



TAKING ADVANTAGE OF CAPITAL MARKETS IN GERMANY AND THE EU

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References

This is a translated version of the original German-language chapter "Kapitalmarkt in Deutschland und der EU: Potenziale besser nutzen", which is the sole authoritative text. Please cite the original German-language chapter if any reference is made to this text.

KEY MESSAGES

- Well-developed and liquid capital markets can foster growth, diversify risks and provide households with profitable investment opportunities.
- Yet, capital markets in the European Union are fragmented and underdeveloped. They need to be strengthened, and the institutional regulatory framework needs to be harmonised.
- In Germany, companies are heavily dependent on bank loans, and venture capital is lacking. Institutional investors, such as insurance companies and pension funds, should contribute more to market-based financing.

SUMMARY

Well-developed and liquid capital markets promote **long-term growth as they help direct** financial capital towards the most productive and innovative companies. Integrated capital markets allow for better diversification of risks and provide companies with a wider set of financing options. Broadly diversified investment portfolios offer households attractive returns, e.g., for retirement savings.

To date, **companies** in Germany and Europe have relied heavily on bank financing. **Improved access to capital markets would expand** their **financing options**. This might particularly benefit companies that need capital for growth, innovation and the development of production capacities. Eliminating the unequal tax treatment of equity and debt would strengthen equity financing. Securitisation can provide a bridge between bank and capital market financing. While a significant relaxation of regulations for securitisation should not be pursued, some regulatory adjustments would be beneficial.

The **volume of venture capital** available for start-ups **has increased**. However, there is **still some catching up to do**, especially **in the area of late-stage financing**. New initiatives with state co-financing such as the Future Fund are a first step towards providing this market segment with the necessary volume. Exit options for venture capitalists also need to be improved.

Capital markets in Germany and many other EU Member States are weak compared to the United States. **Depth and liquidity**, typically provided **by large institutional investors, are low**. Pension funds or insurance companies too rarely directly invest in companies. Reducing regulatory barriers, such as quantitative investment limits, may increase their investments in the long term, but are unlikely to change the investment behaviour of these investors significantly.

The **expansion of funded pensions**, e.g., in the form of a public pension fund with an opt-out option in Germany could contribute **significantly to developing capital markets**. This could offer an investment opportunity with attractive returns and low risk to broad segments of the population that have not participated much in the capital market to date. This type of fund may help **develop an equity culture**. Households in Europe, and Germany in particular, hold a large part of their financial assets in the form of bank deposits and cash. In addition to improving financial literacy, a "starting capital" for children is a potentially promising way of familiarising people with capital markets from a young age.

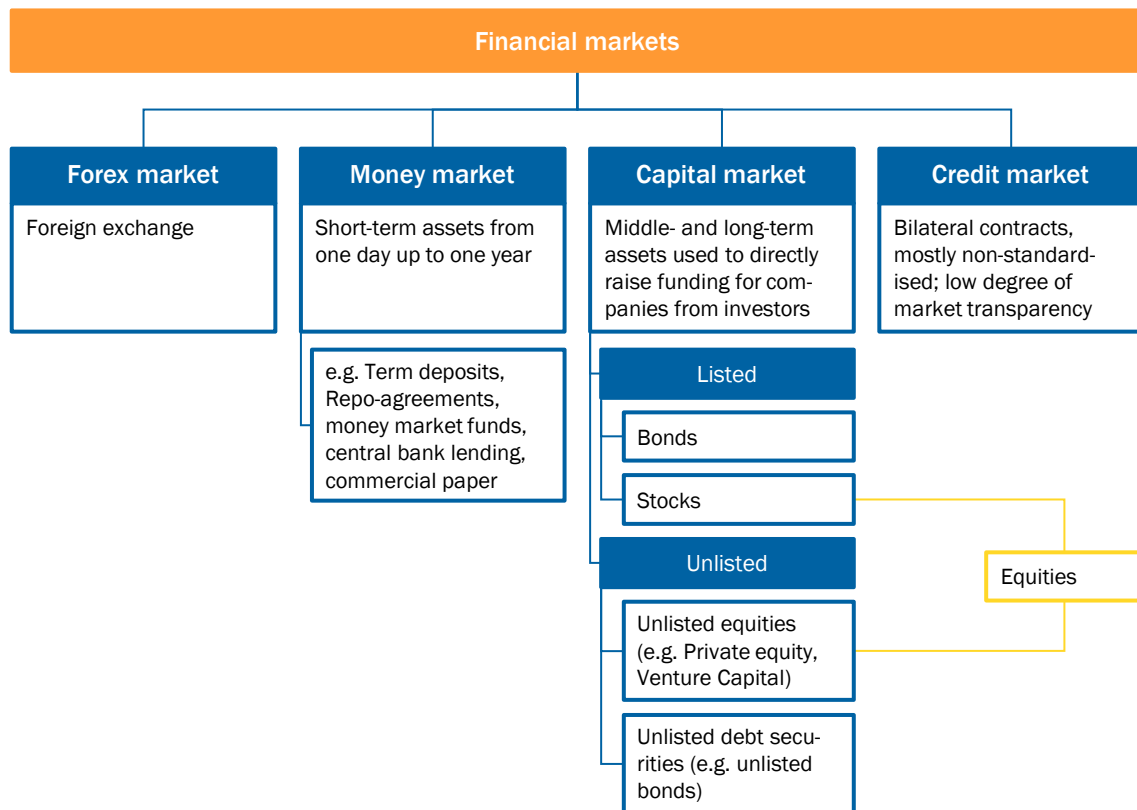
At present, European capital markets are nationally fragmented: in particular, there are major national differences in terms of corporate reporting and insolvency law, as well as tax barriers to cross-border investments. **Strengthening the European Securities and Markets Authority (ESMA)** may improve capital market integration, e.g., through the uniform application of regulatory requirements.

