently, with support programs gradually being terminated, the share of guaranteed/collateralised loans plunged to just 17% in August 2022, falling well below its historical average.

While the data unfortunately does not allow distinguishing between guaranteed and collateralised lending, it is unlikely that the declining trend is explained by a reduction in collateral requirements. Rather, given the rise in economic uncertainty it is in fact more likely that banks have increased collateral requirements, implying a decline in the outreach of credit guarantee instruments is a more plausible explanation. This trend initially appeared unique to the segment of small loans, but recently the share of guaranteed/collateralised loans also declined in the segment for larger loans (bottom left panel, Figure 22).

During the first half of 2020, short-term liquidity support initiatives had led to a crowding-out of guarantee support for long-term lending (Kraemer-Eis et al., 2020). This was evidenced by a clear trend-reversal in the share of long-term guaranteed (or collateralised) SME lending, which had fallen to about 50% after having gradually risen from 60% to over 80% during 2019. Recently, the share normalised to its pre-pandemic trend level of about 65%. In contrast, the share of short-term SME loans covered by a guarantee (or collateral) declined sharply from about 20% to just over 10% in July 2021 and remained subdued throughout 2022.

¹⁸ For an extensive overview of the European credit guarantee market, see Chapter 5.1 |

Figure 22: Guaranteed lending activity in the Euro area



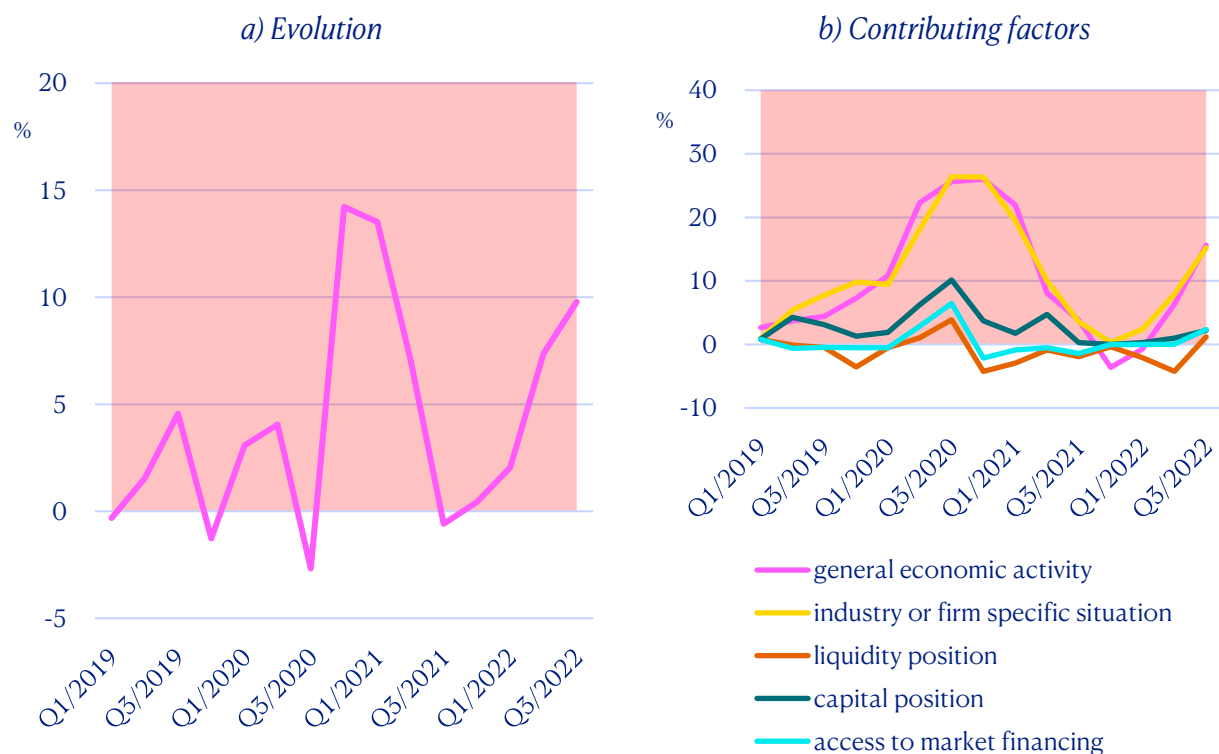
* 12-month backward moving average

Source: ECB, authors' calculations

Bank credit standards for SME lending

Banks have considerably tightened SME credit standards over the first three quarters of 2022 (Figure 23) and indicated the general economic situation and firm-specific or industry-specific factors to be the most important contributing factors, possibly anticipating the rise in default probability among small corporates due to the vast increase in energy costs.

Figure 23: Bank credit standards applied to SME lending by Euro area banks*



* Net-percentages, calculated as the difference between the share of banks that tightened, minus the share of banks that loosened credit-standard. Positive values (red area) indicate a tightening of credit standards and hence imply worsening credit conditions.

Source: ECB SAFE (ECB, 2022e), authors' calculations

4 | Private Equity

Private Equity (PE)/Venture Capital (VC)¹⁹ is an essential source for start-ups, young, and high growth companies to create value, often through innovation. External equity is not to be seen as a substitute for traditional, mainly bank-centred, SME financing instruments. Rather, it serves a specific and restricted group of SMEs and mid-caps (including start-ups), which, nevertheless, significantly contribute to the innovativeness, productivity and development of the overall economy.

The justification for public intervention in the area of SME financing in general, and external equity financing in particular, is rooted in a number of factors, such as the presence of information asymmetries in the relationship between financier and recipient, the presence of fixed costs of investment and the existence of positive externalities originating from SMEs' innovation activities.²⁰ In the PE/VC market, the long investment cycles can also deter private investors, especially in early stage financing, while public agents can be considered as more "patient" investors.

Against this background, it is one of EIF's aims to play a crucial role in establishing a sustainable VC ecosystem in Europe. We provide an overview of the European PE/VC market activity and prospects in this chapter.

4.1 | Investment activity

4.1.1 | Private equity funds

Over the past 25 years, the European PE activity exhibited booms and busts. The most famous peak periods were observed in 2000 and 2006, when the total amounts raised by PE funds located in Europe reached EUR 48bn and EUR 112bn, respectively, according to the statistics of Invest Europe (Figure 24; Box 3 provides more information on the Invest Europe data).

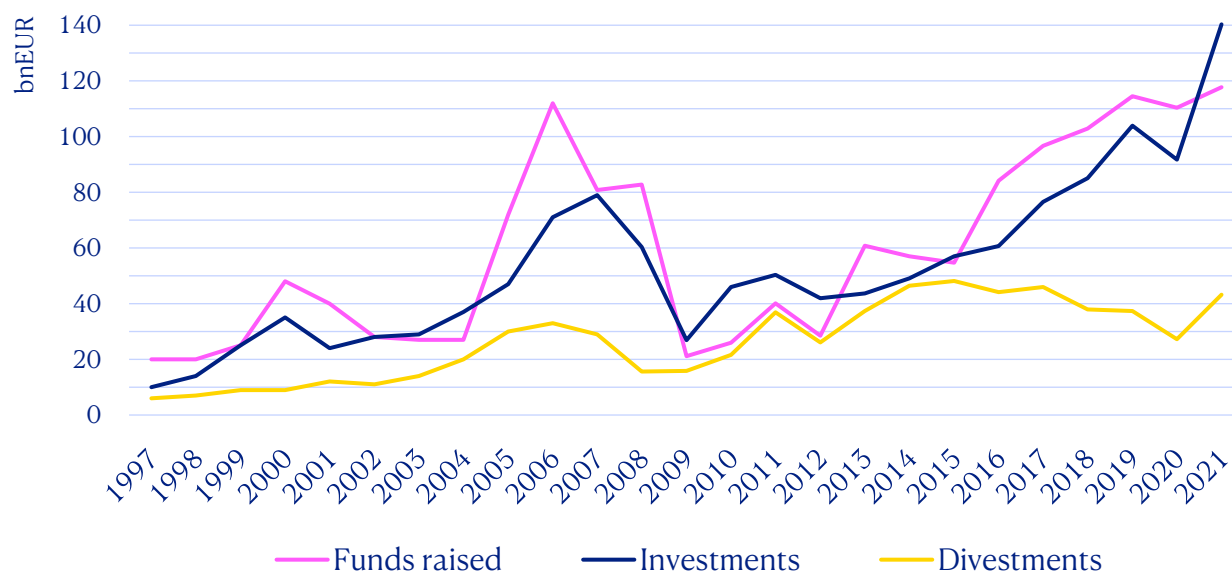
In the same years, the overall PE investment levels were at EUR 35bn and EUR 71bn (and even increased further to EUR 79bn in 2007). However, both booms were followed by significant downturns, i.e. the "dotcom crisis" in the early noughties and the financial and economic crisis from 2007 onwards. The severe crash of the European PE activity in 2008-2009 was followed by a rebound, and fundraising and investment reached new record levels at EUR 114bn and EUR 104bn, respectively, in 2019. In the Covid-19 crisis, the market activity suffered only a temporary

¹⁹ In this chapter, we follow the Invest Europe approach that includes VC as a subcategory of private equity.

²⁰ See Section 5.1.1 | for an overview of the rationale for public intervention in SME financing.

setback, and total fundraising went down to EUR 110bn and investments at EUR 92bn in 2020. The crisis was immediately followed by another record year, with fundraising (EUR 118bn) and investments (EUR 140bn) reaching new all-time highs in 2021. Total divestment amounts also increased and were at EUR 43bn in 2021.

Figure 24: Fundraising, investment and divestment amounts by PE firms located in Europe*



* In this diagram, investment and divestment data are based on the “industry approach” (or “office approach”), i.e. by PE firms located in Europe, in contrast to the “market approach”, which is based on the location of the portfolio companies.

Source: Invest Europe, authors’ calculations

Box 3: Introductory information on Invest Europe data

In this chapter, numbers, diagrams and statements are largely built on statistics from Invest Europe (formerly EVCA, the European Private Equity & Venture Capital Association), and we would like to thank our colleagues from the Invest Europe research team for their support.

Invest Europe monitors direct PE investment funds that primarily focus on investments in Europe. The funds included in the statistics are PE funds making direct PE investments, mezzanine PE funds, silent partnerships, corporate venture structures (CVC), PE arms of banks, clean tech (energy) funds, co-investment funds and rescue/turnaround funds.²¹ Please note that Invest Europe PE statistics do not include infrastructure funds, real estate funds, private debt funds, distressed debt funds, primary funds-of-funds, secondary funds-of-funds and PE/VC-type activities that are not conducted by PE funds. Also not included are activities of business angels and hedge funds as well as corporate acquisitions outside of dedicated corporate venture programmes.

²¹ Silent partnerships: Mezzanine funds, specific to Germany. PE arms of banks: PE/ VC arms/ divisions of banks. Even if they do not invest from a pool of capital (usually rather from the bank’s balance), they follow the classic PE model. Clean tech (energy) funds, as long as they invest in clean-tech/ energy related companies and not in projects.

Box 3 continued:

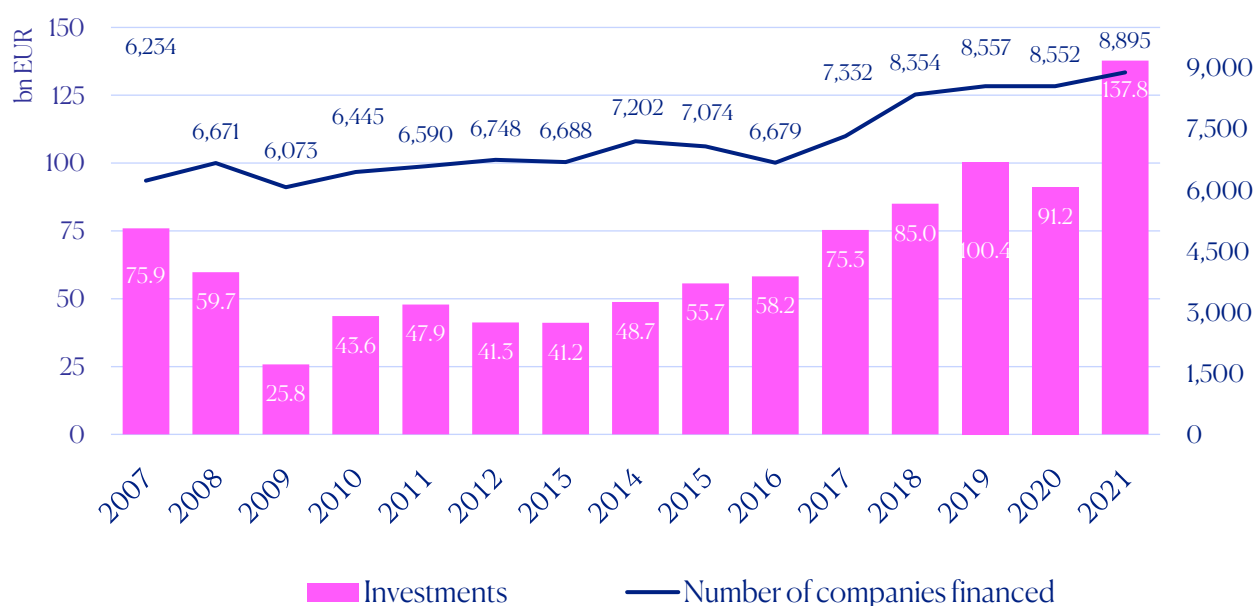
Invest Europe statistics can differ from the numbers reported by other data providers for the reason just mentioned and others, like differences in methodology, definitions and interpretations of the PE fund and investment stages and geographical definitions (e.g. of “Europe”).²²

With data on more than 1,800 European PE firms, the Invest Europe statistics released in May 2022 cover 91% of the EUR 754bn in capital under management in Europe (based on end-2020 figures). Data since 2007 was restated and complemented with additional information. To a certain extent, this resulted in revised numbers in the Invest Europe statistics and this document.

See Invest Europe (2022) for more details.

In 2021, PE investments skyrocketed. PE funds located in Europe (statistics based on the “industry approach”; Figure 24) invested EUR 140.3bn, an increase by 53% compared to the previous year. In nominal terms, PE investments increased by EUR 48.6bn, which denotes by far the largest increase ever recorded. At the same time, investments by PE funds from all over the world (including Europe) in portfolio companies based in Europe (“market approach”) jumped by 51% to EUR 137.8bn (Figure 25). The number of European companies financed increased by 4% to 8,895.

Figure 25: PE investment in European portfolio companies*



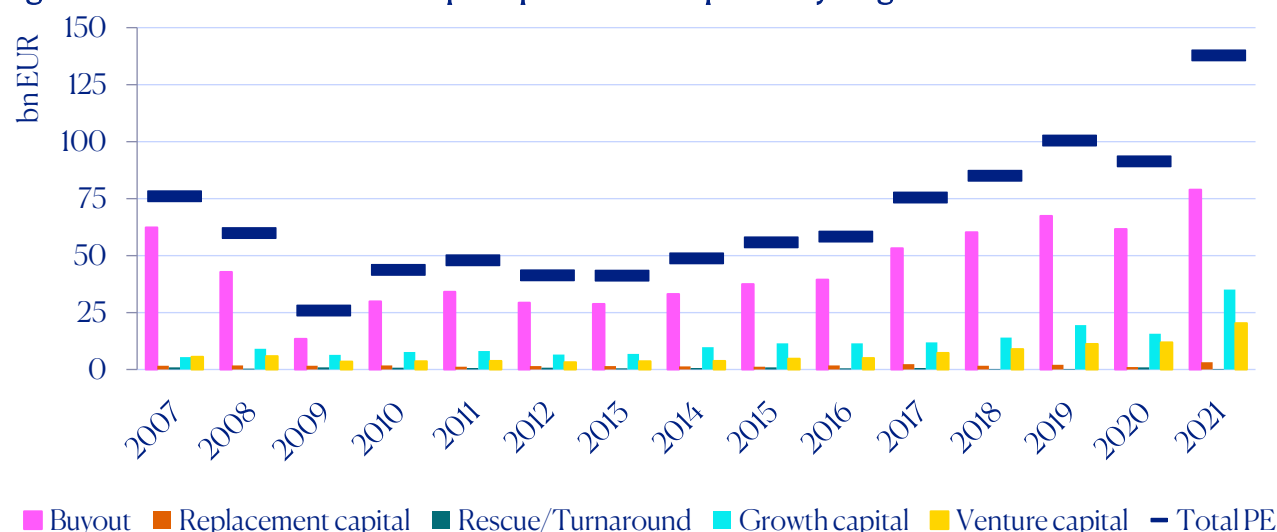
* Investment activity by PE firms in portfolio companies based in Europe (“market approach”). All investment figures are equity value, i.e. excluding leverage.

Source: Invest Europe, authors’ calculations

²² Data on the PE and VC market is scarce and sometimes inconsistent with one another when comparing different data bases. This is mainly due to a lack of data disclosure and different data collecting and compiling approaches. Therefore, it is “difficult to paint in definitive terms the level of investment activity and fund performance”, as stated by Kaplan and Lerner (2016). However, the authors also highlight that “the quality of information available has increased in recent years and can be expected to continue to do so going forward”.

A differentiation by stage focus (Box 4 provides an overview of the Invest Europe investment stage definitions) reveals that investment grew strongly in the largest part of the PE market, i.e. the buyout segment (by 28% to EUR 78.9bn), in 2021. Even more considerable increases were recorded for growth capital (+124% to EUR 35.1bn) and replacement capital (+177% to EUR 3.2bn), while the smaller segment of rescue/turnaround capital (–73% to EUR 0.2bn) decreased substantially (Figure 26).

Figure 26: PE investments in European portfolio companies by stage focus



Source: Invest Europe, authors' calculations

Box 4: Invest Europe definition of investment stages for private equity

Venture Capital

Seed: Funding provided before the investee company has started mass production/distribution with the aim to complete research, product definition or product design, also including market tests and creating prototypes. This funding will not be used to start mass production/distribution.

Start-up: Funding provided to companies once the product or service is fully developed, to start mass production/distribution and to cover initial marketing. Companies may be in the process of being set up or may have been in business for a shorter time, but have not sold their product commercially yet. The destination of the capital would be mostly to cover capital expenditures and initial working capital. This stage contains also the investments reported as “Other early stage” which represents funding provided to companies that have initiated commercial manufacturing but require further funds to cover additional capital expenditures and working capital before they reach the break-even point. They will not be generating a profit yet.

Later-stage financing: Financing provided for an operating company, which may or may not be profitable. Late stage venture tends to be financing into companies already backed by VCs. Typically in C or D rounds.

Box 4 continued:

Growth

A type of PE investment (often a minority investment) in relatively mature companies that are looking for primary capital to expand and improve operations or enter new markets to accelerate the growth of the business.

Buyout

Financing provided to acquire a company. It may use a significant amount of borrowed capital to meet the cost of acquisition. Typically involves purchasing majority or controlling stakes.

Rescue / Turnaround

Financing made available to an existing business, which has experienced financial distress, with a view to re-establish prosperity.

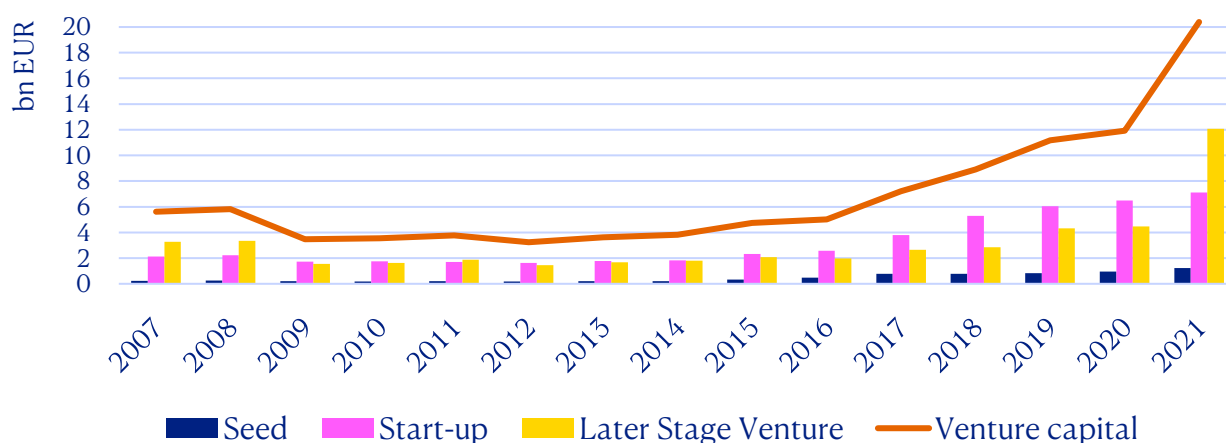
Replacement capital

Minority stake purchase from another PE investment organisation or from another shareholder or shareholders.

Source: Invest Europe (2022)

VC investments jumped by 71% to a new record level of EUR 20.4bn in 2021. In terms of number of companies financed, the VC segment accounted for the majority of PE investments (5,334 out of 8,895). Within the VC market segment, all sub-segments recorded strong growth, with later stage venture investments (+170% to EUR 12.1bn) having taken the lead (Figure 27). Investments into start-ups (+9% to EUR 7.1bn) and seed stage (+28% to EUR 1.2bn) also increased; see Box 5 for a discussion of investments at the technology transfer stage.²³

Figure 27: VC investment amounts by stage focus



Source: Invest Europe, authors' calculations

²³ Please note that the investment activities of Business Angels are not included in the Invest Europe statistics, see Box 3. As business angel financing is important for the financing of SMEs and innovation, we present more information in Section 4.1.2 |.

Box 5: Financing technology transfer

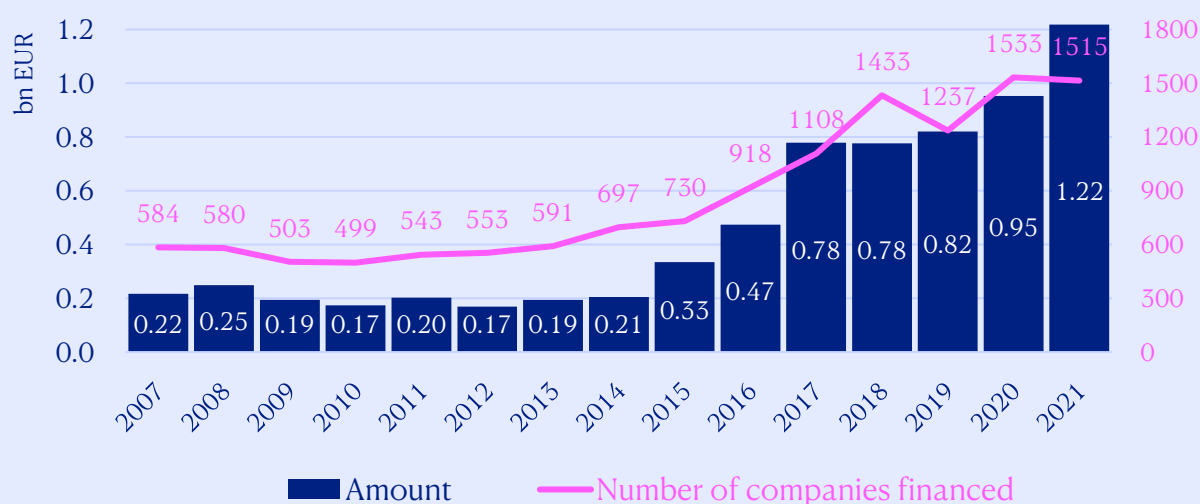
Technology transfer (TT) is the process of transforming the results of research and development into marketable products and services. It can take place through a number of means, in particular through the collaboration between research organisations and industry, the licensing of intellectual property rights, the creation of start-up businesses or university spin-out companies.

Although TT investments in Europe are in the radar of some investors, academic research is generally considered to be 'too new' or 'too high-risk' to be transferred out of the research laboratory and financed by the traditional investors. New discoveries and technologies may fail to realise their potential unless they become attractive to industry or downstream investors.

Equity investments in TT activities can contribute to reduce early-stage (pre-seed, seed and post-seed) funding gaps and sustain viable TT structures while generating financial returns for investors over time (EIF, 2016). Moreover, they contribute to ensure a strong and continuous deal flow in the VC market (EIF, 2017). In the field of TT and the commercialisation of research results, the EIF has undertaken a particular market development effort also in geographies with an emerging VC ecosystem, and EIF's investments in TT funds have encouraged private investors to look at the asset class. See EIF (2022) for latest initiatives.

Overall, annual seed stage VC investments²⁴ in European enterprises have grown more than sixfold since 2012 and reached a record level of EUR 1.2bn in 2021, according to Invest Europe data. In that year, the number of ventures financed was at 1,515.

Seed stage VC investments in European companies²⁴



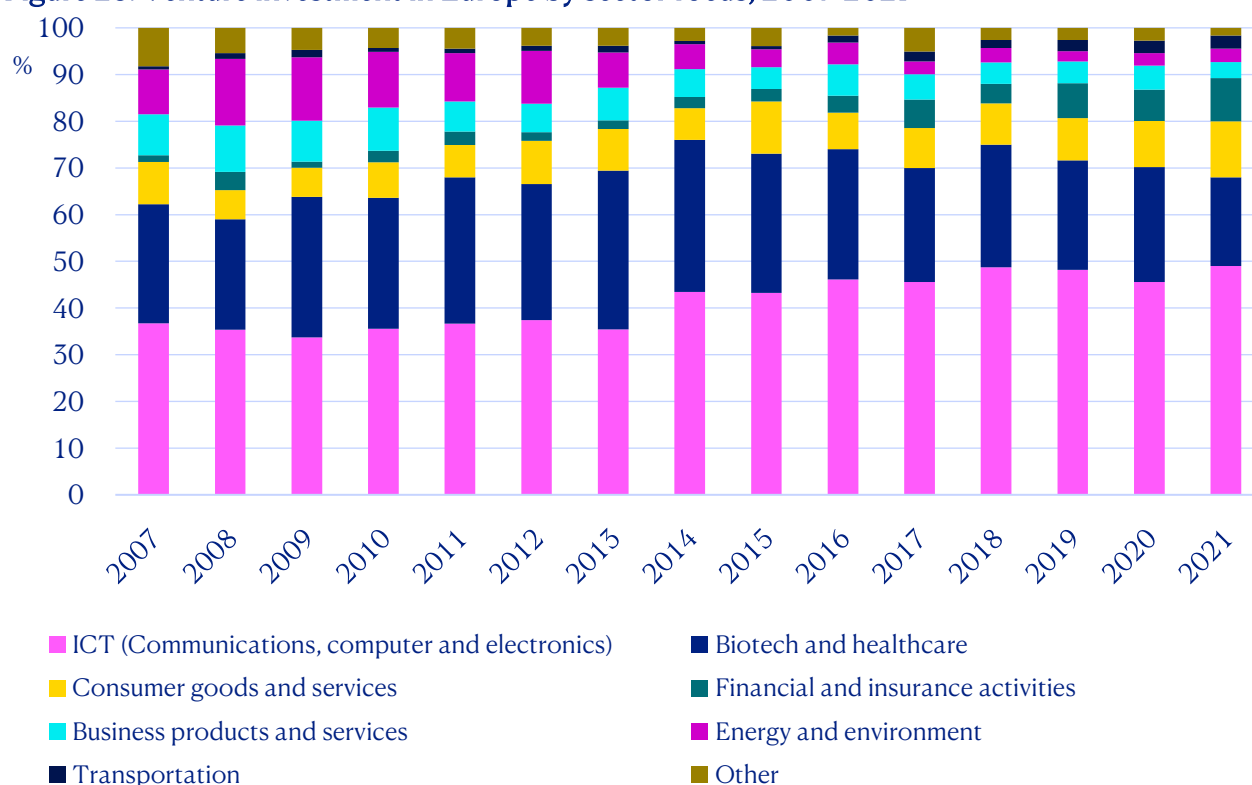
Source: Invest Europe, authors' calculations

In the context of a cooperation with the University of Trier, EIF contributed to a research project on incubator business models in Europe; an overview is provided in a previous ESBFO issue (see Kraemer-Eis, Lang, Torfs, and Gvetadze, 2015).

²⁴ The seed stage goes beyond TT, but it is the earliest investment stage for which data is provided in Invest Europe statistics (see Box 4 for the Invest Europe definition). Important additional tech transfer and seed stage investments that not only include equity instruments are, for example, grants, crowdfunding, but also equity deployed by non-VC/PE market participants. See, for example, Dealroom.co (2018) for an approach that differs from Invest Europe's and results in higher amounts reported for seed stage investment.

Developments in venture investment by sector are shown in Figure 28. The relative importance of sectors has a certain stability over time: ICT (communications, computer and electronics) and biotech & healthcare have remained by far the most relevant industries for venture investment in Europe since 2007. Over the past twelve years, the share of ICT in total VC investment activity even increased, from 34% in 2009 to 49% in 2021. In contrast, the share of investments in the energy and environment sector decreased from 14% in 2008 and 2009 to 2% in 2019,²⁵ before slightly increasing again over the past two years to a level of 3% in 2021. Moreover, the developments in the ICT sector had a substantial impact on structural changes in the VC market. Chapter 4.5.2 | provides a more detailed elaboration.

Figure 28: Venture investment in Europe by sector focus, 2007-2021*



* Our category "Other" contains the sectors Agriculture, Chemicals and materials, Construction, Real estate, and "Other" from the Invest Europe statistics.

Source: Invest Europe, authors' calculations

Furthermore, according to Invest Europe, market participants have observed a notable amount of growth stage investments as follow-on investments in venture-backed companies that are not registered in VC investment statistics (but in growth stage statistics). In 2021, about 30% of the total growth stage investment amount was received by venture-backed companies (Invest Europe, 2022). Against the background of the scale up issue in Europe (see chapter 4.5 |) this is a positive sign. However, further flagship initiatives to support risk capital – covering various investment stages and sectors – will be necessary (AFME, 2017). This will also support the creation and growth of innovative enterprises in Europe. Signore and Torfs (2017) provide more

²⁵ This development might be due to a re-positioning of traditional Cleantech VCs, who have stopped investing in capital-intensive companies to focus on digital solutions for energy and environment. This strand of investments is then typically classified under ICT.

insight into the value of innovation for EIF-backed start-ups (see also Kraemer-Eis, Botsari, Gvetadze, Lang and Torfs, 2017, for an overview).

Corporate venture capital

Corporate venture capital (CVC) forms an important part of the VC market (Figure 29). CVC can serve both an investing corporation's financial and strategic goals, e.g. to enhance its innovative capacity or to tap into new markets. CVC can take various forms. A common practice is that a corporate invests through a VC fund, but the number of dedicated CVC units, accelerators and other CVC manifestations has also increased (see Mawson et al., 2017). In particular, large companies in innovation-intensive industries are active in this field, most prominently in the US (Brigl et al., 2016; Andonov, 2017). For example, companies like Google invest in start-ups in the fields of life science, healthcare, artificial intelligence, robotics, transportation, cybersecurity, and agriculture (Saunders-Calvert, 2017). Until recently, the relatively low cost of capital has driven more corporates to become part of the game (Mankins et al., 2017).

Figure 29: VC fundraising amounts and corporate investors*



* Incremental amounts raised during year (in contrast to final closings only). "Total" represents classified and unclassified fundraising amounts. "Corporate, share" represents the percentage of corporate investors' contributions to classified VC fundraising amounts. In the Invest Europe PE/VC fundraising statistics, the investor type "corporate investor" is defined as "corporations manufacturing products or delivering non-financial services" (Invest Europe, 2021).

Source: Invest Europe, authors' calculations

Corporates are also an important investor group in European VC funds. While they accounted for 6% of the total PE fundraising amounts in Europe in 2021, according to Invest Europe data, their share is much higher in VC funds. In 2021, corporates contributed EUR 2.6bn to VC funds in Europe. This represented 14% of total VC fundraising (EUR 18.2bn) or 18% of the total classified fundraising amounts (EUR 14.7bn). However, corporate investors' share in European VC fundraising had decreased, on average, between 2014 and 2020. It remains to be seen if the

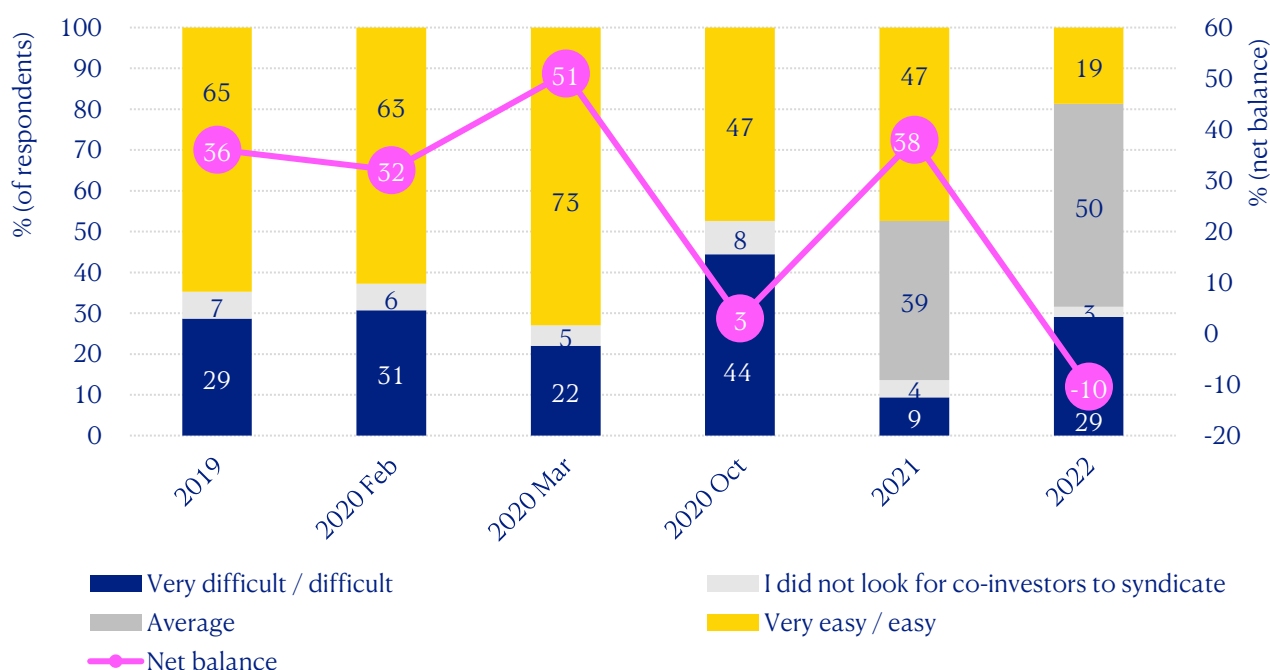
strong increase in corporate investors' contributions to both the VC and the overall PE market in 2021 was the starting point of a turnaround.

One of the segments not covered under the Invest Europe PE/VC activity statistics are corporate acquisitions outside of dedicated corporate venture programmes (i.e. corporate VC investments directly off the balance sheet). European tech companies are often acquired by non-EU buyers. Based on an analysis of 3,600 EIF-supported seed and start-up VC investments from 1996 to 2015, Prencipe (2017) finds that about 50% of the performing EIF-backed European investees were acquired by non-European corporations, particularly from the US. This “raises the issue of whether the missing scale-up phenomenon in Europe could be linked to the lack of serial tech buyers, that is, incumbents in highly innovative and competitive sectors” (Prencipe, 2017). However, there are differences by sector; while US buyers are more technology-focused and mostly active in the ICT space, European buyers seem generally more specialised in Life Sciences.

Co-investment

Co-investment can be a useful feature of the PE/VC market by strengthening investment capacities. The availability of stable providers of co-investment capacity can be a benefit for VC fund managers when addressing potential investment opportunities.

Figure 30: Easiness to find co-investors to syndicate*



* Diagram shows the aggregated results for the EIF VC Survey questions “How easy/difficult is it currently to find co-investors to syndicate?”. Note: The “Average” response option was only provided since the 2021 survey wave. The “net balances” refers to the percentage of respondents reporting a positive response minus the percentage of respondents reporting a negative response.

Source: Kraemer-Eis et al. (2022), authors' calculations based on EIF VC Survey results

The *EIF VC Survey* shows that a majority of European VC GPs perceived “finding co-investors to syndicate” relatively easy until approximately mid-2020 (Figure 30). In the October 2020 survey wave, respondents reported a less positive market sentiment with regard to co-investment opportunities, most likely due to the impact of the Covid-19 crisis. The market recovered again in 2021. In 2022, however, the share of positive responses to this survey question was, for the first time, lower than the share of negative responses, reflecting the difficult geopolitical situation and macroeconomic environment. Moreover, expectations for the next 12 months also reflected a record high level of pessimism (Kraemer-Eis et al., 2022).

4.1.2 | Business angels

As already mentioned, the Invest Europe activity data cover fundraising, investment and divestment from PE and VC firms in Europe. It does not cover segments outside the definition that Invest Europe applies for the collection of its activity statistics, e.g. business angels’ activities although it has gained importance in recent years as a financing source for early-stage start-ups.

Business Angels (BAs) represent an important class of PE investors, primarily consisting of high net-worth individuals, usually with entrepreneurial or managerial experience. BAs tend to invest their own money, either individually or in formal or informal syndicates, in businesses which are not publicly traded, commonly in exchange for convertible debt or ownership equity (see for a general description of BA financing, Kraemer-Eis and Schillo, 2011; OECD, 2011; BAND, 2016; and OECD, 2020b). In a European Commission survey among European BAs, the large majority of respondents were male (89%) and the average age was 55 years (European Commission, 2017). In Central and Eastern Europe (CEE), BAs tend to be younger (average age of 43 years) and the share of female BAs is higher.

BAs differ from VC funds, which primarily invest third parties’ resources (e.g. institutional investors’). Angel-financed companies are typically in earlier stages of their development (Kraemer-Eis and Schillo, 2011). BAs’ transaction costs are relatively low, which allows them to invest on a smaller scale. They are geographically less concentrated than VCs and often invest in local markets. Moreover, BAs tend to be very ‘hands-on’ investors, providing also additional value-adding support beyond financing (e.g. mentoring, business advice and access to networks), hence they can play a central role in the start-up ecosystem, in particular for innovative firms (OECD, 2016). Moreover, entrepreneurial investors not only form the nucleus of the BA ecosystem, but possibly also the VC ecosystem at a later point in time, i.e. there is a potential to catalyse new institutional players even in relatively underdeveloped VC markets.

According to several studies, BAs have a positive impact on the growth of the firms they invest in, their performance and survival (Lerner et al., 2015; OECD, 2016). The success of the investees seems to be strongly based on the support beyond financing that BAs provide (Kerr et al., 2011). There is evidence that BAs are relatively resilient to changing market cycles (OECD, 2016), and angel investments in early-stage high-growth companies tended to increase during and after the financial and economic crisis of the previous decade, as VC funds migrated to less risky investments (Kraemer-Eis, Lang and Gvetadze, 2013). In the Covid-19 crisis, preliminary evidence

pointed to continued business angel investment in start-ups, albeit at a strongly decreased number of deals (e.g. Benedetti Fasil et al., 2021). At the same time, BAs tended to focus more on companies with an experienced management team, revenue generating capability, and recurring revenue business models. *EIF Business Angels Survey* results also pointed to a decrease in the total amount available for BA investing (Kraemer-Eis, Botsari, Kiefer and Lang, 2021).

A large share of BAs co-invests with other early stage investors in order to diversify risks (OECD, 2016) and/or to improve their skillset and experience (Capizzi, 2015). Sourcing channels like crowdfunding platforms are also used by BAs – in particular by younger and less experienced ones – as tools to find investment opportunities, thereby allowing them to make investments in a wider geographical area (OECD, 2016).

However, there are difficulties in measuring the size of the business angel community, the main ones being identification and definition. BAs often stay anonymous and the details of their investments are rarely disclosed. Besides, there are “virgin” angels that have never actually invested but increase the number of BAs in the statistics. Others may have occasionally acted as angels but are no longer looking for investment opportunities. Still others may invest as entrepreneurs but do not consider themselves as being part of the “BA scene”. The so called “invisible market” makes a precise estimation of the angel market difficult. Some studies estimate that the invisible part of the market is up to seven times greater than the visible part (CSES, 2012), while others even estimate a multiplier of around ten (see, e.g., EBAN, 2014 and 2020). Since the latest publication of EBAN statistics for BA investing in 2021, EBAN has discontinued adding an assumed BA investment amount for the “invisible” part of the market to its aggregated BA investment statistics, as access to BA investment data has improved in recent years (EBAN, 2022). Identifying the overall size of BA investing is nevertheless still virtually impossible, and such difficulties must be borne in mind when describing the market.

Currently there is no robust and consistent data available on the Business Angel market in Europe; published data can only be used as indication or very rough estimate (see also (Benedetti Fasil et al., 2021, as well as OECD, 2016 and 2020b). For the visible market segment, data is collected by angel associations from angel groups and networks. Ad-hoc surveys contribute to increase the available level of information on BAs in Europe (see European Commission, 2017). In the following, we use such statistics keeping in mind its shortcomings (see, for example, the related EBAN disclaimer that we show in Box 6). Information on angel investing in different European countries can also be found in BAE (2015). Several waves of the *EIF Business Angels Survey* have looked into angel financing on a regular basis (see Botsari et al., 2022, for the results of the latest wave).

Box 6: Introductory information on EBAN data

Due to its nature, the early stage investment market and especially the BA segment is difficult to quantify. Investment activity can only be observed to the extent to which it is disclosed publicly or reported to an entity such as a local network or a national association. EBAN data can therefore only calculate the so-called visible part of the market. Although historically the EBAN statistics compendium has estimated the overall market size (i.e. visible market and all other deals not reported) by using a multiplier of 10 on the observed investment activity, EBAN has discontinued the application of such a ratio, as access to investment data has improved, including through the role of associations and networks, related surveys and online investment data bases. An estimation of the total BA market in Europe is nevertheless only possible when new information will become available that would give an indication of the quantitative relationship between the visible and the invisible market. The visible market figures in the EBAN statistics therefore underestimate the overall BA investment activity in Europe. The latest EBAN data comprise information collected by BA networks, BA and national VC associations, and commercial databases that report start-up investments and specify the investor groups.

Source: EBAN (2022)

At European level, the European Business Angel Network (EBAN) reported an increase in visible BA investment by 90%, compared to the year before, to a record amount of EUR 1.5bn in 2021 (EBAN, 2022). The estimated number of visible investments increased by 42% to 5.1k. The number of visible BAs is reported to be at 39.4k (an increase by 22% compared to the year before).

According to EBAN (2022), the strong growth in BA activity recorded between 2020 and 2021 is due to several factors. Firstly, access to angel data has improved, which enhances the ability to measure the so-called “visible” angel investment market. Secondly, EBAN reports a growing number of newcomer angel investors to join networks and make their first investments, as visible in the growth of the BA investor population linked to business angel networks (BANs) and associations across many parts of Europe. In addition, increased syndication between BAs and other early-stage investors such as VCs has contributed to an important increase of the amounts invested by the former alongside with the latter.

Most of the BA activity within the EU is happening in the UK, Germany and France. When comparing BA investment amounts to GDP, the picture looks different, with Estonia and Finland being on top of the ranking (EBAN, 2022). The majority of BAs target companies in their home country, but a considerable share of BAs stated that they would invest abroad if legal and fiscal legislations facilitated such activities (European Commission, 2017). In some countries BA co-investment funds, tax break or grant schemes do not support or even allow investment abroad (EBAN, 2018).

According to the results of the *EIF Business Angels Survey 2021/22*, ICT was the most important sector for BA investment (stated by 24% of respondents as their first most important target industry), followed by Business services (17%) and Biotech and healthcare (13%).²⁶ However, 13% of respondents indicated that they have no specific sector focus. BAs often invest in sectors

linked to their own professional experience. With regard to the investee companies' development stages, pre-seed (44%) and seed (36%) investments were stated to be the most important ones, while a fifth of BAs stated early or later stages to be their main focus (see Botsari et al., 2022). Going forward, BA respondents stated investments in the area of ICT, Healthcare, Digitalization, Energy, Software as a Service (SAAS), Fintech, Medtech, Services and Environment among the areas with the greatest investment potential (see Figure 31). See Box 7 for more information about the *EIF Business Angels Survey 2021/22*.

Figure 31: Most promising sectors for BA investments*



* Diagram shows the aggregated results for the EIF BA Survey 2021/22 question “What sector would you consider as the most promising for BA investments in the near future?”. Note: graph was generated using Wordcloud whereby the bigger the font size the more frequently the respective answer was mentioned in the free-text field.

Source: Botsari et al. (2022), authors' calculations based on EIF Business Angels Survey results

While co-investments with other BAs are still the most common deal form, the relevance of investments alongside early-stage funds has increased (EBAN, 2020; European Commission, 2017). In some countries, governments created such funds for co-investments with BAs. On pan-European level, the European Angel Fund (EAF), an initiative advised by the EIF, offers a co-investment scheme for BAs investing in innovative companies.²⁷

²⁷ See www.eif.org/eaf for more information about the EAF.

With regard to co-investor types, the patterns differ depending on whether it concerns initial or follow-on investment rounds. In initial rounds, other BAs are the most important co-investor type. In follow-on rounds, VCs are as important co-investors as other BAs. Public investors (other than EAF) are more prominent in follow-on rounds than in initial rounds (Kraemer-Eis et al., 2019). The relevance of co-investment with other BAs and VC funds has even increased during the pandemic, although finding such co-investors had become more difficult (Kraemer-Eis, Botsari, Kiefer and Lang, 2021). In 2021 and early 2022, BAs stated that finding co-investors became generally easier again (Botsari et al., 2022).

Despite the opaqueness of this market, the available evidence indicates that business angels are of high economic importance for the financing of innovative early-stage companies. Government support of this market segment can therefore help to improve the availability of financing sources for young high-growth companies, in particular at the seed and early stages of their development (Benedetti Fasil et al., 2021; Mason and Harrison, 2013). However, policy measures have to be well targeted to the specific nature of BA investors. For example, based on the assumption that the supply of BA capital depends on investors who have already been successful entrepreneurs, Hellmann and Thiele (2017) identify a rationale for funding policies (a tax credit in their model) that allow entrepreneurs to retain a larger ownership fraction and create more entrepreneurial wealth in order to increase the future supply of capital and to create a long-term impact on entrepreneurial activity. Findings by Hellmann, Schure and Vo (2015) also suggest that public support for start-up financing should go beyond an exclusive support of formal VC, because additional policy measures for angel investors “would reach a different set of entrepreneurial companies that develop outside of the reach of venture capitalists”. Hence, “the central role of BAs is increasingly recognised by policy makers [...], and initiatives to support angel activities have expanded in recent years as part of a broader shift towards policies that aim to make equity-type instruments more widely available for start-ups and SMEs” (OECD, 2016). According to the OECD (2016), public-private co-investment schemes are able to catalyse the private market, “but only if the existing angel market is sufficiently well developed, so that a sufficient number of investor-ready deals can be financed and the government does not have to be overly engaged in matching supply and demand for early-stage equity”. In general, specific policy programmes related to business angel investment mainly consist of supply-side measures like direct public investments, co-investment between the private and public sector, tax incentives and government support to networks and associations (OECD, 2020b). However, despite initiatives for more policy support and better framework conditions, including under the CMU action plan (Kraemer-Eis and Lang, 2017), the market is still underdeveloped. Moreover, the supply of entrepreneurial finance in Europe in general, but even more so as regards financing provided by BAs, is constrained by the geographical fragmentation of the European capital market. A recent study of BAs in Ireland identifies three constraints on cross-border investing: lack of information on cross-border investment opportunities, the preference of angels to invest locally, and tax incentives that are only available for investments in the BA’s own country (Mason et al., 2021). As a result of the differences between Europe and the US in terms of size and homogeneity of their respective capital markets, US BAs “invest in twice as many US companies as their EU counterparts in EU businesses” and “the size of US angels-backed transactions is approximately 1.7 times higher than EU transactions” (AFME, 2017). An overview of barriers to BA financing in Europe and recommendations how these could be mitigated are provided in AFME (2017). As European angel activity has been expected to increase with more successful

exits observed in Europe (key actors of successfully exited companies can be expected to turn into future BAs), the recent deterioration of the exit markets in 2022 is a cause for concern for the growth of angel investing in the near future.

Box 7: The EIF Business Angels Survey 2021/22: Market sentiment

The EIF Business Angels Survey (EIF BA Survey) is a survey among business angels in Europe. Business Angels (BAs) represent an important class of VC investors, primarily consisting of high net-worth individuals, usually with entrepreneurial or managerial experience. The 2021/22 wave of the EIF BA Survey, which was performed as an online survey, included anonymised responses from a total of 246 BA investors. The survey benefitted from cooperation with two partner organisations: A part of the sample for the EIF BA Survey 2021/22 comprises members of Business Angels Europe (BAE) and The European Trade Association for Business Angels, Seed Funds and Early Stage Market Players (EBAN). Responses were received between 15 November 2021 and 5 March 2022. Therefore the responses of the BA investors do not take into account the market conditions over the whole year 2022, such as the war in Ukraine, or the strong growth in inflation.