I. OVERVIEW AND MOTIVATION

185. **Financial markets** play an important role for the real economy especially by providing external financing to companies. Different types of financial markets have different functions. In capital markets, including equity and bond markets, companies obtain direct funding from investors. In credit markets, on the other hand, they borrow from banks as intermediaries. [↪ CHART 63](#) Large investors and banks **reduce information asymmetries** by **monitoring and screening**, which in turn relax **financial constraints**. This enables companies to undertake **profitable investments**. Well-developed financial markets also facilitate the **reallocation of capital** from low- to high-productivity firms and industries. They also **finance innovation and new technologies**. This boosts aggregate productivity and fosters long-term economic growth. [↪ ITEM 197](#)
186. Not all forms of financing are equally conducive to growth. **If the share of bank financing is already very high**, as it is in most European economies, a **further expansion of bank lending is unlikely to stimulate growth** (Demirguc-Kunt et al., 2013; Gambacorta et al., 2014; Cournède and Denk, 2015). Faster growth is more likely to come from strengthening capital markets that are comparatively underdeveloped. Stock markets and venture capital, which targets young growth companies (start-ups), are particularly well-suited to finance high-

[↪ CHART 63](#)

Capital markets as part of financial markets



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risk innovations. Many studies demonstrate that venture capital-backed start-ups disproportionately contribute to aggregate innovation (Kortum and Lerner, 2000; Akcigit et al., 2022; Schnitzer and Watzinger, 2022). [▶ ITEM 198](#)

- 187. **Capital markets are also critical for investments** in the context of the **digital and green transformation**. [▶ ITEMS 109, 125 AND 145](#) Public funds are insufficient for this purpose, and banks are often reluctant to lend given the high risks and uncertainty, e.g., about which of the new technologies will ultimately prevail. Equity and venture capital investors are more likely to finance such riskier projects.