As the EIF BA Survey 2021/22 was closed at the very beginning of the Russian war on Ukraine, the results show a picture of BA investing before the 2022 crisis, when the gloomy geopolitical and economic developments were largely unexpected by market participants. In contrast, the results of the 2022 waves of the EIF PE Mid-Market Survey and the EIF VC Survey, which were performed in summer 2022, show a clear decline in the respective market sentiment. Consequently, similar developments can be expected for the BA segment. This needs to be considered while interpreting forward looking statements in this Box.

At the time the EIF BA Survey 2021/22 was conducted, the respondents' perception of the business environment for BA investing was back to pre-Covid levels. Almost 50% of the respondents expected an improvement over the following twelve months. BAs experienced an increase in the number of incoming investment proposals, as well as the number of new investments. Around half of the BA investors expected this pattern to continue.

Finding co-investors was perceived significantly easier compared to autumn 2020. The majority of respondents expected this to stay the same or even become easier. Due to these factors, more than half of the respondents reported greater competition among investors for potential investee companies and BAs expected, on average, competition to increase further. About two thirds of the BAs reported higher entry prices, with more than half expecting the entry prices to continue to increase. Compared to 2020, the share of BAs that did not invest decreased from 30% in the 2020 survey wave to 11% in the 2021/22 wave, while the share of BAs that invested in both new deals and follow-ons increased from 32% to 50%.

The development of portfolio companies recovered substantially compared to autumn 2020, being broadly in line with expectations. A large majority of BAs (71%) expected further improvements. The respondents were also optimistic about the evolution of their portfolio value, which more than three quarters of the respondents expected to grow.

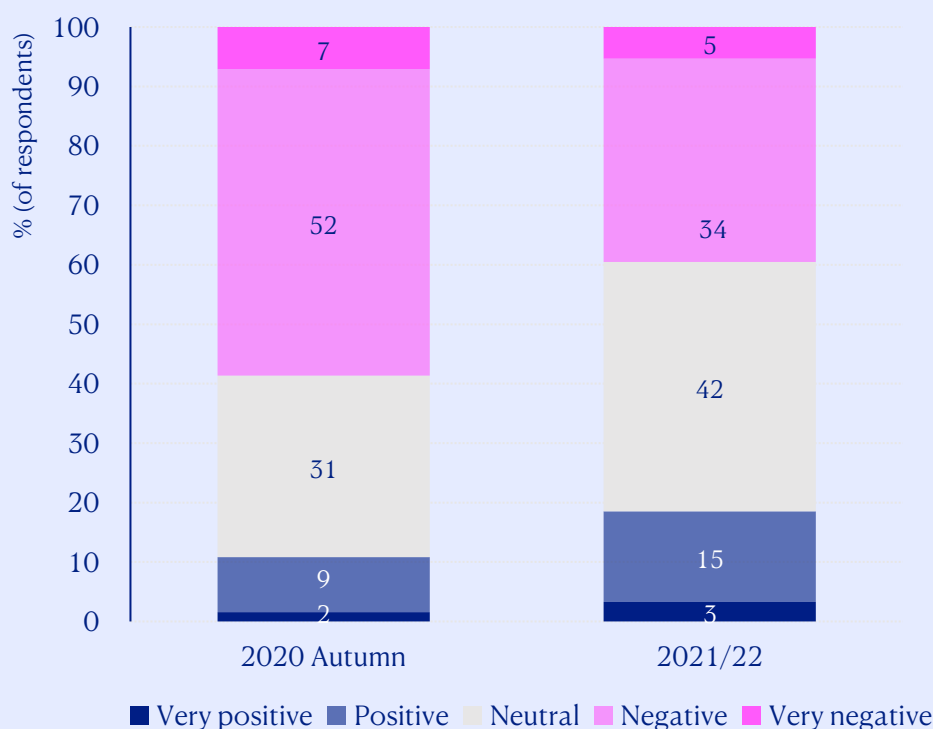
The majority of BAs saw their portfolio companies' access to external finance as good or very good. At the same time, only 11% of the BA investors reported it to be bad. About half of the respondents expected the situation to stay the same, while 42% even expected an improvement over the following 12 months. Since autumn 2020, there was a substantial improvement in the sentiment regarding current valuations of portfolio companies, with 3 in 4 BAs expecting further improvements.

Box 7 continued:

The exit environment significantly recovered since autumn 2020, with 50% of BAs reporting an increase in exit prices. Trade sales to strategic buyers continued to be the most frequent exit route (35%), followed by insolvency / liquidation (31%). 65% of all exits took place in the EU, but three quarters of IPOs were outside the EU.

Even in 2021, the pandemic forced 29% of BAs to provide additional investment to portfolio companies. At the same time, however, the majority of BAs (63%) did not expect the pandemic to cause any insolvencies of their portfolio companies. Compared to the 59% in Autumn 2020, only 39% of BAs considered the average impact of the pandemic on performance to be negative. Almost half expected a neutral effect on the final performance of their portfolio. With regard to opportunities in the Covid-19 crisis, respondents reported digitalization, healthcare, and sustainable approaches to be the most promising areas for BA investments.

Impact of Covid-19 on current performance of portfolio²⁴



Source: Botsari et al. (2022).

Recruiting high-quality professionals (62%) as well as customer acquisition and retention (47%) were key challenges faced by BA-backed companies. Identifying good investment opportunities (42%) and high investee company valuations (40%) were the key business challenges of BA investors.

The smaller European VC industry with its shorter track record (16%) and the underdeveloped IPO market (15%) were seen as the key reasons for the scale-up gap by the BA investors. BAs considered an increased engagement by large institutional investors to be the most effective factor in bridging the late-stage financing gap.

4.2 | Fundraising activity

In 2021, total funds raised by PE firms located in Europe increased by 7%, compared to the year before, to a new all-time high of EUR 117.7bn (Figure 32). The increase was driven by positive developments in all market segments, i.e. growing amounts raised by Buyout funds (+3% to EUR 70.7bn), which represent the largest part of the PE market, Growth capital funds (+10% to EUR 20.0bn), Generalist funds (+9% to EUR 8.0bn) and Mezzanine funds (+100% to EUR 0.8bn).²⁸

Box 8: Invest Europe's definitions of fund stage focus

Buyout fund: Funds acquiring companies by purchasing majority or controlling stakes, financing the transaction through a mix of equity and debt.

Generalist fund: Funds investing in all stages of PE.

Growth fund: Funds that make PE investments (often minority investments) in relatively mature companies that are looking for primary capital to expand and improve operations or enter new markets to accelerate the growth of the business.

Mezzanine fund: Funds using a hybrid of debt and equity financing, comprising of equity-based options (such as warrants) and lower-priority (subordinated) debt.

Venture Capital funds:

Early-stage fund: VC funds focused on investing in companies in the early stages of their lives.

Later-stage fund: VC funds providing capital for an operating company which may or may not be profitable. Typically in C or D rounds.

Venture fund (all stages/ dual focus): VC funds focused on both early and later stage investments.

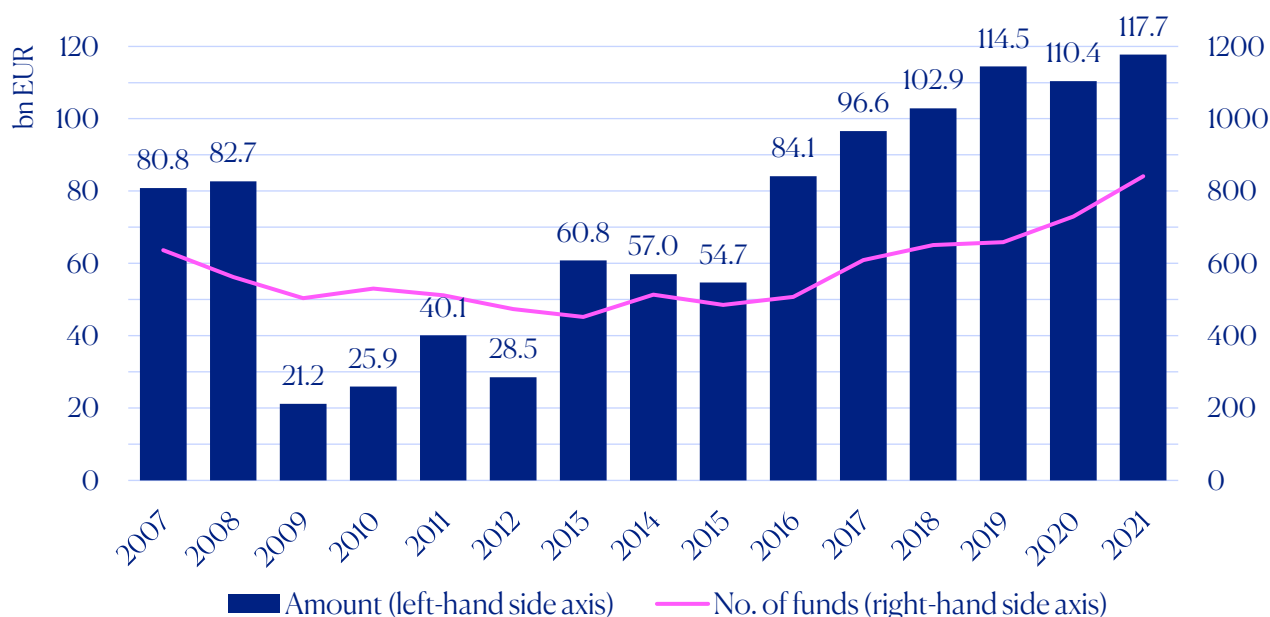
Source: Invest Europe (2022)

In the VC segment, fundraising increased by 14% to EUR 18.2bn (Figure 33). This constitutes the highest European VC fundraising level ever reached.²⁹ While funds with a focus on the early stage (+34% to EUR 8.0bn) and funds with a focus on all venture stages (+15% to EUR 9.1bn) raised considerably higher total volumes, later stage venture funds (–47% to EUR 1.1bn) recorded a strong decrease. Fundraising linked to final closings (total venture, amounts raised since inception) was at EUR 13.7bn in 2021, which denotes a jump by 51% compared to 2020.

²⁸ Box 8 provides an overview of the Invest Europe fund stage focus definitions. See the previous ESBFO issue (Kraemer-Eis et al., 2021) for an overview of listed PE in Europe.

²⁹ Invest Europe started publishing fundraising by fund stage focus in 2007.

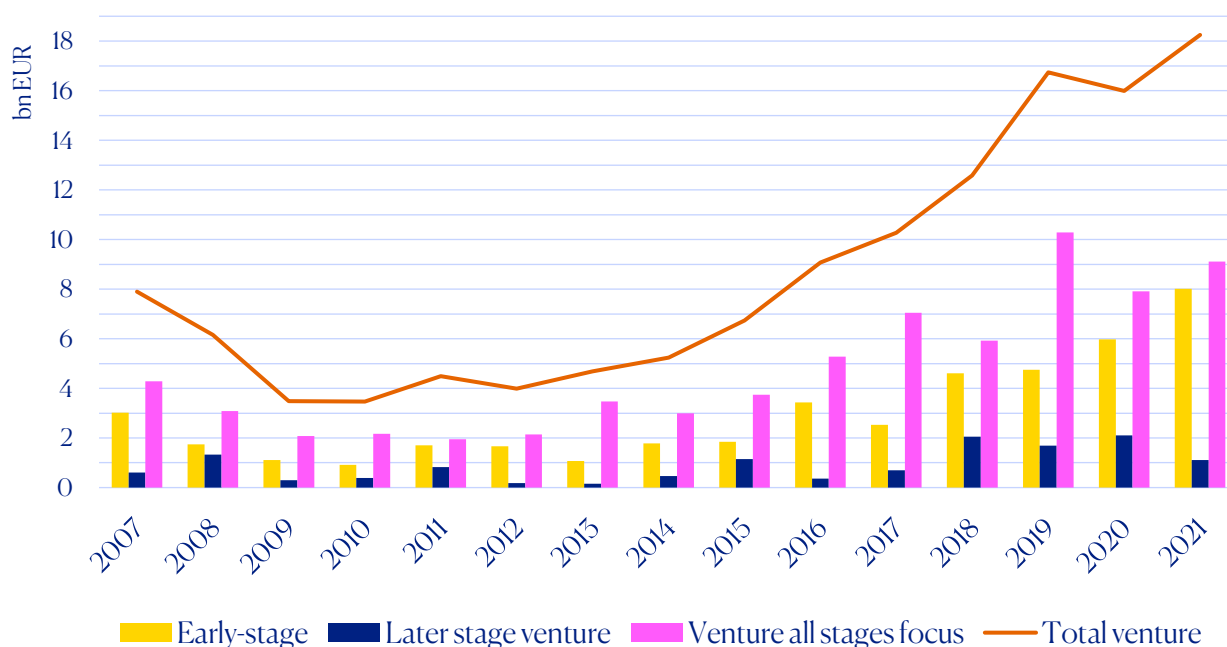
Figure 32: Private equity fundraising*



* Amount = Incremental amounts raised during period by PE funds located in Europe. No. of funds = Number of PE funds located in Europe and raising new capital during period.

Source: Invest Europe, authors' calculations

Figure 33: Amounts raised by VC funds located in Europe*

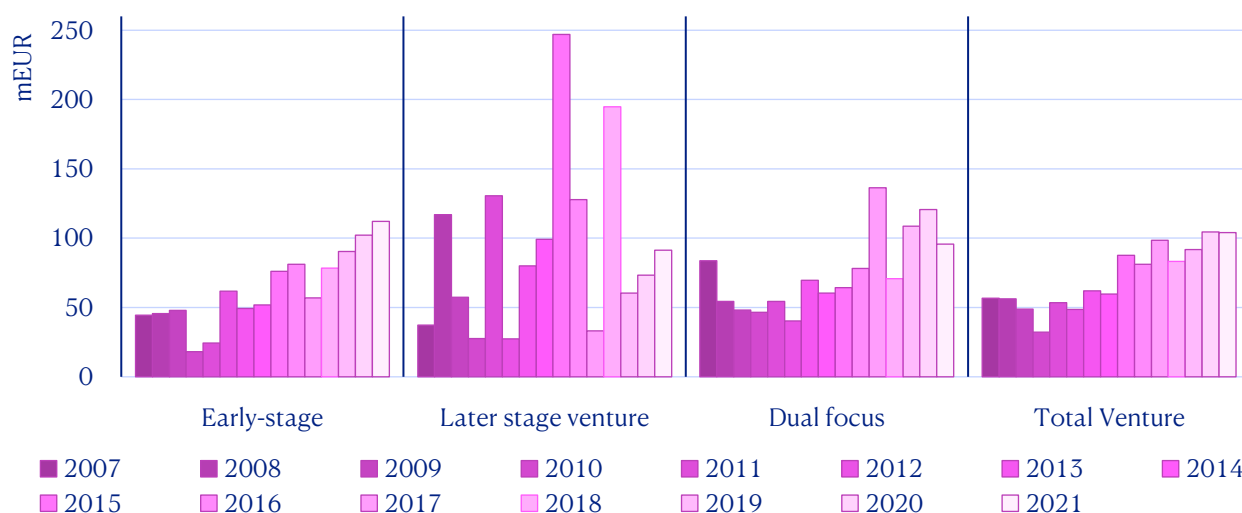


* Incremental amounts raised during period.

Source: Invest Europe, authors' calculations

In 2021, the average size of VC funds closed within the year remained rather stable at EUR 104m (Figure 34). This amount constitutes the second highest value ever registered in the Invest Europe statistics since 2007. The average size increased for funds with a focus on early stage investments as well as for funds with a focus on late-stage investments. In contrast, the average size of funds that target all venture stages decreased. At the same time, the number of final venture fund closings increased from 87 to 132 in 2021.

Figure 34: Average VC fund size (at final closing; cumulative amounts raised since inception)*



* The results for 2021 are based on 132 final VC fund closings (72 funds with an early-stage focus, 16 funds with a later stage focus and 44 venture funds with a focus on all stages).

Source: Invest Europe, authors' calculations

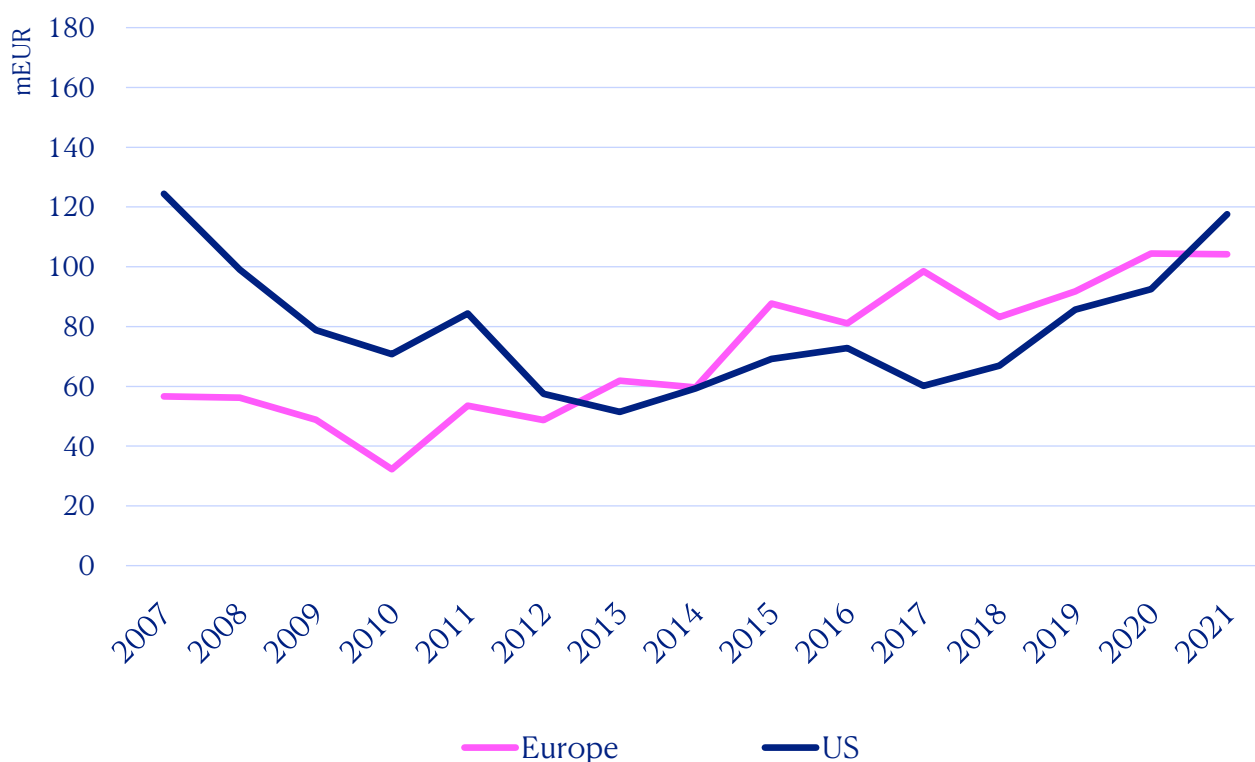
Given some evidence in previous studies, which indicated that small fund size was one of the reasons for poor European VC performance (Kelly, 2011), the general trend of increasing average VC fund sizes might mean positive news. Europe also managed to catch up with the US and to even slightly overtake in terms of the average venture fund size between 2013 and 2020 (Figure 35). However, this is largely driven by funds located in the UK (average size of EUR 191m in 2021), while EU venture funds are still lagging behind (average fund size of EUR 81m in 2021), according to Invest Europe data.

The results are biased by a relatively large group of VC funds in the US that are considerably bigger than their peers in the set of "large funds" in Europe. While NVCA/Pitchbook fundraising figures for 2021 show 67 US venture funds that are larger than USD 500m, Invest Europe/EDC statistics show only 7 funds of a similar size that performed a final closing in 2021. While such figures can only be interpreted as an approximation of the "gap" between European and US funds, as underlying definitions for the collection of European and US data are not always identical, it is visible that Europe has a considerable lack of large venture funds.

Moreover, the relatively small number of late stage venture fund closings at still comparatively small sizes is worrying with regard to the financing needs of innovative companies with high-

growth potential. In contrast to early stage funds, the average size of later stage venture funds in Europe did not show a clear upward trend over the last years.

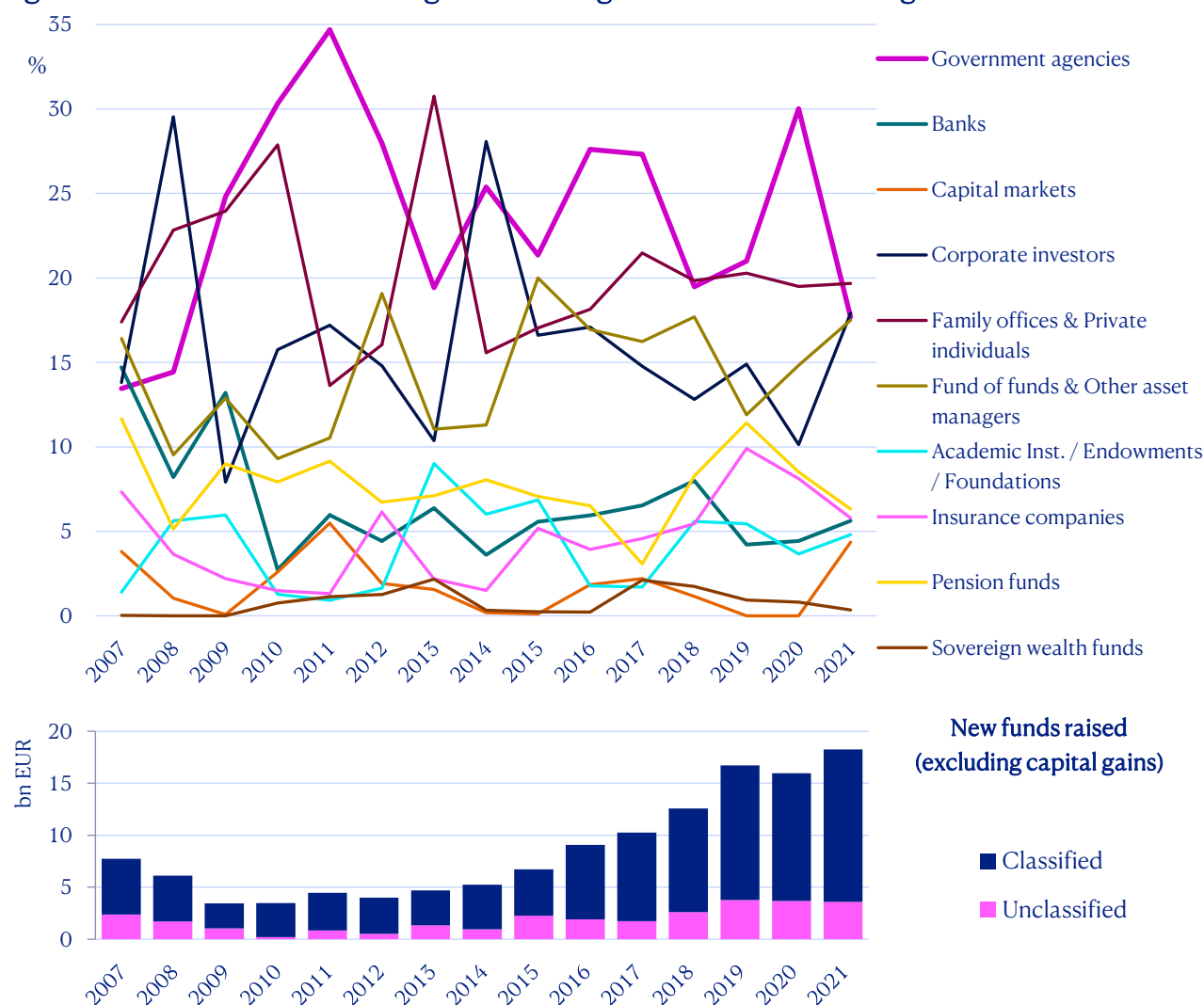
Figure 35: Average VC fund sizes in Europe and the USA



Source: Invest Europe, NVCA, authors' calculations

EIF's internal analysis suggests that larger funds are often managed by teams that previously had smaller funds that performed well. Invest Europe statistics also show a rising number of follow-on VC funds over the years. Thus, the size could be a consequence rather than a cause of a good performance. Larger fund size would be a sign of more successful GPs and more careful due diligence by LPs, which may indicate that achieving a larger fund size is associated with a certain market validation. Helping promising teams in demonstrating their investment skills and getting market validation in a smaller first time fund (as long as the fund size is not inefficiently small) is consequently a way to help with the next fundraising of such manager, and hence the VC ecosystem.

Figure 36: Investor base: Share of government agencies in VC fundraising*



* Percentage of incremental amounts raised during year (in contrast to final closings only). Excludes capital gains. Unclassified sources of funds have been extrapolated.

Source: Invest Europe, authors' calculations

The European VC ecosystem benefitted substantially from market-stabilising public intervention during and after the Great Financial Crisis, when investors exhibited a cautious sentiment for risk capital. Since 2012, a normalisation has set in, although public support still plays an important role for further market development. However, even during the Covid-19 crisis, the share of government agencies investment in VC funds has not peaked anymore. These changes are visible in the variations of the investor base during the past years (Figure 36). According to Invest Europe figures, the share of government agencies' contribution to VC fundraising increased from 13% in 2007 to 35% in 2011, before it came down again in the subsequent years. In the exceptional year of 2020, the share of government agencies' investment in VC funds increased again and reached a level of 30%. In 2021, the market relevance of government agencies decreased again.

Even if a very high importance of government agencies is unsatisfying for the long term, it is noteworthy that government agencies have played their role and supported the market in a counter-cyclical way, not only during the Covid-19 crisis, but even more so during the Global Financial Crisis, when total VC fundraising levels more than halved. This led almost “naturally” to an increased share of government agency fund investors. Moreover, the contributions of public investors to VC funds increased not only in relative but also in absolute terms, i.e. from an average EUR 0.7bn p.a. in 2007-2009 to, on average, EUR 1.3bn in the years thereafter. In 2020, the total volume contributed by government agencies to VC fundraising amounted to EUR 3.7bn, which constituted an increase by 35% compared to the year before.

Theoretical evidence and EIF’s own research suggest that public VC support is relatively well targeted and achieves positive effects in Europe. In a study of investment patterns of different VC investor types, Bertoni, Colombo and Quas (2015) find that governmental VC (GVC) investors in Europe specialise in investments that do not attract private investors due to high information asymmetries and high failure risk, i.e. in particular in young, small seed-stage companies, and in certain sectors such as biotechnology and pharmaceuticals, in which time to market are long and new product development is very costly. This indicates that “in Europe, GVC has filled the entrepreneurial financing gap left by private VC investors”.

In order to put EIF’s activity in context, some calculations can be taken into account that were performed by Kraemer-Eis, Signore and Prencipe (2016), which shed more light on the impact of EIF on the VC ecosystem. The authors estimate that the VC investment activity backed by EIF represented 41% of total VC investments in Europe in 2014 (29% in 2007). The share directly attributable to EIF amounts to 10% (5% in 2007), which shows the significant leverage that characterises EIF-backed investments. With regard to fundraising, the authors estimate that volumes backed by EIF in 2014 amount to 45% of the overall volumes collected by European VC investors (36% in 2007), against a share directly attributable to EIF totalling 12% (5% in 2007).

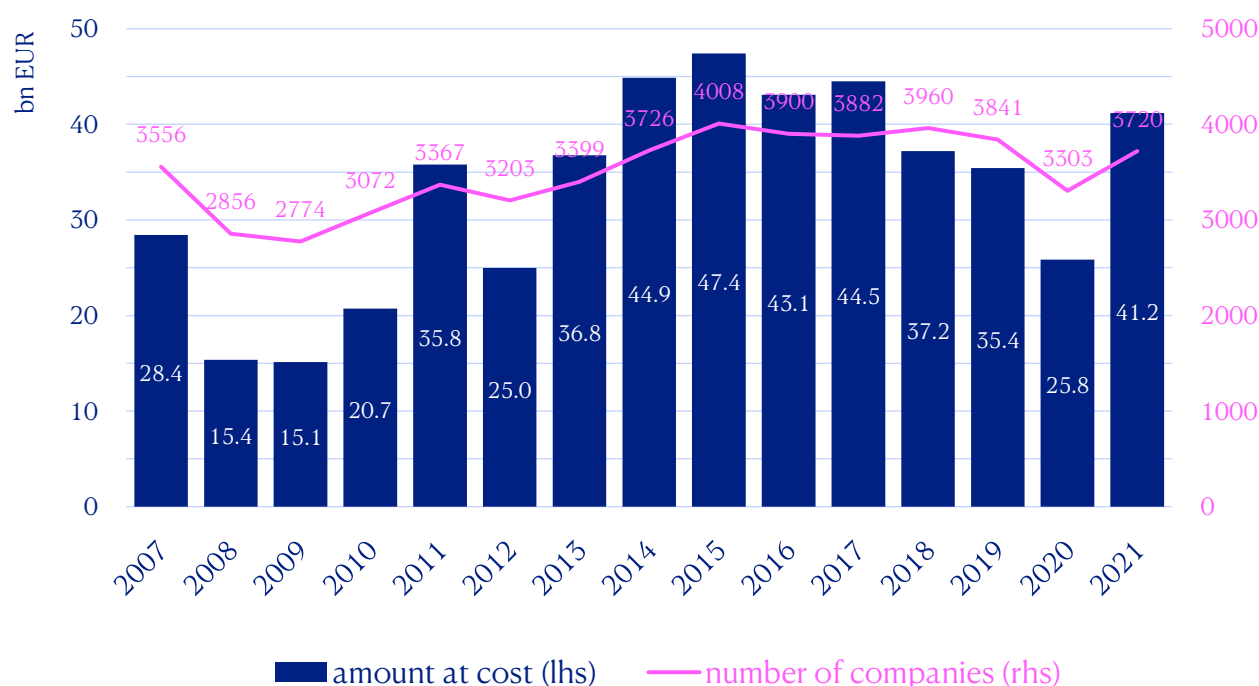
Moreover, EIF is supporting a relatively high number of first-time teams and many VC funds in which EIF invested successfully managed to close at their full target size. It is also important to see that many of the more established VC funds, pillars of Europe’s VC market today, would not be there without having been kick-started by EIF. This clearly indicates EIF’s catalytic role for European VC, rather than a crowding-out effect. This view was confirmed in the *EIF VC Survey*, which showed a high added-value of EIF’s activities and a generally positive perception of public support in the European VC market (Kraemer-Eis, Botsari, Gvetadze, and Lang, 2018). Results of the recent *EIF Private Equity Mid-Market Survey* show similar results for EIF’s added value in the European PE mid-market (Kraemer-Eis, Botsari, Lang, and Mandys, 2021). An Unquote Intelligence (2014) survey among General Partners (GPs) and Limited Partners (LPs) found that “the overriding benefit of [public funding bodies’] (PFB) money is the crucial role it plays in attracting other investors”. Moreover, “[h]aving PFB money in a fund does not deter other LPs from committing”.

4.3 | Divestment activity

In 2021, the exit market recovered from the sharp setback that it had suffered in the years before. The total PE divestment value increased by 59% to EUR 41.2bn, the fifth highest level ever recorded since 2007 (Figure 37).³⁰ The number of companies divested grew by 13% to 3,720 in 2021.

The strong increase in the total divestment amount in 2021 was mainly due to substantially higher activity in the buyout (+75% to EUR 29.4bn) segment of the market, but also divestments in the growth (+46% to EUR 7.6bn) and venture (+16% to EUR 2.9bn) capital segments increased.³¹

Figure 37: Total PE divestments (by amount at cost) of European portfolio companies



Source: Invest Europe, authors' calculations

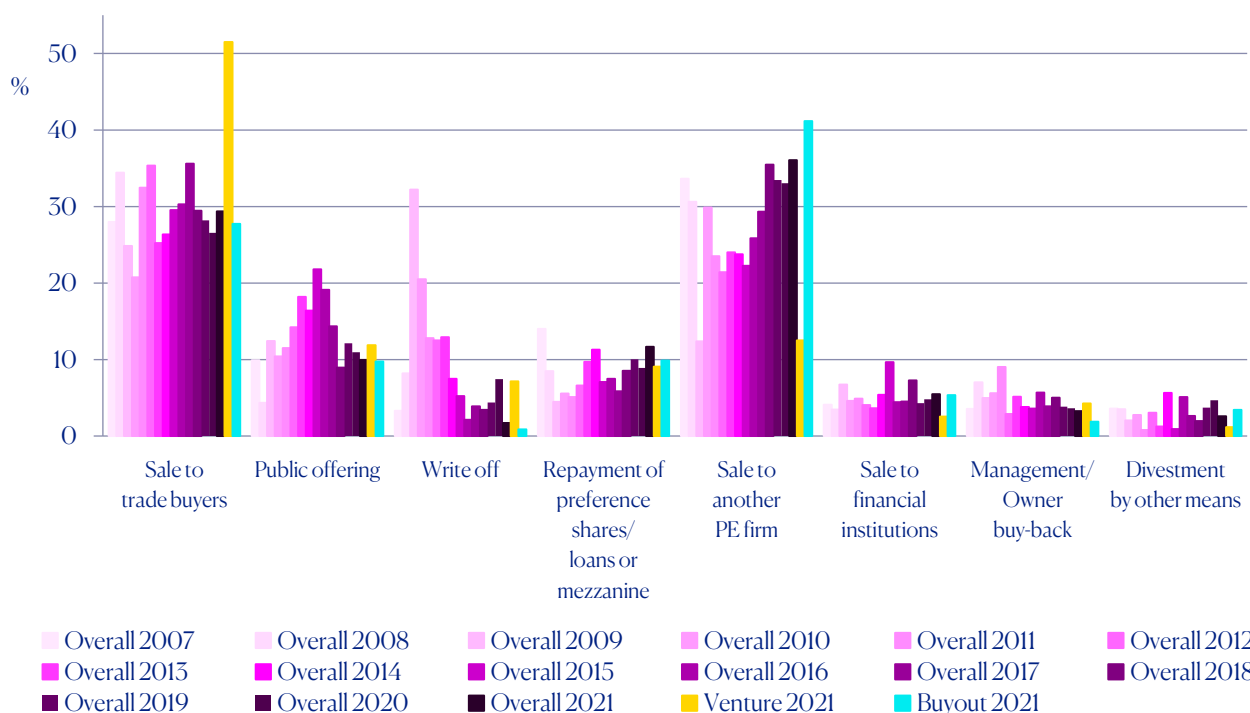
Despite the Covid-19 crisis, the relative importance of write-offs has remained at comparatively low levels. As regards overall PE, the percentage of write-offs over total divestment amounts had strongly decreased between 2010 and 2016, before the trend reversed in 2017. However, despite a jump in 2020, the figures were still far below the values reached in the aftermath of the Great Financial Crisis and reached a record low of 1.7% in 2021 (Figure 38). Trade sales and sales to another PE house together accounted for almost two thirds of the total PE divestment amounts.

³⁰ Invest Europe statistics show divestment amounts at cost, i.e. the total amount divested is shown as the total amount that had been previously invested, not including any profit on the investment.

³¹ The numbers for venture, growth and buyout capital divestments do not sum up to total PE divestments, as total PE divestments also include the rescue/turnaround and replacement capital market segments.

The share of public offerings slightly decreased in 2020 and 2021.³² In the VC market, the relative importance of write-offs reached a new record low level of 7% in 2021. While the share of public offerings over total venture exits was slightly below its historical average of 13%, the percentage of trade sales reached a new record high at 52%.

Figure 38: Divestment routes (amount divested at cost; percentage of total)*



* "Overall" figures are *not* the weighted average of the "buyout" and "venture" figures, as they also include the growth, rescue/turnaround and replacement capital market segments.

Source: Invest Europe, authors' calculations

Box 9: Invest Europe definition of exit routes

Management/ Owner buy-back: The buyer of the company is its management team.

Public offering:

First divestment following flotation (IPO): The sale or distribution of a private company's shares to the public for the first time by listing the company on the stock exchange.

Sale of quoted equity post flotation: It includes sale of quoted shares only if connected to a former PE investment, e.g. sale of quoted shares after a lock-up period.

³² In the Invest Europe data, the category "Public Offerings" includes first divestment following flotation (IPO) and sale of quoted equity post flotation.

Box 9 continued:

Repayment of preference shares / loans or mezzanine: If the PE firm provided loans or bought preference shares in the company at the time of investment, then their repayment according to the amortisation schedule represents a decrease of the financial claim of the firm into the company, and hence a divestment.

Sale to another private equity firm: The buyer of the portfolio company is a PE firm.

Sale to financial institution: A financial institution is an entity that provides financial services for its clients:

Depository institutions: deposit-taking institutions that accept and manage deposits and make loans, including banks, building societies, credit unions, trust companies, and mortgage loan companies.

Contractual institutions: Insurance companies and pension funds.

Investment institutions other than direct PE firms.

Trade sale: The sale of a company's shares to industrial investors.

Write-off: The value of the investment is eliminated and the return to investors is zero or negative.

Note: Recapitalisations are not considered in the divestment statistics.

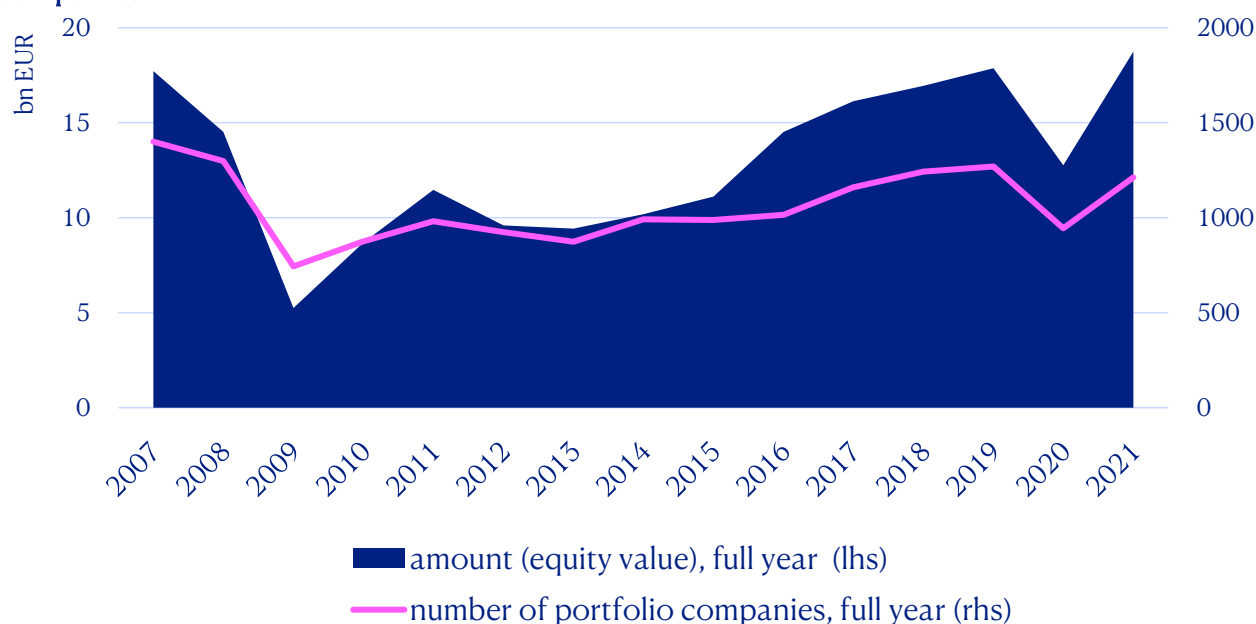
Source: Invest Europe (2022)

4.4 | Lower mid-market and hybrid debt/equity finance: an important market segment

Following EIF's definition (see EIF, 2019), the PE lower mid-market (LMM) covers fund strategies targeting equity and mezzanine investments at growth and buyout stages and with a particular focus on SMEs. EIF provides its core LMM products (equity, hybrid debt-equity³³ and private debt) as alternative sources of long-term finance to established businesses and later-stage technology companies (see Box 10 for more information on private debt financing). In the current market context, a full range of equity products combined or not with a debt component continue to prove successful, particularly for shareholding reorganisation, organic and external growth, restructuring or expansion.

³³ Hybrid debt-equity/mezzanine finance is a diverse asset class in between traditional senior debt and equity instruments. According to the OECD (2014), "this form of finance has not received as much public attention as VC or specialised exchanges for SMEs, but it holds potential to respond to [...] critical problems in SME finance."

Figure 39: Small and lower mid-market buyout equity investments in European portfolio companies*



* In the Invest Europe statistics, buyout investment sizes below EUR 15m are defined as small buyout investments. Buyout investment sizes between EUR 15m and EUR 50m are classified as lower mid-market.

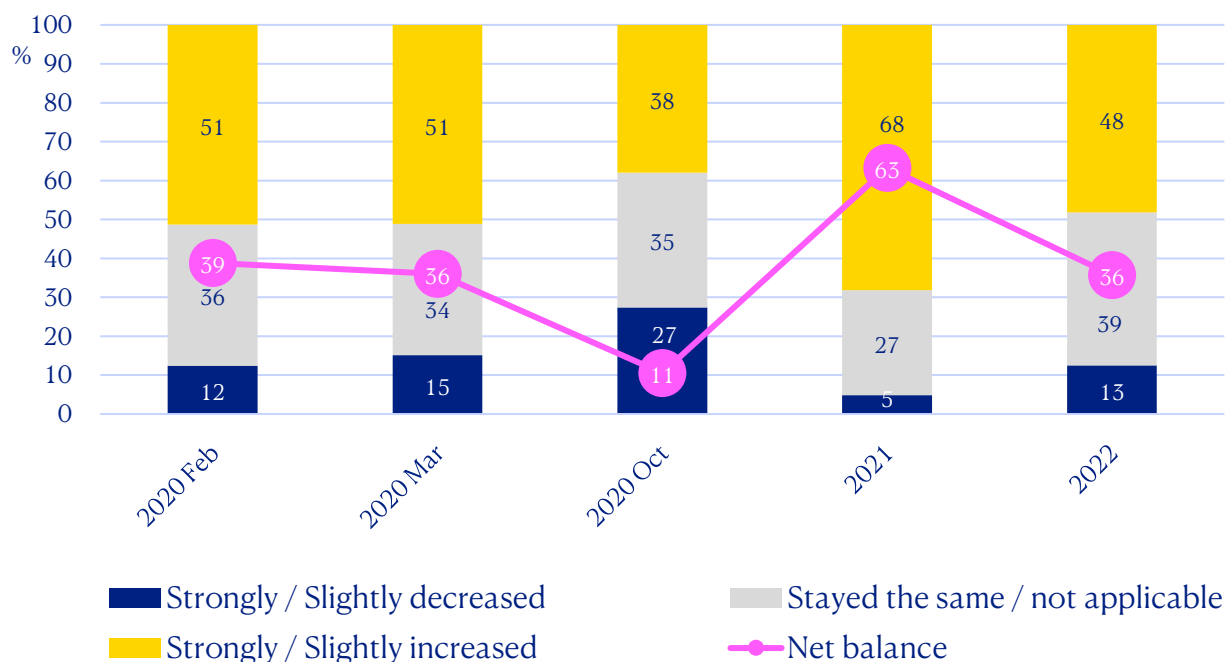
Source: Invest Europe, authors' calculations

Small and lower mid-market buyout investments in European portfolio companies have generally shrugged off the negative impact of Covid-19. Although investment amounts (equity value) had decreased considerably by 29% to EUR 12.8bn in 2020, the market activity quickly resumed its pre-crisis growth trend. In 2021, investments jumped by 47% to a new all-time high of EUR 18.7bn (Figure 39).

However, the market sentiment deteriorated starting from the second half of 2021. Apart from the geopolitical uncertainty and related consequences, including market volatility and the difficult macroeconomic environment, PE mid-market fund managers are currently very concerned about fundraising perspectives and business activity disruptions (e.g. due to Covid-related measures), according to the results of the *EIF Private Equity Mid-Market Survey 2022*. Inflation has been hitting consumer confidence and the operational margins of small businesses, and in addition led central banks from around the world to adopt a tighter grip on the monetary policy. Such deterioration in confidence and inflation have been exacerbated by Russia's invasion of Ukraine, especially on what concerns energy prices. The current uncertainty at the geopolitical level, coupled with the perspective of a higher interest rate environment, directly affects the private equity industry. More specifically, the "end of cheap money" is already having negative effects on the fundraising perspectives of even some performing fund managers. While the exit environment is also affected by detracted liquidity and lower expected exit multiples, the high levels of dry powder available for lower mid-market funds should continue to support investment volumes.

The *EIF Private Equity Mid-Market Survey* results show that PE mid-market investments have still increased in 2022, as reflected in the positive net balance, but less strongly than in 2021 (Figure 40).³⁴

Figure 40: New PE mid-market investments over the past 12 months*



* The diagram shows the aggregated responses for the *EIF Private Equity Mid-Market Survey* question “Over the last 12 months, how has the number of your new venture investments developed?” The Net balance refers to the percentage of respondents stating that the number of their new investments has slightly/strongly increased minus the percentage of respondents stating that the number of their new investments has slightly/strongly decreased.

Source: *EIF Private Equity Mid-Market Survey*

Box 10: Private debt funds³⁵

Private debt, or direct lending, funds have gained importance as an alternative asset class for investors and a new financing source for SMEs and mid-caps in recent years. Similar to PE, private credit funds are operated by alternative investment fund managers, originating SME lending opportunities and providing funding in the form of debt, rather than equity. These managers or “alternative lenders” are a diverse and expanding group that includes established and emerging asset managers, asset management subsidiaries of larger financial institutions, and even crowdfunding or digital platforms. Private debt has similarities and differences with bank financing, often complementing traditional bank financing and contributing to an increase as well as a diversification of funding opportunities.

³⁴ The results of the *EIF Private Equity Mid-Market Survey* will be published in the EIF Working Paper series, which is edited by EIF’s Research & Market Analysis and available online on the EIF website: [Research & Market Analysis \(eif.org\)](https://www.eif.org/research-and-market-analysis).

³⁵ The content of this text box is mainly based on OECD (2018), OECD (2019) and EIF market information.

Box 10 continued:

Commercial banks tend to operate on the low risk (low yield) end of the spectrum, while alternative lenders cover the entire spectrum and provide businesses with a broader choice of debt financing options (tailor-made timely funding solutions), particularly for company growth and development. Private debt markets are better placed to deal with long-term funding risk than banks, inter alia because closed-ended investment funds are funded by long-term commitments from institutional investors. However, firms tend to blend these two sources of finance to close their financing gaps, indicating that banks can utilise alternative lenders to meet customers' financing needs, still remaining focused on less capital-intensive products and services, which is an added source of revenue, as well as to retain the primary customer relationship.

The European private debt market which originally arose as an appendage of the PE market is now a stand-alone market section. The alternative lenders range from larger asset managers diversifying into alternative debt to smaller funds set up by ex-investment professionals (Deloitte, 2021). Several years after the start of the private debt raise, the market segmented into several main alternative asset classes: (i) Senior loans and unitranche, (ii) Mezzanine / Subordinated loans / Hybrid debt-equity, (iii) Venture Debt and (iv) Marketplace lending. Some already well established managers are also raising different funds offering products with different level of seniority (i.e., senior loans, subordinated loans, etc.). Another product segmentation which appears more and more visible in the private debt market is the one between (i) managers targeting sponsored transactions (i.e. financing of a transaction with a financial equity sponsor) and (ii) managers targeting sponsor-less transactions (i.e. financing of a transaction without equity sponsor).