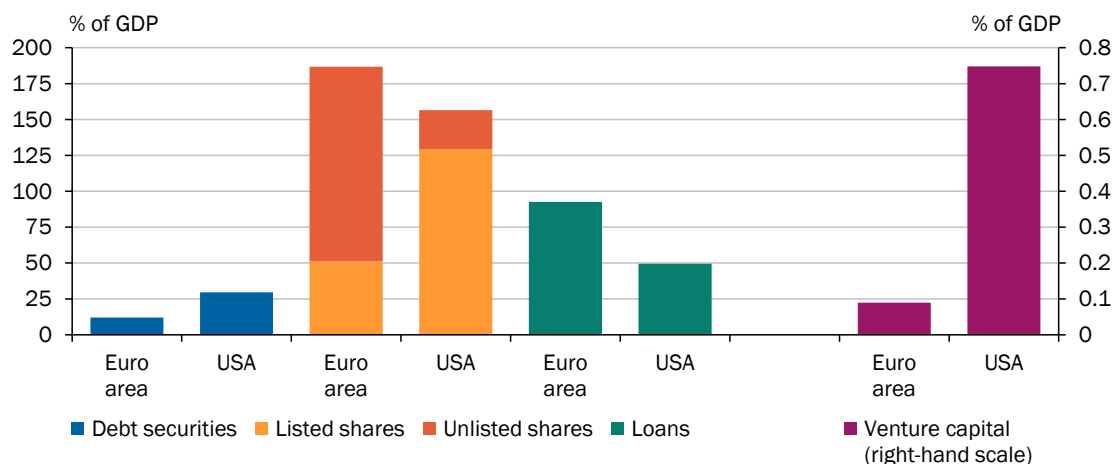
- 188. The **national capital markets** in Europe are still rather segmented. Their **integration** holds the promise to **increase market liquidity** and **improve risk diversification**. Income from diversified cross-border capital investments fluctuates less than income from domestically held assets. In addition, **diversification reduces financial risks** for the companies themselves as an integrated capital market offers them a wider range of financing options. This reduces their dependence on the local credit market, and adverse shocks, for example from loan defaults, are less likely to spill over into the real economy (Véron and Wolff, 2015; Hoffmann, 2020). Countries with a more market-based financial system tend to recover faster after crises (Allard and Blavy, 2011). [▶ ITEM 204](#)

Capital markets in Europe: fragmented and underdeveloped

- 189. **In the euro area, capital markets are fragmented and underdeveloped.** This is particularly evident in comparison to the United States. Companies in Europe use capital market instruments such as listed shares, bonds or venture capital to a lesser extent. In contrast, **bank loans** play a **significant role**. [▶ CHART 64](#) Unlike capital markets, where companies can raise both equity and debt, credit markets only provide debt. The debt-equity ratio of European companies is

[▶ CHART 64](#)

Sources of funding for non-financial companies in the euro area and the US in 2022



1 – Excluding Cyprus and Malta.

Sources: EZB, OECD, own calculations
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comparatively high, especially in Germany. This also reflects tax incentives like the tax deductibility of interest rates and the resulting debt-equity-bias in corporate taxation. Moreover, companies in the euro area often raise equity not via the stock market but directly from shareholders. Such non-listed equity is technically part of market finance, but usually rather illiquid and associated with lower company valuations (Ljungqvist and Richardson, 2003; Franzoni et al., 2012).

- 190. Improved access to capital markets** would broaden **companies' financing options**. For example, simplifying the issuance of stocks and bonds could lower the cost of an initial public offering (IPO) or bond issue and make them more attractive for a wider range of companies. Recent initiatives such as the Financing for the Future Act in Germany or the Listing Act of the European Union (EU) are first steps in this direction. Finally, a corporate tax reform that addresses the debt-equity-bias could make equity finance more attractive. This would raise companies' demand for equity and strengthen capital markets. In addition, larger equity buffers would reduce the insolvency risk of companies. [▶ ITEM 248](#)
- 191.** Even with better access to capital markets, the fixed costs of raising external financing via the stock and bond markets remain a significant hurdle for some companies, especially small and medium-sized enterprises (SMEs). In these cases, **securitisation** can **provide a bridge to market finance**. Firms would continue to borrow from banks, but banks securitise and sell these loans, thus reducing their financing costs and expanding their lending capacity. This would in turn allow for more favourably lending conditions and reduce the borrowing costs of companies. Currently, the securitisation market in Europe accounts for only 2 % of the total assets of European banks (ESRB, 2022). Banks largely use securitisation as collateral when refinancing with the European Central Bank (ECB) (Levitin, 2023).

Compared to the United States, the **European securitisation market** is **fairly small**. [▶ ITEM 220](#) This is primarily due to a vastly different institutional framework, in particular the absence of government guarantors for securitisations that are common in the United States. Other significant factors are the existence of alternative financial sources especially the covered bond market as well as market fragmentation in Europe and possible reputational concerns in the aftermath of the financial crisis. The differences in regulation between Europe and the United States are not substantial (Levitin, 2023). Improvements of the regulatory framework for securitisation are possible. [▶ ITEM 253](#) Creating a pan-European securitisation market would likely require further harmonisation of legal and tax systems as well as more international banks that operate in several countries and have access to cross-border assets. Completing the European Banking Union would facilitate the latter. [▶ ITEM 254](#)

- 192.** Another feature of the underdeveloped capital markets in Europe is the continued lack of sufficient financing options, especially for young growth companies (start-ups). **While the provision of early-stage venture funding has improved in Europe** in recent years, there is still a lack of institutional investors that could participate in larger-volume late-stage financing rounds. New initiatives such as the Future Fund in Germany aim at providing opportunities for growth financing.

Such temporary co-financing by the government can help develop this market. However, it would further increase the role of public funds in the European venture capital system, which is already high by international standards. The primary goal of government support in this market should be to strengthen the incentives of private investors to participate. This can be achieved through public-private risk sharing (Brander et al., 2015). **In addition, the exit options for venture capital investors should be improved.** Currently, large IPOs mainly take place in the United States. A pan-European stock exchange and deeper capital markets could render IPOs in Europe more attractive. [▶ ITEM 258](#)

- 193. Deep and liquid capital markets** need institutional investors who can provide large investment volumes and possess the internal know-how about financing large investment projects. [▶ ITEM 228](#) They ensure that companies with large-scale investment projects are financed efficiently. Relaxing certain regulatory requirements, such as quantitative investment limits, may help facilitate direct investments of institutional investors in corporate bonds or equities. To achieve a similar size of the venture capital market relative to the gross domestic product (GDP) as Sweden, which is the EU Member State with the largest venture capital investments, German pension funds would need to invest about an additional 0.5 % of their assets in venture capital in the medium term. In Germany, such a large institutional investor could be created through a publicly managed pension fund offering a supplementary funded pension. [▶ ITEM 454](#)
- 194.** Increased capital market participation offers households opportunities to invest in higher-return assets. In advanced economies, **equities**, along with a diversified portfolio of residential real estate, have earned the **highest realised returns in the long run** (Jordà et al., 2019). Moreover, broadly diversified equity investments exhibit a very low risk of loss. In the 20th century, global stock indices displayed a significantly lower risk of loss than national stock markets, thus providing a low-risk investment opportunity (Jorion, 2003). **Households** that participate in the **stock market** can better **accumulate wealth for retirement** (Lusardi and Mitchell, 2007). However, many households are reluctant to participate in the capital market or, if they do, often choose portfolios with low returns (van Rooij et al., 2011; Behrman et al., 2012). This behaviour, often caused by non-transparent investment products and a lack of financial literacy, can increase wealth inequality (Favilukis, 2013; Lusardi et al., 2017; Xavier, 2021). Stock market simulations and games in schools could help develop financial literacy already at an early age (Harter and Harter, 2010; Hinojosa et al., 2010). For adults, financial education in the workplace would be the most effective way of improving financial knowledge. [▶ ITEM 265](#) A starting capital for children, which is invested in the capital market, would embed access to the capital market at an early age. [▶ ITEM 266](#) Reforming privately funded pensions would also significantly increase households' capital market participation and their practical experience in financial matters. [▶ ITEM 454](#)
- 195.** The free movement of capital has been one of the four fundamental freedoms of the European Union since 1994. More than 20 years after the full implementation of the euro, **European capital markets remain highly fragmented.** According to the ECB's assessment, the degree of capital market integration in the

euro area is at the same level as in the mid-2000s. It even declined sharply during the financial and sovereign debt crisis (ECB, 2022). Progress towards more integration has been made in the area of the banking union despite some open issues like deposit guarantee schemes and the resolution of distressed banks (GCEE Annual Report 2022 items 256 ff.). Due to fragmented capital markets and pronounced home bias among private and institutional investors, risks in the European Union are often not sufficiently diversified (Darvas and Schoenmaker, 2017; Vivar et al., 2020). As a result, opportunities for risk sharing in the face of asymmetric shocks often remain unexploited. [▶ ITEM 242](#) Standardised reporting and accounting by companies across Europe would allow investors to better assess the risks of individual projects and to invest more across borders. For example, institutional investors could invest in a portfolio of projects based on similar technologies, such as wind farms, in different European countries.