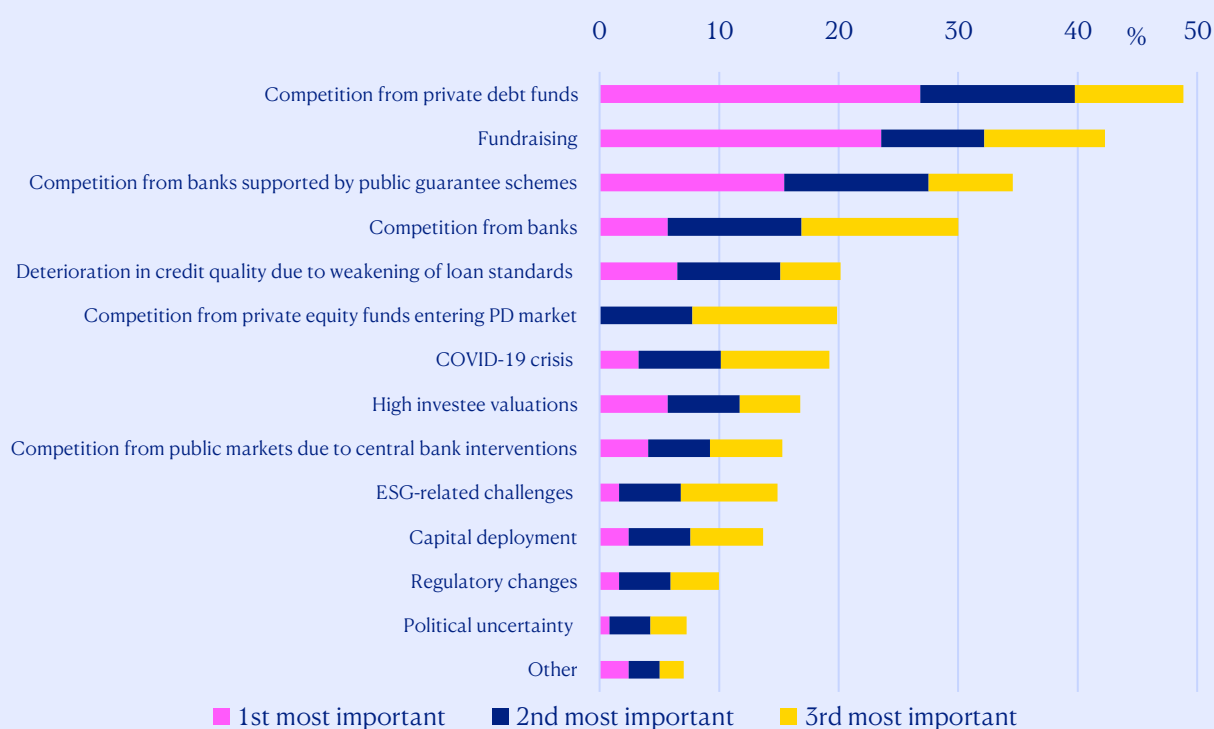
A substantial part of the private debt market still remains "sponsored", which means that it is the leverage component of a transaction (inter alia for investment or growth purposes) containing both equity (provided by a PE fund) and debt (provided, among others, by a private debt provider). Nevertheless, the share of the European sponsor-less activity over total transactions is also considerable and stood at 15% in 2021 (Deloitte, 2022). Adopting a sponsor-less investment approach could create a competitive advantage especially for those smaller-sized funds targeting SMEs.

In Europe, the EIF aims at enhancing the access to finance of SMEs, inter alia through debt funds, which focus on the lower end of the market. See Kraemer-Eis (2014), Kraemer-Eis et al. (2016), as well as the EIF website, for more information on this topic. The new *EIF Private Debt Survey*, which was performed in 2021, has improved market insight gained by EIF. The survey results show that, among private debt fund managers, competition with other market players (mainly debt funds and banks), fundraising and concerns about deteriorating credit quality were the most frequently stated challenges in 2021 (see figure below). Going forward, further survey results suggest that ESG-related challenges will become more important in the coming years (Kraemer-Eis et al., 2022a; Kraemer-Eis et al., 2022).

Introducing an appropriate legal and regulatory environment and creating a level playing field for private debt activities as well as (regulatory and other) measures to enhance the investments of public and private investors (in particular large institutional investors) in alternative asset classes, incl. debt funds, could help to broaden the supply of funding sources, including private debt funds, that are available for SMEs (Peridis, 2022, compares lending risk management and regulatory tools in banks and alternative investment funds, with a particular focus on alternative lending funds.)

Box 10 continued:

Biggest challenges in private debt business



EIF Private Debt Survey 2021 question. Please select the biggest challenges you currently see in Private Debt business.*

* This question allowed for multiple selection; the Figure shows the responses for the items that respondents ranked as their first, second and third most important challenge.

Source: EIF Private Debt Survey 2021

4.5 | Private equity prospects

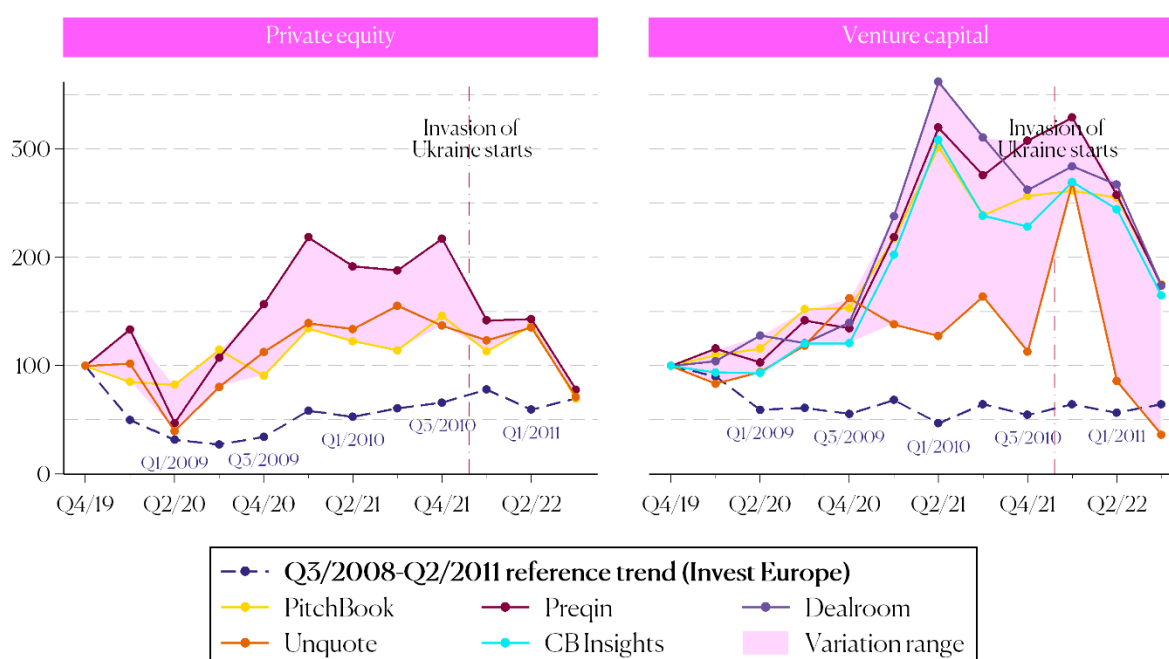
4.5.1 | Current situation, risks and market actors' concerns

Following the severe crisis of European PE and VC markets in the years 2008-2009 and beyond, remarkable positive developments have been observed in the recent past. Also during the Covid crisis, despite the measurable harm of the initial 2020 lockdowns, the VC and PE industry did not suffer for a longer term. By the end of 2020, VC firms under strict lockdown had caught up in terms of activity rate (both in deals and volumes) with their no-lockdown benchmark (Crisanti et al, 2021; Kraemer-Eis, Botsari, Gvetadze, Lang, and Torfs, 2021). In 2021, many market activity indicators recorded another record year for European PE/VC.

Figure 41, which shows the European PE/VC activity during the Covid-19 recession vs the activity during the global financial crisis (GFC), confirms that the positive market trend has continued at the beginning of 2021. While VC markets are still largely “opaque”, and no single data provider can be used as an “oracle”,³⁶ competing data sources (almost) unanimously find that the European PE/VC activity during Covid-19 was not hit as hard as during the GFC. In fact, activity levels in Q1/2021 were higher than pre-crisis (Q4/2019). PE in particular was hit worse than VC, but performed an impressive recovery from Q3/2020 onwards. European VC did not fall significantly in Q2/2020, and had a significant increase in Q3/2020 onwards.

However, roughly since Q3/2021 many activity indicators have started to show less positive growth rates or even downturns. Latest figures for 2022 show stronger decreases in market activity, in particular in Q3/2022. While different data providers seem to agree on a marked drop in investments, it should be noted that the true size of this drop may only be assessed in several months’ time, as reported figures stabilise due to the data collection lag and market opaqueness.

Figure 41: European PE/VC activity since the Covid-19 crisis vs during the global financial crisis: Indexed real PE/VC investments in Europe (Q4/2019 = 100), by data provider*



* Real investments mean nominal activity values deflated with the gross fixed capital deflator for the EU.

Source: CB Insights, Dealroom, PitchBook, Preqin, Unquote, authors’ calculations

The recent halt in market activity’s record growth is also reflected in the results of the 2022 waves of the *EIF VC Survey* and the *EIF Private Equity Mid-Market Survey*. In a nutshell, they clearly suggest that the market sentiment has turned around. In particular, the current geopolitical and macroeconomic environment and uncertainties have started to have a considerably negative

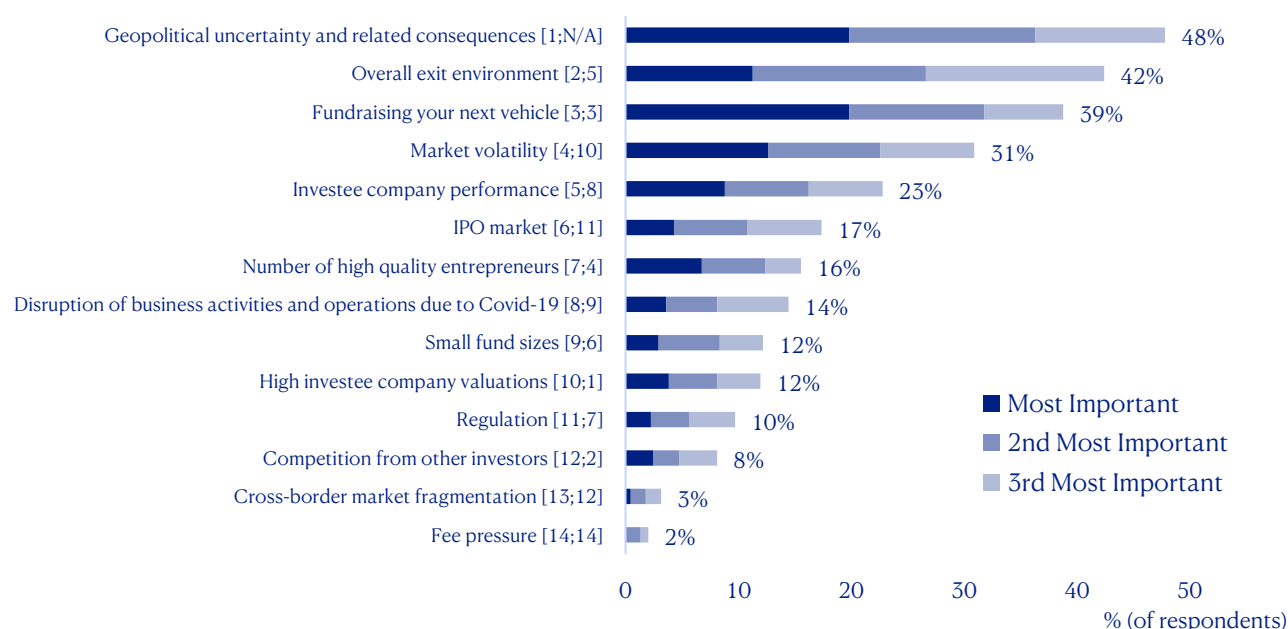
³⁶ Figure 41 highlights the significant divergences in reported trends across different data providers. The discrepancies in reported activity levels are even larger, reflecting the unresolved issue of data opaqueness in the European PE/VC market,

impact on several aspects of the European PE and VC markets, even if this is not yet (completely) reflected in the “hard” market activity data.

The fundraising sentiment is at its lowest value since the start of the *EIF VC Survey* in 2018, and the importance of the exit environment as a key challenge has increased substantially in 2022. Similar patterns are also visible in the *EIF PE Mid-Market Survey*. Moreover, exit prices are expected to further decrease by the majority of respondents, who primarily suffer from insufficient liquidity in the IPO market, and difficulties in finding potential buyers. The outlook for the next 12 months is also pessimistic, with many survey respondents expecting the fundraising environment, finding co-investors, exit opportunities, and the access to finance of their portfolio companies to deteriorate further. Given that the expectations of are at record lows for many of the market sentiment indicators in the EIF surveys, there is a high risk that we are perhaps yet to see the worst part of this new crisis.

The favourable developments in the PE/VC market that we were able to observe in recent years will therefore become contested by risks related to the current geopolitical, economic and monetary environment. *EIF VC Survey* respondents reported important financing, market-related and operational issues for their investees in 2022, particularly with regard to securing equity financing and liquidity. At the fund level, alongside recurring challenges, respondents reported severe fundraising issues, mainly related to a greater risk aversion of (potential) investors in VC funds and LPs / (potential) investors even leaving the market.

Figure 42: Biggest challenges in VC business*



* Diagram shows the results for the *EIF VC Survey 2022* question “Please select the biggest challenges you currently see in the VC business.” The graph shows the total percentage of responses with respect to the items selected by each respondent as their three most important challenges (as far as applicable). The first number in brackets [a;b] corresponds to the current ranking of the challenge while the second number represents the respective ranking of the challenge in the *EIF VC Survey 2021*.

According to results of the *EIF VC Survey*, geopolitical uncertainty and related consequences, the overall exit environment and fundraising are the most important challenge seen in the VC business in 2022 (Kraemer-Eis et al., 2022); see Figure 42. Results of the *EIF Private Equity Mid-Market Survey (EIF PE MM Survey)* also show geopolitical uncertainty and related consequences on top of the list of fund managers' current challenges. See Box 11 for an overview of the *EIF VC Survey* and the *EIF PE MM Survey*.

Box 11: The EIF VC Survey and the EIF Private Equity Mid-Market Survey

The *EIF Venture Capital Survey (EIF VC Survey)* and the *EIF Private Equity Mid-Market Survey (EIF PE MM Survey)* are surveys among VC and PE general partner (GP)/management companies targeting VC and PE mid-market investments in Europe. The surveyed population includes VC/PE firms in which EIF invested as well as firms in which EIF has not invested.

The first *EIF VC Survey* wave was conducted in November/December 2017. The *EIF PE MM Survey* was launched in 2020. The latest wave of both surveys were performed in summer 2022. The main topics of the questionnaire covered the market sentiment and the impact of the current geopolitical & macroeconomic environment. The results of the *EIF VC Survey* are published in Kraemer-Eis et al. (2022). The results of the *EIF PE MM Survey 2022* will be published in due course.

The *EIF VC Survey* and the *EIF PE MM Survey* projects, together with the *EIF Business Angels Survey (EIF BA Survey)*, complement both recent and future quantitative analyses of the economic impact of the EIF's equity operations in the market for VC, PE MM and BA financing.

The *EIF VC Survey*, the *EIF PE MM Survey*, and the *EIF BA Survey* provide the opportunity to retrieve unique market insight. To the best of our knowledge, the combined *EIF PE MM Survey* and *EIF VC Survey* currently represent the largest regular survey exercise among GPs in Europe.

The already large outreach of the EIF surveys, which are coordinated by EIF's Research & Market Analysis (RMA), and the high relevance of the questionnaire topics for both market participants and policy makers have further increased through a cooperation with Invest Europe.

The EIF equity surveys are going to be repeated on a regular basis in order to derive robust results and implications. As such, future waves will include additional policy implications and improvements in the EIF's processes and products, as well as a comprehensive market overview of the VC landscape.

The EIF survey results are published in the EIF Working Paper series:

https://www.eif.org/news_centre/research/index.htm.

4.5.2 | Structural challenges affecting European PE and VC

The PE and VC markets have been challenged by the economic developments of the last years, including several severe economic and financial market crises, which resulted in significant structural changes in the global and European economic landscape. The digitalisation of the economy, which has been further intensified by the Covid-19 crisis, has led to a differentiation of market segments. On the one hand, companies in research-intensive sectors continue to follow more traditional growth models with capital-intensive development stages at the beginning of

their life. On the other hand, companies in the digital space are able to start their activities with very limited resources but are exposed to unprecedented needs for funding in globalisation of their business models. As a result, depending on the sector and the business models of the companies, time-spans from start-up to global leader have shortened considerably and require companies to scale quickly to overcome the risk of seeing their business model being out-dated before they capture a significant market share.

In Europe, too few start-ups survive beyond the critical phase of the first years. Compared to the US, a much larger share of firms remains static and fewer companies manage to grow into large firms (Bravo-Biosca, 2011; European Commission, 2016; Szczepáński, 2017). At the same time, innovative fast-growing firms that are scaling up into larger companies contribute considerably to the overall economic activity, in particular during crises. Despite being disproportionately hit during crises, high growth enterprises, in particular the larger ones, still significantly contribute to economic activity. The economic significance of such firms for short-run growth is almost entirely based on large HGEs, both in phases of expansion but even more so during recoveries (Benedetti Fasil et al., 2021).

On a global level, the VC market has adapted to the new diversity of its target sectors. This has led to a bifurcation of the market between relatively small funds aiming at scouting emerging business models and a still relatively new class of giant VC funds that expanded globally from the US, providing large scale capital to businesses in their worldwide market expansion. In the large scale technology growth capital market, Europe has still too few established players.

In the shadow of companies driving or directly affected by the “digital revolution”, SMEs and mid-caps in traditional industries are reshaping their strategies for competing in a rapidly changing economic environment and are in need of flexible funding instruments with growth equity, mezzanine debt and hybrid debt to classical debt features. EIF market insight shows that growth-stage companies are experiencing a serious lack of growth funding in order to accelerate their international expansion and to strengthen their position against global competitors.

A comparison of PE/VC statistics confirms that the gap between the VC markets in the US and in Europe is particularly big at the later stage (AFME, 2017; Echiksone 2017; Benedetti Fasil et al., 2021). These differences are also reflected by substantial distinctions in fund and deal sizes: while at the start-up stage there is relatively little difference in terms of fund size (US vs Europe), US companies are funded by significantly larger funds at the scale-up stage. Furthermore, the average VC-backed US company typically receives higher amounts than its EU counterpart (details are provided in AFME, 2017, Kraemer-Eis and Lang, 2017, and Benedetti Fasil, 2021).

Duruflé, Hellmann and Wilson (2017) identify the main elements of a strategy to help Europe catch up to the US in terms of scale-up funding: creation of larger venture funds and an enhanced venture debt market, reinvigoration of tech IPOs, improved markets for secondary shares and avoiding to sell companies too early. The Covid-19 crisis as well as the current difficult macroeconomic environment have underlined the need for broader availability of scale-up financing sources during periods of difficult exit markets in general and IPO markets in particular and increased risk that investors needed to sell companies early (Botsari, Kiefer, Lang

and Pal, 2021; Kraemer-Eis et al., 2022). See Kraemer-Eis, Botsari, Gvetadze, Lang and Torfs (2021) for an overview of the scale-up financing gap.

Moreover, despite previous positive developments in European PE and VC, the markets in mainland Europe have still not completely caught up with their global peers. While in many cases the improvements in activity that have been achieved in recent years have indeed been driven by fundamental economic value, part of the upside performance may also be due to higher demand caused by the still ample liquidity in the markets until recently (see Bellavitis et al., 2022, for a recent overview of the monetary policy environment on VC fundraising). It is therefore important to support those companies in their continued growth that have well-developing economic fundamentals, and to also help, through the support of financial intermediaries, additional and complementary businesses to maintain and strengthen the backbone of the European VC market, i.e. a strong and continued supply of new innovative companies.

The VC ecosystem has developed, including the emergence of more and more successful incubators and accelerators. Should these trends continue, despite the current crisis, the potential returns of early-stage companies would have significantly positive impacts on the performance of VC investing. Moreover, Europe is perceived by international investment decision makers as a global leader in several areas, in particular in its commitment to sustainability and the environment and transport infrastructure (Invest Europe, 2018). This perceived attractiveness of Europe as an investment destination has even increased, primarily due to increased innovation and returns on investment.

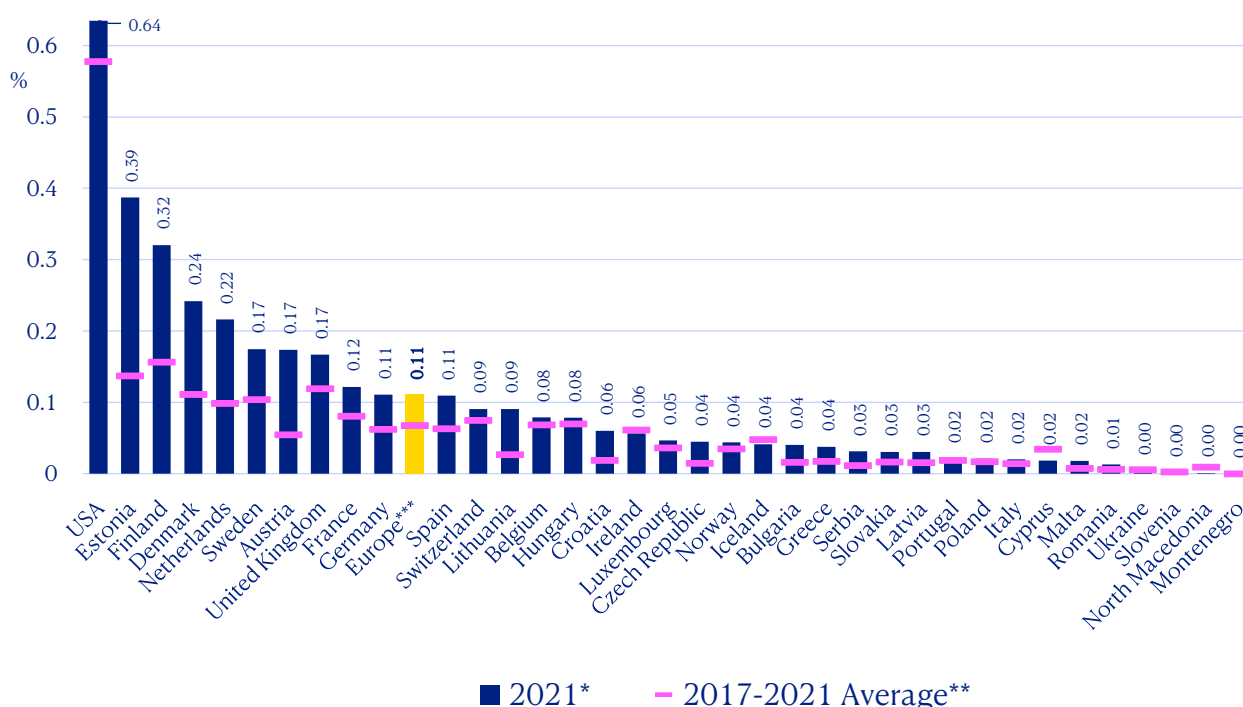
The geographical fragmentation of the European VC market

The European VC market has remained fragmented. Whilst the traditional core markets in Europe (e.g., the UK and Scandinavia) still have a relatively high market activity after the crisis and others have recently caught up (e.g., Hungary and Spain), other countries continue to struggle with the size of their domestic VC market which is in no relation to their share in the aggregate GDP of the EU (e.g. Italy and Romania). Figure 43 provides an overview of VC investments as a share of GDP for European and selected OECD countries as well as a European average. Sizable differences in the development of the VC markets prevail and several markets not only suffer from subcritical size but from an institutional investor base that is not sufficiently ready to invest in this asset class (see Kraemer-Eis, Botsari, Gvetadze, and Lang, 2018).

However, when looking into the geographic dispersion of European VC activity in more detail, the picture becomes more complex. VC investors tend to target tech “hubs” rather than certain regions, based on the expertise developed in those hubs. A start-up’s location is likely to have a major influence on the amount of VC that the enterprise receives as well as the number of funding rounds it goes through (Nepelski et al., 2016, who provide a detailed overview of European VC-backed start-up hotspots). EIF research has shown that European hubs, and in particular those backed by EIF investments, act as the beating heart of a complex network of national and international investments. This claim is supported by data on investment amounts originated by hubs: 23% of these remains in the hub, 40% reaches out to other in-country locations and the remaining 37% travels beyond the national frontier (Kraemer-Eis, Signore and Prencipe, 2016). Since higher cross-border investments can be interpreted as the signal of a

deeper integration of the European VC market, EIF may hold a vantage point in fostering the consolidation of a European-wide VC ecosystem. In addition, cross-border VC investments have been facilitated to a certain extent by EU-wide overarching rules and regulations. Moreover, VC firms tend to cluster together much more than their investees. A recent EIF - Invest Europe study found that more than 50% of all VC firms operate in very large cities in comparison to 34% of all start-ups (Crisanti et al., 2021). However, there is still much disintegration in terms of company structure, legal system, regulation, taxations, etc. Another reason for improved cross border investments is that the main hubs have attracted talents from different countries who retain links to their home countries and in turn attract additional human capital and/or companies to the various hubs. This provides insight for more cross border activities and fosters an international VC ecosystem for investment.

Figure 43: VC investments by country of portfolio company (% of GDP, 2021)



* 2021, or latest available year.

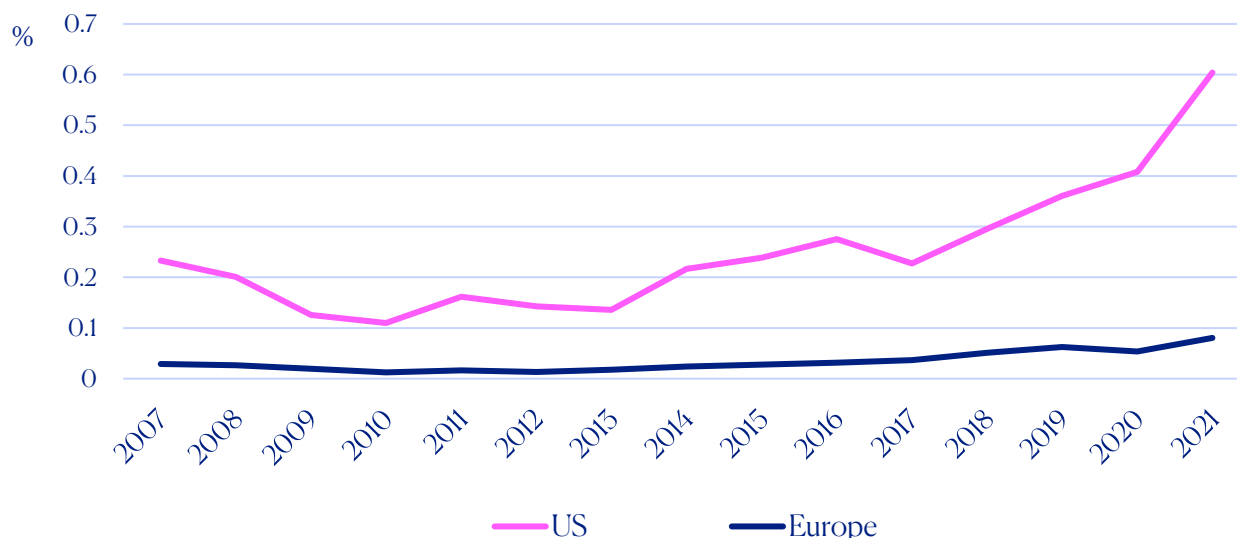
** 2017-2021 average, if available.

*** Europe as covered by Invest Europe. See OECD (2017) for an overview of the international comparability of VC data.

Sources: Invest Europe, OECD, authors' calculations

The comparison of VC investment data between Europe and the US or other countries outside Europe is not straightforward for several reasons (see OECD, 2017, for an overview). For example, data for the US often does not separate out what share of capital is invested by formal VC/PE funds, which leads to US investment figures being higher than the related fundraising. Figure 44 shows a comparison of VC fundraising as a share of GDP in Europe and the US from 2007 to 2021. Although VC fundraising is, on average, lower than VC investment in the US, its level is still substantially higher than in Europe and confirms the diagnosis of a comparatively small European VC market. Despite a booming European market in recent years, the gap – in absolute and relative terms (relative to GDP) has even grown.

Figure 44: VC fundraising Europe and US, percentage of GDP, 2007-2021*



* The underlying definitions (categorisations) for the collection of European / US data are not identical, hence differences can only be interpreted as approximation.

Source: Invest Europe, NVCA, Pitchbook, authors' calculations

4.5.3 | Policy intervention in European PE and VC: findings from recent studies

Some of the challenges described in the preceding two chapters continue to weigh on the access to funding in the European PE market and, in particular, the VC and growth market segments. This supports a view that public backing is needed in order to strengthen the market, which is particularly true for new funds that typically receive less private investment.

Besides the additional funding volumes, public investors' participation in a PE/VC fund can also have a positive signalling effect on private investors, e.g. due to perceived strong due diligence requirements and an assumed higher stability of public LPs' commitment to a fund (see, for example, Kraemer-Eis, Botsari, Gvetadze, and Lang, 2018, and Kraemer-Eis, Botsari, Lang, and Mandys, 2021). These advantages seem to outweigh the potential disadvantages of public investors' participation, like a supposed negative impact on speed and responsiveness or imposed restrictions in the investment strategy of the fund (which can be due to thorough and audit-proof due diligence processes, which are a necessary precondition for the above-mentioned signalling effect). Moreover, Bertoni, D'Adda and Grilli (2016) show that in "thin" VC markets with low supply, which might be a good characterisation for many continental European markets, governmental VCs can raise competition among investee companies by increasing the deal flow and thereby elevate expected profits of independent VCs³⁷ with purely financial

³⁷ Independent VC fund managers act as general partner in a limited partnership in which the fund investors invest as limited partners. This is the most common legal structure for VC funds in Europe.

investment objectives. This may attract additional investors and trigger “the virtuous cycle of VC market development”.

For public policy intervention in the VC market, the relationship between private VC activities and governmental support is important. This was analysed in several empirical studies: according to Colombo, Cumming and Vismara (2014), the design of a public VC investment scheme is relevant for their impact. Governmental VC schemes seem to have been more successful when they acted alongside private investors, which would favour a governmental fund-of-funds set-up over direct public investments. Indeed, the focus of support instruments “has shifted from government equity funds investing directly to more indirect models such as co-investments funds and fund-of-funds” in OECD countries (Wilson, 2015b). Moreover, Brander, Du and Hellmann (2014), in a continuation of their 2010-study, find that enterprises funded by both governmental VC and private VC obtain more investment than enterprises funded purely by private VCs, and much more than those funded purely by governmental support. Similarly, Bai et al. (2021) find a positive relationship between government funding and private capital allocation to early-stage companies. Increased reliance on private capital markets enabled governments to mitigate investment frictions, improve capital allocation, and thereby increase local innovation.

There is also a positive association between mixed governmental/private funding and successful exits, as measured by initial public offerings and acquisitions, attributable largely to the additional investment.³⁸ Dubovik and Steegmans (2017) find evidence that public sponsoring of privately managed VC funds creates better exit performance than public management of VC funds. Cumming, Grilli and Martinu (2017) show a higher likelihood of a positive exit for companies backed by independent and governmental VCs together than for companies that are backed by one of the two investor groups only, based on the underlying sample. See also Pavlova and Signore (2021) for comparable evidence stemming from the EIF’s investment activity in the European VC market. Moreover, Bertoni and Tykvová (2012) conclude “that syndicates between private and governmental VC investors, in which the private investor takes the lead, are the most efficient form in terms of innovation production”. However, as said earlier, public policy in the area of VC should go beyond an exclusive support of VC funds (see Hellmann, Schure and Vo, 2015) and aim at attracting equity financing to Europe from other sources, such as angel investors and crowdfunding (Aubrey et al., 2015; Wilson, 2015a). This is even more important, as the recent crisis seem to have had a particularly negative impact for the access to seed and (very) early stage financing (Bellavitis et al., 2021; Benedetti Fasil et al., 2021; Kraemer-Eis, Botsari, Kiefer and Lang, 2021).

4.5.4 | Policy intervention in European PE and VC: a practical approach

Taking into account the considerations of the previous chapters, Europe is still in need of an integrated portfolio of funding instruments to support the various segments of its start-up, SME

³⁸ Dubovik and Steegmans (2017) provide a brief overview.

and mid-cap landscape, to unleash the full potential of EU companies' competitiveness and their contribution to Europe's economic growth and innovation. Instruments should be complementary to existing initiatives in terms of sector, stage or geographic focus. As the dynamics of recent economic developments, e.g. in the area of the digital economy, has made the segmentation between early stage and late stage VC somewhat redundant, policy instruments that create artificial boundaries of businesses' development stages could be prohibitive to an efficient VC market. Moreover, the EU's VC markets show different degrees of maturity and so require different policy instruments. In less developed markets, instruments may need to work strongly together with the actors of the informal VC markets (BAs, Incubators, TT Centres) and be complemented by flexible co-investment products to grow the domestic VC market. However, when it comes to companies with global ambitions, instruments investing in future industry leaders compete for investors who seek exposure to the best companies on a global scale, not with respect to a given geography. Therefore, giving flexibility to the geographic boundaries of policy instruments is not only key in retaining EU-based businesses in Europe but may attract non-EU based businesses to relocate to Europe. Based on these considerations, it appears vital to offer an array of instruments adapted to diverse market conditions in the various geographies of the EU.

At the same time, large-scale venture initiatives need to include support that helps to grow businesses to larger scale in order to make an impact on the EU's competitiveness. The provision of more growth capital could help alleviate the challenges that later-stage VC firms face when it comes to follow-on financing, particularly in the absence of established, liquid public markets. Creating larger funds will also enable VCs to accompany investee companies for longer periods, minimising the risk that portfolio companies are taken public too early, without having reached a sustainable size. Initiatives aimed at supporting VC firms even in the post-IPO process and at encouraging sophisticated, large crossover investors could contribute to a vibrant VC ecosystem in Europe, enabling European VCs to compete alongside giant, internationally-expanded VC funds.

Measures aiming at regulatory simplification, harmonisation and promoting cross-border investment are steps in the right direction, as intensive policy action is needed to overcome the fragmentation of the European VC market (Bertoni, Colombo and Quas, 2015; see also chapter 4.5.2 |; Kraemer-Eis and Lang (2017) provide an overview of related measures under the Capital Markets Union).

Europe needs a seamless funding infrastructure at large scale in order to support the full corporate financing escalator and to ensure a sizeable mass of home-grown risk capital finance with a long-term perspective. The issue is not only about the availability of funding; it is about the type of funding. The "growth stage trap" is very different in nature from the "early stage gap" and requires new tools and means to address it (see Kraemer-Eis and Lang, 2017). Public backing of the European VC market should aim at crowding-in private investors and catalysing private sector investments in order to support the development of an integrated European VC market, originated by venture capitalists and other market-oriented professionals, such as business angels (BAs).

In times of scarcity of private capital, the temptation grows to construct policy instruments that substitute the private sector. In fact, there is a need to use public sector resources primarily to mobilise private sector capital. One way to attract private investors to the VC market is a fund-of-funds approach or having government and private investors co-invest in VC funds (Acevedo et al., 2016). As a reference catalytic investor in European venture and growth capital funds, the EIF is providing financing solutions to boost entrepreneurship and innovation, acting as a cornerstone around whom private market players invest, taking comfort from EIF's thorough diligence and investment and ongoing monitoring processes. In the coming years, EIF will continue to act as a cornerstone investor across the spectrum from technology transfer through VC to the lower mid-market and mezzanine financing. EIF's activity in the equity sphere also includes the launch and extension of new initiatives.

5 | SME debt products

5.1 | SME guarantees

5.1.1 | Credit Guarantee Schemes as a policy response to market failures in the SME bank-lending market

Earlier chapters³⁹ highlighted the SME financing gap (OECD, 2006), whereby many SMEs with economically viable projects cannot obtain the necessary financing from the regular system of financial intermediation. This market failure, rooted in information asymmetries, is particularly prevalent in the market for lending to SMEs, for two reasons. The first reason relates to SMEs' lack of collateral, while the second reason relates to the relatively short credit history and operational track record of SMEs compared to their larger counterparts.

Given the strategic importance of SMEs as drivers of economic growth and innovation, it is of crucial importance to address the consequences of credit market failures in order to exploit the externalities from entrepreneurial dynamism (Honohan, 2010).

Credit Guarantee Schemes (CGSs) "are used widely across economies as important tools to ease financial constraints for SMEs and start-ups" (OECD, 2013). This is because guarantee mechanisms, "whereby should the borrower default the guarantor compensates a pre-defined share of the outstanding loan" (OECD, 2015), reduce the risk of lenders and favour the provision of financing to viable businesses that are constrained in their access to finance.

Credit guarantee programmes expanded substantially in the years 2007-2011, as governments responded to the global financial crisis; and more recently in 2020, in response to the Covid-19 crisis. Carefully designed guarantee schemes have positive macroeconomic effects, meaning that the costs for the tax payers due to default payments are outweighed by the positive stimulating effects of guarantees on the economy (e.g., fiscal income generated by the supported projects, positive impact on social benefits programmes due to created or maintained jobs). Therefore, CGSs "remain the most wide-spread instrument in use across countries" to ease SMEs' access to finance (OECD, 2018). While CGSs do not alleviate information asymmetries directly, and hence do not address the root of the market failure, they can increase the incentives of lenders to supply credit to SMEs by providing a substitute for collateral, and if designed correctly, increase overall welfare.

³⁹ See Chapter 3.2.

Arping et al. (2010) examine the conditions under which CGSs are socially preferred over government co-funding, using a moral hazard model in the spirit of Holmstrom and Tirole (1997). They conclude that provided entrepreneurs are not substituting public for private collateral, a welfare-maximising strategy prefers CGSs over government co-funding of investment projects. Government involvement in the establishment and funding of CGSs can also be motivated by resolving coordination failure between private-sector entities, which prevents them from pooling their resources. Anginer et al. (2014) argue that when lenders are risk averse, efficient provision of guarantees may not occur on a private-sector basis due to collective action problems, i.e. although the stakeholders are all aware of the problem, the lack of action comes from the misalignment of the private interests with those of the society. They also stress that the incentives for collective action are even weaker in economies with less developed financial systems. The state, on the contrary, is able to resolve the collective action frictions that get in the way of risk spreading. However, to achieve this objective, the state has to maintain the incentives for lenders to monitor projects efficiently, and to deter the borrower from excessive risk-taking. This can be done by pricing guarantees in a way that ensures the expected losses are covered by the fees charged, and promotes the risk being shared with the private sector.

In addition, CGSs hold other advantages. First, the final lending decision stays with a market-based, private-sector entity (rather than a public agency) – the bank –, which has the expertise and the necessary technology to evaluate credit applications and projects. This is likely to ensure a more efficient selection among borrowers than if the task is done by a public agency, since – given that the guarantee is partial – it leaves part of the risk with the privately operating lender. Second, compared to direct lending programmes, CGSs have much lower initial cash flow needs, and as such, have a leverage component. As a consequence, they can also be used when fiscal constraints are tight.⁴⁰ Third, if CGSs are supranational, they can contribute to an efficient geographic distribution of credit. Results from a recent EIB and EIF survey on European CGSs (see Chatzouz et al., 2017; a summary is provided in Kraemer-Eis, Lang, Torfs and Gvetadze, 2016) highlight that all but one existing CGSs choose to operate within the national borders of the country they are headquartered in. This can be explained by the existence of cross-border information frictions related to national legal frameworks that govern the functioning of CGSs, and obvious practical difficulties to assess risks in different cultural, linguistic and business contexts. Supranational CGSs can therefore contribute to an efficient cross-border allocation of credit.

The role of CGSs is not properly evaluated (Schich et al., 2017). In case some CGSs are assessed at all, they are often focused on financial and not on economic additionality. A toolkit for impact evaluation of public CGSs for SMEs was developed by the World Bank Group and First Initiative (2018).⁴¹ In November 2022, a World Bank-led task force provided further guidance on how public CGSs could foster good practices in mainstreaming climate action across their strategy

⁴⁰ However, the small initial cash outlay of credit guarantee schemes also has disadvantages. Honohan (2010) notes that, as a large number of borrowers can be reached with only relatively small initial costs in the short-run, political incentives exist for the public sector to supply guarantees generously, while concealing the true long-term fiscal costs of a programme behind the uncertainty around the expected long-term losses on the guarantee portfolio. This can result in unexpected fiscal costs further down the road.

⁴¹ EIF provided input to the project. A short summary of this methodological approach is provided in Kraemer-Eis, Botsari, Gvetadze, Lang and Torfs (2017).

and operations. The guidelines published by the task force⁴² suggest that public CGSs can support access to green finance for SMEs, acting both as enablers (de-risking private green finance for SMEs) and as shock absorbers (facilitating the provision of emergency finance to viable SMEs hit by a climate-related natural disaster).

The EIF plays an important role in alleviating problems experienced by SMEs in accessing finance. Through a wide range of financial intermediaries, such as banks, leasing companies, guarantee funds, mutual guarantee institutions, promotional banks and other financial intermediaries, the EIF effectively provides both financing to SMEs and guarantees for SME financing. Apart from EIF guarantees for securitised SME financing instruments, the EIF offers guarantees/counter-guarantees for portfolios of microcredits, SME loans or leases.⁴³ In doing so, the EIF manages and implements several mandates on behalf of the European Commission, but also of national and regional Managing Authorities.

A number of recent studies have investigated the impact of some of the EU guarantee programmes on the beneficiary firms. Based on an analysis of the MAP (Multi-Annual Programme for enterprises and entrepreneurship) EU SME Guarantee Facility and focusing on Central, Eastern and South Eastern Europe (CESEE) countries, Asdrubali and Signore (2015) find significant positive effects of this EU guarantee programme on the beneficiary firms. By breaking down the sample by country, signature year, size and age classes, the authors find that micro and young SMEs have benefited the most from MAP-guaranteed loans in terms of economic additionality. More recently, Bertoni et al. (2019) contribute to this body of research by focusing on the population of SMEs located in Italy, Benelux and the Nordics and benefiting from the guaranteed loans provided under the CIP (Competitiveness and Innovation framework Programme) and MAP programmes. They find that, after receiving a guaranteed loan, beneficiaries grew more rapidly than comparable non-beneficiaries in terms of assets, sales and employment (similar results are also reported by Bertoni et al. (2018) in their analysis of French SMEs). Brault and Signore (2019) review past research from the EIF Working Paper Series and produce the first pan-European assessment of EU credit guarantees to SMEs. This meta-analysis covers over 360,000 loans guaranteed by the SMEG facility under MAP and CIP from 2002 to 2016. The results show that guaranteed loans provided by the EIF under the CIP and MAP programmes effectively boosted firm growth and increased survival chances of beneficiaries.

5.1.2 | Credit guarantees as a policy response to the Covid-19 crisis

In 2020, as Covid-19 started to spread across Europe, European governments rolled out a host of initiatives and support measures in an attempt to mitigate the economic impact of the pandemic. The imposed lockdowns meant loss of revenue and cash flow constraints for businesses, particularly for SMEs. Even for an equal revenue shock, SMEs were more vulnerable

⁴² See World Bank (2022). Task force on greening public Credit Guarantee Schemes for SMEs: Guidelines for integrating climate change mitigation and adaptation in public Credit Guarantee Schemes for Small and Medium Enterprises. World Bank Group, Washington, D.C

⁴³ See for more information the EIF website www.eif.org.

and in greater need for government support compared to their larger counterparts, given that SMEs typically have thinner equity cushions, lower liquidity buffers, fewer financing options and less-diversified revenue sources (IMF, 2020). Among the credit-support programmes aimed at mitigating the effects of the crisis on SMEs, guarantees on loans emerged as the preferred credit-support instrument, accounting for the vast majority of the announced government support volumes.

Brault and Signore (2020) report on the prevalence of credit guarantees among the coronavirus-related fiscal pledges to provide liquidity to affected businesses in a broad range of countries. The authors highlight three factors that influence the economic effectiveness of national guarantee programmes to address the Covid-19 crisis: first, the diverging magnitude of the deployed credit guarantee volumes across countries; second, the features of the national industrial landscapes; and third, the varying capacity of European countries to withstand the fiscal consequences of potential future defaults of these guaranteed loans. The increase in government guarantees to the non-financial corporate sector indeed intensifies the interdependency between sovereign states, banks and firms – creating a so-called “sovereign-bank-corporate” nexus (Scope, 2021). The stronger the interdependencies within this nexus, the stronger the incentives for the sovereign to honour its guarantees, given that the high potential contagion risks and macroeconomic costs could lead to further deterioration in economic and fiscal outlooks.

Anderson et al. (2020) investigated (some of) these concerns, i.e. the extent to which unequal support through national coronavirus aid schemes could distort competition in the EU single market, providing an unfair advantage to businesses in better-endowed countries. However, their preliminary findings based on granular level research in France, Germany, Italy, Spain, and the United Kingdom suggest that businesses in richer or less indebted countries did not seem to benefit disproportionately from these schemes, and that the announced headline numbers in relation to guarantee programmes were not necessarily correlated with actual commitments to individual businesses. If anything, a positive correlation between credit-support usage and government debt was documented, while the size of the guarantee envelopes did not account for the variation in the level of usage across Europe’s largest economies (Anderson et al., 2021).

Since the beginning of the crisis, public guarantee policies did indeed differ greatly across countries and jurisdictions, in terms of both the funds available and the credit support usage, reflecting the unequal economic shocks experienced. Demand factors, namely differences in the demand for liquidity support by firms, more than the characteristics of the programmes themselves, helped explain to a large extent the differences in the usage of the offered facilities across countries (Anderson et al., 2021). The demand for credit by firms was in turn determined by the extent of the GDP loss linked to the severity of the lockdowns, the structure of national economies and the quality of governance (Sapir, 2020).

Budnik et al. (2021) also highlight that the proportion of drawn funds depends on the demand for guaranteed loans in relation to the conditionality of guarantees in a certain country. At the same time, credit supply constraints, i.e. how much lending banks could intermediate and the ability of the banks to supply these loans – as reflected in their profitability and funding costs, should also be taken into consideration.

By contrast, low interest rates did not appear to have driven levels of lending beyond what could be expected in response to GDP loss (Anderson et al., 2021). Indeed, after an initial surge in demand for public guarantees, the usage of credit-support programmes in most countries⁴⁴ began to slow down in mid-2020 and gradually levelled off in the second half of the year. As a result, the largest guarantee envelopes are unlikely to be fully used (Budnik et al., 2021) and much of the guaranteed funds may serve as liquidity buffers.

A European-level policy response can help alleviate the concerns raised in some of the aforementioned studies. This is because a European-wide deployment of credit guarantee programmes to address the effects of the Covid-19 crisis can at least partially offset the heterogeneous fiscal response across European countries and direct liquidity to the most credit-constrained businesses and hardest-hit regions. Furthermore, European credit guarantees can help harmonise the costs arising from potential future defaults at the European level, and can therefore play an important role along other existing or debated European mutualisation schemes.

The numerous research studies discussed in section 5.1.1 | confirm the effectiveness of the EIF's policy response in the past and support the view that the EIF's activities can represent viable policy instruments to mitigate the impact of the Covid-19 crisis. Through the European Investment Bank Group, a EUR 25bn Covid-19 guarantee fund aims at delivering up to EUR 200bn for the European economy, with a focus on European SMEs. As discussed earlier, the structural challenges facing SMEs and preventing their access to finance made SMEs more vulnerable to the Covid-19 crisis. The EIF manages a significant share of this Pan-European Guarantee Fund, implemented via SME credit guarantees.

Credit guarantee institutions across Europe adopted a wide range of measures with favourable conditions to support SMEs; and in the case of most guarantee institutions, these measures were indeed backed by the respective national or regional government or by EU funds. These measures included, inter alia: increase of the guarantee capacity, increase of the maximum and decrease of the minimum guarantee amounts, increase of the coverage rate, reduction or waiver of fees and interest, fast-track procedures with reduced documentation requirements, relaxation of repayment schemes, extension of the scope of the guarantees, reduction of collateral requirements, equity and quasi-equity measures, offering of advisory services.⁴⁵

⁴⁴ Italy being a notable exception.

⁴⁵ For further analysis of these measures by country and/or guarantee institution, please see SME support in the Covid crisis: The role of Guarantee Institutions, AECM, February 2022; <https://www.flipsnack.com/aecmeurope/aecm-covid-brochure-update-february-2022.html>.

5.1.3 | Market size and activity in 2021

Market information concerning CGSs in Europe is gathered by AECM, the European Association of Guarantee Institutions.⁴⁶ In the following, based on data from the latest AECM Scoreboard,⁴⁷ we provide information about the use of guarantees in countries with at least one AECM member to show the state and development of this important market segment.

According to the OECD (2013), guarantees are particularly relevant “in those countries where a network of local or sectoral guarantee institutions is well established”. Key figures based on *outstanding guarantees* on SME loan portfolios (as of 31 December 2021) are presented in Table 3.

As a result of the unprecedented support measures implemented by guarantee institutions in the context of the Covid-19 crisis, the outstanding guarantee volume with regard to guarantees originated from and implemented by AECM members over 2020 had reached an all-time high, at almost EUR 331bn. By contrast, the return to normality for business activities in 2021 saw the gradual phasing out of these extensive support programmes as well as the early reimbursement of emergency loans that were no longer needed. This, in turn, translated into a total outstanding guarantee volume of approximately EUR 311bn in 2021, representing an almost 6% decrease compared to 2020 – particularly during the first semester of 2021. More than one-third of this outstanding guarantee volume is attributed to France (in the context of Bpifrance implementing the French government’s PGE (Prêt Garanti par l’Etat) programme), while another one-quarter is attributed to the United Kingdom (with British Business Bank being the implementing institution of Her Majesty’s Treasury (HMT) extensive support programme).

Consequently, the core countries in terms of total *volumes* of guarantee activities⁴⁸ are France (EUR 111bn), the United Kingdom (EUR 83bn), Italy (EUR 25bn) and Turkey (EUR 17bn). The United Kingdom, France, Turkey and Italy also have the highest total *number* of outstanding guarantees. Overall, at the end of 2021, AECM members had almost 6.5 million guarantees in their portfolio. Hence, contrary to the development of the *volume* of outstanding guarantees, the *number* of outstanding guarantees continued its increasing trend in 2021 – albeit much slower than in 2020.

The outstanding guarantee volume compared to 2020 increased the most in Ireland (+454%), Kosovo (+125%), Romania (+69%), Poland (+51%) and Hungary (+49%). By contrast, the largest

⁴⁶ We thank our colleagues from AECM for their support. AECM currently has 47 members in 23 EU Member States plus Azerbaijan, Bosnia and Herzegovina, Kosovo, Serbia, Switzerland, Turkey and the United Kingdom. In the AECM member countries, the AECM members cover all or almost all SME guarantee activity. Some AECM members are national associations or networks and thus have their own member organisations. AECM has purely private, mutual, public, and public-private mixed members; 36 out of its 47 members are NPBI. Source: AECM. The EIF is active in all AECM member countries with the exception of Azerbaijan.

⁴⁷ See AECM Statistical Yearbook 2021: <https://www.flipsnack.com/aecmeurope/aecm-statistical-yearbook-2021.html>.

⁴⁸ In the first semester of 2019, AECM introduced a clearer definition of the outstanding guarantee volume and asked its members to indicate whether the latter includes guarantees until the moment of the calling of the guarantee or until the moment of the disbursement of the guarantee. However, given that a common understanding on this matter could not be reached, the data presented in subsequent tables do not take into account this differentiation in the definition of outstanding guarantee volume.

decrease was observed in Turkey (–59%),⁴⁹ the Netherlands (–29%), France (–27%) and Bulgaria (–23%).

The total number of *supported SMEs* in the portfolios of the AECM members continued to increase in 2021 (even though at a much slower pace compared to 2020) to reach 5.8m, with more than half of these located in France and the United Kingdom. The increasing number of supported SMEs is in line with the arguments raised in section 5.1.2, whereby SMEs, being at the epicentre of the Covid-19 crisis, faced increased liquidity needs and were in greater need of support. The increased number of SME beneficiaries at times of crisis also highlights the anti-cyclical role of guarantee institutions.

The *average size* of outstanding guarantees in portfolio started its descend from the peak observed in 2020 to reach a level of EUR 48k – still well above its pre-pandemic level. The highest average size was documented in Malta (EUR 294k), followed by Austria (EUR 189k), Croatia (EUR 169k), Germany (EUR 149k), Estonia (EUR 144k) and Latvia (EUR 143k).

Interestingly, while the United Kingdom, Italy and Turkey feature at the top of the list regarding outstanding guarantee volumes, they exhibit relatively small average sizes of guarantees (EUR 51k, EUR 31k and EUR 11k, respectively), reflecting the presence of large populations of SMEs borrowing small loans in their portfolios.

Figure 45: Volumes of outstanding guarantees in portfolio and of new guarantee volumes granted in the full-year 2021 scaled by GDP*



* 31 December 2021 or latest available data.

Sources: AECM, Eurostat, World Bank, authors' calculations

⁴⁹ This decrease reflects the strong devaluation of the Turkish lira leading to a strong decline of the volumes of Turkish AECM members in euro terms.

Table 3: Outstanding guarantees and number of supported SMEs in portfolio as at 31 December 2021, AECM members by country*

Country	Volume [kEUR]	% change from 2020	Number	Implied average guarantee size [kEUR]***	Number of SME beneficiaries
Austria	4,790,108	8.3%	25,373	188.8	21,554
Belgium	1,259,819	4.5%	12,970	97.1	10,334
Bosnia-Herzegovina	14,331	37.0%	161	89.0	126
Bulgaria	135,609	-22.5%	2,809	48.3	2,963**
Croatia	311,989	-0.2%	1,842	169.4	1,707
Czechia	2,041,000	22.4%	22,138	92.2	18,286
Estonia	162,555	-2.2%	1,133	143.5	737
Finland	2,259,095	17.8%	19,857	113.8	25,687**
France	110,484,932	-27.1%	1,590,050	69.5	1,435,082
Germany	6,185,304	3.2%	41,519	149.0	34,330
Greece	5,439,794	-0.1%	114,899	47.3	28,774
Hungary	6,605,331	49.4%	90,271	73.2	69,706
Ireland	1,585,720	454.3%	17,151	92.5	17,151
Italy	25,191,080	-6.3%	814,010	30.9	878,312**
Kosovo	126,092	125.4%	6,831	18.5	7,768**
Latvia	239,977	15.3%	1,674	143.4	1,388
Lithuania	456,060	12.1%	4,590	99.4	3,274
Luxembourg	257,913	6.5%	1,982	130.1	603
Malta	236,760	24.9%	806	293.7	662
Netherlands	1,594,000	-28.6%	16,138	98.8	21,973**
Poland	9,103,482	50.6%	154,853	58.8	154,853
Portugal	9,831,596	-1.4%	147,870	66.5	87,752
Romania	4,722,815	68.7%	44,554	106.0	35,095
Serbia	4,514	-3.9%	204	22.1	77
Slovenia	311,375	-3.1%	3,232	96.3	2,539
Spain	6,440,306	9.5%	107,194	60.1	163,342**
Switzerland	12,253,981	n/a	117,790	104.0	117,790
Turkey	16,625,761	-59.0%	1,496,391	11.1	1,093,966
UK	82,757,812	43.7%	1,613,478	51.3	1,613,478
Total	311,429,112	-5.9%	6,471,770	48.1	5,849,309

* The statistics do not include the business figures of one Hungarian AECM member and of one Romanian AECM member that only have a Counter Guarantee activity.

** In the case of Bulgaria, Finland, Italy, Kosovo, the Netherlands and Spain, the number of SME beneficiaries is reported to be higher than the number of guarantees. This is due to different reporting approaches (e.g., the number of SMEs refers to a member count, instead of the actual beneficiaries of guarantees in that particular year).

*** The fact that some AECM member organisations may include former 'inactive' SME beneficiaries in their portfolio even though the guarantee scheme already reached its maturity could distort the total number of SME beneficiaries. Therefore, for the purpose of computing the implied average guarantee size, the 'Total Number of Guarantees Outstanding' rather than the 'Total Number of SME Beneficiaries' is taken into consideration.

Source: AECM, authors' calculations

Table 4: Newly granted guarantees in the full-year 2021, AECM members by country*

Country	Total 2021	% change from 2020	% outstanding
Austria	833,532	-78.5%	17.4%
Belgium	520,154	-1.0%	41.3%
Bosnia-Herzegovina	9,618	72.6%	67.1%
Bulgaria	36,570	-30.4%	27.0%
Croatia	80,751	6.6%	25.9%
Czechia	691,029	-35.9%	33.9%
Estonia	62,165	-49.7%	38.2%
Finland	1,280,200	-14.7%	56.7%
France	22,144,527	-83.8%	20.0%
Germany	1,330,663	-5.4%	21.5%
Greece	1,625,804	-66.3%	29.9%
Hungary	4,479,068	32.7%	67.8%
Ireland	654,832	158.0%	41.3%
Italy	5,238,167	-17.6%	20.8%
Kosovo	111,050	212.1%	88.1%
Latvia	105,811	11.2%	44.1%
Lithuania	263,479	-1.5%	57.8%
Luxembourg	95,808	-38.4%	37.1%
Malta	47,180	-74.7%	19.9%
Netherlands	435,321	-21.3%	27.3%
Poland	11,203,062	21.9%	123.1%**
Portugal	788,110	-89.1%	8.0%
Romania	2,501,873	-5.1%	53.0%
Serbia	1,202	42.4%	26.6%
Slovenia	72,294	0.4%	23.2%
Spain	1,959,677	-28.2%	30.4%
Switzerland	132,740	n/a	1.1%
Turkey	3,695,286	-84.7%	22.2%
UK	30,386,886	11.2%	36.7%
Total	90,786,859	-67.5%	29.2%

* The statistics do not include the business figures of one Hungarian AECM member and of one Romanian AECM member that only have a Counter Guarantee activity.

** For the Polish AECM member, the total new guarantee activity in the full-year 2021 exceeded the total volume of outstanding guarantees for the same period. As a result, new guarantees in Poland are in excess of 100% of outstanding guarantees in portfolio. If the Polish AECM member in question mostly offers short-term guarantees and if the duration of the latter is less than one year, then it is reasonable to assume that many of the newly-granted guarantees are reported in the related statistics on new guarantee volumes, but are not subsequently reflected in the statistics on outstanding guarantees.

Source: AECM, authors' calculations

The *relative importance of guarantees* compared to the value of economic activity in each country is approximated by the share of outstanding guarantee volume (respectively, new guarantee volume) over GDP (Figure 45). After a decrease in the GDP of most countries in 2020 as a result of the recession inflicted by the pandemic, European economies recovered in 2021, reaching a GDP exceeding the pre-pandemic levels. Consequently, the share of the overall AECM members' outstanding (new) guarantee volume in the GDP of AECM countries under consideration decreased from 2.1% (1.8%) in 2020 to 1.7% (0.5%) in 2021 – but remained far above the pre-pandemic level of 0.7% (0.2%).

Portugal leads the ranking (outstanding guarantees at 4.6% of GDP), while France (4.4%) and Hungary (4.3%) complete the top three. Relative to GDP, Hungary, Poland and Kosovo are the three countries that recorded the highest amount of *new guarantees* in 2021 (2.9%, 1.9% and 1.4%, respectively).

The volume of newly-granted guarantees in the full-year 2021 amounted to approximately EUR 91bn (Table 4), exhibiting an almost 68% decrease over its 2020 crisis level, but still more than two times its pre-pandemic level in 2019. This high level of new production of guarantees reflects once again the enormous roll-out of supporting measures for SMEs affected by the pandemic. As was also the case for the volume of outstanding guarantees, France and the United Kingdom account for one-third and one-quarter, respectively, of this total new guarantee volume.

The highest increase in new guarantee activity was documented in Kosovo (+212%), Ireland (+158%) and Bosnia-Herzegovina (+73%). By contrast, new guarantees decreased mainly in Portugal (–89%), Turkey (–85%) and France (–84%).

In the full-year 2021, the share of newly-granted guarantees in the overall portfolio reached approximately 29% of the total volume of outstanding guarantees for the same period. This share is usually around one-third of the outstanding volume. Hence, while 2020 saw the highest ever registered ratio of new over outstanding guarantee volume (almost 85%), this metric has now decreased substantially, even below the pre-pandemic level.

While the lifting of the Covid-related restrictions and the resumption of economic activity meant that guarantee institutions could switch from crisis to recovery support, further economic recovery is currently hindered by the geopolitical and macroeconomic consequences of the Russian aggression in Ukraine. It would therefore be interesting to monitor the development of the various parameters in relation to guarantee activity over 2022 and beyond. Chapter 3.3 | discussed already how the share of guaranteed or collateralised loans has recently decreased substantially, below and beyond the pre-Covid crisis level. While the data do not allow to distinguish between collateralised and guaranteed lending, it is very unlikely (given the current uncertainty regarding the near-term and medium-term economic outlook) that this decrease is due to a reduction in banks' collateral requirements. This, in turn, implies that guarantee programmes are in low supply at the moment, following also the gradual termination of support programmes implemented at the peak of the Covid-19 crisis.

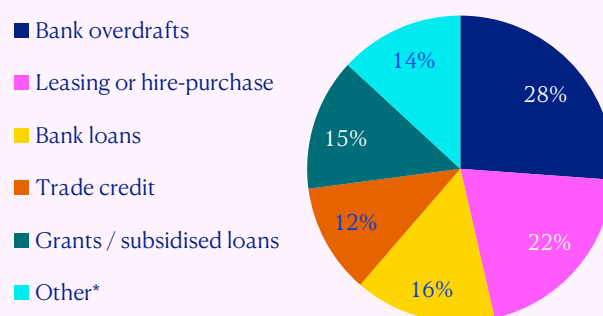
5.2 | Leasing

According to the latest ECB SAFE survey wave (October 2021 – March 2022), Euro area SMEs report increased financing needs over the past six months with respect to trade credit, equity, bank overdrafts and bank loans (Figure 46). By contrast, their financing needs for and the current availability of leasing or hire-purchase have remained relatively stable, on balance; and this will continue to be the case in the near future.

There is a wide heterogeneity in the use of leasing, across countries, industries and firm-sizes (Figure 47). A country-by-country analysis (panel a) reveals that, similarly to prior years, Germany, Finland and Austria are the countries with the highest proportion of SMEs using leasing or hire-purchase, while SMEs in the south of Europe use leasing less frequently. Compared across industries (panel b), leasing as a financing source is more prevalent among industrial and construction firms, contrary to Euro area SMEs that state “trade” as their main activity. Finally, the use of leasing or hire-purchase grows with firm-size (panel c).

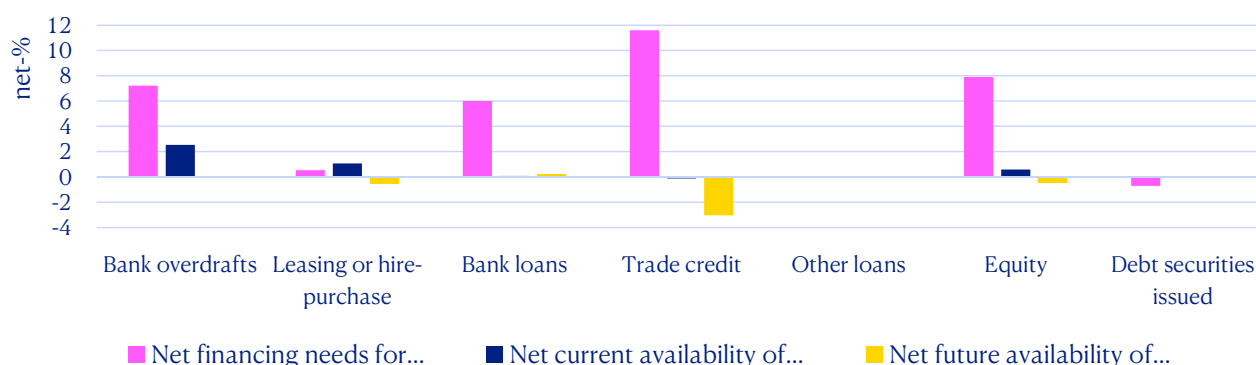
Leasing, an integral part of the SME financing tool set

Leasing is an important element of SME finance. Unlike traditional loans, leasing services are not always directly provided by banks, but rather by leasing or factoring companies. It is an additional instrument that facilitates access to short- and medium-term financing, thereby mitigating market weaknesses in SME lending.



Leasing is the second (following bank overdrafts) most used financing instrument among SMEs (ECB, 2022d) and remains more popular than traditional bank loans.

Figure 46: Evolution of financing needs and availability of financing sources for Euro area SMEs (HY2/2021)*



* Net percentages reflect the difference between positive and negative responses for the different factors considered.

Source: ECB SAFE (ECB, 2022d), authors' calculations

Figure 47: Use of leasing or hire-purchase by Euro area SMEs – across countries, industries and firm-sizes (HY2/2021)*



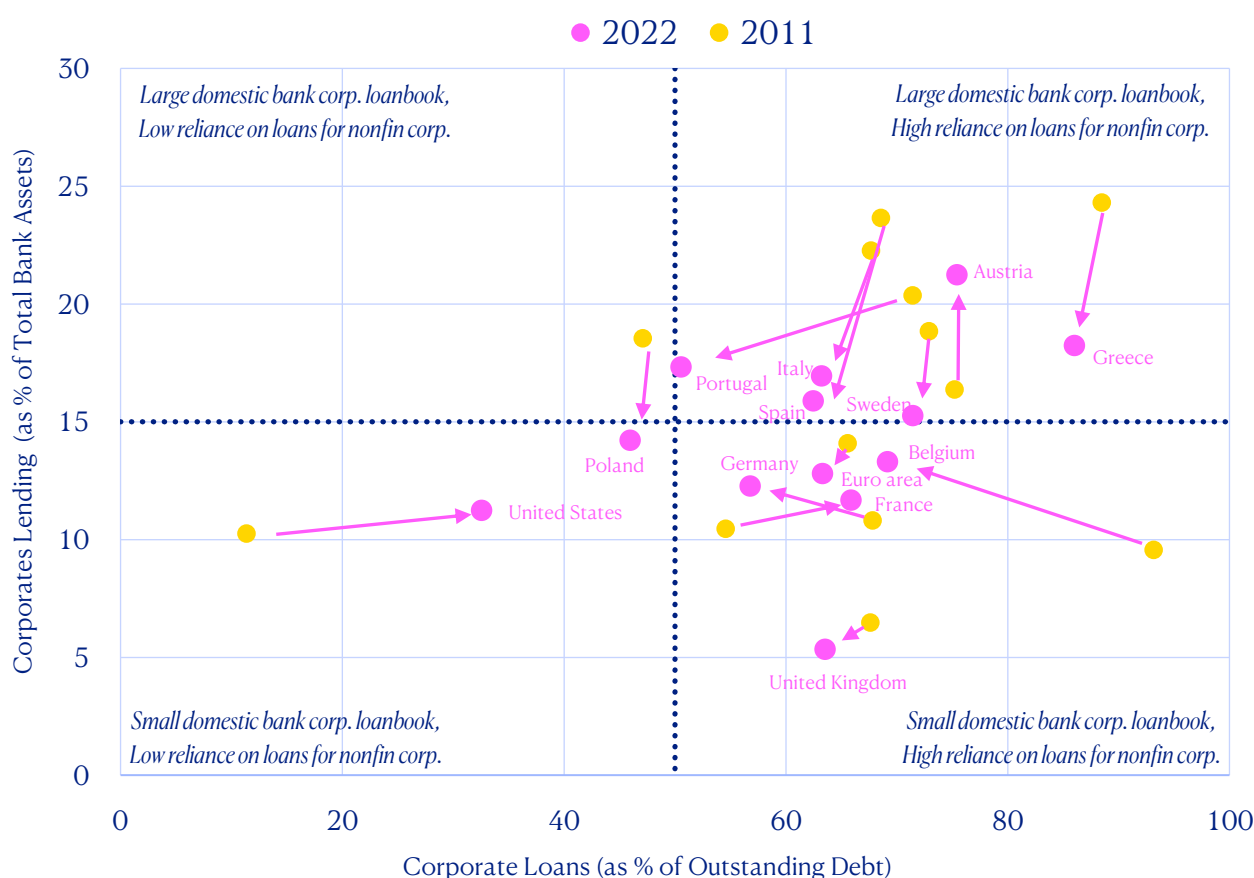
* Percentage of respondents (weighted results) stating that they have used leasing or hire-purchase over the past six months; "Industry" includes manufacturing, mining & electricity, gas and water supply.

Source: ECB SAFE (ECB, 2022d), authors' calculations

5.3 | SME Securitisation⁵⁰

European SMEs rely heavily on bank lending. Figure 48 provides an indication of the different levels of bank reliance for various countries.⁵¹ The ratio is moving towards more capital market action. For SMEs, the possibility to substitute bank lending with other sources of finance exists only to a limited extent.

Figure 48: Reliance on bank financing by non-financial corporations (in percent)



Source: Author's calculation (based on IMF (2012), with updated data)

Capital market funding in the Euro area has been increasing since the financial crisis (Figure 49). However, this is primarily possible for large corporations. Given that SMEs have only limited *direct* access to capital markets, a well-functioning securitisation market can provide an *indirect* access by transforming illiquid loans to SMEs into an asset class with adequate market liquidity. Securitisation can strengthen the capacity of banks to supply new loans. It can mitigate credit supply frictions and has the potential of having positive real effects on investment, sales, and

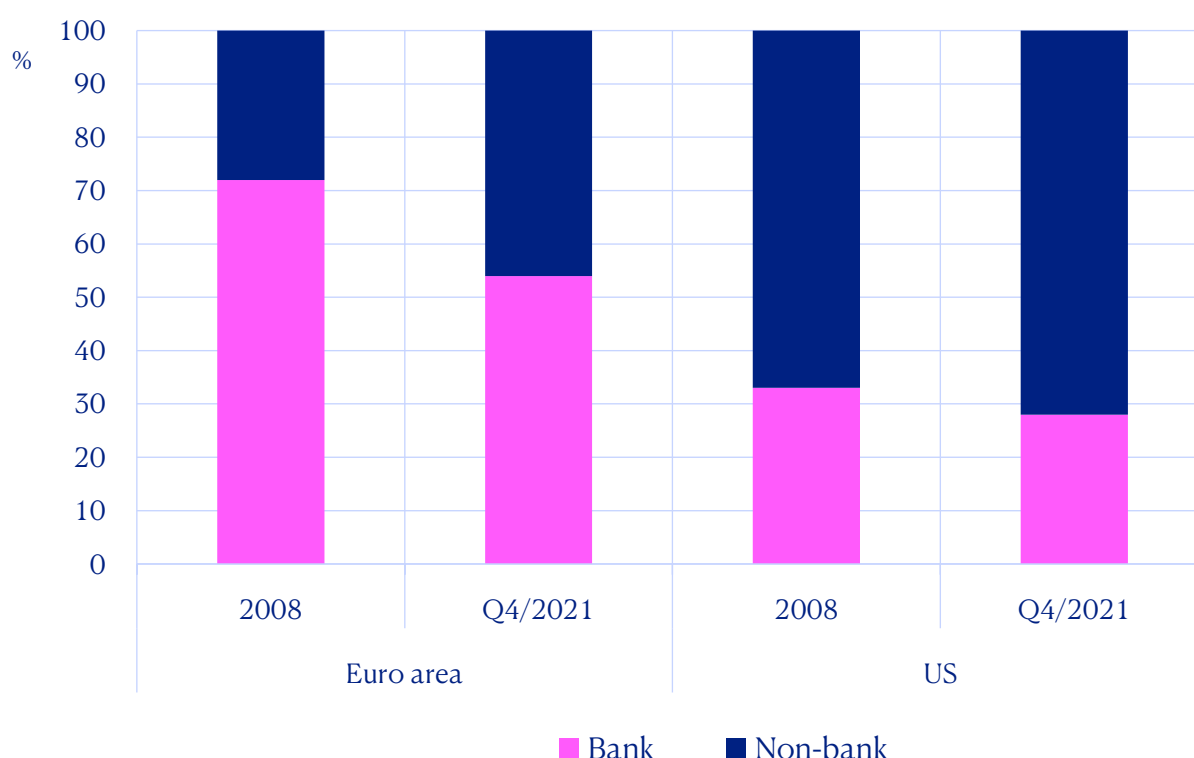
⁵⁰ The term SME Securitisation (SMESec) comprises transactions backed by SME loans, leases, etc. It is important not only to look at banks/lending when analysing SMESec, but equally at leasing companies, which form part of the securitisation market. In particular, securitisation can help smaller originators to make use of the capital market (Moody's, 2017). For more information on the importance of leasing for SME finance, see Kraemer-Eis and Lang (2012 and 2014).

⁵¹ The figure is related to non-financial corporations, not only SMEs.

employment (Berg et al., 2015). If properly done, securitisation can be a promising tool to enhance funding options for SMEs (Lagarde, 2019). Moreover, it can help banks to comply with the new Basel 3 framework whilst contributing to meeting the challenges faced by the European economy (ESM, 2021).

For example, Kaya and Masetti (2018) analysed the impact of securitisation on access to finance for SMEs in the Euro area, based on firm-level survey data on SME financing conditions. They found that an increase in securitisation issuance reduces the probability of SMEs facing credit constraints and decreases the cost of bank financing for non-constrained firms.

Figure 49: Bank/non-bank debt financing of non-financial corporations in the Euro area and the US



Source: ECB, authors' calculations

It is sometimes stated that securitisation might lead to higher risk-taking by banks (or lower lending standards). This is neither confirmed by performance data, nor by research. Kara et al. (2015) analysed data from the euro-denominated syndicated loan market. They found that, in the run up to the financial crisis, banks relying on securitisation did not lower their lending standards more than other institutions. Albertazzi et al. (2017) used credit register data for loans to Italian SMEs and tested for the presence of asymmetric information in the securitisation market by looking at the correlation between securitisation and default probability. They found that, despite the presence of asymmetric information, securitisation did not lead to lax credit standards, but rather that the quality of securitised loans is better than the one of non-securitised loans, i.e. a positive selection effect takes place.

Loans to SMEs are a key driver for the functioning of the economy and, properly applied, securitisation is a replicable tool that can enhance access to finance for SMEs. By using this instrument in developed capital markets, public sector support for SMEs (e.g. guaranteeing mezzanine tranches) can create multiplier effects - and hence it is an efficient use of public resources, which is especially important against the background of scarce financial resources for public support and a high public debt burden in many key countries: "[...] strengthening SME securitisation may be one of the most effective ways to facilitate the flow of funds to the real economy, while not creating too much distortion" (Kaya, 2014). Integrated EU capital markets (and their need for transparency and standardisation) and the relative complexity of securitisation techniques require considerable know-how and show the necessity for specialised institutions. As an established and respected player in the European securitisation market, the EIF, in close cooperation with the EIB, plays an important role via market presence, reputation building, and signalling.⁵²

Also, the ECB is interested in securitisation, including SMESec, for three main reasons (Mersch, 2017): Firstly, the ABS (Asset Backed Securities) market acts as one of the transmission channels of the ECB monetary policy (facilitating the provision of credit to the real economy). Secondly, ABS form an important part of the collateral framework in the Euro system, and thirdly, this technique can transfer risk away from the banking sector, which may support monetary policy.⁵³

Already before the Russian war against the Ukraine the IMF (Aiyar et al., 2021) expected a significant pandemic-induced fall in capital ratios of European banks with considerable cross-country variations, depending on the size of the macroeconomic shock and the pre-pandemic condition of profitability and bank balance sheets. With the war, another macroeconomic shock hit the financial system. Such limitations on the banks' side clash with increasing lending needs (e.g. in the recovery from the Covid-19 crisis, greening the economy, digitisation, etc.). As a reaction, banks can raise additional capital, or alternatively they can use securitisation and remove risks from their balance sheets so that more capital is free for new lending (Bell, 2020).

⁵² EIF's involvement in the SME securitisation market is twofold: 1) guaranteeing tranches of ABS transactions issued by banks in order to obtain funding, and 2) by guaranteeing tranches of synthetic securitisations which allow banks to release regulatory capital. For more information on the use of securitisation at EIF: <https://youtu.be/liDM-KPiScE>. The widely recognised role of EIF in the synthetic market, led to the securitisation division of EIF winning the award as "best SRT investor". The respective pitch to the competition can be found here: https://www.eif.org/news_centre/publications/eif-submission-to-the-sci-capital-relief-trades-awards-2019.htm

⁵³ In November 2014, the ECB started its Asset Backed Purchase Programme (ABSP). The overall objective was to enhance the transmission of the monetary policy, support the provision of credit to the Euro area economy and, as a result, to provide further monetary policy accommodation. The ECB's support of the ABS market was a positive step. However, the programme has almost no direct impact on the SME segment of the market. On 14 June 2018 the ECB announced to reduce the asset purchases from October 2018 onwards, and then to stop the ABSP by the end of 2018. In November 2019, the ECB restarted the purchase programme. Early June 2022 a portfolio of EUR 26bn was reported under the ABSP. The detailed breakdown reveals a focus on residential mortgages and auto loans, and that SME transactions did not play a role so far ([ECB website](#)).

Securitisation, a value-laden term

Securitisation per se is neither good nor bad - it is a toolbox, an instrument, a technique. As such it is value-free. However, an aggressive, opaque, and overly complex use as done by some market participants in the past has negative consequences for both issuers and investors. Negative repercussions are also created by an overly simplified discussion where everything related to structured finance is lumped together and sometimes dismissed or branded as “toxic”. The instrument is neither “toxic” nor is the underlying asset (in the case of SMESec: SME loans/leases) “toxic waste”.

Despite the benefits of the SME securitisation market outlined above, SMESec placed with investors currently represents only a very small portion of the total issuance and there is for the time being only a very limited primary market.

The SMESec market in Europe is still underdeveloped despite SMESec having many advantages for banks, for investors, and – most importantly - for the SMEs. A real recovery and development of the primary securitisation markets could play a role in ensuring sufficient credit supply for SMEs during the crisis and the recovery process. Moreover, in addition to the direct effects of the SMESec markets, there are indirect benefits to SMEs from the development of other securitisation segments that free up space on bank balance sheets to allow for further SME lending (AFME et al., 2016). However, this will only be to the benefit of SMEs if the freed-up capital / fresh liquidity is going to be used to finance the real economy (i.e. for new SME lending).⁵⁴

Overall, the reputation of the SME securitisation market segment is continuously improving and a de-stigmatisation is happening. In the context of the Covid-19 crisis one could even read that “[...] the market is rehabilitated just in time to save Europe’s small and medium sized enterprises (SMEs). [...] The same financing blamed for destabilising the European economy in the last crisis may now be used to rescue it” (Brown, 2020). Also, in relation to greening the economy, or even in the wider ESG context, securitisation is more and more often referenced as supporting tool.

Securitisation data

The AFME data used here classifies only lending-based transactions in the SME basket. Most leasing-based transactions, classified in AFME’s data under ABS Leases in the overall ABS basket, are de-facto SME transactions. Moreover, in the securitisation market, there are often (synthetic) transactions on a private/bilateral or club basis that are not visible in the official statistics. Over the recent years there was a significant rise in number and volume of synthetic SME transactions, driven by risk transfer, asset liability management aspects, and regulatory capital considerations. These transactions do not appear in the statistics and can only be estimated via surveys of market participants. Based on such assessment, for example, EBA (2020) estimates for 2018 a volume of around EUR 105bn, out of which 19.6bn SMESec (see EBA (2020)) for an analysis of the synthetic market). Issuer appetite for synthetic risk transfer remains strong (Kang, 2021). Therefore, the numbers, shown here, are an underestimation of the real market size and can be seen as a lower bound.

⁵⁴ See for a detailed discussion of SMESec: Kraemer-Eis, Schaber, and Tappi (2010), Kraemer-Eis, Passaris, and Tappi (2013), Kraemer-Eis, Passaris, Tappi, and Inglis (2015), Aiyar et al. (2015), or the joint statement of eight leading trade associations: AFME et al. (2016).

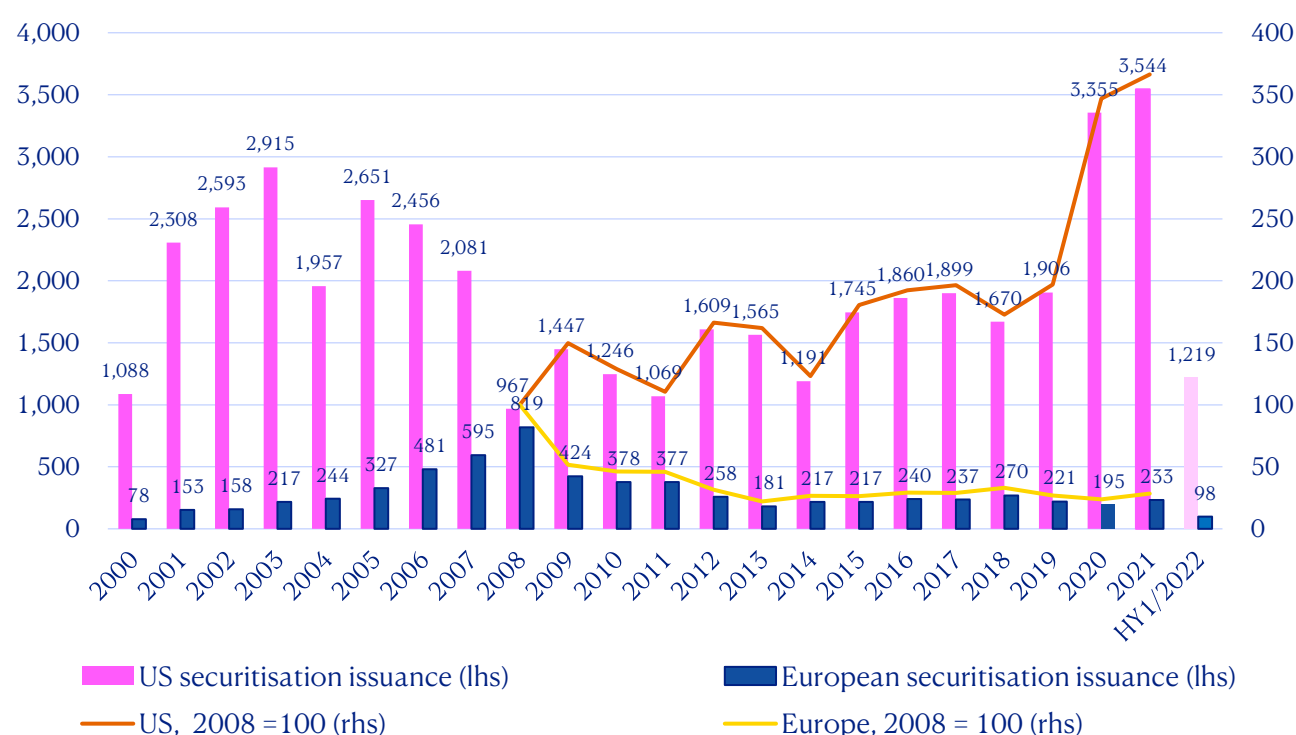
5.3.1 | SMESec market activity⁵⁵

The European securitisation market has grown steadily from the beginning of the previous decade until the outbreak of the GFC. However, it is much smaller than its US peer (Figure 50). During the financial crisis, issuance remained initially at high levels in Europe, but these volumes were almost exclusively driven by the eligibility of ABS as collateral for ECB liquidity operations;⁵⁶ then the overall market activity decreased to the levels seen in 2003/2004.

Issuance

European *total securitisation issuance* in 2021 showed with EUR 233bn (EUR 126bn placed vs. EUR 107.1bn retained) y-o-y a significant increase (+ 20%), but starting from a very low level. In HY1/2022 a volume of EUR 98.4bn was issued (+15% compared to HY1/2021; 50% retained), compared to EUR 1,219.1bn in the US. In Q3/2022, EUR 38.8 bn of securitised product was issued in Europe, an increase of 12.4% from the previous quarter and a decrease of 18.4% from Q3/2021 (EUR 47.6 bn).

Figure 50: Securitisation issuance Europe vs US (annual issuance 2000 –HY1/2022, bnEUR)



Source: AFME, authors' calculations

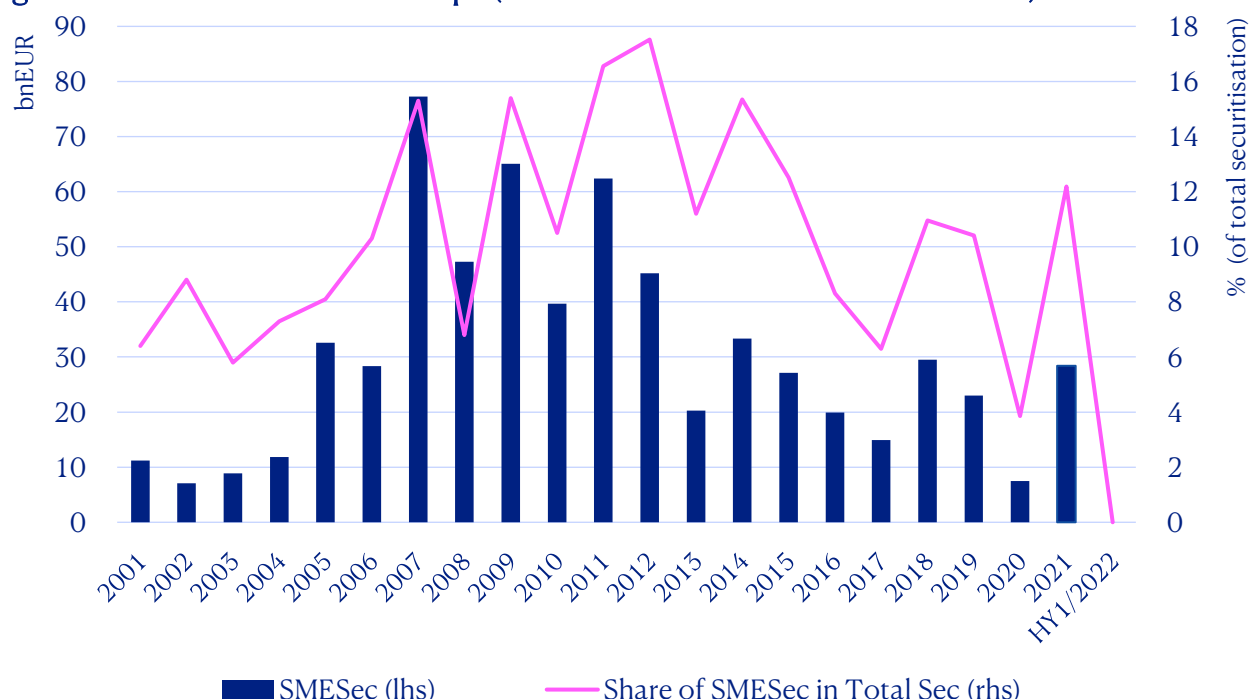
⁵⁵ If not flagged otherwise, the data source is AFME, the Association for Financial Markets in Europe. Please note, AFME changed sources of securitisation data. Historical data (i.e., data reported prior to Q1/2020) might be not comparable with current data. Moreover, collateral type categorisations have been subject to changes.

⁵⁶ The ECB's asset repurchases or "repo" facility allows (among other assets) Asset Backed Securities to be used as collateral for funding.

Before the outbreak of Covid-19, *SMESec issuance* was still suffering from the after-effects of the financial crisis – and continued to suffer during the pandemic. However, in 2021, visible SMESec issuance in Europe increased significantly (+279% y-o-y to EUR 28.4bn, Figure 51), in particular in Q4, which was mainly driven by the largest single transaction in Europe ever (Best/Rabobank, fully retained). The market share of SMESec in overall securitisation issuance rose (with some volatility) from 6% in 2001 to 18% (of total yearly issuance) in 2012, the highest value ever registered in Europe. This, however, was due to the base effect, as the overall activity went down (while SMESec activity decreased slightly less). From 2014 to 2017 the share of SME issuance in the overall activity went down from 15% to 6.3%, based on shrinking SMESec volumes. Due to the significant increase in SMESec issuance in 2021 the share jumped up to 12% of total. In HY1/2022 there was no visible SMESec issuance.

Typical originators of SMESec - also often active as repeat originators - are large banks or banking groups – some of them are active as originators in several countries, but also mid-sized banks. Moreover, in particular in the field of leasing, non-bank asset finance providers are active as originators. Typical originators of synthetic securitisation are credit institutions, in particular large/systemically important banks using internal rating-based models for calculating capital requirements. However, recently also some standardised banks have stepped into synthetic transactions, based on support given by the EIB/EIF and in response to the introduction of the SEC-SA (Standardised Approach) risk weight approach under the new EU securitisation framework (EBA, 2020).

Figure 51: SMESec issuance in Europe (volume and share of total securitisation)

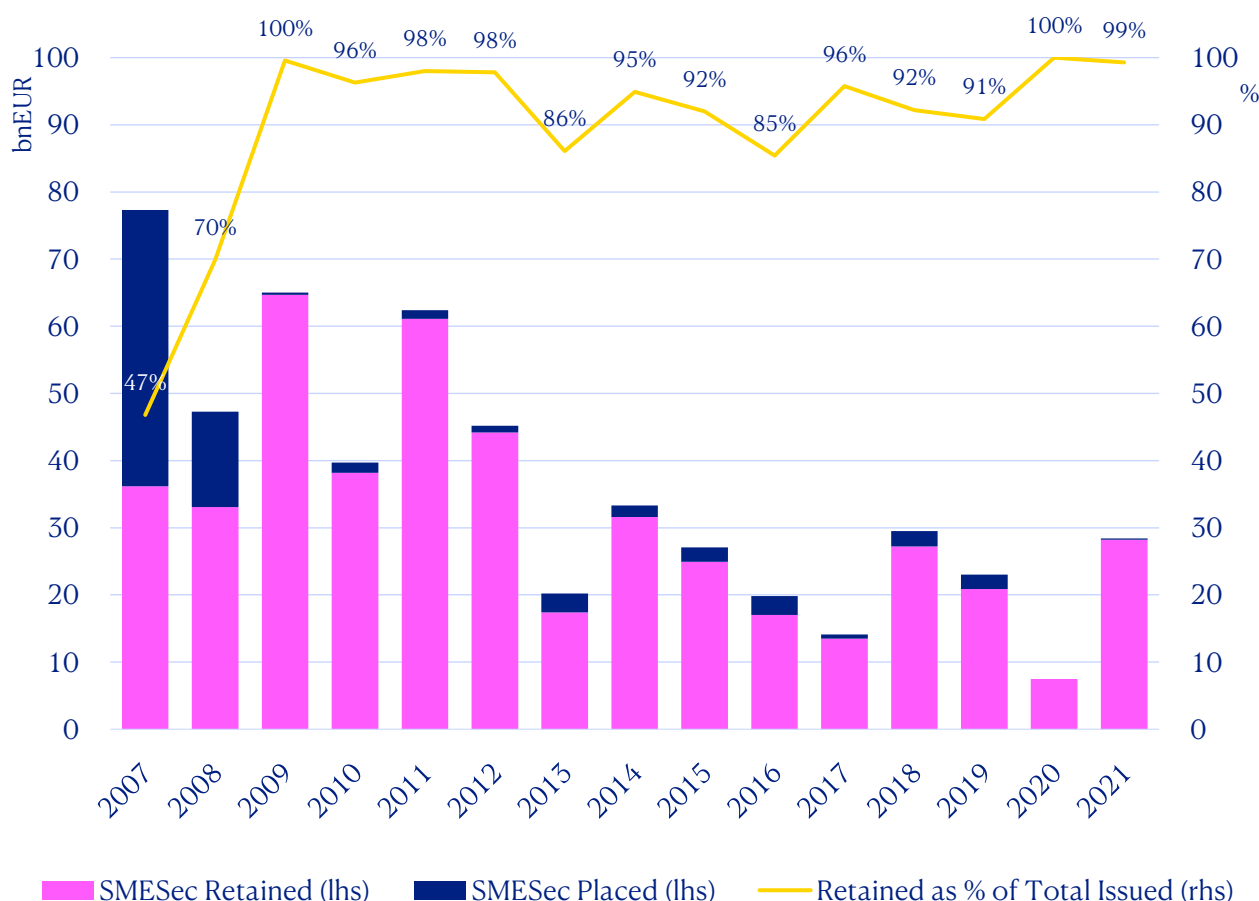


Source: AFME, authors' calculations

As already mentioned, it is important to note that only a very small fraction of the issuance has been placed with investors – the investor base has not yet recovered. The nature of the SMESec

market changed from a developing market (pre-crisis, with most transactions placed in the primary market) to a purely retained/ECB repo-driven market (with almost no placement on the primary market). This shift led to liquidity drying up and originators accepting higher all-in costs as, in addition to the credit enhancement, the repos envisage considerable haircuts to the face value of the notes. The share of retained SME transactions, registered by AFME in 2021 reached 99.3% (EUR 28.2bn, Figure 52).

Figure 52: European SMESec by retention



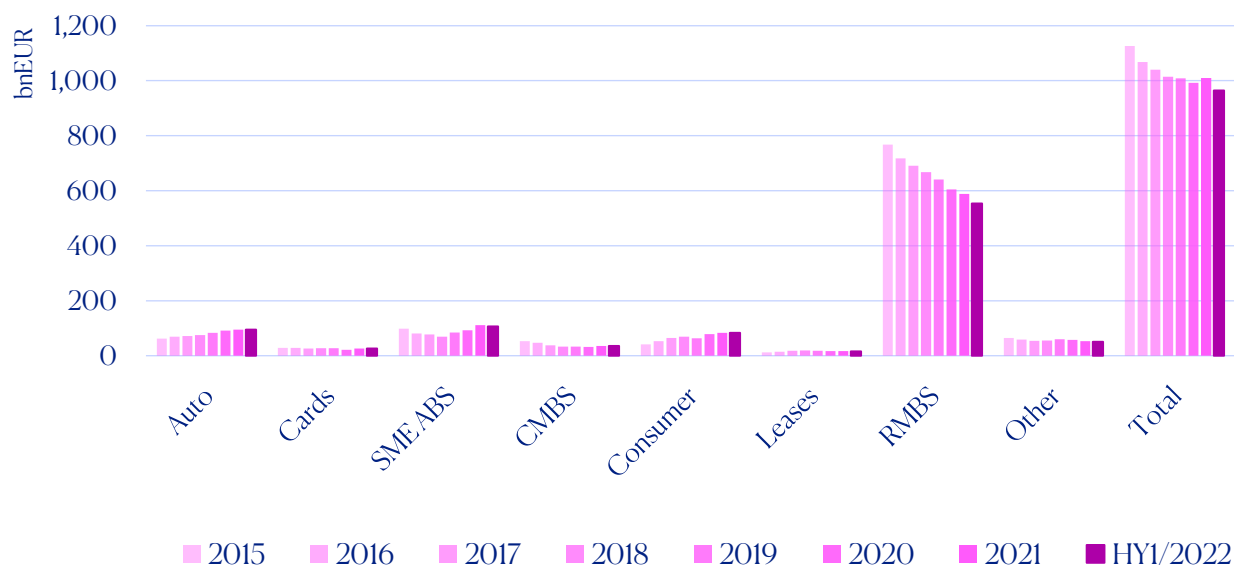
Source: AFME, authors' calculations

Outstanding

Due to low new activity levels, the volume of *total outstanding securitisation transactions* (Figure 53) is on a downward trend (negative net supply). RMBS continues to be the most dominant securitisation type (by collateral).

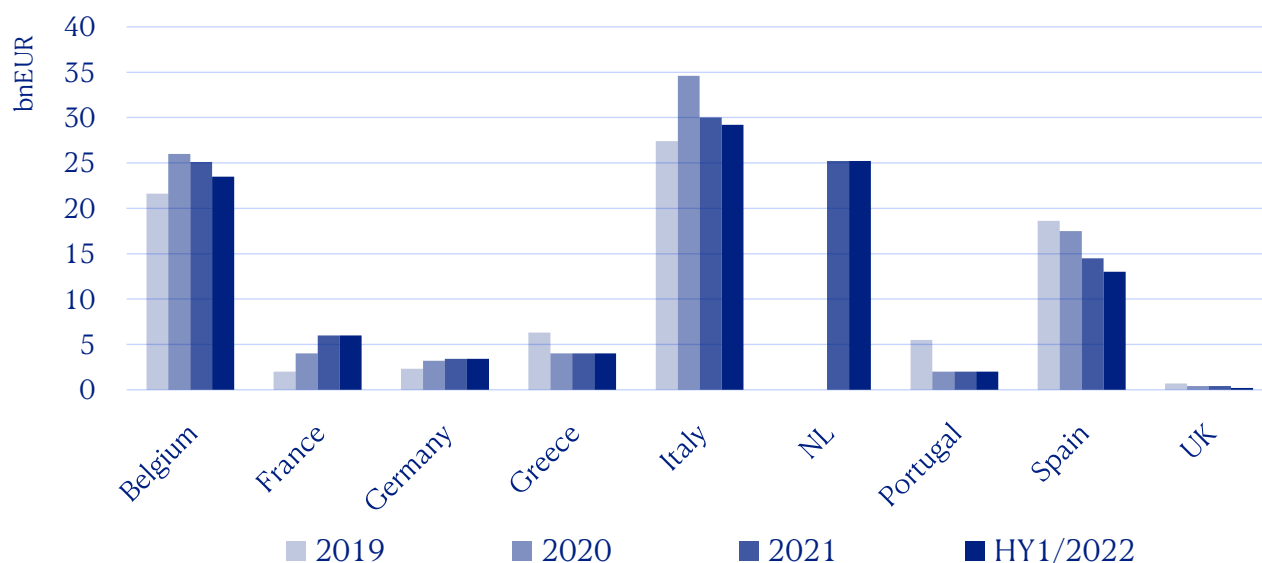
Breaking down SMESec volumes per end of HY1/2022 by country shows that the main four countries together represent 85% in terms of outstanding: Italy (EUR 29.2bn/27.4%), the Netherlands (the new number two in terms of volume, EUR 25.2bn, 23.6%), Belgium (EUR 23.5bn, 22%), and Spain (EUR 13n, 12.2%) see Figure 54.

Figure 53: European outstanding securitisation by collateral (by end of period, bnEUR)



Source: AFME, authors' calculations

Figure 54: European SMESec outstanding volume by country (by end of period, bnEUR)



Source: AFME, authors' calculations

STS activity

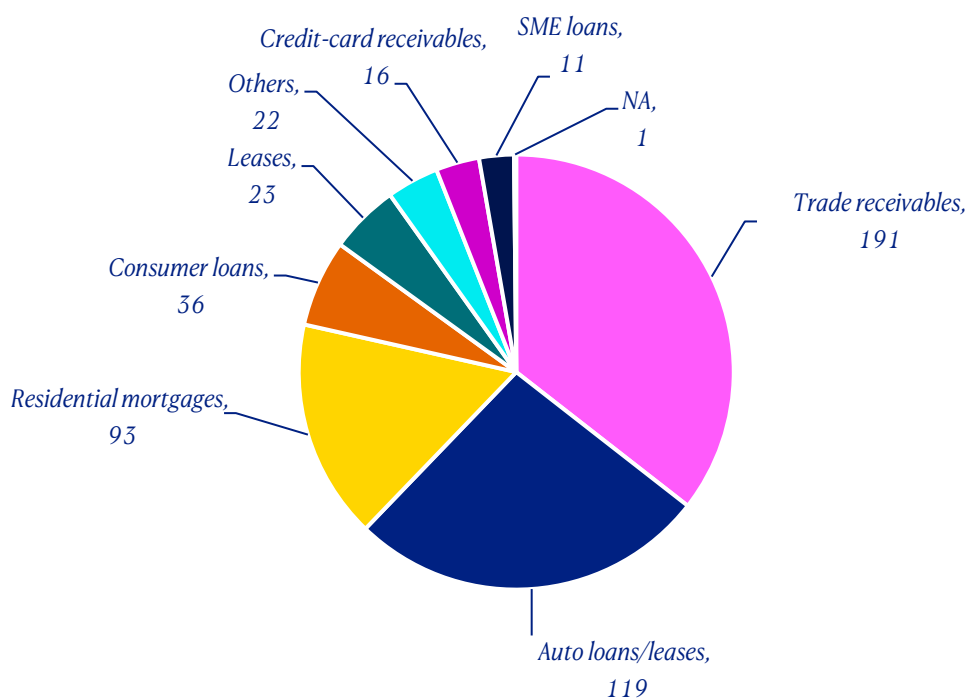
As outlined in detail in previous versions of our ESBFO, the new securitisation regulation, originally triggered by the GFC, entered into force on 17 January 2018 and is applicable for securitisation transactions since 01.01.2019 in all Member States; some grandfathering provisions are valid. The signalling approach via simple, transparent, and standardised (STS)-

labelled securitisations (incl. SMESec) - which receive preferential regulatory treatment – is an important step and forms a building block of the CMU.⁵⁷

These regulations do not only cover European issuers and investors. Any securitisation anywhere in the world must meet the general requirements of the regulation (e.g., related to due diligence, transparency, risk retention) for securitisation to be investible by EU institutional investors or by non-EU based investors, acting on behalf of EU institutional investors. For such a compliant securitisation to qualify as STS, it must satisfy a number of additional criteria and its originator, sponsor and Securitisation Special Purpose Entity must be established in the EU (see for more details BoA/ML, 2018). The transition to the new regime poses many types of challenges (legal, structural, informational, IT) to market participants, i.e. issuers and investors (PCS, 2018a and b). Activity volumes - for securitisation in general, but in particular for STS transactions - will be dependent on the market players' ability to meet the new requirements.

In March 2019, the first STS compliant transaction came to the market.⁵⁸ In 2021, a total volume of EUR 63.6bn was notified as STS by ESMA, representing 27.2% of the total issued volume. The cumulative number of STS notification (until end of 2021) was 619, out of which 16 had SME loans as collateral (Figure 55). In HY1/2022 a total STS volume of EUR 26.3bn was reported (including EUR 4.6bn from UK), an increase of 17% y-o-y (EUR 22.5bn in HY1/2021).

Figure 55: Cumulative number of STS notifications by collateral type (as of end of 2021)



Source: AFME, authors' calculations

⁵⁷ Under the new regulations, the new risk weights for STS result in increased capital requirements for IRB banks compared to the past.

⁵⁸ For a detailed chronology concerning the introduction of STS securitisations please visit Kraemer-Eis, Botsari, Gvetadze, Lang, and Torfs (2019).

Longer term SMESec performance trends

SMESec market activity in Europe started towards the end of the 1990s. At the time, this segment was relatively unknown to investors and rating agencies (based on the novelty of the applied tools, as well as on the heterogeneity of SMEs/SME loans), and the securitisation technique was also new to most of the originators with many banks not in a position to securitise SME loans (a typical hurdle is the IT infrastructure that must be able to adequately support the securitisation transactions).

The performance of SMESec transactions depends on a number of parameters, like the structure of a transaction (including embedded protection like, e.g., excess spread), SME credit risk (including recovery rates), portfolio structure (e.g., rating distribution, obligor concentration, industry concentration, etc.) and also macroeconomic parameters. Despite the financial and sovereign crisis and the prolonged negative economic cycle, the European securitisation market in general has performed relatively well with comparatively low default rates (for true sale and public synthetic balance sheet transactions). On the one hand, before the financial crisis started, SMESec volumes were small compared to the overall securitisation market – and the market had not had much time to develop. On the other hand, the limited track record was one of the reasons for the relatively conservative SMESec structures which can partially explain the good SMESec performance in Europe compared to other segments of the European securitisation market and to the US.

After the financial crisis, the positive SMESec performance continued, despite worsening economic framework conditions - inter alia driven by political event risk as well as the pandemic – and the performance remained stable. The low losses are not only due to the typically high granularity, diversification and seasoning of these transactions, but also to the structural features (such as large credit enhancement) that helped counterbalance the negative effects of the deteriorating European economy (i.e., increased SME default rates). This leads to the effect that the performance of most senior SMESec tranches in Europe have been on par with prime RMBS, although typically prime residential mortgage loans tend to perform better than SME loans within the same country (Moody's, 2018).

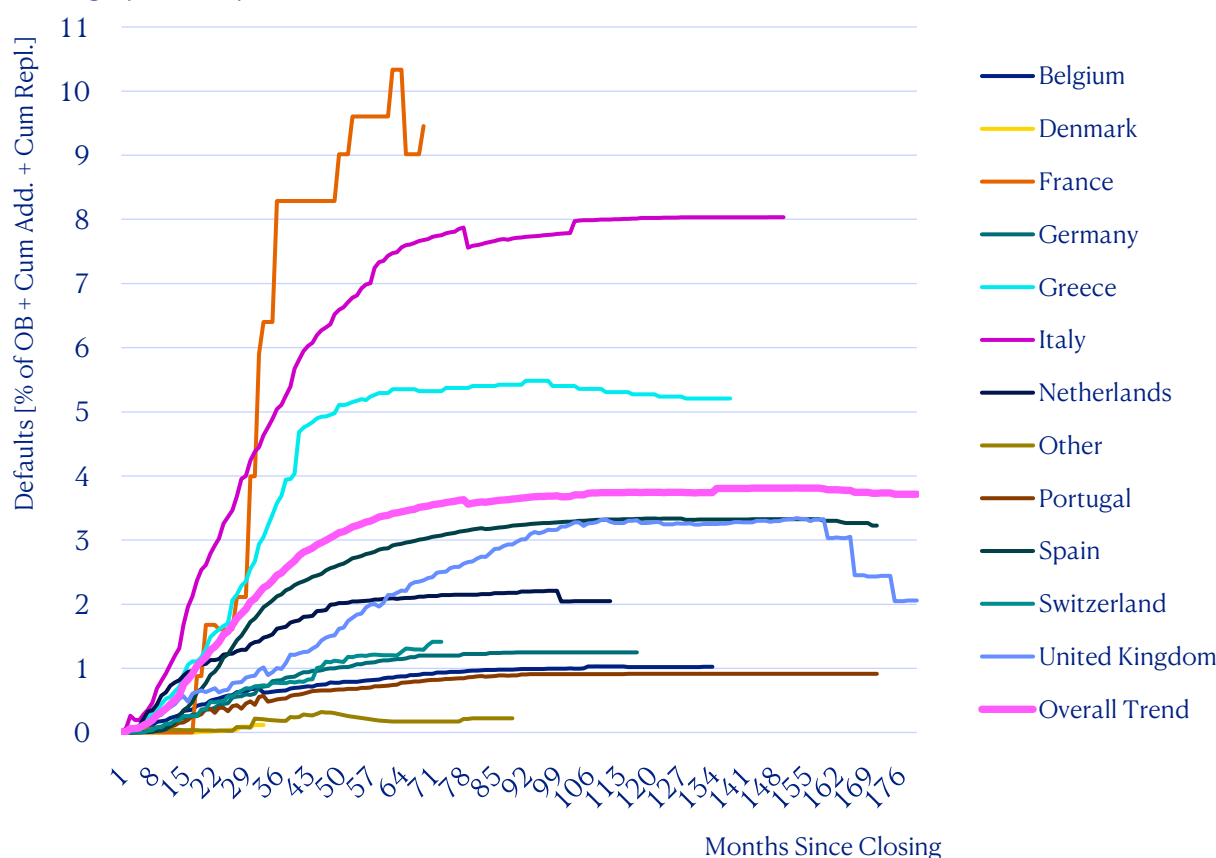
Rating agencies report strong long term structured finance performance for Europe (see e.g., Moody's, 2019, 2021, S&P 2019, or FitchRatings, 2019). Losses in the SME segment are mainly caused by German SME loans, originated through an “originate-to-distribute” business model (non-granular hybrid transactions / German Mezzanine CDOs⁵⁹), or by Spanish SME loans. “European securitisations in the basic and simplest asset classes displayed spectacularly good credit performance through the severe economic downturn triggered by both GFC and the subsequent Eurozone crisis. [...] This includes securitisations in what became at times highly stressed economies such as Spain, Greece and Italy. It became clear that properly structured transparent securitisations, such as Europe had been issuing, were a safe and resilient financing tool” (Bell, 2020).

⁵⁹ For more details see Kraemer-Eis, Passaris and Tappi (2013).

This strong performance has been confirmed by FitchRatings (2021) in a global comparison. The study analysed the realised losses of rated structured finance tranches issued between 2000 and 2020. The analysis therefore includes structured finance notes issued before the global financial crisis as well as more recent vintages, including at the start of the pandemic. According to this update, total expected losses have further declined, to only 0.42% for EMEA. Strong pre-pandemic performance and structural mitigants have supported the structured finance ratings, although asset performance has recently deteriorated (FitchRatings, 2021). S&P (2022) shows that in 2021 – despite the effects of the pandemic – globally the structured finance default rate dropped to 0.6%, well below the one-year average of 3.7%. There were no defaults and no downgrades among European ABS (rated by S&P) in 2021 and the credit performance across European structured finance sectors continued to be more positive compared to US counterparts. The annual default rate of European structured finance fell in 2021 to 0.2%, well below the one-year average of 1% (S&P, 2022).

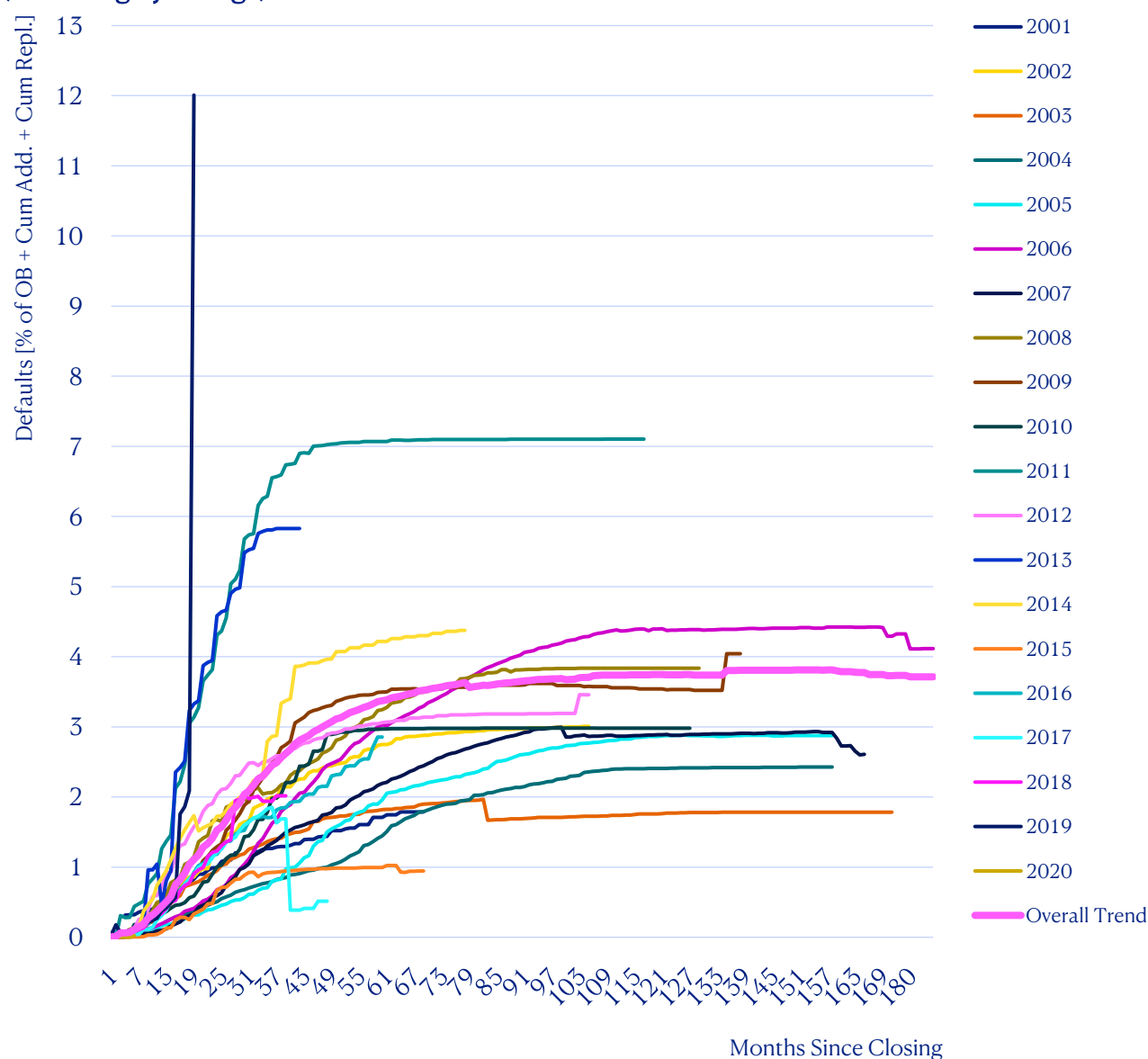
Figure 56 and Figure 57 show the cumulative credit events or defaults on original balance by country and by vintage of the SME transactions in the EMEA region rated by Moody's.

Figure 56: SME loan and lease ABS - Cumulative credit events or defaults on original balance (seasoning by country)*



* Terminated transactions are included in the index calculation; hence, here “cumulative” curves can also show a drop. Additionally, Moody's notes show that vintage seasoning charts might move unexpectedly for the last few data points, because transactions start at different points in time within a vintage, and, hence, some transactions may be more seasoned than others. The index includes only the transactions rated by Moody's.

Figure 57: SME loan and lease ABS - Cumulative credit events or defaults on original balance (seasoning by vintage)



Source: Moody's (2022b)

Rating transition data confirms the good performance; the example below (Table 5) shows the rating migration of SME Collateralised Loan Obligation (CLO) transactions (rated by Fitch, migration since transaction closing). For example, of all the tranches currently tracked by Fitch and initially rated AAA, 27% (by number⁶⁰) have paid in full (PIF), 73% are still AAA, etc.

⁶⁰ Relative to the number of tranches in a given initial rating category.

Table 5: Fitch European SMEs rating transition matrix (May 2022)*

% of tranches		Current rating									
		PIF	AAAsf	AAsf	Asf	BBBsf	BBsf	Bsf	CCCsf	CCsf	Csf
Initial Ratings	AAAsf	27%	75%	0%	0%	0%	0%	0%	0%	0%	0%
	AAsf	50%	0%	70%	0%	0%	0%	0%	0%	0%	0%
	Asf	0%	13%	38%	50%	0%	0%	0%	0%	0%	0%
	BBBsf	9%	0%	18%	45%	27%	0%	0%	0%	0%	0%
	BBsf	0%	0%	14%	0%	29%	57%	0%	0%	0%	0%
	Bsf	0%	0%	0%	20%	20%	0%	60%	0%	0%	0%
	CCCsf	0%	0%	0%	0%	0%	33%	33%	33%	0%	0%
	CCsf	0%	0%	0%	0%	0%	0%	0%	0%	50%	50%
	Csf	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

* sf indicates Structured Finance

Source: FitchRatings (2022b)

5.3.2 | SMESec prospects

Macroeconomic impact

SMEs are especially vulnerable to higher costs/inflation and supply chain disruptions, hence the collateral forecast for most SMESec markets was already negative before the start of the Russian war against Ukraine, varying across countries and sectors (see, e.g., Moody's, 2022a).

The already high level of uncertainty - driven by the uneven recovery from the Covid-crisis and the expected scale-back of public economic support schemes that were implemented as response to the pandemic - has further increased due to the negative economic effects of the Russian aggression (see chapter 2 and 3 of this publication). Rising interest rates will impact both sides, as additional burden for SMEs but also as investors' appetite for yields will increase.

On the one hand, SME default rates are expected to increase in general – with related impact on SMESec portfolios. Also, payment moratoria might affect SMESec portfolios. Moreover, SMEs' leverage increases with potential long-term debt affordability issues, especially in case economies experience a slow recovery from current disruptions. On the other hand, also at the beginning of the 2008 crisis there was fear that the SMESec market would suffer in terms of defaults, which was finally not the case (as seen above) – however, the market suffered in terms of activity volumes.

Like in the past, structural protection such as subordination levels, reserve funds, or liquidity facilities might limit idiosyncratic and recession risks. Moreover, often, SMESec exposure is partially secured by real estate properties. Public loan guarantee schemes (on pan-European, national and sub-national levels) are playing an even more important role today (see previous chapter) and often aim to support SMEs, bolstering their ability to remain current on debt obligations over the coming years. Hence, such schemes can have a positive impact on the future performance of securitisation transactions. However, diverging terms and conditions between

schemes across different European jurisdictions exacerbate comparability of the schemes and their role for SMESec (Moody's, 2020a and b).

FitchRatings (2022a) ran a plausible, but worse-than-expected, adverse stagflation scenario analysis for structured finance ratings - based on fallout from the Russian war against Ukraine. The effect of this scenario on asset prices, supply chains, industry costs and reduction in consumers' real incomes presents indirect downside asset performance risks. This could intensify with more severe or longer-lasting disruption from the war. According to this analysis, asset performance in the EMEA region is more fragile than in other regions of the world, with most negative impact in the SME space. SMEs are more prone to stagflation risk due to limited market power (fewer possibilities to pass through increased cost); at the same time there might be pressure on the sale side. On the other hand, debt to equity ratios are often lower for SMEs and overall, SME collateral pools are typically diversified and granular (FitchRatings, 2022a).

As regards securitisation volumes, we mentioned above the limited primary market SMESec activity. This is also due to the large liquidity in the market, also driven by the low interest rates. With increasing interest rates, the appetite for true sale securitisations for funding in the market might re-appear, for example in countries such as Poland.

Regulatory adjustments

As described, even years after the financial crisis, the European SMESec market had not recovered – and it is now negatively affected by the economic effects of the series of new economic shocks. Several direct and indirect support measures are aiming at a market revival, amongst which are important regulatory adjustments.

In the preceding ESBFOs we presented the different steps as regards the regulatory development post financial crisis (Kraemer-Eis et al., 2019). Moreover, we addressed the important Capital Markets Union (CMU) initiative, as well as the output of the related High-Level Forum and its recommendations for the further development of the securitisation market (Kraemer-Eis et al., 2020). We also discussed the increasing role of synthetic securitisations and the forthcoming regulatory framework for STS synthetic balance-sheet securitisations in detail in our previous ESBFO (Kraemer-Eis et al., 2020). Given the important role of this securitisation type, potential STS eligibility (which was previously only available for "true sale" securitisations) under the new rules is to be seen as a very positive development.

Following the significant regulatory changes for the securitisation markets, on 17 May 2021, the Joint Committee of the European Supervisory Authorities (EBA, ESMA and EIOPA) issued a report on the implementation and functioning of the securitisation regulation (Joint Committee of the European Supervisory Authorities, 2021). The report provides guidance to the European Commission in the context of its review of the EU Securitisation regulation (SECR). It concluded that the SECR, which became applicable in January 2019, has been useful in increasing the soundness and reducing the stigma of European securitisations. However, it also highlights potential adjustments in order to improve the consistency of the framework, in particular related to transparency requirements, due diligence requirements, STS criteria, as well as supervision.

According to AFME (2022c) securitisation in Europe has become the most highly regulated fixed income asset class. This results on the one hand in a high degree of transparency, but on the other hand also in securitisation becoming unviable for many market participants. The association calls for a balanced review of the regulatory securitisation framework.

By the first of January 2022 the European Commission was supposed to present, pursuant to Art. 46 of the new EU Securitisation Regulation, a report on the functioning of this regulation accompanied (if appropriate) by a legislative proposal.⁶¹ However, the review report has been delayed and was only published by 10 October 2022. The report (European Commission, 2022d) takes stock of the development of the market and discusses various aspects of the legal framework. It focusses in particular on 7 items:

1. Risk retention requirement,
2. Due diligence and transparency requirements,
3. Rules and definition for private securitisations,
4. The case for an STS equivalence regime,
5. A regime for sustainable securitization,
6. The function of the third-party verification of STS,
7. The case for establishing a system of limited-license banks to replace the current structure of true-sale securitization built around securitization special purpose entities (SSPEs).

The accompanying consultation revealed market participants' opinion that the new legal framework has been effective with regard to the aim to provide a high level of investor protection. However, a need for further integration of the EU securitisation market was expressed. Moreover, market participants feel that the new framework has so far not brought tangible benefit to the real economy, in particular SME lending.

Overall, the report concludes that "more time is needed to get a full picture of the impact of the new securitization framework. This is all the more so as extraordinary external factors like the Covid-19 pandemic and the accommodative monetary policy of the central banks during that period might have played a significant role in how the EU securitization market has or has not developed since the new framework entered into application" (European Commission, 2022d).

Given the multitude of regulatory initiatives in the context of securitisation (or closely related) we cannot go into details here and refer instead to the regular updates by AFME.

We discussed the increasing role of synthetic securitisations and the forthcoming regulatory framework for STS synthetic balance-sheet securitisations in detail in our previous ESBFO (Kraemer-Eis et al., 2020). Given the important role of this securitisation type, potential STS eligibility (which was previously only available for "true sale" securitisations) under the new rules is to be seen as a very positive development. Furthermore, on 16 August 2021 the European Commission gave the green light to a new synthetic securitisation product under the European Guarantee Fund (EGF), see Box 12.

⁶¹ See for details: <https://www.eba.europa.eu/regulation-and-policy/single-rulebook/interactive-single-rulebook/8544>.

Box 12: Synthetic securitisation product under EGF⁶²

In April 2020, the European Council endorsed the establishment of a European Guarantee Fund (EGF) under the management of the EIB Group, as part of the overall EU response to the coronavirus outbreak. It is one of the three safety nets agreed by the European Council to mitigate the economic impact on workers, businesses and countries. On 16 August 2021, the European Commission approved, under EU State aid rules, the introduction of a new product in the form of guarantees on synthetic securitisation tranches under the EGF to support companies affected by the coronavirus outbreak in the 22 participating Member States.

With a dedicated budget of EUR 1.4bn, the new product is expected to mobilise at least EUR 13bn of new lending to SMEs affected by the outbreak. This is a significant contribution to the overall target for the EGF to mobilise up to EUR 200bn of additional financing in the 22 participating countries. Under the new instrument, the EIB Group, acting as a protection seller, provides a financial intermediary with protection in the form of a guarantee on a specific risk tranche for a portfolio of existing assets, under the condition that the portfolio in question fulfils certain requirements in terms of maximum size and contains only performing exposures. In exchange for providing the guarantee, the EIB Group charges the financial intermediary with a subsidised guarantee fee.

The financial intermediary must pass on the financial advantage stemming from the transaction (fixed in basis points) to the ultimate beneficiaries of the new instrument, i.e., to SMEs that receive new loans. The financial intermediary is obliged to use most of the regulatory capital freed up thanks to the guarantee to build up a new pool of assets (e.g., a portfolio of loans) to meet the liquidity needs of SMEs, while complying with certain conditions in terms of riskiness, volume and maturity of the new loans.

The purpose of the product (which also includes the possibility for the EIF to provide First Loss Protection) is to help originate new, riskier lending by financial intermediaries to SMEs. The aim is to free up lending capacity of financial intermediaries and prevent that their resources are shifted towards lower-risk assets instead of loans to SMEs.

With the deployment of the product EIF has seen an increase in interest by market participants for the use of STS labelled synthetic securitisations. 10 out of the 15 transactions under EGF applied for the STS label.

Securitisation and sustainability

Sustainability is gaining importance in securitisation - and in structured finance in general. This trend is driven in particular by investors' demand but also by risk aspects. Also the rating agencies are increasing their efforts towards the consideration of sustainability aspects.

However, the application of existing EU sustainability requirements still needs to be better specified. In our previous ESBFO we discussed already the difference between green securitisation and green bonds as well as different approaches the consideration of sustainability can follow in the securitisation context.

For example, there are transactions that are specifically designed to support sustainable development or - more widely – transactions designed to the consideration of sustainability aspects in the context of “normal” operations. “Green securitisations”, e.g., securitisations that

⁶² Source: https://ec.europa.eu/commission/presscorner/detail/en/ip_21_4204.

are designed as a means of green financing, exist in different forms. Often, three types are distinguished (James & Parker, 2019): green collateral securitisation (the issuer issues bonds backed by portfolios of “green” assets), green proceeds securitisation (the proceeds of bonds are ring-fenced for investment in green projects), and green capital securitisation (originator uses freed-up capital or leverage from capital relief to invest in green securitisation). Type two and three are of broader nature and the transactions can be backed by non-green assets (i.e., the use of non-green assets to support “greening”) – such types are in particular relevant in an environment of limited availability of green collateral for securitisation.

The EU taxonomy does not directly apply to securitisation and financial instruments, issued within securitisations, are not “financial products” in the sense of the Sustainable Finance Disclosure Regulation (SFDR). Therefore, under the Capital Markets Recovery Package the EBA has been mandated to publish a report on developing a specific sustainable securitisation framework for the purpose of integrating sustainability-related transparency requirements into the EU Securitisation Regulation (EBA, 2022).

On 02 March 2022, this report (EBA, 2022) was published. It recommends adjustments to the proposed EU Green Bond Standard (GBS) as regards securitisation transactions – instead of a dedicated framework at this juncture for green true sale securitisation, for green synthetic securitisation, and for social securitisation (see Box 13 for details). Following the EBA Report, the European Commission may propose further amendments to the securitisation regulation (which is – as described above – currently under review).

Box 13: EBA Report on Developing a Framework for Sustainable Securitisation⁶³

The report provides an overview of the recent developments of introducing sustainability to the securitisation market. It reviews the state of play, focusing on three areas for which regulatory guidance was deemed relevant (considering that the overarching EU regulations on sustainable finance are still being developed and that the sustainable securitisation market is still in its early stage):

The application of the EU green bond standard to securitisation;

The relevance, policy implications and possible design of a dedicated framework of sustainable securitisation products; and

The nature and content of sustainability-related disclosures for securitisation products.

Regarding the state of play, the EBA concludes that in the EU there are currently only a very limited number of securitisations labelled as sustainable. In comparison to the US and the Chinese green securitisation market, the relevant EU market appears small, and also less developed than the EU sustainable covered bond market.

Challenges are in particular caused by i) a lack of available sustainable assets, ii) the absence of a definition, standards, and data to foster transparency and credibility in the market and iii) the limited attractiveness of securitisation products in general (see the market section above for activity data).

⁶³ See (e.g.) EBA, 2022, AFME, 2022a, BoA/ML, 2022).

Box 13 continued:

The EBA's analysis concludes that it would be inappropriate to establish a dedicated framework at this juncture for green true sale securitisation, for green synthetic securitisation, and for social securitisation. Rather, the EBA is of the view that the upcoming EU GBS regulation should also apply to securitisation, provided that some adjustments are made to the standard.

The EBA recommends that the EU GBS requirements apply at originator level (instead of at the issuer/securitisation special purpose entity level). This would allow a securitisation that is not backed by a portfolio of green assets to meet the EU GBS requirements, provided that the originator commits to using all the proceeds from the green bond to generate new green assets (what is generally referred as "use of proceed" approach). The EBA sees the proposed adjustments as an intermediate step to allow the sustainable securitisation market to develop and to play a role in financing the transition towards a greener EU economy. They are also meant to ensure that securitisation is treated in a consistent manner as other types of asset-backed securities.

Should the EC decide to put forward a legislative proposal, the EBA recommends a list of safeguards for green true sale securitisations⁶⁴, including:

- *An adjusted EU GBS;*
- *The definition of green assets and green use of proceeds, and their implementation to be aligned with the EU Taxonomy (and not be securitisation specific);*
- *STS label and green securitisation label are kept separate;*⁶⁵
- *Transitional assets to be considered green in the context of green securitisation in line with the EU Taxonomy.*

The EBA acknowledged and recommended the principle of "use of proceeds" in (true sale) securitisation as the most efficient and pragmatic approach to promote and incentivise new sustainable lending especially during the current transition phase.

The "use of proceeds" approach has always characterised the EIBG *modus operandi* in securitisation, whereby any transaction is executed under the condition that the financial intermediary commits to originate an adequate "additional portfolio" according to the EIBG's criteria and objectives.

Such approach is gradually becoming the standard framework in the market, especially in connection to sustainable securitisations. A growing number of counterparties have already structured and closed transactions on this basis.

Although the report did not go as far as providing similar considerations in case of funded or unfunded credit protection instruments, citing the level of additional complexity related to the quantification of the amount of capital released and the re-use of such capital in additional lending, EBA has committed to commission a second report after further analysis, that will also address those instruments.

⁶⁴ For the other two types (synthetic, social) the EBA proposes to monitor market developments before standards can be developed.

⁶⁵ On 02nd May EBA, EIOPA and ESMA published a [consultation paper](#), seeking input from the market as regards sustainability indicators for STS securitisations. As closing date, the 02 July 2022 was set.

Box 13 continued:

Such revision would be welcome in the current financial and economic market conditions where the credit quality of banks' portfolios is expected to deteriorate and banks are looking for prudent and effective capital management tools.

Securitisation is a very flexible tool and in the form of unfunded credit protection (synthetic securitisation) it can address at same time the market demand for de-risking existing portfolios and the pursuit of policy objectives via the build-up of an additional portfolio with focus on sustainability.

There are estimates that 44% of the funding required to meet the requirements of the Paris agreement will need to be based on loans to businesses and households (GFMA & BCG, 2020). This shows that sustainable securitisation might play the role of an enabler in the green transition (AFME, 2022). However, today, sustainable securitisation plays only a minor role in the green transition in Europe. Like the overall securitisation market, also the sub-segment of sustainable securitisation is by far lagging behind its peers from the US or China. AFME (2022) estimates that the contribution of securitisation to the financing of the green transition is currently around 1% in Europe, compared to 50% in the US (and 11% in China).

Overall, as also confirmed by the above-mentioned EBA report, the further development of the overall EU securitisation market is a *necessary condition* for the emergence of an EU sustainable securitisation market. In addition to the challenges that the overall market is facing, the sustainable part is suffering from fragmentation and a lack of standardization (AFME, 2022)

Public support can play a role in driving the growth of sustainable securitisations, and as such not only support the post-Covid recovery, but also the green transition. As a recognized securitisation specialist within the EIB Group (see e.g. Kraemer-Eis et al. (2015)) the EIF can for example guarantee junior and mezzanine tranches of sustainable securitisations, leading to higher credit protection for senior tranches, and making them more attractive to institutional investors. Moreover, it can leverage its well-established position in the securitisation market to coordinate with market associations and regulators for common definitions, market standards and practices. Given its good reputation in the market, it can as well coordinate with financial institutions, including National Promotional Institutions, such market practices moving towards standards. Furthermore, based on the technical expertise in securitisation, the EIF can develop methodologies to assess the riskiness of new transaction types in line with standard securitisation techniques.

6 | Microfinance

6.1 | Microfinance and social inclusion

6.1.1 | What is Microfinance?

Microfinance is traditionally defined as the provision of basic financial services to low-income people who lack access to banking and related services⁶⁶. However, more and more often, the definition is used in a wider sense, also to include financial services to existing microenterprises and self-employed (EMN, 2012; EMN, 2017).

The main achievement of microfinance is to reach unbanked⁶⁷ clients, however, in some European countries, bankability is no longer a stressing issue. Introducing the concept of Inclusive Finance in Europe, therefore, became a logical continuation of Microfinance. Inclusive finance complements Microfinance and means not only directly providing finance to vulnerable groups but also providing financial and non-financial products to enterprises who employ or serve those vulnerable groups.

Inclusive Finance is the range of financial and non-financial products and services provided to unemployed people or clients from other vulnerable groups who are facing difficulties in accessing the conventional banking services, due to their socioeconomic status, and more broadly to social enterprises who provide work-integration opportunities or services to groups deemed vulnerable from a socioeconomic standpoint. Inclusive finance promotes entrepreneurship and social inclusion, by providing support to micro-enterprises and social enterprises.

In Europe, microfinance consists mainly of small loans (less than EUR 25,000) tailored to microenterprises and people who aspire to be self-employed but face difficulties in accessing the traditional banking system, while inclusive finance also serves social enterprises and provide loans up to EUR 500,000 (more on social enterprises, see Torfs and Lupoli, 2017). There are many overlaps between the target groups of microfinance and inclusive finance, therefore, both groups are combined in this chapter.

⁶⁶ CGAP Definition, Consultative Group to Assist the Poor.

⁶⁷ In the context of Microfinance unbanked people are considered those who have limited access to financial services: people who do not have an account with a financial institution due to insufficient funds, cost, distance and lack of necessary documentation.

6.1.2 | A support tool for business and job creation

Mapping target groups for microfinance and inclusive finance is a challenging task. To grasp the magnitude of the market, we look at some important indicators related to unemployment, poverty and social exclusion, entrepreneurial motivation and intentions. These indicators are particularly important to analyse the market for potential entrepreneurs, as a combination of poor labour market prospects and poverty drives people to start new businesses or even create jobs.

In the context of the Europe 2020 social inclusion targets, Eurostat published the “people at risk of poverty or social exclusion” indicator, depicted in Figure 58. The indicator corresponds to the sum of individuals who are at risk of poverty, severely materially deprived, or living in households with very low work intensity.⁶⁸ In 2021, more than one fifth of EU-27 citizens were at risk of poverty and social exclusion, with the highest rates recorded in some Eastern and Southern European countries (Romania, Bulgaria, Spain, Greece). The geographical fragmentation of poverty risk becomes clear when considering the mostly Nordic and Western but also some Central European countries on the other side of the spectrum (Czechia, Slovakia, Finland, Slovenia).

Europe 2020 aimed at ‘lifting at least 20 million people out of the risk of poverty or social exclusion’ by 2020 compared to the year 2008.⁶⁹ From 2019’s estimations, no

Definitions for Microfinance and inclusive finance

A microenterprise: an enterprise with fewer than 10 employees and a turnover below EUR 2m (as defined in the Commission Recommendation 2003/361/EC of 6 May 2003, as amended).

A social enterprise: an operator in the social economy whose main objective is to have a social impact rather than make a profit for its owners or shareholders, while operating in a market-driven environment (as defined by European Commission, 2011).

A microfinance institution (MFI): an organisation/ financial intermediary that provides microfinance services. There is a wide spectrum of different MFI business models in Europe.

Microcredit in general is defined by the European Commission as a loan or lease under EUR 25,000 to support the development of self-employment and microenterprises. It has a double impact: (1) an economic impact, as it allows the creation of income generating activities, and (2) a social impact, as it contributes to the financial inclusion and, thus, to the social inclusion of individuals.

Microenterprise lending: micro-lending to existing enterprises. MFIs focus on the upper end market of microfinance, providing loans to bankable or nearly bankable microenterprises that have difficulties accessing loans up to 25,000 EUR from commercial banks due to risk aversion or lacking liabilities.

Social inclusion lending: lending to self-employed individuals that are excluded from banking services, due to their socioeconomic status of being socially excluded or (long-term) unemployed and/or belonging to financially excluded population groups like ethnic minorities or young people. The average loan sizes are relatively low, meant to support basic income creating activities.

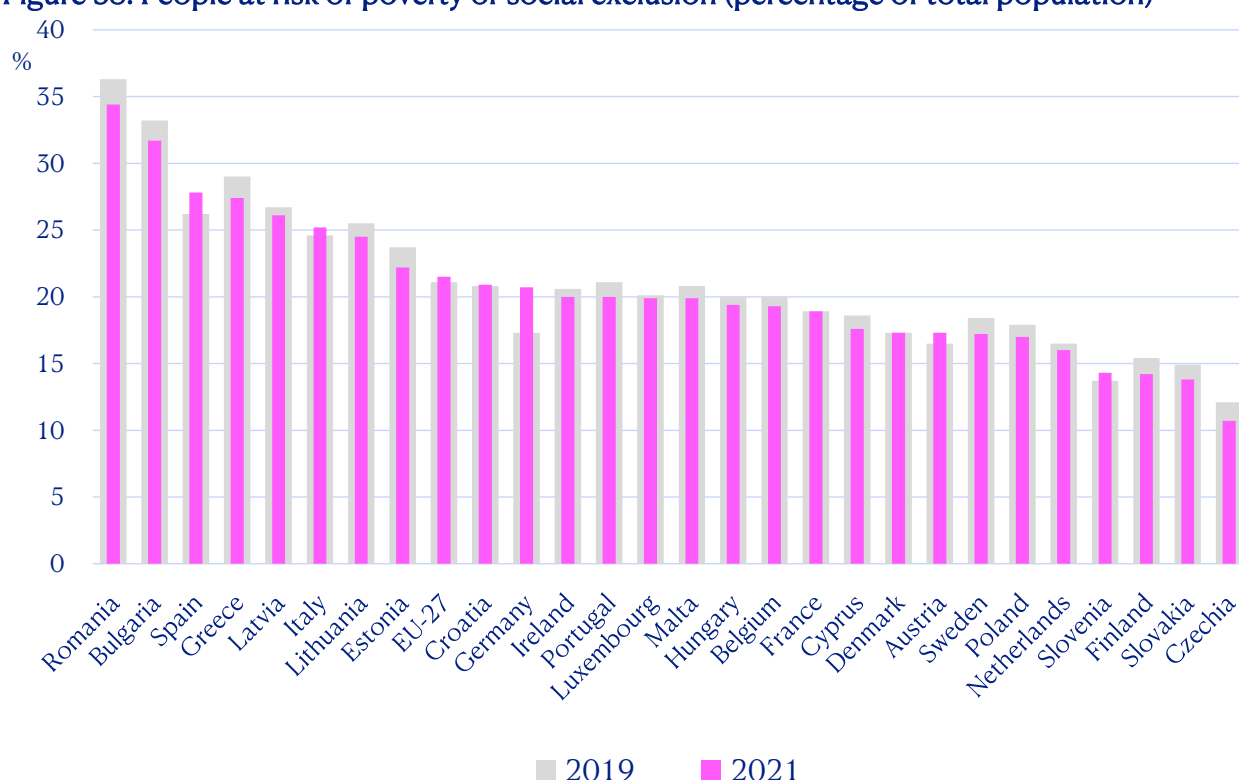
⁶⁸ At risk-of-poverty are persons with a normalised disposable income below the risk-of-poverty threshold, which is set at 60% of the national median normalised disposable income (after social transfers). For more information please see:

http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&plugin=1&language=en&pcode=t2020_50.

⁶⁹ Furthermore, the indicator is part of the impact indicators of the Strategic plan 2016-2020, referring to the 10 Commission priorities, and included as main indicator in the Social Scoreboard for the European Pillar of Social Rights. It can be considered

more than 12 million managed to escape the risk of poverty and social inclusion since 2008 (Eurostat). Achieving the target became even more impossible due to the Covid-19 crisis, which left additional 3 million people below the risk-of-poverty threshold in 2020. The consequences of the Russian aggression against Ukraine, in particular food and energy inflation further hit the poorest. Some countries still managed to reach their national targets and therefore progressed on their ways to more equality. The most distinct improvements were made by Poland, Hungary, Romania and Bulgaria, mainly due to falls in material deprivation. On the other hand, Spain and Italy, but also Germany, France and the Netherlands regressed compared to 2008. Europe set a new target of reducing the number of people at risk of poverty or social exclusion by at least 15 million by 2030.

Figure 58: People at risk of poverty or social exclusion (percentage of total population)



Source: Eurostat, authors' calculations

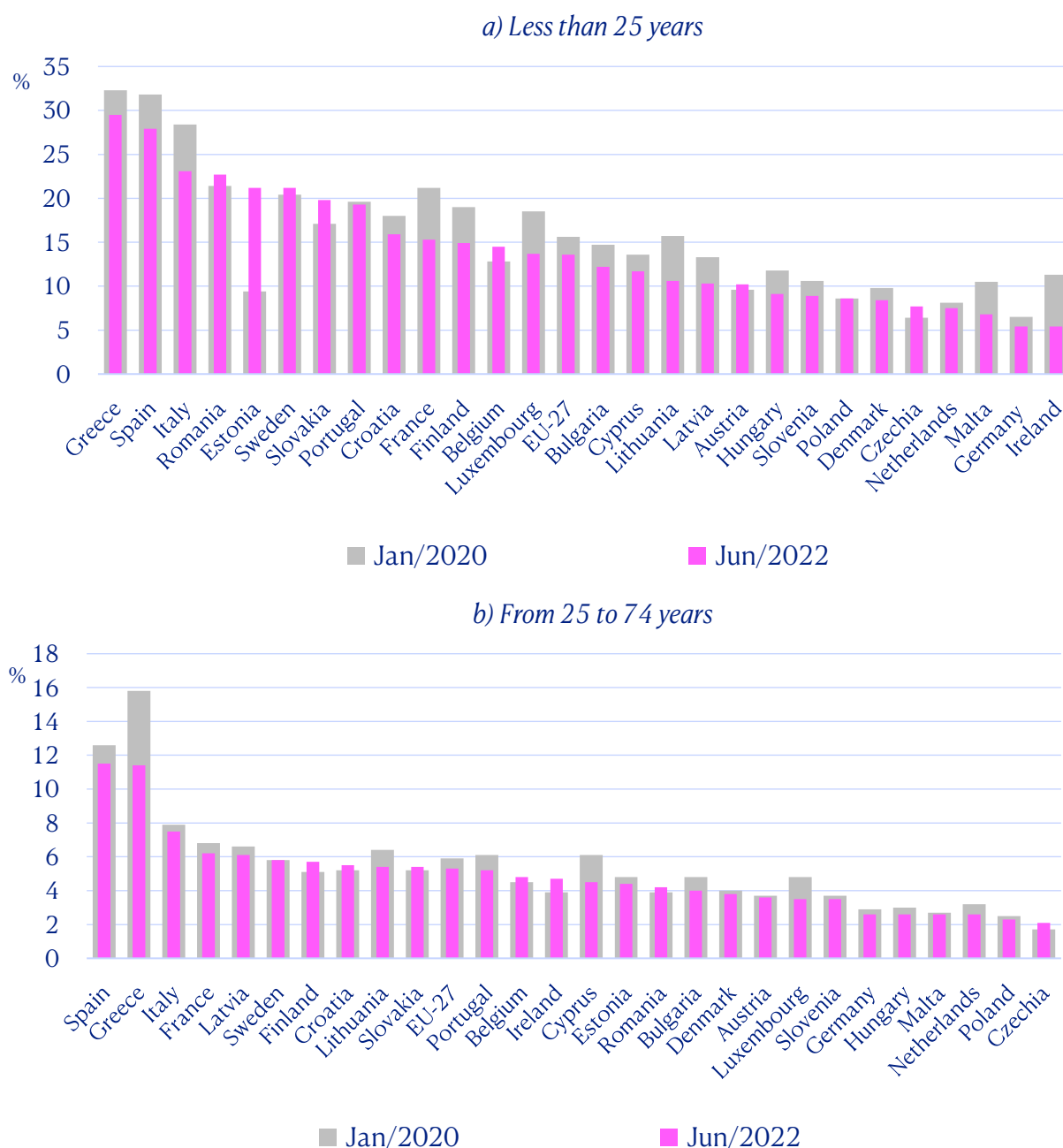
Unemployment also remains high in some European countries. Figure 59 plots the unemployment rate for European countries. While unemployment in Europe in general was declining until the beginning of 2020, since then it increased in most countries due to the Covid-19 crisis. The crisis had disproportionately hit disadvantaged population segments such as the young, low-skilled and workers on temporary contracts (EC, 2022a).

In 2022, labour market conditions improved partially thanks to the relaxation of pandemic related restrictions and workers exiting job retention schemes. Also, youth employment returned

similar to the global SDG indicator 1.2.2 "Proportion of men, women and children of all ages living in poverty in all its dimensions according to national definitions".

to pre-pandemic levels and dropped at a new record of 13.6%. However, wages declined in real terms, making workers poorer (European Commission, 2022b).

Figure 59: Unemployment rate by age groups (2022) *



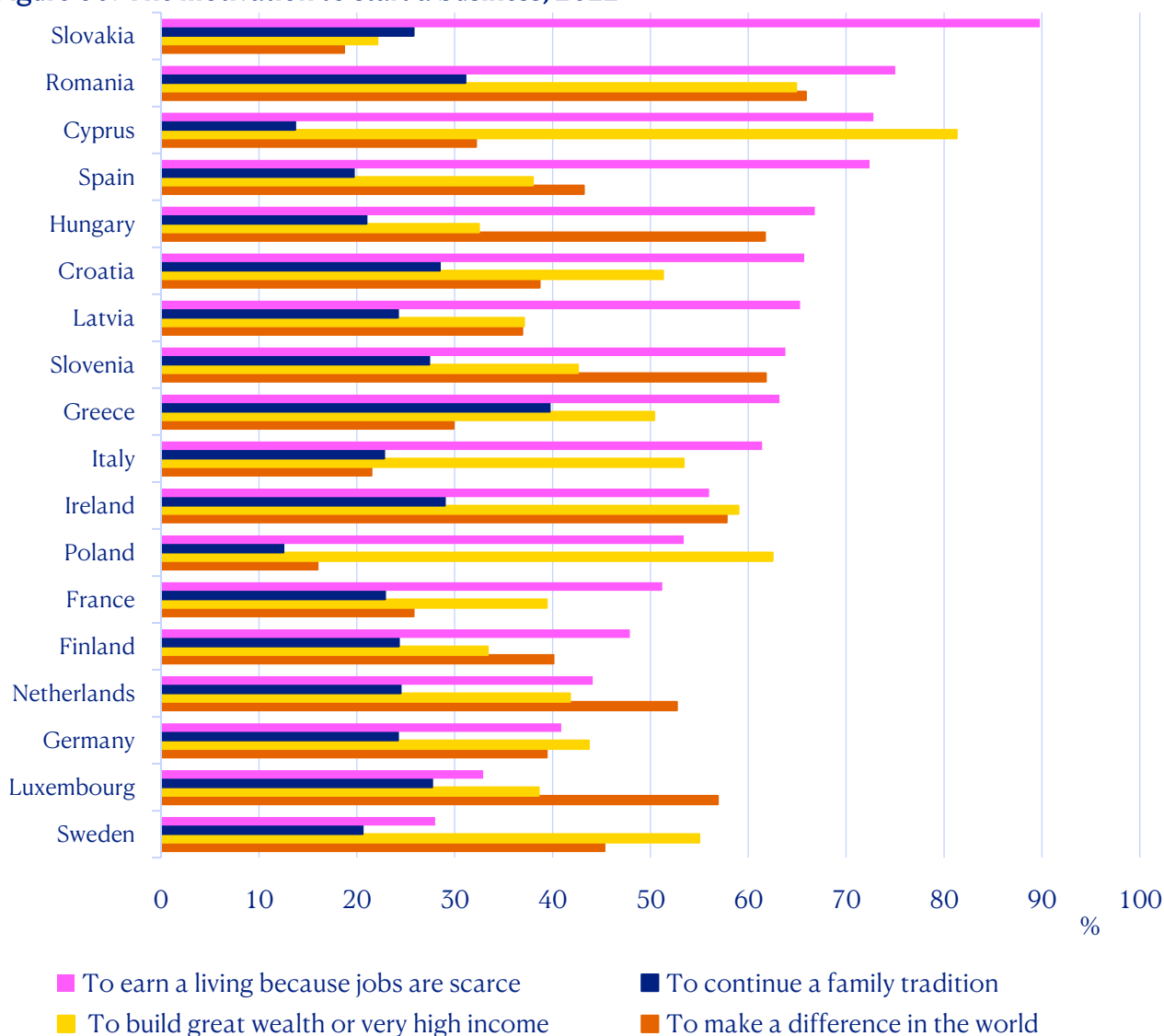
* No recent unemployment data was available for Romania and Italy (from March 2022).

Source: Eurostat, authors' calculations

People at risk of poverty and unemployed people are a potentially important group of business creators, since a decision to start a business often arises out of necessity especially in low-income countries. Indeed, the Global Entrepreneurship Monitor (GEM) reports that entrepreneurs often start businesses out of necessity, because jobs are scarce (Figure 60). To

build wealth or high income is another common motivation to start a business, especially in low-income countries. The pandemic strongly affected those motivations and further increased the proportion of those starting or running a new business and stating as motivation “to build great wealth or very high income” and “to earn a living because jobs are scarce”. Significant changes in terms of business starters escaping unemployment were observed in Poland (16% in 2019-, to 53% in 2021), and in Spain (42% in 2019-, to 72% in 2021). Even in the Netherlands, it reached 44 % (compared to pre-Covid 24%).

Figure 60: The motivation to start a business, 2022*

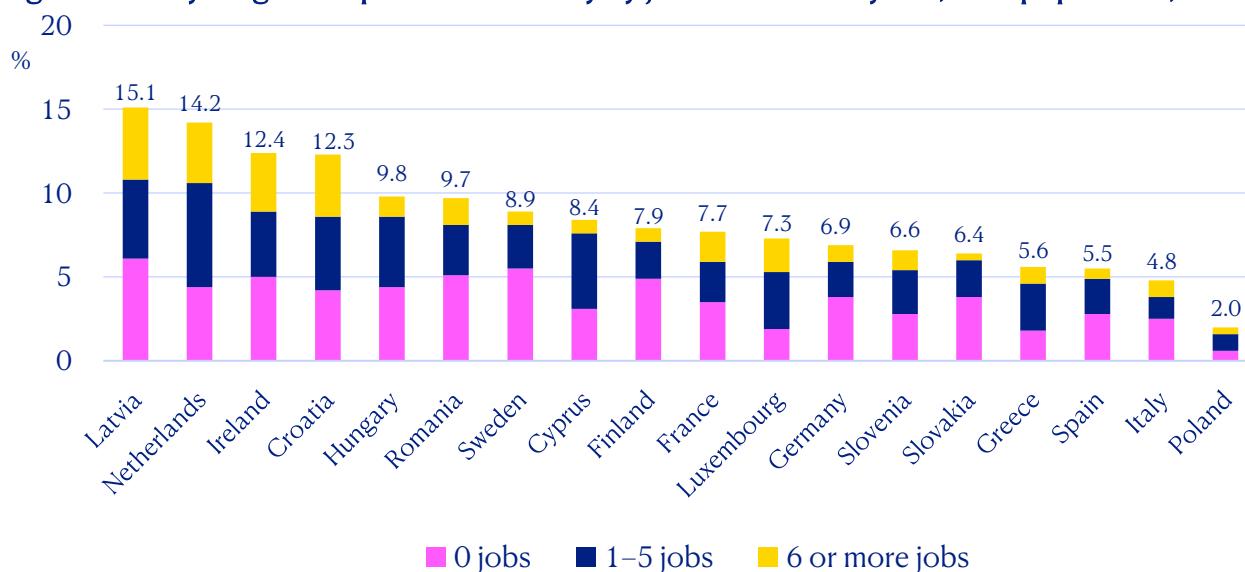


* Somewhat/strongly agree as % Total [early-stage] Entrepreneurial Activity (TEA), multiple answers are possible.

Source: GEM (2022), authors' calculations

The motivation to start a business goes beyond escaping employment and early-stage entrepreneurs are creating jobs or contributing to the current policy goals. According to the GEM survey, the job creation of early-stage entrepreneurial activity differs across EU countries, and it varies from 2 % in Poland to 15.1% in Latvia (see Figure 61).

Figure 61: Early-stage entrepreneurial activity by job creation in 5 years, % of population, 2021



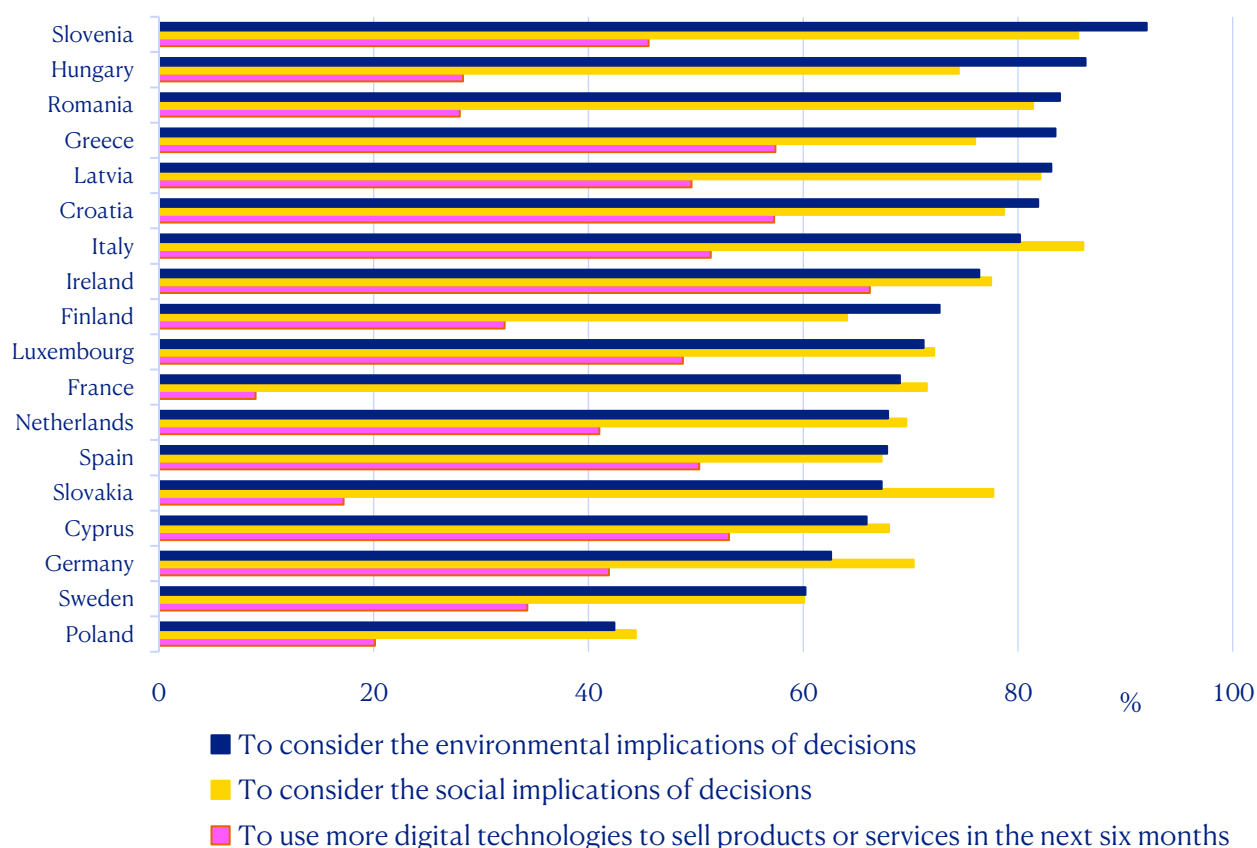
Source: GEM (2022), authors' calculations

In addition to creating employment or tackling other social challenges, many small businesses consider the environmental implications when making decisions about the future of their business (see Figure 62). In Slovenia, Hungary, Romania Greece, Latvia, Croatia and Italy more than 8 out of 10 of those starting a business were considering the environmental implications when making decisions about the future of their business. New entrepreneurs are also likely to expect to use more digital technologies in order to sell products and services in the next six months.

The Covid-19 crisis affected the most vulnerable segment of the labour market. Food and energy inflation further worsened the situation. People having relatively unstable, low-paid, and part time jobs were hit first. Young people, especially new graduates, had difficulties finding jobs. Self-employed persons and free-lancers (especially from the cultural and creative sector) have also suffered and their activities have declined due to the lockdowns (European Commission, 2021c, European Commission, 2022c). Also, social enterprises, typically supporting social inclusion, have suffered from the crisis, as they could not reach their beneficiary target groups physically and faced difficulties to digitalize their offers (Dupain et al, 2020).

Microfinance supports inclusive entrepreneurship by offering both, financial products and non-financial services. Microfinance is a tool to support vulnerable people to whom self-employment or business creation is a solution to escape unemployment or improve live conditions. Microfinance also supports social enterprises in their mission to tackle social challenges.

Figure 62: Environmental, social and digital strategies, % of entrepreneurs starting a new business (2021)

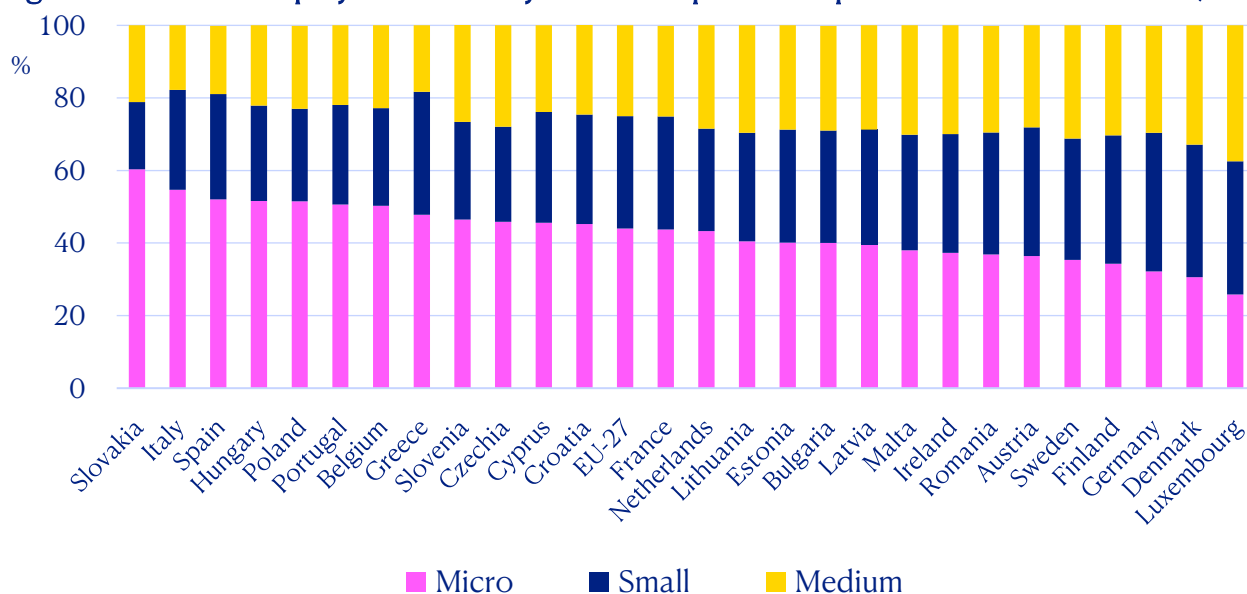


Source: GEM (2021), authors' calculations

6.2 | The demand for microfinance: microenterprises and their finance decisions

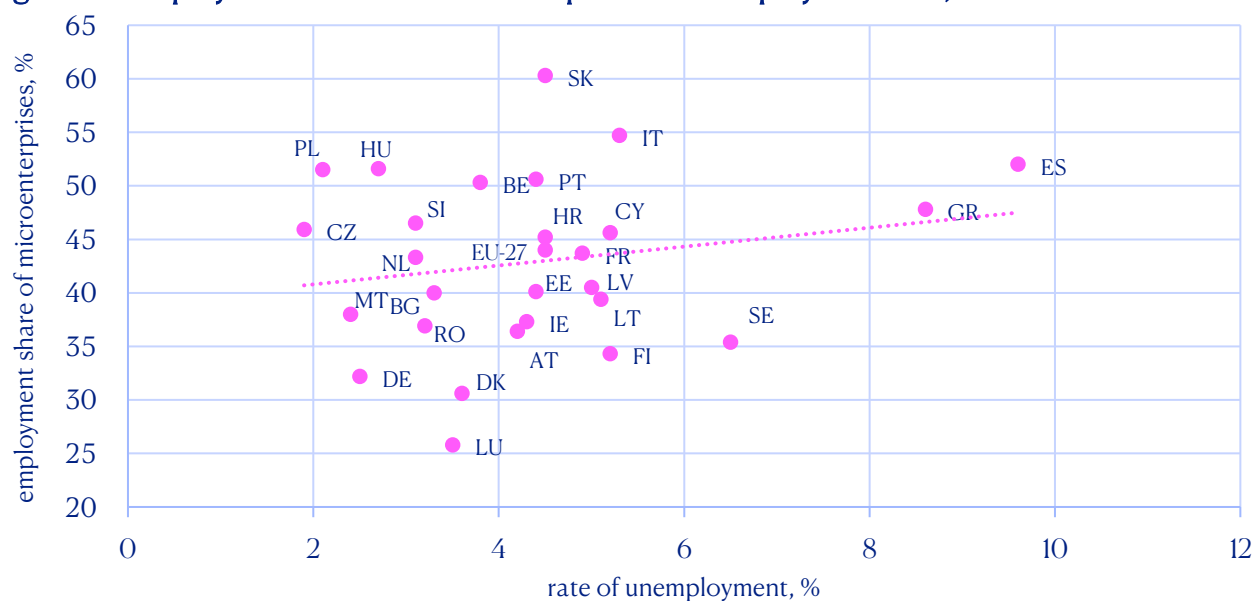
Microenterprises, making up 93% of all European businesses, are important contributors to employment as they account for more than 30% of total employment. In Slovakia, Italy, Spain, Hungary and Poland employment by microenterprises accounts for more than half of total SME employment. Greece was leading this list in 2020, however in 2021 Slovenia, Italy and Spain reported the highest shares of employment contribution by microenterprises (Figure 63). In general, countries with high proportions of micro-businesses seem to show relatively higher levels of unemployment (Figure 64).

Figure 63: Relative employment share by microenterprises compared to other size classes (2021)



Source: European Commission SBA, authors' calculations

Figure 64: Employment share of microenterprises vs unemployment rate, 2021



Source: European Commission SBA, Eurostat, authors' calculations

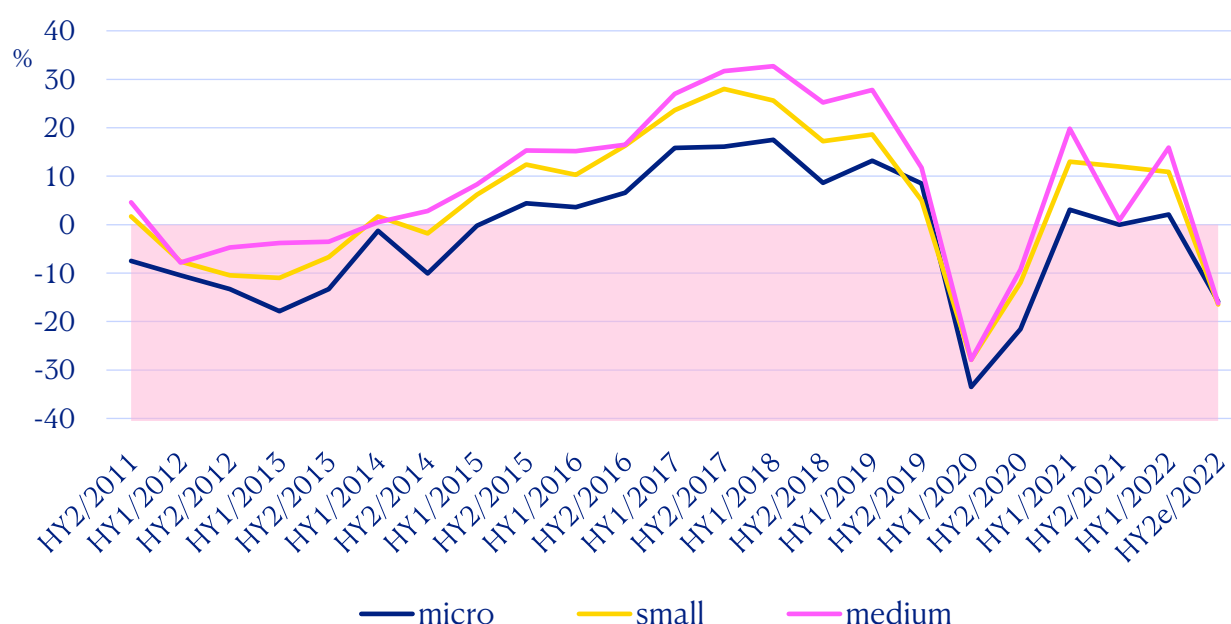
Microenterprises were particularly important contributors to employment in industries such as 'construction', 'cultural and creative industries', 'proximity, social economy and civil society' and 'tourism', where they accounted for more than a third of employment.

Microenterprises have also performed better in 2021 than small and medium-sized SMEs in terms of their value added generated. When the pandemic started, they were hit the hardest, but they rebounded faster within the SME population. Furthermore, in 2022, microenterprises are

expected to perform better than larger peers, both, in terms of value added and employment (European Commission, 2022a).

While microenterprises are important for the European economic fabric, they generally face more challenging conditions compared to their larger counterparts. This is evidenced by Figure 65, which illustrates microenterprises' perception about the current economic climate and compares it to larger firms' perception.

Figure 65: Overall situation of European microenterprises compared to other size classes*



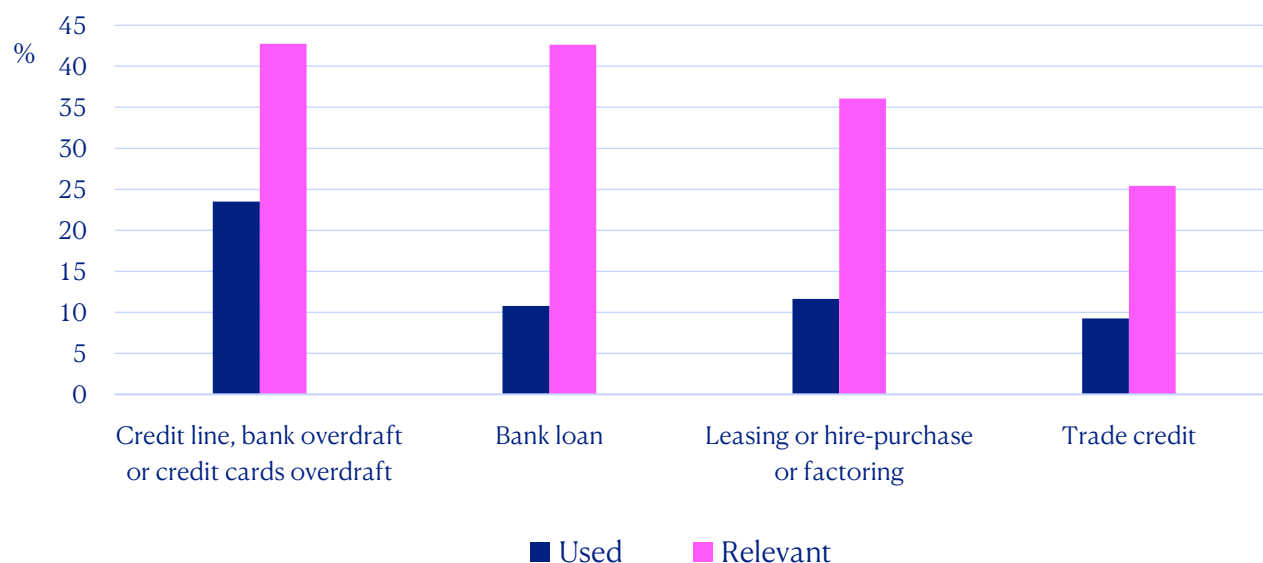
* The figure plots net-responses, which are calculated as the share of positive minus negative responses.

Source: SMEunited (2022), authors' calculations

Until the second half of 2019, microenterprises were on balance optimistic (values > 0), however less than their larger counterparts. Since the pandemic, the situation has worsened for all SMEs, especially for microenterprises, who reported a record high negative change (-33.5%) in their overall situation in the first half of 2020. In the second half of 2021 it reached its neutral level and improved only slightly in the first half of 2022. The regular SMEunited survey reveals that microenterprises expect a significant deterioration in the overall situation in the second half of 2022 (SMEunited, 2022).

According to the ECB's SAFE survey, microenterprises use less external financing instruments than their larger peers, presumably due to difficulties in accessing finance (Figure 66). For example, bank loans are used by 17.2% of small companies and 24.1% of medium companies, while only 10.8% of microenterprises used bank loans. Interestingly, more than 40% of the microenterprises indicated that bank loans are relevant sources of financing, far exceeding the rate at which they use it. Fifty-seven percent of the microenterprises considered bank loans not to be a relevant source of financing. Microenterprises indicated that too high interest rates or price was the most important reason for bank loan not being relevant (Figure 67).

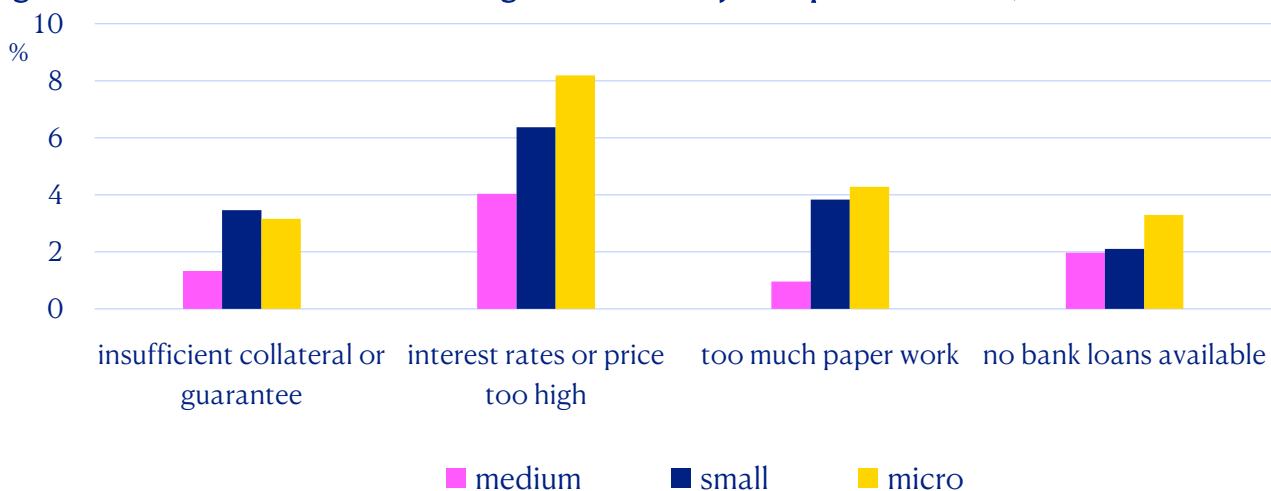
Figure 66: Relevance and use of different financing sources for microenterprises (HY2/2021)



Source: ECB SAFE (ECB, 2021d), authors' calculations

The same survey states that the bank loan rejection rate is still the highest for microenterprises (8%), compared to 3.1% for small firms and 2.6 % for medium-sized firms. Consequently, the share of microenterprises that did not apply for a loan due to fear of rejection (discouraged borrowers) has increased to 7.2% (from 5.6%).

Figure 67: Reasons for bank loans being not relevant (by enterprise size class), HY2/2021

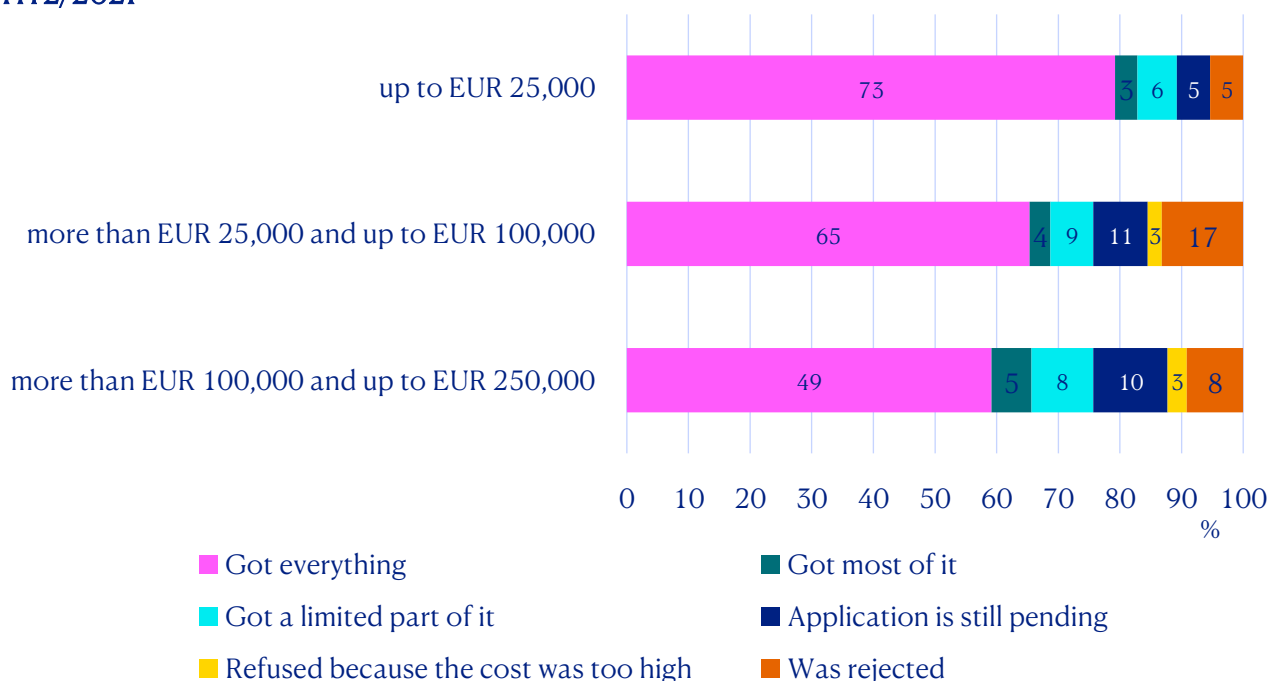


Source: ECB SAFE (ECB, 2022d), authors' calculations

Unsurprisingly, microenterprises tend to apply for smaller loans more often than for bigger loans. When they apply for bigger loans, they are more likely to be rejected, or they refuse because the cost was too high. This implies that microenterprises with high funding needs face persistent barriers to growth (Figure 68). Barriers for scaling up businesses are especially prominent for those from disadvantaged groups, as in addition to difficulties accessing finance,

they face other barriers, including lack of entrepreneurship skills and smaller entrepreneurship networks (OECD, 2022).

Figure 68: Application status of bank loans requested by microenterprises (by loan size), HY2/2021*



* The figure is based on responses from 567 European microenterprises who applied for bank loans in the past six month. The numbers inside the bars refer to the number of respondents per category

Source: ECB SAFE (ECB, 2022d), authors' calculations

As microenterprises do not frequently use bank loans due to insufficient collateral, high interest rates and excessive paperwork, rejected or discouraged customers often turn to an alternative solution: microcredit from Microfinance institutions (MFI). MFIs do not always charge lower interest rates than banks, but they are less demanding in terms of collateral and guarantee requirement. Clients find MFIs more personal, tailor-made and simple; MFIs “know their customers”.

6.3 | The supply of microfinance: the diversity of European MFIs

The microfinance market in Europe is highly fragmented and diverse, with no common business model (see for example, Kraemer-Eis and Conforti (2009) and Bruhn-Leon, Eriksson and Kraemer-Eis (2012)). Part of this fragmentation has geographical roots, as the role of microfinance is seen very differently across Europe. In Western Europe, microfinance is considered to be a social policy tool, as it serves businesses that are not commercially attractive for the mainstream financing providers, but nevertheless are able to create social value. On the other hand, in Eastern Europe, microfinance is seen more as a business activity which targets viable microenterprises that are financially excluded because the traditional credit market remains underdeveloped.

Financial inclusion is the most common primary development objective of MFIs, followed by growth of existing businesses (EMN-MFC, 2022).

Figure 69 outlines MFIs' outreach to different target groups. These aggregate figures suggest that considerable outreach to females was achieved. Rural and poor/deprived urban population were frequently targeted groups too, followed by unemployed people and ethnic minorities, refugees, immigrants in terms of their share in the targeted clients among the borrowers.

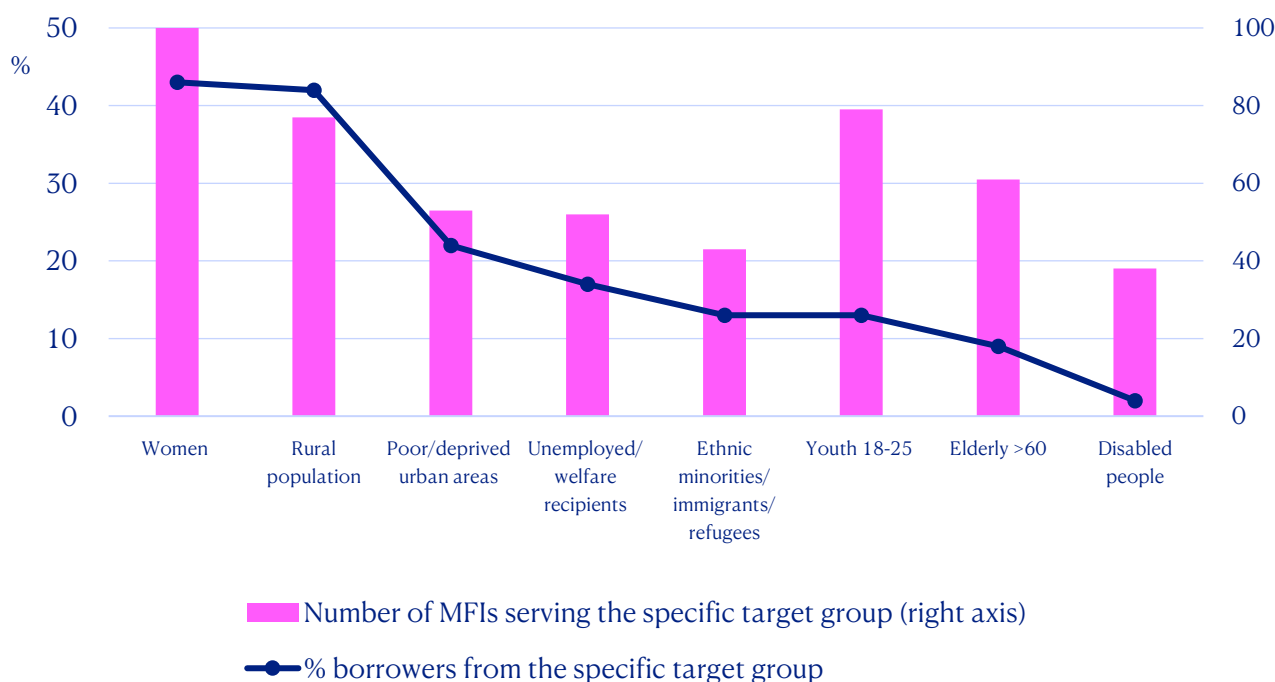
The European microfinance market is growing. The latest EMN market survey data show that, by the end of 2021, 1.33 million microenterprises and start-ups received support by the surveyed organisations. Over the same period, total microloan portfolio outstanding also increased and reached EUR 4.4bn reported from 135 MFIs (EMN-MFC, 2022)⁷⁰.

European microfinance providers

European microfinance providers are very diverse across Europe. In addition to commercial banks that target microenterprises as part of their general SME lending activity, the spectrum of European microcredit developers includes many profit-oriented and non-profit associations: banks (both private and state-owned), non-bank financial institutions (NBFIs), microfinance associations, credit unions, cooperatives, government bodies, religious institutions and Non-Governmental Organisations (NGOs).

⁷⁰ The survey figures presented in this chapter are preliminary results from EMN-MFC Microfinance Survey 2020-2021.

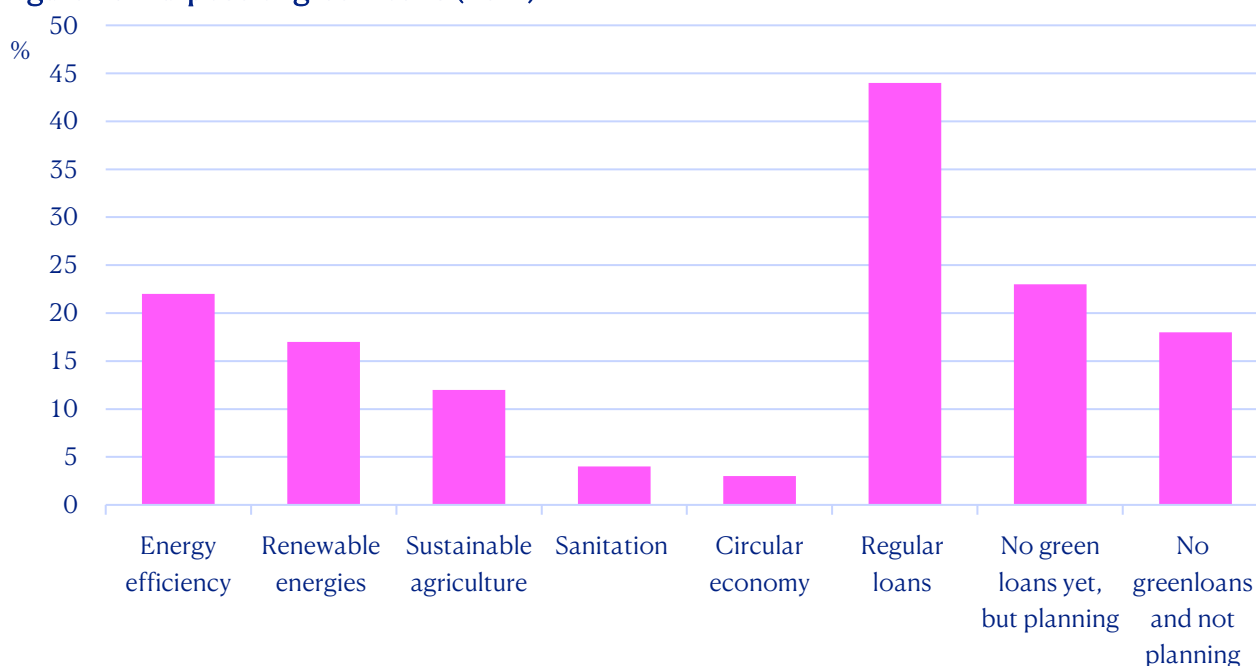
Figure 69: MFIs' outreach to target groups, 2021



Source: EMN-MFC (2022), authors' calculations

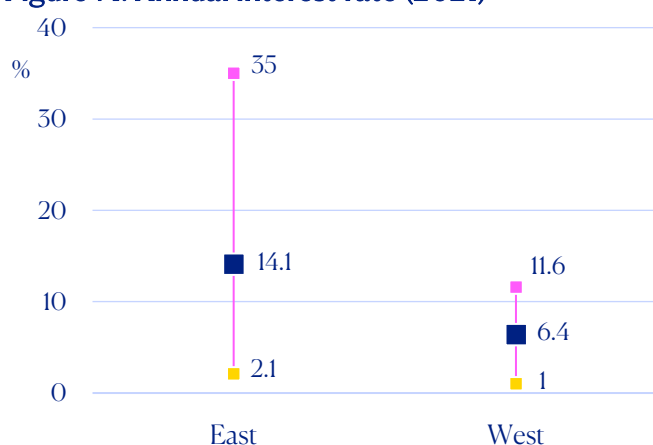
MFIs mainly offer business loans to microenterprises (78% of MFIs). However, many of them also offer personal loans (60%) or agricultural loans (46%). There is an increasing interest among MFIs in supporting green finance and their overall environmental performance has increased as well (Forcella et al., 2022). Green loans are offered by 26% of MFIs, specifically designed either to finance energy efficiency, renewable energies and/or for environmentally friendly activities. Forty-four percent of responding MFIs have no specific green loans in place, however they do finance environmentally friendly activities or technologies under their usual micro lending (see Figure 70). More than 40% of MFIs do not offer any specific green microloans, however many of them are planning to offer such loans in the next years. In order to provide green microfinance, almost half of the MFIs reported that they need grants and subsidies for non-financial services. Technical assistance to develop new products was also needed, as stated by 39% of the MFIs. One third of them reported to seek for guarantees and on-lending borrowings.

Figure 70: Purpose of green loans (2021)



Source: EMN-MFC (2022), authors' calculations

Figure 71: Annual interest rate (2021)*



* Diagrams show lowest, average and highest AIRs charged on business loans of NBFI by region

Source: EMN-MFC (2022), authors' calculations

Eastern Europe charge higher interest rates (“high” compared to “standard” lending business) resulting presumably from the non-subsidised, cost covering business models. Overall,

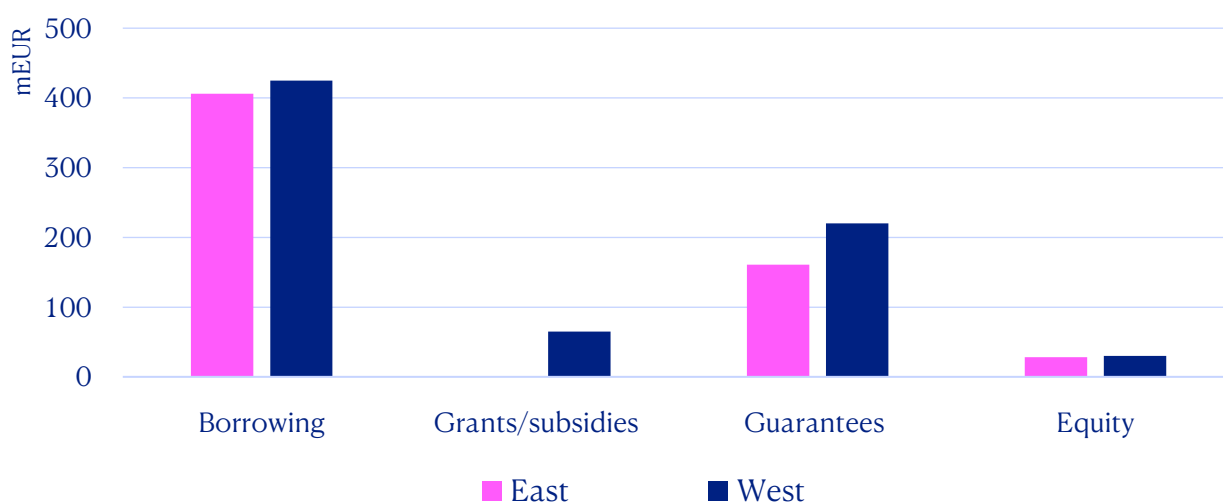
The interest rates, charged on microloans for business purposes, differ strongly between Eastern and Western Europe⁷¹. On average, MFIs in Eastern Europe charge higher interest rates and have a wider range between the highest and lowest rates (Figure 71). The differences in average interest rates are typically related to differences in the legal framework, MFI business models, pricing policies, refinancing cost, cost structure and the subsidy levels. The level of the interest rate charged by MFIs also depends on their funding structure. For example, in Western Europe where the average interest rate is lower, MFIs seek for more grants and guarantees. While MFIs in

⁷¹ Countries are aggregated as follows: Western Europe: AT, CH, DE, SE, BE, FR, LU, NL, GR, ES, IT, MT, PT; IE, UK; Eastern Europe: BG, PL, RO, HU, SI, HR, SK, TR, ME, MK, AL, RS, XK, BA, MD.

microfinance became cheaper in 2022, with average interest rates of 14.1 in the East (compared to 20.3 two years earlier) and 6.4 in the West (compared to 9.5 two years earlier).

Regarding MFIs' own funding needs, borrowed funds remain the main source of financing of the loan portfolio. The total amount of debt financing needed is EUR 1.3bn in both Eastern and Western Europe (Figure 72). The average amount sought was EUR 18m. In addition, the recent EMN survey showed a high demand for guarantees; the share of guarantees sought reached almost 30% of overall funding demand, this share was only 12% in 2019.

Figure 72: MFI funding needs in the next two years (2021)



Source: EMN-MFC (2022), authors' calculations

Key challenges for MFIs are income volatility and financial capability of clients. Another challenge relates to the digital capability of clients and high cost to introduce digital solutions. This was of particular concern during the Covid-19 lockdowns, as imposed social distance regulations inhibited face-to-face interactions, which are traditionally of crucial importance for relationship management in the microfinance sector. MFIs have digitalised since then and most of them offer "online loan application". They also offer "uploading documents", "digital contact" and "online loan repayment". Most of MFIs also support their clients in learning how to use digital solutions to access their financial products. Only a few MFIs use "digital pre-scoring", which is an important factor to bring down the cost related to lending. Some MFIs even do not offer any digital solution to their clients and do not use any digital tools to interact with their clients.

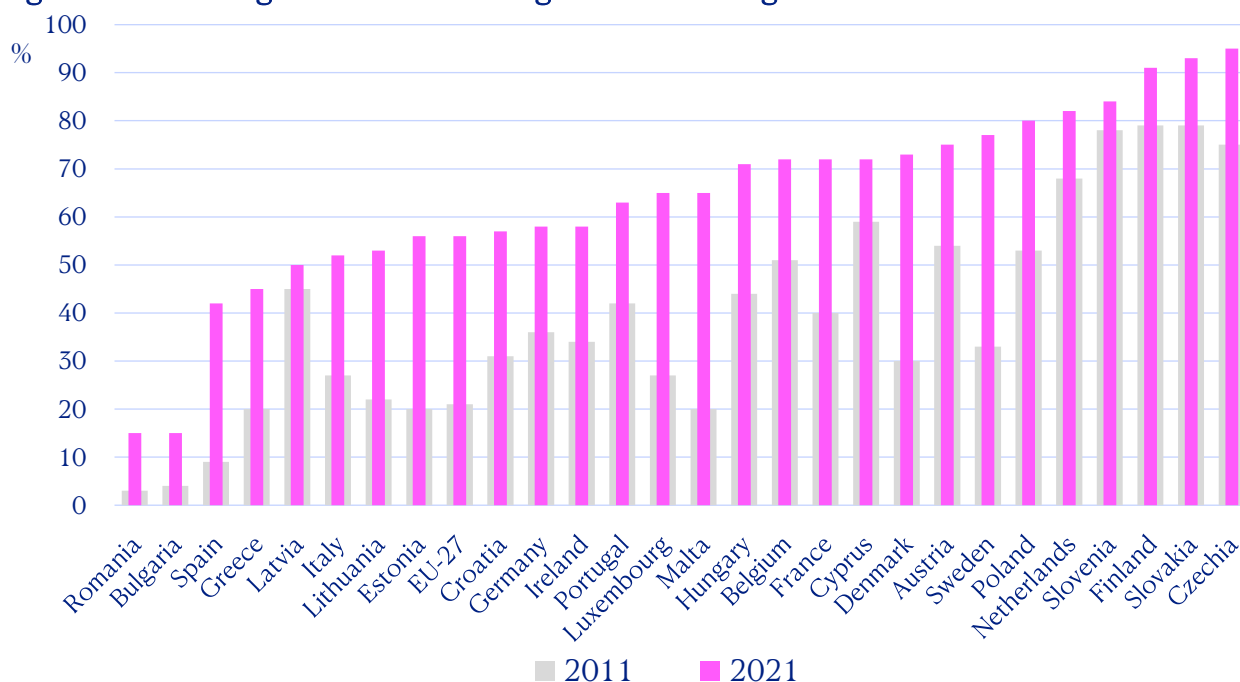
6.4 | Access to finance challenges for microenterprises

The challenges for microenterprises to access external financing are even greater than for other (bigger) types of SMEs. These are typically young firms without prior track record or formal

reporting obligations. In addition, necessity-driven entrepreneurs are highly unlikely to meet the required collateral requirements often demanded by traditional lenders (OECD/ European Commission, 2014). This implies that credit rationing becomes particularly relevant for this sub segment of the market. This section presents some indicators that illustrate how access to finance often is restricted for vulnerable labour market segments and microenterprises.

At its most basic level, financial inclusion starts by having access to a simple bank account. However, while the European population with banking accounts keeps growing, a large share of the adult population is still left behind by the mainstream banking system (Global Findex database). Digital technology increases financial inclusion. In the past 10 years the share of EU-27 population using internet banking tools more than doubled. Internet coverage in some countries, such as Denmark, Finland and Netherlands, reached almost 100%. However, in many countries (especially in countries with high unemployment rates), digital payments seem equally inaccessible as financial accounts (Figure 73).

Figure 73: Percentage of individuals using internet banking

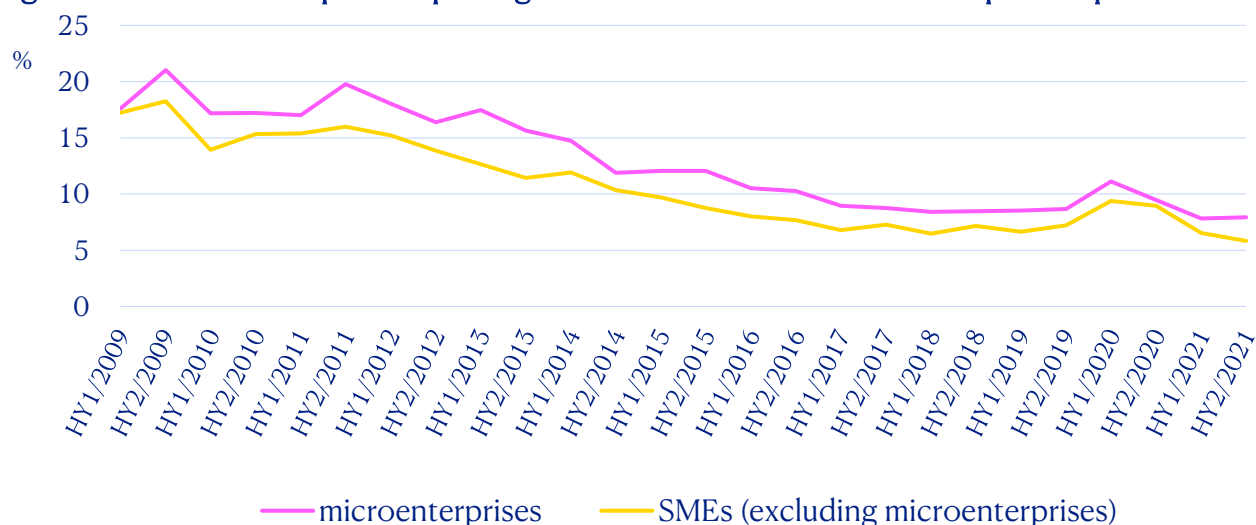


Source: Eurostat, authors' calculations

Not being digitally well equipped was particularly problematic during the pandemic since usage of financial technology has become critical during the office closures and social distancing due to Covid-19.

The ECB SAFE survey in the Euro area (ECB, 2022d) provides additional insights in the financing situation of European microenterprises. According to the latest SAFE survey, the share of microenterprises which see “access to finance” as their most important problem slightly decreased but still exceeds the share of bigger SMEs facing the same problem (Figure 74).

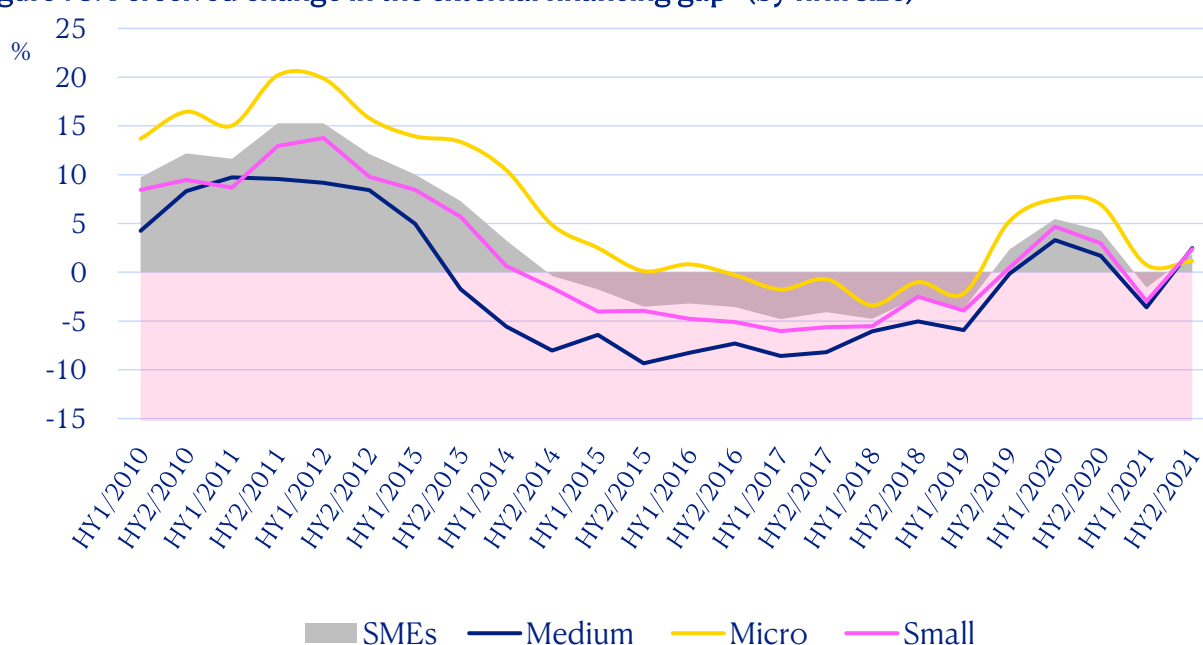
Figure 74: Share of enterprises reporting access to finance as their most important problem



Source: ECB SAFE (ECB, 2022d), authors' calculations

Figure 75 shows how microenterprises report changes in their perceived financing gap and compares this to other SME size classes. It is apparent that microenterprises believe they operate in a more challenging environment than larger SMEs, as they are consistently less optimistic about their financing situation.

Figure 75: Perceived change in the external financing gap* (by firm size)



* The financing gap indicator combines both financing needs and availability of bank loans, credit lines, trade credit, and equity and debt securities at firm level. A positive value of the indicator suggests an increasing financing gap. Values are multiplied by 100 to obtain weighted net balances in percentages. A negative financing gap indicates that the increase in the need for external financing is smaller than the improvement in the access to external financing.

Source: ECB SAFE (ECB, 2021d), authors' calculations

6.5 | Microfinance prospects

Microenterprises in general, and workers from vulnerable labour market segments that cherish entrepreneurial ambitions, have particularly been hit by the Covid-19 crisis. The consequences of the Russian aggression against Ukraine, in particular food and energy inflation, further hit the most vulnerable. As discussed below, both microenterprises and microfinance providers in Europe are facing challenges.

Affordable finance: For borrowers, especially for microenterprises, not only accessibility of finance is important, but also its affordability. Microenterprises often find interest rates on bank loans too high, especially now when interest rates have increased after years of declining. Microenterprises turn to an alternative solution: microcredit from MFIs. However, some MFIs may also charge high interest rates, especially in Eastern Europe. Lending rate ceilings are often discussed as a potential solution to alleviate borrowers' repayment burden. However, such ceilings would have to be chosen very cautiously. In fact, introducing interest rate caps can harm the poorest: disadvantaged groups, such as long-term unemployed, or workers with a migrant background are perceived as risky borrowers and lenders charge these borrowers higher interest rates. If the interest rate restrictions are too tight, those lenders are less willing and perhaps even obliged to eliminate those most deprived from their target portfolio. Moreover, introducing interest rate caps may also lead to a significant increase in non-interest fees charged on new loans (Heng et.al. 2021). A less harmful but perhaps challenging solution is to reduce the fixed costs related to lending activities, for example, via digitalisation. MFIs more and more often are using digital technologies including digital pre-scoring; however, they face high costs of digitalisation.

Growth potential: Microenterprises with growth potential are important for job creation. However, barriers for scaling up businesses are especially prominent for those from disadvantaged groups. In addition to difficulties in accessing finance, they face other barriers including lack of entrepreneurship skills and smaller entrepreneurship networks.

Skills: In addition to financial support, unemployed people or clients from other vulnerable groups are often in need of acquiring the necessary skills for success through coaching and mentoring. Technical assistance is crucial for entrepreneurs to succeed and decrease the risk of default. Nevertheless, the technical assistance provided during the loan term is often limited. In addition to financial products and services, many European MFIs also provide non-financial services (EMN-MFC, 2022). As such services are often free for clients (or not cost covering), it becomes a burden for MFIs without public support. That explains why state-owned banks, credit unions and NGOs provide non-financial services more often than NBFIs or private banks.

Digitalisation: Digitalisation helps to reduce time spend on communicating with the borrowers, loan processing and monitoring. Digitalisation also increases outreach: borrowers, mainly in remote areas with limited access to physical branches, may find it more efficient and time saving accessing their accounts digitally. Digital solutions can also elevate the burden of "too much paperwork" discussed in the previous chapter. In addition to financial products offered digitally, MFIs could also train and mentor their clients remotely. However, we should not forget about

one success factor MFIs have in small business lending, which is the direct contact between lenders and borrowers (“know your customer”). Digitalisation should not replace such relationships but make them more efficient. Digitalisation gained urgency in the microfinance sector, as the consequences of the Covid-19 lockdown requiring both MFIs and microenterprises to become digitally equipped to maintain communication, which before had mostly been person-to-person.

Green: Microfinance can support green ambitions of newly created businesses or green transformation of existing businesses. This is because entrepreneurship can provide solutions to many of the world’s most challenging economic, environmental, and social issues. In order to engage in green micro-lending, institutions need grants and subsidies to support their clients in learning to green their operations. They also seek for guarantees and on-lending borrowings. In terms of non-financial support, institutions need technical assistance to develop new green products.

MFI funding needs: Non-bank MFIs are competing with traditional banks and new entrants, Fintechs. They need to scale up, offer more diversified products and introduce green products and digital technologies to their operations. MFIs, especially non-bank MFIs, face challenges in securing funding to support growth.

Given the current difficult conditions, support on a European level has become of central importance – via funding, guarantees and technical assistance to a broad range of financial intermediaries, from small non-bank financial institutions to banks well-established in the microfinance or social enterprise finance market– in order to build a full spectrum of the European inclusive finance sector. The EIF currently supports microfinance and social entrepreneurship under The European Commission’s Programme for Employment and Social Innovation (EaSI). EaSI offers the following three instruments: (i) the EaSI Guarantee Instrument to increase access to finance for microenterprises, social enterprises and vulnerable groups, (ii) the EaSI Capacity Building Investments Window to help build up the market via investments (e.g. scaling up or developing IT infrastructure (mobile banking), recruitment and training of staff, strengthening operational and institutional capabilities or seed financing support of newly created intermediaries with a strong social focus) and (iii) the EaSI Funded Instrument launched in the fourth quarter of 2019. Through the investment fund, the EIF provides senior and subordinated loans to financial intermediaries for on-lending to micro-borrowers and social enterprises.

In the first half of 2022 EIF has started the implementation of InvestEU, which will see a continued strong EU support under the social window to microfinance and social enterprise finance until 2027. Based upon the expressions of interest received so far, it is clear that the demand for both, guarantees and capacity building investments, remain high. A significant number of guarantee signatures is expected in the fourth quarter of 2022 spread across EU.

7 | Fintechs

7.1 | The role of Fintechs in the financial system

The Basel Committee on Banking Supervision defines Fintech as “technologically enabled financial innovation that could result in new business models, applications, processes, or products with an associated material effect on financial markets and institutions and the provision of financial services”. The term Fintechs can also refer to companies that pursue a business model of digital financial innovation. Innovations in financial technology occur in a variety of financial subsectors or business processes, such as the payments/transactions industry (digital payments and distributed ledger technology), insurance (Insurtech), corporate lending (peer-to-peer platforms, robo-advisors), compliance mechanisms (Regtech) or data processing technologies with financial applications (big data).

Fintechs, often smaller, emerging market players, are able to compete with incumbent corporations that operate on a much larger scale. Through extensive innovations in hard information processing, they have an important competitive advantage vis-à-vis large, traditional financial institution, who often struggle with rigid, legacy IT infrastructure, which takes time and effort to streamline and bring up to modern standards. In addition, Fintechs often operate in niche markets, with targeted product offerings, which limits their exposure to regulatory obstructions (Stulz, 2022).

Despite their potential competitive advantage, a growing body of evidence suggest a complementary role for Fintech companies within the financial system, as Fintech finance provision is often found to grow most strongly in markets and subsegments where the reach of traditional financial infrastructure is limited (De Fiore et al., 2022). For example, Fintech credit has been shown to complement bank lending for small-scale loans (Tang, 2019), or to provide credit in geographical markets that are underserved by traditional banks (Jagtiani and Lemieux, 2018).⁷²

In addition, Fintech is becoming increasingly intertwined with the structures of the traditional finance sector, as established financiers, such as microfinance institutions, business angels and venture capitalists have recognised the power of the crowd and have all been observed to co-invest with retail investors through CF platforms. In addition, mainstream banks also entered the Fintech space by incorporating digital payment processing tech into their own product offering,

⁷² See De Fiora et al. (2022) for a more comprehensive review of the empirical evidence of the complementary role for Fintech firms in the traditional financial system.

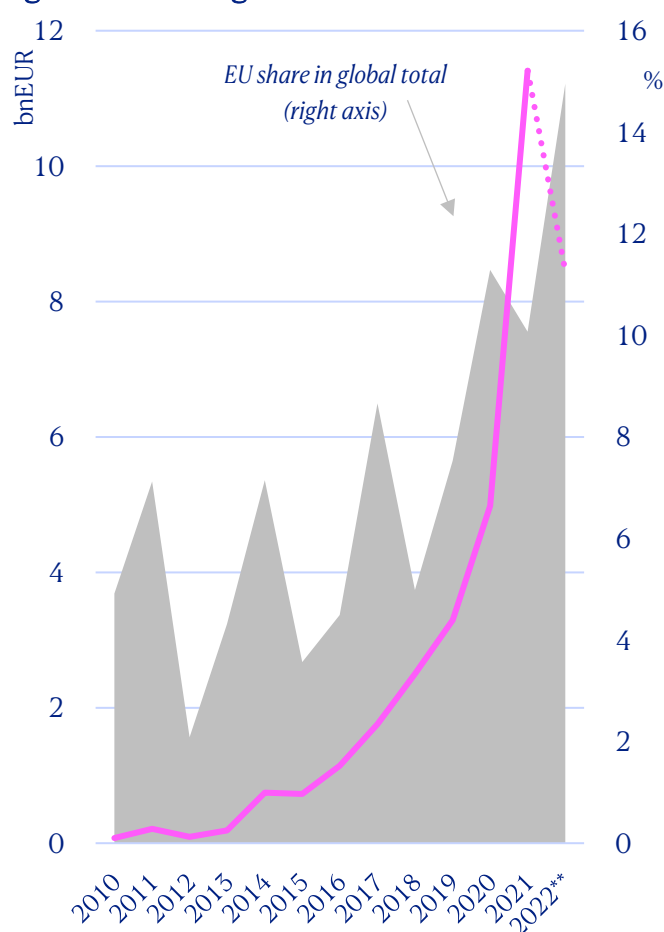
either through acquisition of existing Fintech companies, through in-house development of proprietary systems, or by using marketplace lenders as distribution channels.

7.2 | VC and scale-up financing in EU Fintechs

Investments in European Fintech companies increased exponentially in recent years (Figure 76).⁷³ The post-pandemic recovery period has proven to be a fertile ground for EU Fintechs, as funding in the segments of VC and PE growth financing boomed to a record volume of EUR 11.47bn in 2021. Preliminary data suggest that 2022 funding volumes will match or exceed this number, although this will crucially depend on how the challenging conditions in Q4/2022 will impact the general market.

The year 2021 was a record year for global markets as well, with Fintech funding volumes (VC+PE growth) totalling nearly EUR 113bn. Post-pandemic growth was mostly driven by the European and US market. The Asian Fintech market appears to have stalled, as Chinese Fintech funding has all but dried out. This is most likely due to changes in the regulatory framework governing certain segments of the market, such as a ban on crypto-mining and trading (KPMG, 2022) and a crackdown on financial services offered by some of the most important Chinese tech giants.

Figure 76: Funding volumes for EU Fintechs*



*VC + PE growth financing

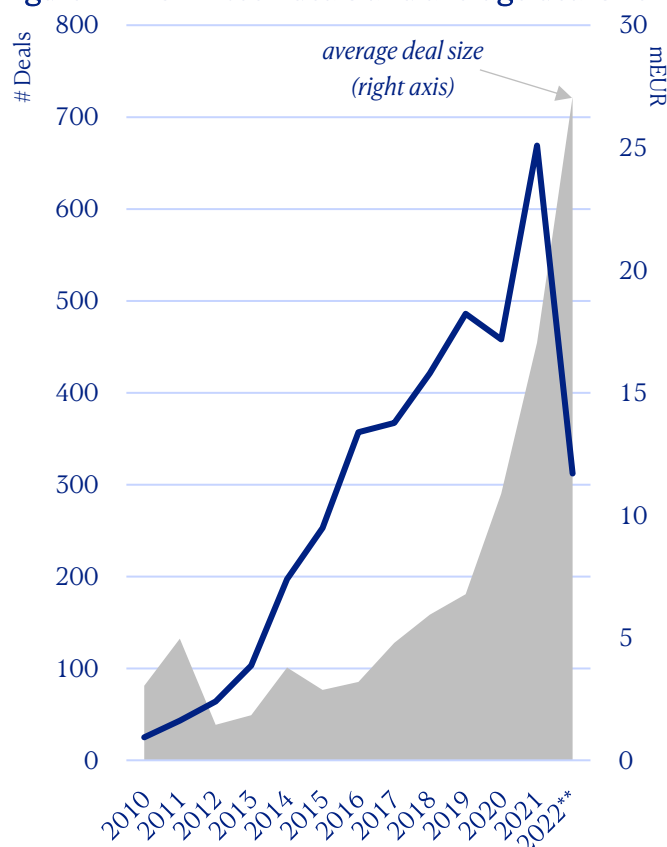
** Incomplete annual total at the time of data extraction (05/08/2022).

Source: Pitchbook, authors' calculations

⁷³ This section draws on the PitchBook database to document trends on European and global Fintech markets. To narrow the focus on start-up and scale-up financing, the market segment most relevant to EIF, it considers combined VC and the PE growth finance into Fintechs companies that are headquartered in the EU-27. For an elaborate overview of the wider market, including buy-out and M&A activity, see KPMG (2022).

While Chinese Fintech funding tumbled, other Asian markets stepped forward, as Indian, South Korean and Indonesian Fintech investments rose significantly during the Covid-pandemic and subsequent recovery years.

Figure 77: EU Fintech deals and average deal size*



*VC + PE growth financing

** Incomplete annual total at the time of data extraction (05/08/2022).

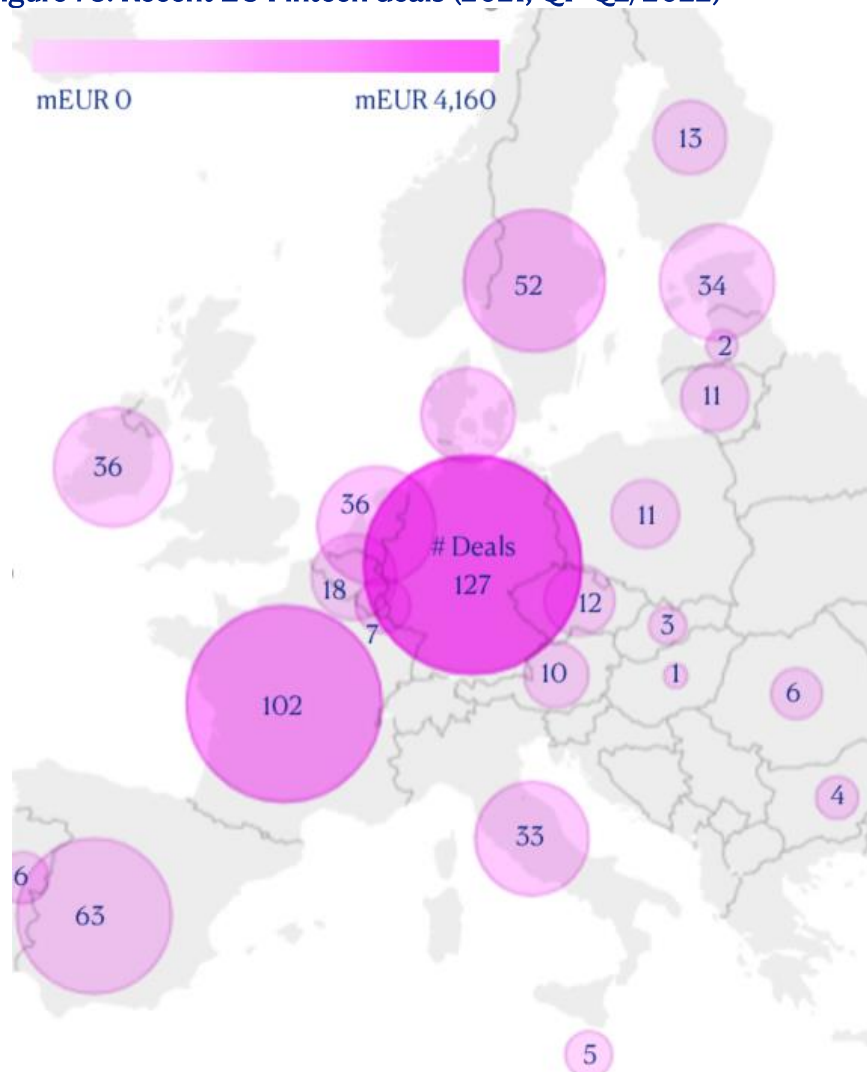
Source: Pitchbook, authors' calculations

The global importance of the EU Fintech market continues to increase. While the share of global funding accruing to European Fintech companies remained roughly constant throughout 2021, it is set to increase further in 2022, exceeding 15%, continuing a decade-long expansionary trend.

Market growth during the first semester of 2022 was driven by a handful of large VC deals in the scale-up space, involving some of Europe's most prominent Fintech unicorns, such as Klarna, N26 and Trade Republic, resulting in a sharp rise in average deal size (Figure 77).⁷⁴ Preliminary data for 2022 suggest this trend will carry through, with average deal size during the first semester in excess of EUR 25m. This indicates a continuation of the maturation process in the Fintech market, which accelerated significantly in the wake of the Covid-outbreak, when confinement measures created momentum for growth in the Fintech sector.

⁷⁴ Average deal size is calculated based on the part of the sample with non-missing deal values and hence deviates from the ratio of total deal value over number of deals reported in Figure 76.

Figure 78: Recent EU Fintech deals (2021, Q1+Q2/2022)*



* Venture Capital and growth financing, preliminary Q1+Q2/2022 data

Source: Pitchbook, authors' calculations

deals, about half of total deal value (Figure 79). Insurtech investment also surged in 2021, driven by a number of larger, high-profile deals, such as the late-stage VC funding rounds of Wefox, the app-based insurance comparison platform, and Alan, the French digital online insurance provider. Crypto and distribution ledger technology managed to remain popular throughout 2021, without signs of slowing growth in 2022, despite recent turmoil on global crypto currency markets.

The growing importance of Fintech is evidenced by the widespread distribution of new Fintech deals, with numerous recently funded Fintech investees headquartered in nearly every EU-27 country (Figure 78). The bulk of funding flowed to traditional European VC hubs, with German and French investees accounting for more than half of deal activity.

The Baltic countries are three other popular Fintech hubs. In particular Estonian Fintech investment activity has flourished lately, with 34 deals since 2020, in various areas of the Fintech space.

EU-wide, payment solutions and banking remained the most important subsegment in 2021, with 101 related

Figure 79: Investments in EU Fintechs by subsegment*



* Venture Capital and growth financing. Deal activity per subsegment is aggregated using keywords derived from the PitchBook deal description. Therefore, categories are not mutually exclusive. **preliminary Q1+Q2/2022 data

7.3 | Fintech prospects

The Covid-19 pandemic and the subsequent recovery period have proven fertile grounds for the continued development of Fintech worldwide. While the emergence of Fintech predates Covid, the confinement measures introduced in the wake of the pandemic outbreak accelerated the growth of the sector, culminating in the grand-cru year 2021, with record deal activity, in particular in Europe and the United States. A significant share of new Fintech clients were customers that are typically underserved by traditional financial institutes, such as SMEs, low-income individuals and women, possibly indicating Fintechs' role in enhancing financial inclusion during crisis times (CCAF et al., 2022).

However, a number of high-profile down-size cases among some of Fintechs' most prominent unicorns,⁷⁵ in terms of employment as well as valuation, have cast doubt on the sustainability of this exponential growth trend, as the sector is facing an increasing number of challenges. For example, for many large Fintechs, profitability remains a concern, in particular for neobanks, who have prioritised growth through intense investments. At the same time, this scaling up process attracted increased scrutiny of regulators, further adding to negative profit margins as compliance costs inevitably rose. A recent study estimates only 5% of the 400 neobanks worldwide has managed to achieve profitability (Stegmeier and Verburg, 2022), which is a significant hurdle for their long term survival probability.

The current inflationary environment has led central banks to hike rates significantly, which could act as a double edged sort for certain Fintech segments. On the one hand, higher rates might have a positive impact on (neo)banks' interest rate margins, increasing their profitability and survival probabilities. On the other hand, higher rates will also weigh on the fundraising environment, which in turn is likely to exert downward pressure on the lofty tech-valuations that emerged in the wake of the Covid-19 pandemic.

Globally, Fintech VC and PE growth funding volumes have been declining in recent quarters (CB Insights, 2022; PitchBook, 2022). This is accordance with the general trend observed on the general market for tech financing. However, the downward trend in Fintech investment volumes might be exacerbated by a natural correction following the post-pandemic surge in Fintech deal activity and consequent bloated valuations. However, available evidence at the time of writing does not indicate a dramatic plunge in EU Fintech investment activity.

Recently, Bigtech companies, such as Amazon, Facebook and Alibaba have also expanded upon their financial product offerings. Consequently, the share of Bigtech in total global Fintech credit increased steadily, covering 75% of combined Fintech lending in 2019, driven mainly by evolutions in Asian markets (Cornelli et al., 2020). Unlike smaller Fintechs, these giants can compete with incumbents at a much larger scale, by exploiting network effects stemming from their existing business models.

⁷⁵ Such as Robinhood, Klarna and Coinbase.

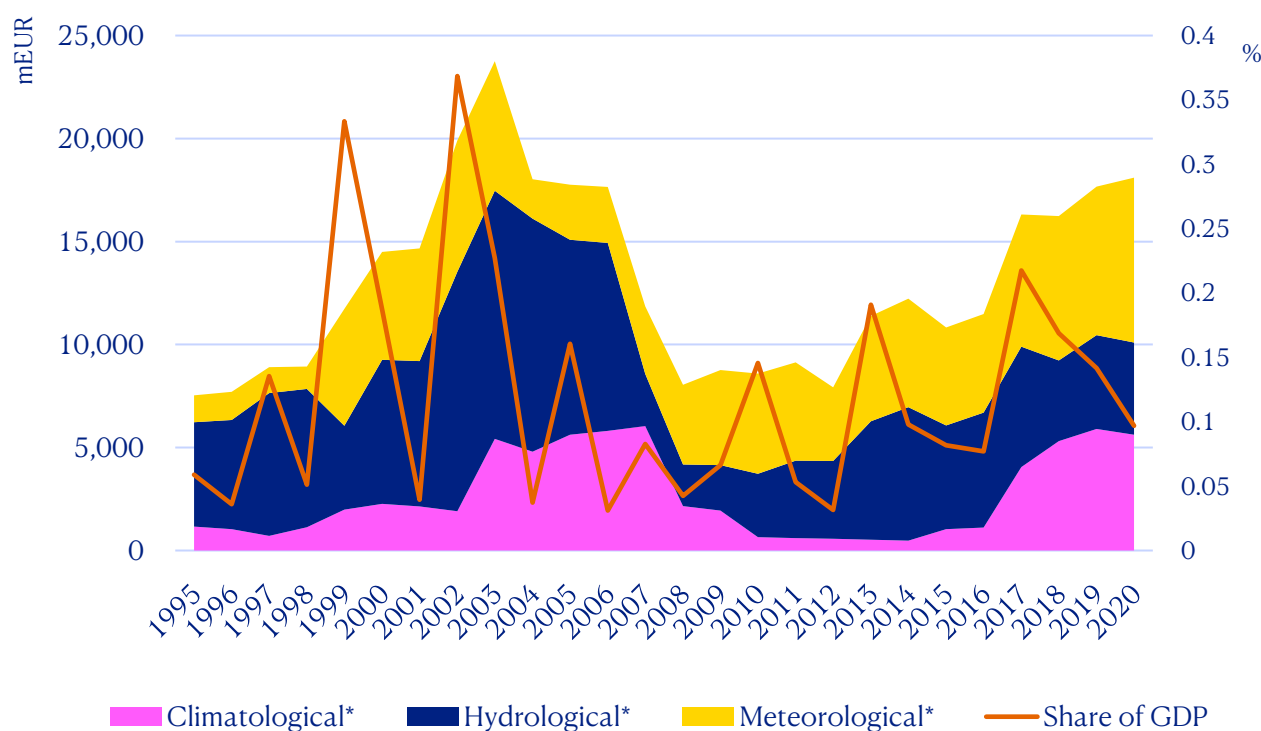
The vast ecosystems at the disposal of Bigtech companies could bring efficiency gains and improved financial inclusion. Moreover, their power to exclude firms from their eco-systems could prove to be a substitute for collateral (Gambacorta et al., 2020; De Fiore et al., 2022), potentially leading to positive credit supply impacts for SME segments that suffer most from access to finance issues. However, these same network advantages also give rise to serious challenges surrounding the concentration of market power and data governance associated with Bigtechs entry into financial market. This stresses the necessity for new regulatory frameworks, for example, through a shift from activity-based to entity-based regulation (Crisanto et al, 2021; Bossay et al., 2021), which would allow for a more flexible approach, adjusted to the risk imposed by the entity under consideration (Bains et al., 2022).

8 | Green finance & investment

8.1 | The impact of climate change on the European economy and SMEs

According to the EEA, the average temperature in Europe has increased by 0.2 degrees over the past decade. The impact of climate change is starting to emerge, as extreme weather conditions are becoming increasingly prevalent. Even though the full extent will only materialise from 2050 onwards, the economic impact of climate related events is already substantial (Figure 80).

Figure 80: Economic losses due to climate events, EU-27**



* Five year backward moving average, expressed in constant prices (2015).

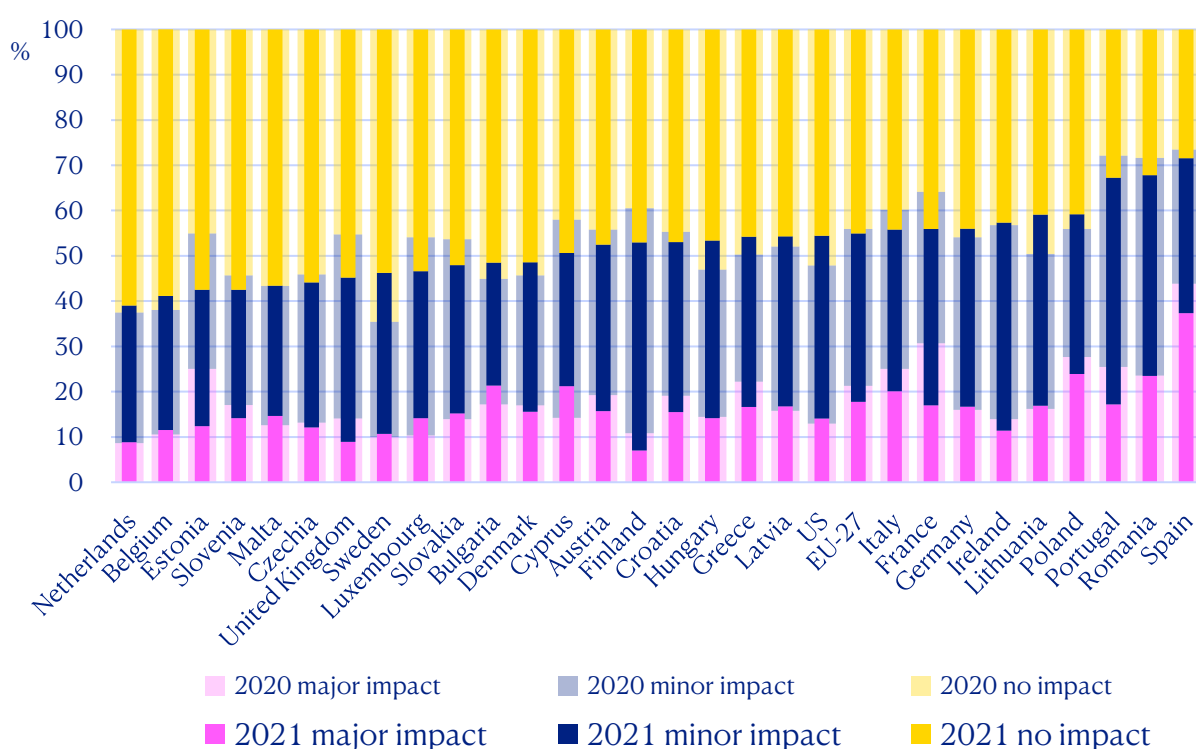
** The peak in 1999 is caused by a sharp rise in hydrological and meteorological damages caused by the winter cyclones Martin and Lothar. The second peak is caused by the 2002 European floods.

Source: Eurostat, authors' calculations

Combined over the period 1980-2020, total economic loss caused by weather and climate-related extremes in the EU-27 amounted to approximately EUR 490bn (EEA, 2022).⁷⁶ While these figures are inevitably subject to significant annual variation, recent years brought about a clear upward trend in economic damages, both in absolute terms and as a share of GDP (constant prices).

SMEs do not escape the adverse impact of climate change on day-to-day business (EIB, 2022). According to the most recent EIB investment survey, more than half of EU SMEs reported that climate change is already impacting their business. Unsurprisingly, climate related business disruptions are more severe in Europe's most southern countries.

Figure 81: Impact of climate change on the SME business (EIBIS, 2021)



Source: EIB (2022)

Throughout Europe, reports of wildfires dominated the news cycle during the 2022 summer months, with countries like Spain, France and Portugal being hit particularly hard. Record heat waves struck the European continent, as many countries recorded some of the highest temperatures since the beginning of measurements. The record droughts and heat waves stand in stark contrast with the summer of 2021, when large parts of Europe were plagued by heavy rains and flooding. The sharp increase in variability of weather patterns and occurrence of

⁷⁶ The reported amounts constitute a lower bound of the true monetary impact of climate change, as they capture only financial value of damaged or destroyed capital. The economic losses resulting from business interruption are not captured, neither is the economic value of lives lost during weather catastrophes.

extreme events will inevitably lead to a surge in investment demand, as climate adaptation measures are becoming increasingly urgent to cope with the rising costs of a changing climate.

8.2 | SMEs' environmental footprint

Buildings

Buildings are one of the most important contributors to SME emissions. In the EU-27 as a whole, 12% of emissions arose from the energy consumption of buildings, a significant share of which was attributable to corporate buildings.⁷⁷ SMEs, accounting for 99% of total EU enterprises, occupy the vast majority of European corporate building space, most of which by companies active in the service sector.

While still substantial, building emissions have been declining since 1990, driven by the rising popularity of small-scaled renewable energy production, such as heat pumps and solar PVs, as well as improvements in the energetic performance of building envelopes and building appliances, such lighting devices. In particular in the short- to medium-term, abatement efforts in the (corporate) building sector will be a key element in the EU's climate policy.

The policy focus on buildings is partly driven by the fact that, during the past decade, technological advances in this field have greatly improved the cost-efficiency of such measures. This underlines the importance of innovation financing for Greentech start-ups, as investment in new technologies today will facilitate the climate transition in the decade ahead, by reducing transition costs across the EU economy (European Commission, 2022b). Another factor that motivates the policy focus on building emissions is the large lock-in risk, as a consequence of the long life span of buildings. With a renewal rate of just 1-2%, the life of a typical building could span up to 100 years. Therefore, immediate policy action is warranted to avoid locking in carbon intensive construction practices (IPCC, 2014).

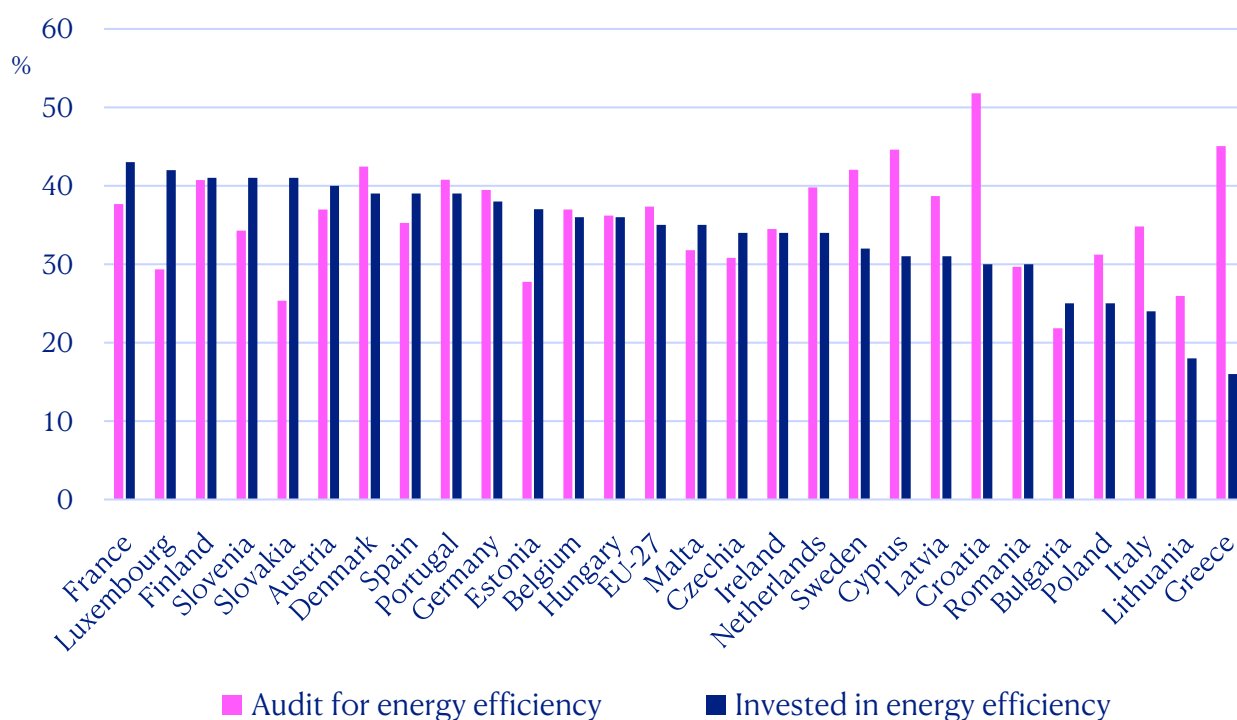
Every year, only 0.3% of the EU's non-residential buildings⁷⁸ undergo a structural⁷⁹ energetic renovation. This is far below the renovation rate required to modernise Europe's building stock in Europe's ambition of 2050 climate neutrality. Increasing the corporate renovation rate will lead to a rising demand for capital to finance renovation services. While little is known about the magnitude of corporate building investment needs, it is well documented that commercial buildings' renovation operations are mostly financed using internal resources (European Commission, 2019). This is likely to form a significant constraint for SMEs, who typically do not dispose of the same liquidity options as their larger counterparts do.

⁷⁷ Excluding emissions of construction, which are contained in the residual industrial category 'Other'.

⁷⁸ The category of non-residential buildings includes public and corporate buildings.

⁷⁹ Structural energetic renovation being defined as those renovations that achieve a reduction in primary energy consumption of 60%, or above.

Figure 82: SME investments and audits in the context of energy efficiency (2020)



Source: EIB (2021), authors' calculations

Energy audits assist firms in assessing how to reduce energy consumption and guide them in making cost-efficient investment decisions, for example, by reducing building related energy expenditures, (European Commission, 2018) and eventually improve cost-efficiency. While energy audits are obligatory for large firms, they are only recommended for SMEs.⁸⁰ Consequently, only 37% of SMEs report having conducted an energy audit, compared to 75% of large enterprises (Figure 82). Hence, it is likely that a significant number of SMEs in Europe undervalue the benefits of such investments (EIB, 2019). Per 2020, only one in three European SMEs had invested in energy efficiency measures, compared to 60% of large firms, indicating the existence of a significant untapped abatement potential, most likely driven by the presence of financing constraints. The difference between the share of SMEs that have undergone an audit and the share of SMEs that reportedly also invested in energy efficiency measures is substantial in some countries (Greece, Croatia, Cyprus). A large discrepancy between the two indicators could suggest a lack of financing availability to implement such costly investment projects.

⁸⁰ EU countries use different approaches to encourage and support the implementation of energy audits in SMEs. For example, in Germany, Austria and Croatia, SMEs are given tax reduction incentives for conducting energy audits. In Denmark and Sweden, SMEs are supported with relevant information (European Commission, 2021).

Industry

Industrial emissions, accounting for 22% of 2020 EU-27 emissions,⁸¹ have steadily decreased since 1990, in part due to the decarbonisation of heavy industry through the EU ETS. In particular, emissions from the chemical and metal production sectors declined, by up to 55%. Emissions related to cement production also declined, although less pronounced.

SMEs are responsible for a significant share of industrial emissions. When one considers value-added shares an appropriate allocation key for emission contributions, industrial SMEs would account for 35% of European industrial emissions. This is likely to be a lower bound of the true share, as large industrial installations are typically more strictly regulated than their smaller counterparts, for example through the EU ETS, and have therefore invested more in emissions abatement in the recent past.⁸² Some studies estimate the share of SMEs in total industrial emissions as high as 70% (OECD, 2020a).

To reach the net-zero targets, a significant investment challenge awaits Europe's industrial SMEs. Crosscutting industrial technologies, such as more efficient motors, improved process heating processes, electronic control systems, and other measures such as air or steam leak reduction operations, have a high potential of optimising plant efficiency in a cost-efficient manner, with logical ramifications for energy savings and emissions reductions. Additional mitigation potential for industrial SMEs lies in the realisation of scale effects, by coordinating activities alongside other SMEs, for example, through the sharing of infrastructure, such as waste and management facilities, or heating and cooling installations (IPCC, 2014). Targeted funding instruments can support European industrial SMEs' global competitiveness, in particular those active in energy-intensive industries, as they transition towards carbon-neutrality (European Parliament, 2020).

Transport

Transport accounted for 22% of EU emissions in 2020, a minor decline vis-à-vis 2019, driven by the confinement restriction imposed by European governments to contain transmission of the Covid-19 virus. This anomaly aside, transport is the only sector in which emissions have not decreased over the past three decades, mostly driven by a steady rise in road transport emissions. Domestic aviation emissions rose as well but contributed only a negligible portion to total transport emissions.⁸³ Decarbonising the transport sector will likely be one of the most challenging aspects of Europe's net-zero plans, in light of the continuing growth in the demand for transport services and the relative lack of progress to date (IPCC, 2014). Emission reductions in transport are a short- and medium-term policy priority for the European Commission, which will prove highly relevant for SMEs.

⁸¹ Emissions attributed to NACE section C over total EU emissions, excluding the negative emissions accounts associated with land use.

⁸² The EU ETS covers large industrial installations directly and allocates annual emission allowances to an exhaustive list of Europe's largest industrial installations.

⁸³ International aviation emissions not included.

The decarbonisation of European transport and mobility will require intense investment efforts from EU SMEs. In the EU-27 as a whole, nearly 50% companies active in the transport sector are SMEs, the vast majority of which operate their transport services using carbon-intensive transport modes, as nearly 90% of the energy consumed for transport in Europe derives from traditional fossil fuel sources. The recent rise in insolvencies in the transport sector, potentially due to the abrupt increase in energy costs (see Chapter 2 | for a discussion), stresses the urgent need for investments in the electrification of the European transport sector.

The impact of reducing the carbon content of EU's mobility will reach beyond the EU's transport sector. SMEs across all sectors will be affected, as replacement rates will need to be ramped up to reach full electrification of Europe's corporate car fleet. This is important for two reasons. First, company cars make up a significant percentage of the aggregate passenger car fleet in Europe. In Belgium, for example, 6 in 10 newly purchased cars were company vehicles, 60% of which were bought by SMEs (Fleet, 2021). Second, stimulating the electrification of the corporate car fleet brings about important second round effects, as corporate cars often feed into the second-hand market of consumer vehicles (Transport and Environment, 2020). It is evident that the electrification of the SME car fleet will bring about some significant investment challenges. Charging infrastructure requires large upfront capital expenditure, often unavailable to SMEs.

In addition to investments in decarbonising personal mobility modes, SMEs can also contribute to the greening of Europe's transport and mobility sector by improving the energy efficiency of their logistical operation, through investments in modern supply chain management tools, for which IT-technology is a key element. E-platforms focusing on logistics sharing, for example, can minimise non-utilised transport capacity, increase efficiency, reduce costs, and cut emissions (Central Europe, 2014), stressing the continued need to enhance SME digitalisation processes.

Agriculture

Agriculture, even more so than other sectors, is highly climate dependent. Even under a 1.5-degree global warming scenario, weather patterns in Europe are expected to change to the extent that the likelihood of losses in crop production due to compound heat and dry conditions (IPCC, 2022) will vastly increase. This stresses the urgency of investments in adaptation measures, such as, for example, irrigation infrastructure or crop transformation.

Per 2020, agricultural processes accounted for about 12% of EU emissions. Agricultural emissions have not declined to the same extent as aggregate emissions and even increased slightly since 2010. Agriculture is typically a low value-added activity, which results in a high emission intensity of agricultural production. Since agriculture is a sector of high strategic importance for the security of Europe's food supply, agricultural emission abatement is often considered a sensitive exercise and the potential for emission reduction is considered lower than other sectors (McKinsey, 2020).

Around 80% of Europe's food products are produced by SMEs (SMEunited, 2021), hence, SMEs will be responsible for an important part of European abatement efforts in the agricultural sector. Particular abatement potential lies in on-farm production of renewable energy,

agricultural photovoltaic systems, wind farms or heat recovery systems (EIP-Agri, 2019).⁸⁴ Also on the energy-side, investments in the carbon-neutralisation of on-farm equipment could even lead to net cost-savings (McKinsey, 2020). On the demand side, investments in IT-solutions to improve supply chain processes can contribute to agricultural abatement by reducing food waste (IPCC, 2014).

Difficult to abate, residual emissions in the agricultural sector can furthermore be compensated by natural carbon sequestration, the process of capturing and storing atmospheric carbon dioxide in soils (McKinsey, 2020). As part of the Fit-for-55 legislative package, the Commission has proposed to increase carbon removals to -310 million tonnes of CO₂ equivalent by 2030 and to achieve climate neutrality in the combined agriculture, land use and forestry sector, by 2035 (European Commission, 2021e).

The recently announced REPowerEU initiative is also of relevance to the agricultural sector, for example, through the biomethane action plan. The plan aims to increase biomethane production for organic waste and agricultural residues and is expected to generate significant agricultural investment demand.

Evidence on SME sustainability investments

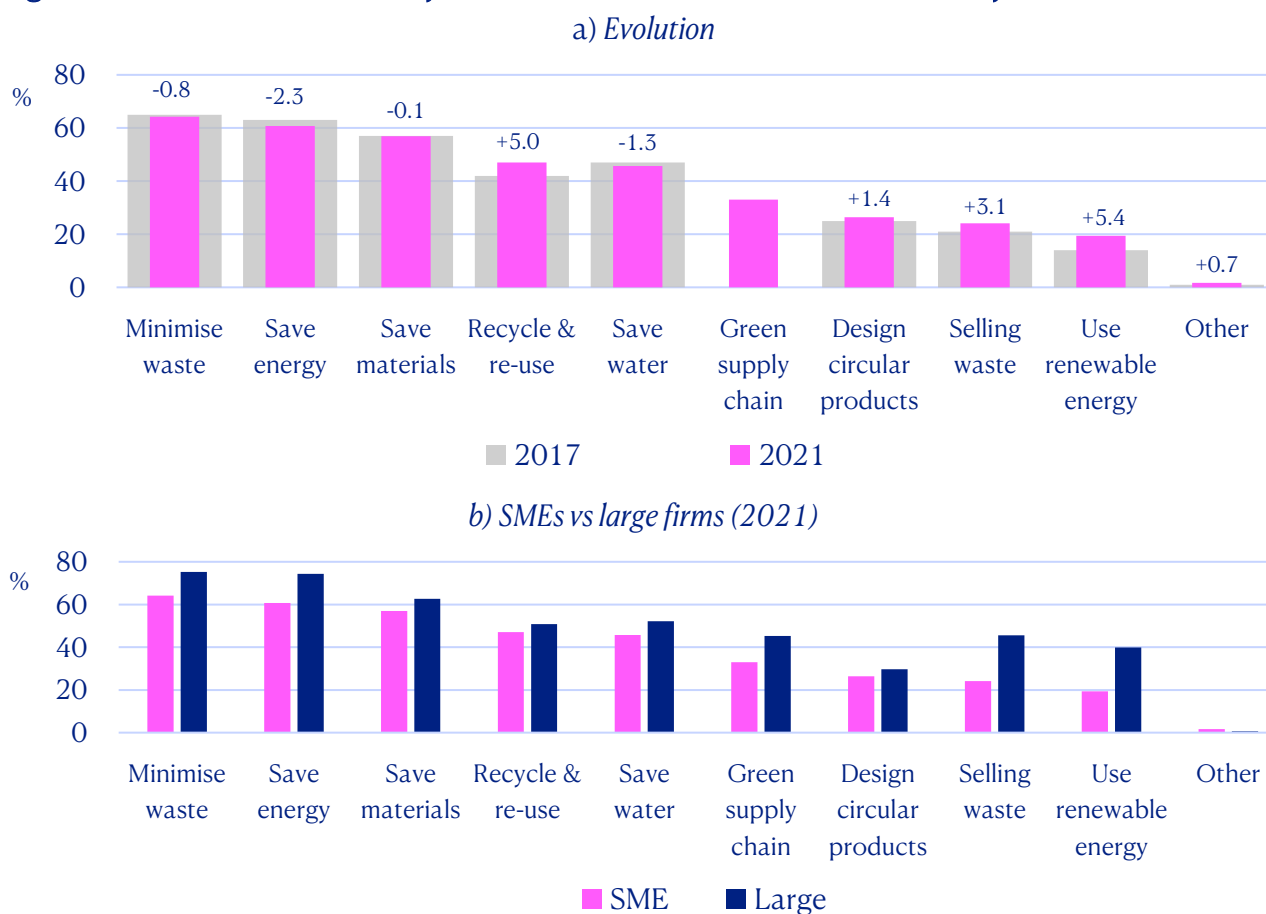
In the recent past, SMEs sustainable investment efforts have focussed predominantly on minimising waste (64% of SMEs), saving energy (61% of SMEs) or limiting material use (57% of SMEs), according to a recent survey conducted among EU SMEs in the context of the Flash Eurobarometer (Figure 83, page 139). Comparing the results of the most recent survey wave to those of 2017 reveals the propensity of SMEs to take sustainable action has barely increased in recent years. Moreover, the gap between large firms and SMEs remains substantial.

Evidence from a recent EIB survey (EIB, 2022) indicates that just one in three European SMEs are planning to undertake an investment in mitigation or adaptation measures over the next three years (Figure 84, page 139). That same survey also reveals nearly half of SMEs considered lack of access to finance an obstacle for long term investments plans, providing a potential explanation for the relatively modest proportion of EU SMEs that are looking to invest in adaptation or mitigation measures in the years ahead.

The relatively low propensity of SMEs to invest in greening their activities could also be driven by informational barriers. While SMEs might be willing to implement measures to tackle the impacts of weather events and emissions reduction, they seem uncertain about technological developments in the near future and consider it an obstacle to invest. Firms (in particular SMEs) for which energy constitutes a relatively small share of their overall expenditures typically allocate fewer resources to improving energy efficiency, resulting in a limited knowledge base (IPCC, 2018). The data confirm this. Six in ten European SMEs report to face informational barriers and nearly seven in ten consider such investments too costly (EIB, 2021).

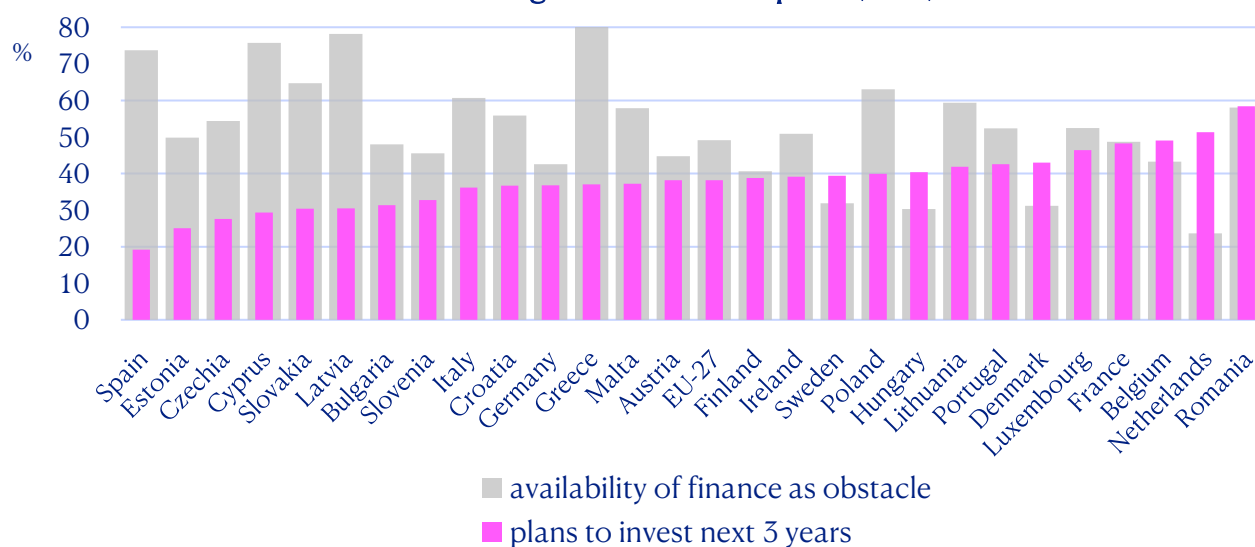
⁸⁴ Agricultural photovoltaic systems also referred to as 'solar sharing', combines solar power generation using photovoltaic technology and agricultural activities, effectively enabling a dual use of the same piece of land (Cho et al., 2020).

Figure 83: Actions undertaken by SMEs in the context of resource efficiency



Source: European Commission (2022f)

Figure 84: SME investment plans for mitigation and adaptation measures and availability of access to finance as a constraint for long term investment plans (2021)



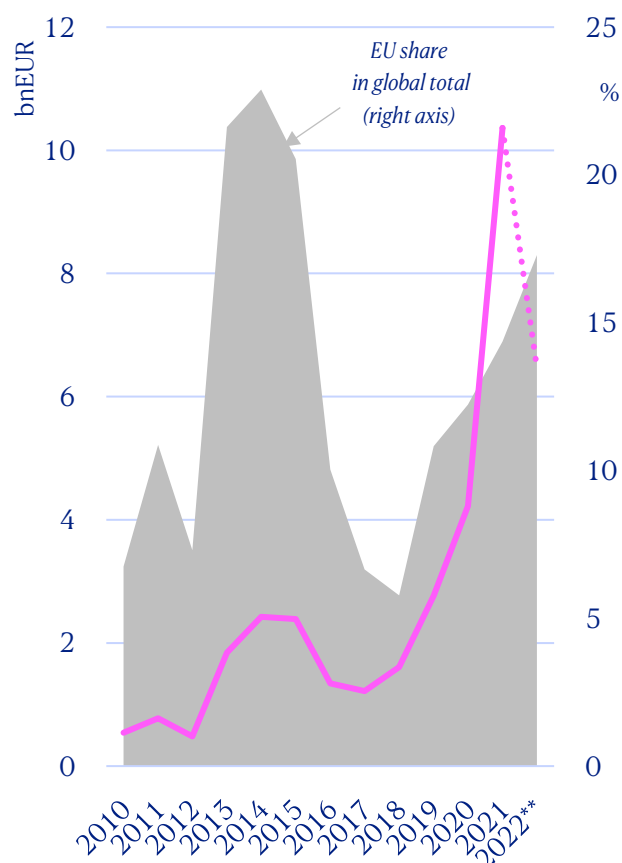
Source: EIBIS (EIB, 2022), authors' calculations

8.3 | The EU Greentech ecosystem

Greentech innovation is a key element of Europe's net-zero strategy. By lowering the cost of greenhouse gas abatement or pollution reduction, it can ensure the EU reaches climate neutrality in a cost-efficient manner. As noted by the IPCC (2022),⁸⁵ “unit costs of several low-emission technologies have fallen continuously since 2010. Innovation policy packages have enabled these cost reductions and supported global adoption.” Between 2010 and 2019, technological breakthroughs in Greentech have decreased the unit costs of solar energy (-85%), wind energy (-55%) and lithium-ion batteries (-85%), leading to a strong increase in adoption rates (IPCC, 2022). Moreover, Greentech innovation can help EU firms to adapt to the reality of an altered climate, for example, through the development of new crop management or irrigation techniques in agriculture, better weather forecasting technologies, or advances in the field of disease control. Therefore, it is adamant that policy makers ensure the right enabling environment for these technologies to flourish. The development of a Greentech eco-system is crucially dependent on the availability of equity-based external financing.

To gain an understanding of recent trends in the EU market for Greentech innovation financing, the analysis in this section considers VC and PE growth financing (referred to as VC + scale up hereafter) invested in Greentech companies that are headquartered on EU-27 territory. In terms of volumes, this constitutes only a fraction of the total market, which in addition to the two categories considered here, also includes mergers and acquisitions, PE buy-outs and IPOs. However, the VC + scale up segment is arguably of most relevance to SMEs and also better reflects trends in innovation financing.

Figure 85: Funding volumes for EU Greentechs*



* VC + PE growth financing

** Incomplete annual total at the time of data extraction (11/08/2022)

Source: Pitchbook, authors' calculations

⁸⁵ IPCC (2022) Climate change 2022: Mitigation of climate change. Working Group III Contribution to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change.

Funding volumes for EU Greentech companies have risen strongly in recent years⁸⁶ (Figure 85). From 2018 onwards, the market has experienced exponential growth, reflecting the growing societal concerns around environment and sustainability and the increased focus of EU policy makers on private financing as a catalyst for the green revolution.

Box 14: Determinants of EU Greentech investments: the role of financial market conditions

A recent study of the EIF, in collaboration with the EIB Institute and the London School of Economics in the context of a Capstone project, investigates the role of financial market conditions on Greentech investment activity. Greentech innovation is a key element of Europe's environmental and net-zero strategies and innovative start-ups are key drivers of Greentech innovation.

Breakthroughs in the sphere of Green technology can ensure the EU reaches its environmental targets in a cost-efficient manner, by lowering the marginal CO₂ abatement costs and the marginal cost of pollution reduction. Moreover, Greentech innovation can also help the EU to respond and adapt to the reality of an altered climate. Finally, a vibrant European Greentech eco-system can position the EU economy at the forefront of the international environmental revolution, as the expected increase in the demand for green products and services presents unprecedented growth prospects for the European Greentech sector.

Despite their importance in driving green innovation, small and innovative companies typically struggle to access finance. Due to their opaque nature and highly innovative business models, this holds particularly true for Greentech start-ups. Therefore, the study seeks to develop an understanding of the factors that play a role in the development of a Greentech eco-system by empirically studying the determinants of early-stage (e.g. accelerators, venture capital and private equity) Greentech deals across the EU-27, focusing in particular on the impact of financial market conditions.

The analysis uses a European country-level panel dataset sourced from Pitchbook and models Greentech deal count in a given EU country as a function of a select set of national indicators that proxy financial market conditions (access to finance conditions, the debt and the equity environment), in addition to a number of indicators that measure the quality of national institutions and the overall health of the local economy.

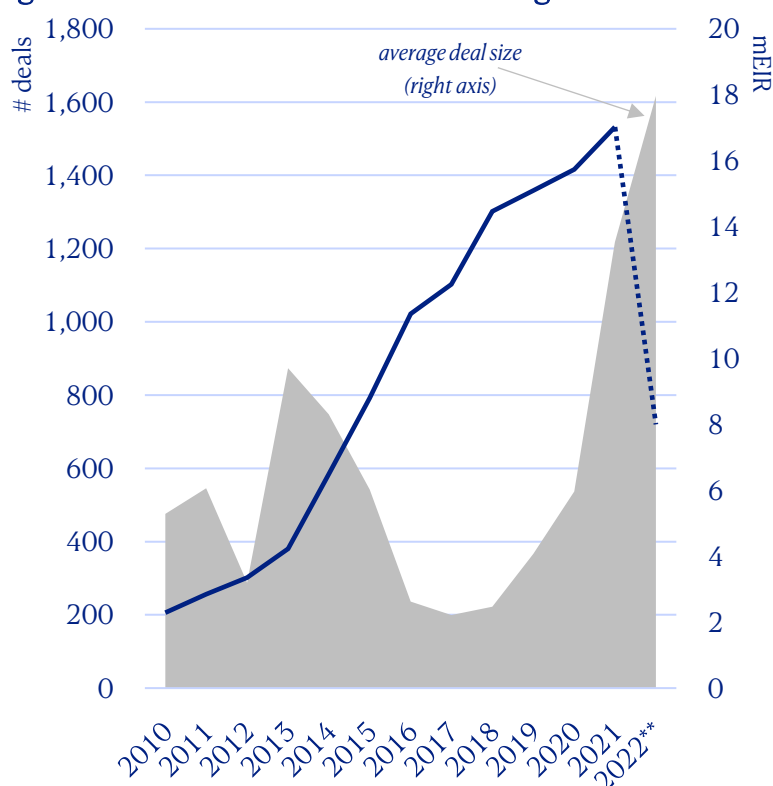
⁸⁶ Defined as the combined categories of Cleantech, Climate tech and Agritech companies in the PitchBook database, where Cleantech refers to "Companies with the primary purpose of developing new technologies related to clean energy production, transmission, storage, or use; water treatment and management; and/or efficiency in energy or resource management and use"; Climate tech refers to companies "developing technologies intended to help mitigate or adapt to the effects of climate change. The majority of companies in this vertical are focused on mitigating rising emissions through decarbonisation technologies and processes. Applications within this vertical include renewable energy generation, long duration energy storage, the electrification of transportation, agricultural innovations, industrial process improvements, ad mining technologies, among other"; and Agritech refers to "Companies that provide services, engage in scientific research, or develop technology which has the express purpose of enhancing the sustainability of agriculture. This includes wireless sensors to monitor soil, air and animal health; hydroponic and aquaponic systems; remote-controlled irrigation systems; aerial photo technology to analyse field conditions; biotech platforms for crop yields; data-analysis software to augment planting, herd, poultry and livestock management; automation software to manage farm task workflows; and accounting software to track and manage facility and task expenses." (PitchBook, 2021a).

Box 14 continued:

The analysis shows that successful IPOs incentivise Greentech investors and entrepreneurs and stimulate deal activity in the Greentech market. More precisely, we find that a doubling of IPOs in a given country leads national Greentech deals to increase by 13%, two year later. This indicates policy makers should invest efforts into ensuring the market provides sufficient scale-up opportunities. Failing to do so could have significant consequences for the development of Greentech ecosystems, as perceived lack of opportunity might encourage successful ventures to leave the region and raise funding elsewhere.

Source: de Haan Montes et al. (2022), forthcoming

Figure 86: EU Greentech deals and average deal size*



*VC + PE growth financing

**Incomplete yearly total at the time of data extraction (11/08/2022)

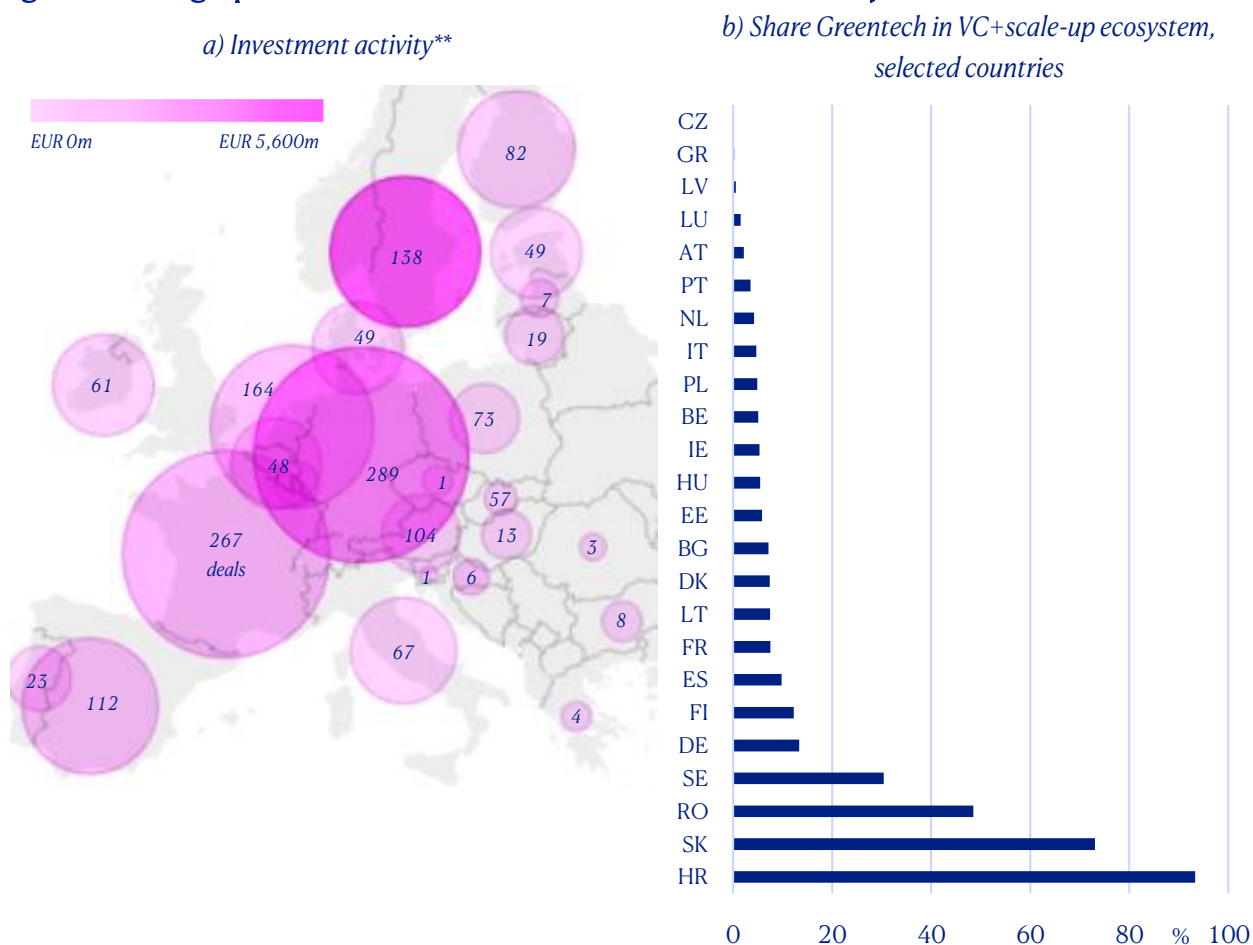
Source: Pitchbook, authors' calculations

Even during the Covid-19 pandemic, the EU Greentech market continued to grow strongly. Over 2020, investments in EU Greentech companies increased by 53%, significantly outpacing the aggregate market. Growth accelerated during 2021, as total funding amounts more than doubled, growing by 145%. The data available at the time of writing seems to indicate that this rate of growth is likely to slow down in 2022, although funding volumes are expected to match those of 2021. It is highly likely that the Russian invasion of Ukraine and the resulting energy crisis will provide significant tailwinds for near-term investment in Greentech companies, in particular in the fields of alternative energy production and storage.

A number of high-profile large deals in the late-stage investment space drove average deal size higher throughout 2021 and 2022 (Figure 86). The scaling-up process of the EU Greentech market was not exclusively driven by events at the right tail of the distribution, as median deal size also increased significantly in recent years, from just EUR 350k to EUR 2.4m in 2021, indicative of a general market maturation process, with growth prospects being driven by regulatory evolutions and increased public environmental awareness.

Greentech deal activity has been omnipresent across the European continent during 2021 and the first semester of 2022 (Figure 87). Swedish Greentech companies attracted most funding, with 138 deals totalling over EUR 5.5bn worth of funding, followed by Germany (289 deals, 3,223bn) and France (267 deals, EUR 2,044bn). Relative to the size of their national VC and scale-up ecosystem (Figure 87, panel b), three CESEE countries stand out, mostly driven by a number of large, late-stage VC funding rounds of companies active in the field of green mobility.⁸⁷

Figure 87: Geographical distribution of the EU-27 Greentech ecosystem* (2021+HY1/2022)



* VC + PE Growth deals in EU Greentech companies

** bubble size refers to number of deals, colour intensity refers to investment volume

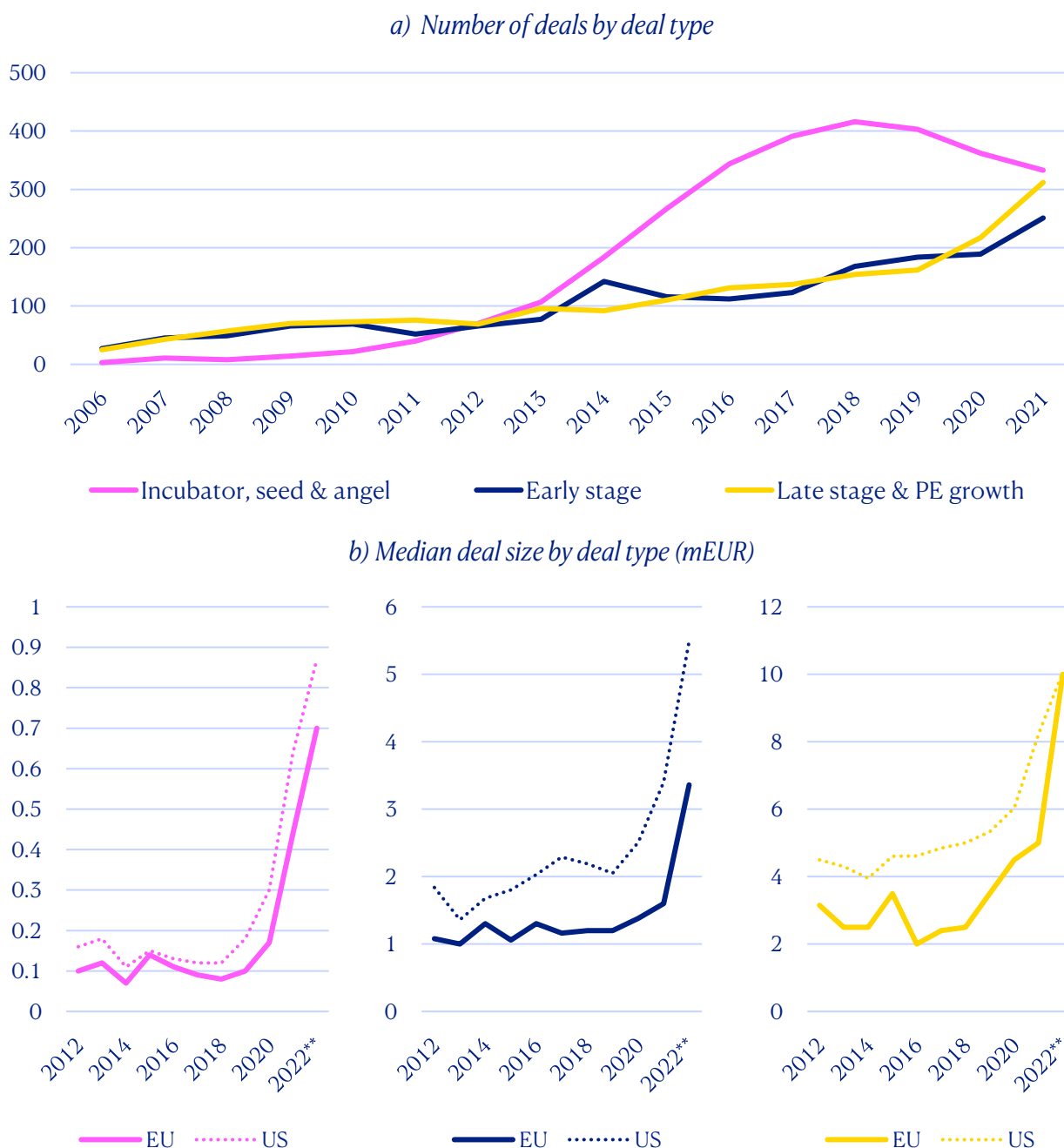
Source: Pitchbook, authors' calculations

The maturation process of the EU Greentech investment market is further evidenced by the recent reduction in the number of Seed, Incubator and Angel deals, which declined steadily from 2018 onwards (Figure 88, a). In contrast, the growth rate of the number of late-stage VC and PE growth deals picked up significantly since 2019. In recent years, there is also a clear trend towards scaling-up within each stage segment, with growing median deal sizes for funding rounds in the seed, early-stage and later stage markets (Figure 88, b). Recent geopolitical turmoil

⁸⁷ For example, Northvolt (Sweden) and Rimac Automobili (Croatia).

and the impact on international energy markets could provide new incentives to revive the dynamics in the seed-stage market, as high energy prices are likely to spur the development of new innovative products in the field of renewables or energy efficiency.

Figure 88: EU Greentech investment by deal type*



* VC + PE Growth deals in EU Greentech companies

** Incomplete year total at the time of data extraction (August 2022).

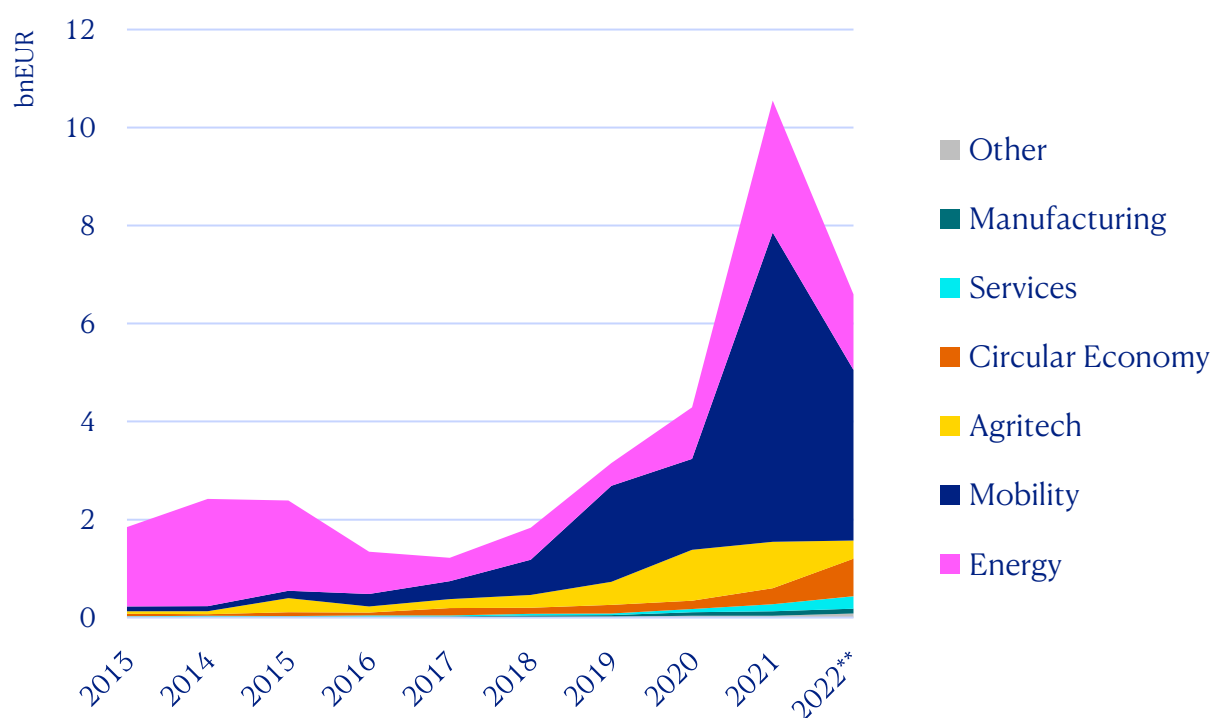
Source: Pitchbook, authors' calculations

Across all deal type segments, the US market outscales its European counterpart (Figure 88, bottom panels). In the market for Seed financing, the difference in median deal size is small, but

growing. Per 2022, the median US seed deal amounted to EUR 0.87m, about 25% higher than the median EU deal. In particular in the early-stage segment, the difference between the two geographies is substantial. For example, the median deal size for European early-stage Greentech companies amounted to EUR 1.6m in 2021, less than half the amount the median US company received (EUR 3.4m). While the gap decreased somewhat during 2022, the difference nevertheless remains substantial. In the PE growth segment, median deal sizes have been converging in recent years. Preliminary evidence, based on incomplete 2022 data, seem to indicate the EU market might even close the scale-gap, although full-year data are needed to confirm this conclusion.

The EU Greentech ecosystem is as diverse as the environmental problems it aims to address. Greentech companies are typically active across a variety of different application fields (Figure 89).⁸⁸

Figure 89: recent trends in some select environmental sub-segments in the EU Greentech ecosystem*



** VC + PE Growth deals in EU Greentech companies.

** Incomplete year data extracted at the time of writing (August 2022).

Source: Pitchbook, authors' calculations

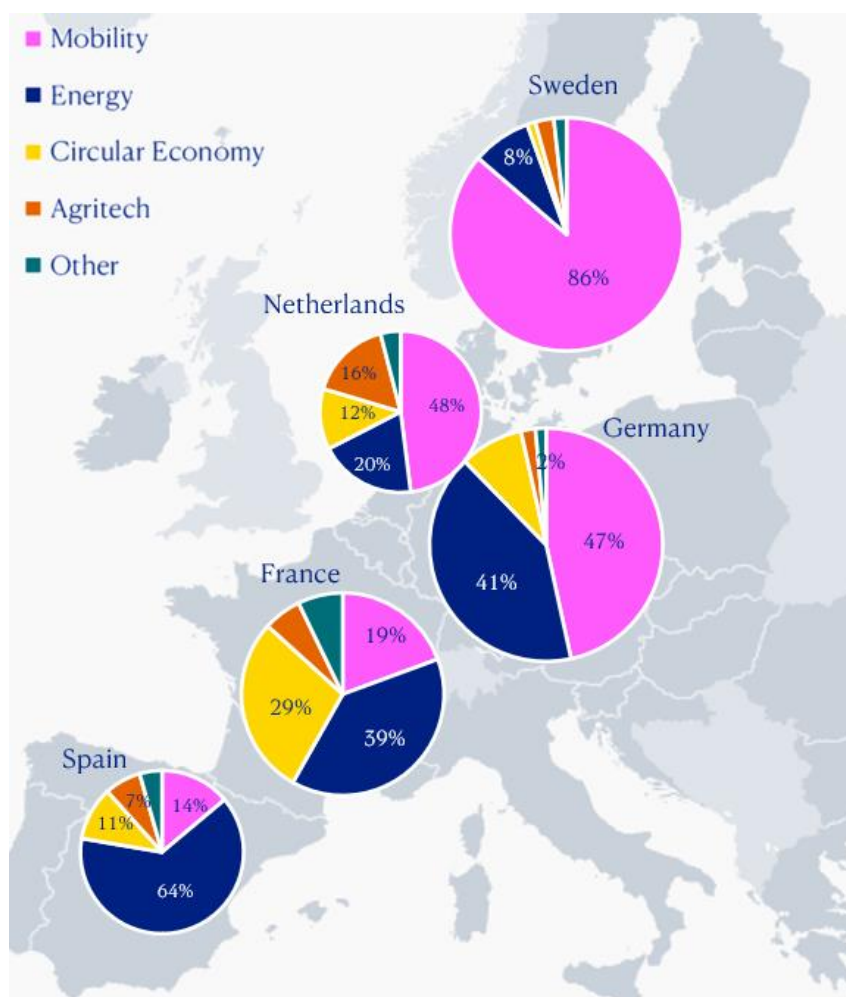
The European Greentech ecosystem has grown increasingly focused on mobility solutions in recent years. Investments in mobility and transport Greentech were the driving force behind the growth in investment volume. Mobility accounted for 60% of investments in 2021. Given that decarbonising the transport sector will likely be one of the most challenging aspects of Europe's

⁸⁸ Greentech deals were categorised based on a combination of Pitchbook's 'vertical' classification and a classification method that uses keyword extracted from companies' business description. The categories are mutually exclusive.

net-zero plan, this is a welcomed trend, as the EU mobility sector has been lagging in the sustainability revolution. Sustainable developments in the sphere of mobility-tech delivered by Europe's Greentech companies will ensure cost-efficiency in the decarbonisation efforts of the mobility sector and thereby will accelerate its transition towards net-zero in the decade ahead.

Investment in companies active in the field of energy (renewable energy infrastructure such as wind farms, solar power generation plants, equipment production, such as photovoltaic panels, next generation nuclear energy, biogas production, etc) accounted for 26% of 2021 investment volume. Agritech made up 9% of the EU-27 Greentech sector (insect-based protein production, sustainable soy production, IoT technology for vertical farming systems, etc.). While still relatively modest in size, circular economy investments have been growing in importance recently, with a 3% investment share in 2021, but set to increase significantly in 2022 based on preliminary data.

Figure 90: Environmental focus* of the five largest European local Greentech ecosystems (2015-Q3/2022)



* As measured by the distribution of total investment volume (VC + scale-up) in a country's Greentech ecosystem over different subsegments.

Source: Pitchbook, authors' calculations

There are pronounced differences in the environmental focus of local Greentech ecosystems (Figure 90). Considered over the period 2015-HY1/2022, the Swedish market is predominantly focused on mobility, whereas the Spanish Greentech market focussed mostly on energy-related technology. Compared to other countries, Dutch Greentechs are disproportionately orientated towards Agritech.

8.4 | SMEs green investment prospects

By endorsing the Paris Agreement on climate change, the European Union has committed itself to a path of sustainable economic growth. In the EU Green Deal communication, the European Commission presented its vision on how to transform the European Union to reach climate neutrality by 2050, protect biodiversity and promote a circular economy. The EU Green Deal will prove to be vastly consequential for all segments of the EU economy and will have significant repercussions on European SMEs investment behaviour and finance needs.

With the recently released 'Fit For 55'-package (FF55), the Commission has announced the legislative framework through which it aims to deliver on the Green Deal's environmental targets (European Commission, 2021a). As part of the first EU Climate Law, it comprises a comprehensive and interconnected set of proposals, which aims to decarbonise the EU economy through increased use of renewable energy and faster progress in energy efficiency. The Commission plans to use a variety of policy tools to accomplish the climate targets, with financial instruments playing a key role. The wide-reaching nature of the regulation contained in the FF55 package will be of significant relevance to European SMEs, as rising energy prices and regulatory reforms are likely to lead to a surge in green investment demand.

Recently, the Covid-19 pandemic put Europe's green transition efforts to the test. Liquidity shortages and elevated economic uncertainty among Europe's SMEs decreased general incentives to invest. In addition, global value chain problems temporarily restricted the supply of relevant green technologies, further limiting capabilities to initiate green investment projects. However, many of the subsequent economic recovery policies focussed on green investments, including the NextGeneration EU facility, at least partly balancing the challenges brought about by the pandemic itself (European Commission, 2021b).

The recent turmoil on European energy markets, caused by the Russian invasion of Ukraine, has further added to the already substantial green investment needs of SMEs, as rising energy costs and the resulting policy response (REPowerEU) will accelerate adoption rates of small-scaled renewable energy and energy efficient technologies (see also the discussion in Chapter 2 | about the impact on energy expenditure shares on aggregate inflation). Specific regulatory initiatives, such as the Rooftop Solar Initiative, will increase investment demand for specific technologies. Additionally, price effects will also impact investment demand, as frictions present in the supply channels of energy sources will most likely lead to elevated energy prices in the short- to medium-term, as the market seeks to reduce its reliance on Russian fossil fuel sources. In response to the energy crisis, the European Commission has proposed several initiatives to help

SMEs cope with high energy prices. The toolbox contains several measures that focus on clean energy and energy efficiency (European Commission, 2022g).

Widespread availability of green debt-based financing will be crucial to ensure continuity in the SME greening process and government support for green debt products needs to ensure that green investment expenses will not crowd out other productive investments. Blended financing instruments, combining debt-products with grants, can relieve some of the cost-pressure of such investments, while alleviating green financing constraints.

9 | Conclusion and discussion

Since the publication of the previous edition of the ESBFO in October 2021, Europe's economic outlook has deteriorated severely, as the combined economic impact of prolonged supply chain disruptions and the war in Ukraine weigh heavily on European growth prospects. Global supply chain issues caused by the Covid-19 lockdowns have proven to be more persistent than anticipated, as the post-lockdown surge in aggregate demand has led to significant inflationary pressures. The Russian invasion of Ukraine send further shockwaves through global markets, adding to mounting inflation and effectively bringing the post-pandemic recovery to a halt. In the immediate aftermath of the pandemic, liquidity support programs managed to shelter European SMEs from the worst of the Covid-19 crisis. Recently, however, many of those initiatives have been terminated. As the ECB's policy reversal has led to a sharp rise in financing costs, the share of European SMEs that experience severe access to finance issues has started to increase again.

The near-term risks are on the downside. While gas prices have declined considerably in recent months, a colder than expected winter could revert this trend, preventing inflation to return to the ECB's target level. Individual country efforts, using subsidy-based instruments to compensate for rising energy prices, might invalidate the ECB's actions, further increasing the probability of additional rate hikes, which in turn will negatively impact corporate borrowing costs and investment funds' fundraising efforts. In addition, rising geopolitical tensions could strengthen the trend towards deglobalisation and further threaten the functioning of global supply chains. Rethinking Europe's industrial structure is likely to be associated with sizeable adjustment costs. While this will undoubtedly pose significant challenges, in particular to smaller firms whose supply chain structures are typically more rigid, it could also bring about opportunities for Europe's industrial SMEs. Furthermore, China's continued zero-Covid policy and a slow-down in US economic growth are likely to negatively affect demand for European exports. Combined with plummeting consumer confidence, this will further weigh on near-term economic growth. Finally, with winter approaching, epidemiologists predict the Covid-19 pandemic could regain strength. While nation-wide lockdowns are unlikely to be re-instated, new variants could pose a new test to European policy makers and exuberate existing challenges for the EU economy.

The European *PE/VC ecosystem* weathered the crisis reasonably well. The EIF surveys among Business Angels, VC and PE MM investors, conducted at the outbreak of the Covid-19 pandemic, brought to light that investors' expectations for the near future of the sector have considerably worsened. However, investor fears turned out to be excessive, as the market recovered quickly from the initial lockdown restrictions and 2021 proved to be a record year for investment volumes and fundraising. In recent months, however, dark clouds appeared on the horizon, as rising rates are posing new challenges to the PE/VC fundraising environment. Preliminary investment statistics from various data providers appear to indicate a sharp drop in investment volumes during the second half of 2022. This challenging environment is also confirmed by the EIF VC and Private Equity Mid-Market Surveys, which indicate a turnaround in investor

sentiment, as the current macro-economic environment is expected to weigh on the exit environment.

The EIF's aim is to support the European PE/VC market in order to establish a well-functioning, liquid equity environment that attracts a wide range of private sector investors. In doing so, the EIF aims at leveraging its market assistance and seizing market opportunities in all areas of the equity eco-system which are relevant to the sustainable development of the industry. EIF's role as a counter cyclical investor remains of crucial importance to support the market in light of the current challenges. In the coming years, the EIF will continue to act as a cornerstone investor across the spectrum of Technology Transfer through venture capital (incl. impact investing) to the Lower Mid-Market and mezzanine financing. This also includes the launch and extension of new/pilot initiatives.

Enhanced use of investment in equity funds or subordinated debt/quasi-equity (as well as first-loss provisions) can leverage greater private sector capital and improve the bankability of higher-risk projects. Some of these products can address niche or region-specific market gaps and investment needs or can act as a catalyst to enable and accelerate strategic investment and can be combined with tailored advisory support (EIB, 2020).

In the immediate aftermath of the Covid-19 pandemic, there was a strong surge in the use of *guarantee* instruments, both at the national and European level, to meet with urgent short-term corporate liquidity shortages. The total number of outstanding public guarantees among AECM members more than doubled in 2020. Over the course of 2021, pandemic support programs were phased out and market volumes normalised, although total outstanding guarantee amounts still exceed pre-pandemic levels by a significant margin. With borrowing costs on the rise and SME access to finance issues increasing, guarantee instruments are expected to continue to play an important role in supporting SME debt markets.

The European *SME securitisation* market also bears the consequence of the Covid-19 crisis. Before the outbreak of Covid-19, SMESec issuance was still suffering from the after-effects of the financial crisis – and the pandemic further contributed to the market challenges. With the start of this new crisis, transaction parties focused more on amending deal documentation than on deal origination (Moody's, 2020a). While 2021 SMESec issuance was supported by the largest single transaction in Europe recorded to date, there hasn't been any visible issuance during the first semester of 2022.

In the areas of credit guarantees and securitisations, the EIF cooperates with a wide range of financial intermediaries. They include: banks, leasing companies, guarantee funds, mutual guarantee institutions, promotional banks, and other financial institutions that provide financing or financing guarantees to SMEs, such as debt funds. Given that SMEs have no direct access to the capital markets, banks are typically the most important source of external SME finance. Hence, funding limitations of banks have direct impact on SME lending capacity. For loans to SMEs, a standardised, transparent and quality-controlled securitisation market could transform these illiquid loans into an asset class with adequate market liquidity.

Microfinance is an important contribution to support inclusive growth. The EIF provides funding, guarantees and technical assistance to a broad range of financial intermediaries, from small non-bank financial institutions to well-established microfinance banks to make microfinance a fully-fledged segment of the European financial sector. Particularly in light of the current energy crisis, which is likely to impact the most vulnerable segments of European corporates, notably micro-enterprises, most severely, support on a European level remains of central importance – via funding, guarantees and technical assistance to a broad range of financial intermediaries, from small non-bank financial institutions to banks well-established in the microfinance or social enterprise finance market. Therefore, the EIF intends to sustain its support of microcredit, social investments, and participation in the increasing number of social finance institutions that are being established in Europe.

The Covid-19 pandemic and the subsequent recovery period have proven fertile grounds for the continued development of Fintech worldwide. While the emergence of Fintech predates Covid, the confinement measures introduced in the wake of the pandemic outbreak accelerated the growth of the sector, culminating in the grand-cru year 2021, with record deal activity, in particular in Europe and the United States. However, the inflationary environment is expected to pose significant challenge to this market as well. While higher rates might have a positive impact on (neo)banks' interest rate margins, they will also weigh on the fundraising environment, which in turn is likely to exert downward pressure on the lofty tech-valuations that emerged in the wake of the Covid-19 pandemic. Globally, Fintech VC and PE growth funding volumes have been declining in recent quarters (CB Insights, 2022; PitchBook, 2022), in line with the trend observed on the general market for tech financing.

In addition to the acute crisis situation in Ukraine and the lasting consequence of the Covid-19 pandemic on the global economy, the *climate emergency* is growing with every passing year. By endorsing the Paris Agreement on climate change, the European Union has committed itself to a path of sustainable economic growth. Private financing will play a central role in Europe's net-zero plans. Undeniably, European SMEs are at the heart of the EU Green Deal. Involving them in the transition process towards net-zero will be a key determinant of success for the European climate plan and the European goal to comply with the Paris Agreement.

In the Climate Bank Roadmap 2021-2025 (EIB, 2020), the EIB group outlines its goals for climate finance that supports the European Green Deal and helps make Europe carbon-neutral by 2050. SMEs and enterprises in the EIF's portfolio have been contributing to the EU's drive for resource efficiency and green transition for many years. The EIF aims to further accelerate its activities in the sphere of green finance, through its support for intermediated debt financing and equity products. The use of such instruments in support of climate and environment-related projects can make efficient use of (scarce) public sector resources and, thus, have strong leverage potential to catalyse investment by the private sector.

While sustainability will inevitably be incorporated into various aspects of SME financing markets, the practical implications of this remain to be decided upon. While various regulatory initiatives have been put in place in order to limit the risk of investment greenwashing practices (eg, the EU taxonomy and sustainable finance disclosure regulation), the implications for SME financing remain unclear. Sustainability disclosure initiatives should take into account the

specific nature of SMEs and consider the repercussions of additional red tape on SME market competitiveness. In this respect, institutions like the EIF can play an important role in establishing and spreading best market practices.

The development or further enhancement of intermediated debt products that support the green transformation will be among the key business development priorities of the EIF. These will be provided in the form of guarantees, counter-guarantees or credit enhancement and support for the European microfinance sector, with the shared purpose of accelerating the transition to green energy production, low emission transportation and to reduce greenhouse gas emissions and energy consumption in residential and industrial sectors, among others. In the same vein, through its activities with EU Member States and/or regional Managing Authorities, the EIF will design financial instruments promoting similar climate and environmental objectives, in line with national/regional policies (including cohesion and agricultural policies in the context of ESIF programmes (EIB, 2020).

Importantly, existing debt support schemes should be aware of the climate risk incorporated in their current portfolios. A recent study by the Worldbank, for example, has examined the portfolios of 29 European credit guarantee schemes and concluded that about one third is highly exposed to sectors that are vulnerable to climate risk, with a loss increase of around EUR 300m as a consequence of transition or physical risk associated with climate change (Calice and Reinders, 2022).

Europe's green journey will undoubtedly bring new challenges to European SMEs. However, every crisis also presents opportunities. The current energy crisis and record high fossil fuel prices, for example, are likely to create significant growth opportunities for the European Greentech sector. Vice versa, those same Greentech companies will ensure the EU can transition to climate-neutrality in a cost-effective manner. Greentech business models are often Deeptech and complex, requiring patient capital to outgrow the development stage and move towards commercialisation. Due to their nature, private funding made available to Greentech start-ups often undercuts demand. Therefore, government intervention is often warranted. By supporting the development of a healthy ecosystem of innovation financing, European policy makers can position the EU as a global market leader of Greentech technology. As an early investor in European Greentech and a core implementing partner of the European Green Deal, the EIF has played a crucial role in the early development of the market. It will continue to provide support by ensuring a sufficient supply of funds throughout the different growth stages of EU Greentech companies.

The effects of the consecutive crisis events that are currently hitting Europe require continued, targeted and efficient support for European SMEs. Moreover, the long-term consequences of the significantly changing framework conditions for SMEs lead to the need of a long-term time horizon for the planning and preparation of support measures and strategic priorities in order to mitigate downside risks and to build on opportunities for the European SMEs.

Annexes

Annex 1: SME shares by country industry

SME employment shares by country and NACE section (% , 2021)

Country \ NACE	B	C	D	E	F	G	H	I	J	L	M	N
AT	69	45	33	63	78	62	56	91	70	91	91	52
BE	77	54	14	50	87	70	51	90	66	99	87	37
BG	28	65	21	36	91	87	64	91	63	97	90	56
CY	.	81	7	.	97	84	75	73	67	.	91	80
CZ	20	54	40	62	91	72	56	92	61	97	91	63
DE	62	40	46	48	90	62	47	88	49	86	73	48
DK	35	52	53	61	84	61	50	85	63	83	71	58
EE	42	77	47	71	95	74	76	88	74	.	.	66
ES	78	63	43	30	89	72	64	82	48	97	80	40
EU-27	41	52	31	47	87	69	52	86	55	89	81	45
FI	61	50	53	78	82	64	69	82	62	87	81	55
FR	60	38	10	25	74	57	33	76	39	71	75	33
GR	52	80	63	86	94	80	69	91	62	93	94	59
HR	86	60	22	64	91	62	53	84	69	89	95	67
HU	80	47	17	38	94	78	48	91	65	91	88	66
IE	62	51	12	75	93	71	64	85	56	81	77	48
IT	85	72	33	50	95	82	58	90	62	98	90	47
LT	.	60	41	74	87	66	51	85	73	.	95	53
LU	.	43	57	71	82	77	56	80	66	.	68	39
LV	87	77	47	66	92	76	59	79	67	90	97	80
MT	.	99	.	44	94	97	54	83	75	.	89	52
NL	64	68	24	48	82	64	53	88	67	84	83	37
PL	15	54	16	66	91	72	62	86	61	93	88	51
PT	78	76	54	51	90	78	62	86	68	100	88	54
RO	50	51	15	38	90	76	60	89	52	91	85	55
SE	28	38	32	54	76	56	49	74	50	76	70	39
SI	48	58	36	72	94	71	72	87	82	.	97	67
SK	78	57	34	48	97	77	61	95	69	98	90	82

B	Mining and quarrying	H	Transport
C	Manufacturing	I	Hospitality
D	Electricity & Gas	J	ICT
E	Water & Waste management	L	Real estate
F	Construction	M	High-tech services
G	Wholesale and retail	N	Admin services

Source: European Commission (2022a)

SME value-added shares by country and NACE section (% , 2021)

Country \ NACE	B	C	D	E	F	G	H	I	J	L	M	N
AT	35	33	31	60	72	63	43	88	55	91	87	62
BE	68	35	49	38	81	71	55	86	50	99	80	45
BG	22	49	51	39	85	80	52	83	56	98	89	63
CY	.	78	28	.	.	80	70	71	55	.	88	83
CZ	24	40	23	53	82	67	46	86	46	98	85	68
DE	58	26	39	50	83	55	46	81	35	81	69	45
DK	.	36	62	82	83	68	41	80	59	87	66	68
EE	39	74	65	64	93	80	66	85	71	.	.	79
ES	62	46	50	29	80	64	46	71	32	97	72	41
FI	42	34	32	44	80	62	43	78	37	84	74	48
FR	42	38	59	70	74	62	60	75	57	97	78	59
GR	50	27	11	23	66	53	24	68	27	64	72	35
HR	36	48	.	45	90	66	49	70	40	91	90	55
HU	.	47	28	56	83	57	49	69	44	.	93	65
IE	78	29	18	42	84	73	66	87	48	97	82	68
IT	44	10	24	40	81	69	43	83	26	96	67	91
LT	62	59	30	46	91	72	45	85	39	99	85	48
LU	.	48	21	72	83	71	44	82	65	.	92	62
LV	.	35	56	75	82	85	38	79	53	.	62	72
MT	89	61	31	87	88	76	51	70	53	93	99	87
NL	.	94	.	14	93	79	43	75	76	.	89	65
PL	43	52	27	43	78	67	49	79	55	80	73	50
PT	8	37	14	58	85	61	47	80	37	94	79	54
RO	50	63	61	54	85	75	52	83	45	99	84	51
SE	37	34	37	40	92	70	55	85	38	97	84	60
SI	8	27	22	52	72	52	50	79	41	70	67	43
SK	50	50	44	73	91	75	59	79	65	.	96	64

B	Mining and quarrying	H	Transport
C	Manufacturing	I	Hospitality
D	Electricity & Gas	J	ICT
E	Water & Waste management	L	Real estate
F	Construction	M	High-tech services
G	Wholesale and retail	N	Admin services

Source: European Commission (2022a)

Annex 2: Classification methodology of Greentech technology fields

The classification used relies on Pitchbook’s proprietary categorisation system defined as *verticals*. Pitchbook designates verticals to investee companies by means of a keyword strategy based on companies’ business description. The data underlying Chapter 1 | 8 | contain all deals in companies that have been designated with the verticals ‘Cleantech’, ‘Climate tech’ or ‘Agritech’, referred to throughout the chapter as *Greentech* companies.

Table A2.1: The Pitchbook verticals underlying the Greentech investment data

<i>Agtech</i>	Companies that provide services, engage in scientific research or develop technology which has the express purpose of enhancing the sustainability of agriculture.
<i>Cleantech</i>	Companies with the primary purpose of developing new technologies related to clean energy production, transmission, storage, or use; water treatment and management; and/or efficiency in energy or resource management and use.
<i>Climate tech</i>	Companies that develop technologies intended to help mitigate or adapt the effects of climate change. The majority of companies in this vertical are focused on mitigating rising emissions through decarbonisation technologies and process.

Source: Pitchbook

The combined group of Greentech companies was segmented into seven mutually exclusive categories based on a cascading search strategy that uses a combination of industry-based or keyword-based classification and exclusion.

Table A2.2: Technological focus areas of Greentech investee companies

<i>Agtech</i>	Services, scientific research or technology which have the express purpose of enhancing the sustainability of agriculture. Eg., IT technology for vertical farming, insect farms
<i>Mobility</i>	Solutions in the field of clean mobility. Eg., battery technology for EVs
<i>Energy</i>	Innovations that seek to decarbonise energy production/consumption. Eg., renewable energy production (wind, solar, hydro), energy storage, ...
<i>Circular Economy</i>	Sustainable use of resources. Eg, waste management, recycling, sustainable material production
<i>Services</i>	Services, usually based on digital technologies or information processing, that aim to facilitate the transition towards sustainable economic production and consumption. Eg., software platforms for emission accounting
<i>Manufacturing</i>	Manufacturing technology which do not (exclusively) focus on technologies related to energy, circular economy or mobility. Eg, sensor development with cross-technological Greentech application fields
<i>Other</i>	Catch-all category aimed to capture all companies not covered by other categories.

Table A2.3: Overview of the classification strategy

	Category	Verticals	Additional keyword / industry conditions			Exclusion criteria
1.	Agritech	Agtech				
2.	Mobility	Cleantech OR Climate Tech OR Agtech	AND	Mobility Tech OR mobility OR transport OR electric vehicle technology OR hybrid electric vehicle OR Autonomous cars OR mobility OR railway OR public transport OR charging station OR Electric Vehicle Charging Infrastructure OR (battery AND mobility) OR automobile battery OR flight OR Transportation [INDUSTRY] OR Commercial Transportation [INDUSTRY]	NOT	Companies from search step 1.
3.	Energy	Cleantech OR Climate Tech OR Agtech	AND	Energy [INDUSTRY] OR renewable energy OR wind energy OR solar energy OR hydroelectricity OR hydrogen OR biomass OR heat pump OR shading	NOT	Companies from search step 1. & 2.
4.	Circular Economy	Cleantech OR Climate Tech OR Agtech	AND	Circularity OR circular economy OR packaging OR waste management OR surrogated boxes OR plastic OR materials OR green materials OR waste recovery OR waste treatment OR waste procession OR waste management system OR waste removal OR waste recycling OR Containers and Packaging [INDUSTRY] OR Other Materials [INDUSTRY] OR Construction (Non-Wood) [INDUSTRY]		Companies from search step 1., 2. & 3.
5.	Services	Cleantech OR Climate Tech OR Agtech		Commercial Services [INDUSTRY] OR Services (Non-Financial) [INDUSTRY] OR Retail [INDUSTRY] OR Restaurants, Hotels and Leisure [INDUSTRY] OR Financial Services [INDUSTRY] or IT Services [INDUSTRY]		Companies from search step 1., 2., 3. & 4.
6.	Manufacturing	Cleantech OR Climate Tech OR Agtech	AND	Business products [INDUSTRY] or Commercial products [INDUSTRY]		Companies from search step 1., 2., 3., 4. & 5.
7.	Other	Cleantech OR Climate Tech OR Agtech	AND	/	NOT	Companies from search step 1., 2. & 3 Companies from search step 1., 2., 3., 4., 5. & 6.

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