196. The first attempt to **establish a Capital Markets Union** was made in **2015** with the European Commission's first action plan. In 2020, another action plan with new initiatives was presented by the Commission. Although many of these initiatives have been implemented, **the financial structure in the European Union has not fundamentally changed**. The fragmentation of capital markets has not decreased significantly [▶ ITEM 238](#) and banks continue to dominate financial activity (Sapir et al., 2018). Progress has been made in improving capital market access for SMEs, as indicated by the increased number of IPOs since 2015 (Better Finance, 2023). Since 2015, small investors have achieved lower estimated returns, and capital market participation has stagnated (Better Finance, 2023). Major initiatives that could serve as real catalysts for capital market integration in Europe have not yet been implemented at a European level. [▶ ITEM 268](#)

II. GOALS: WHY WELL-DEVELOPED CAPITAL MARKETS ARE IMPORTANT

1. Promote growth through reallocation and innovation

Capital market development, growth and productivity

197. One of the most important functions of well-developed capital markets is to support economic growth through investment and productivity gains. **Several empirical studies point to a positive correlation between financial development and long-term growth** of per capita income (see survey articles by Levine, 2004; Beck, 2013). Financial development is measured, for example, by stock market capitalisation or private credit relative to GDP. Empirical estimates are typically based on cross-sectional or panel data for different countries. Many studies also attempt to estimate the causal growth effect of financial development

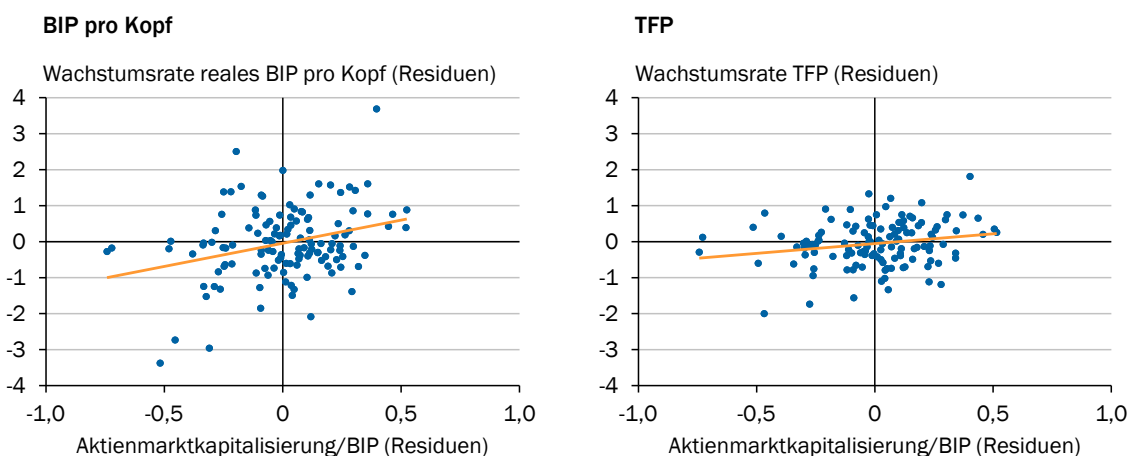
(e.g. Rajan and Zingales, 1998; Beck et al., 2000; Beck and Levine, 2004; Madsen and Ang, 2016).

198. **Not all aspects of financial development are growth-enhancing**, however. Recent empirical evidence suggests that the positive relationship between private credit and growth is weaker in high-income countries. In some cases, a larger banking sector may even be associated with negative growth rates (e.g. Cecchetti and Kharroubi, 2012; Gambacorta et al., 2014; Arcand et al., 2015; Langfield and Pagano, 2016). Nevertheless, the **growth effect of larger market finance remains positive even in advanced economies** (Demirguc-Kunt et al., 2013; Cournède and Denk, 2015). Shifting from bank to more market finance, as envisaged in the Capital Markets Union initiative, should therefore entail a positive effect on growth.
199. An **empirical analysis by the GCEE** uses data from the World Bank's Global Financial Development Database to **quantify the relationship between capital market development, growth and productivity in 15 EU Member States** that joined up to 1995. [↪ BOX 13](#) Compared to previous studies, this analysis relies on more recent data (1990 to 2019) and focuses on the effects of deeper equity markets rather than increased bank credit.

The **empirical estimates**, which account for the influence of other typical determinants of growth, **show a positive and statistically significant relationship between capital market development and growth of GDP and total factor productivity (TFP)**. [↪ CHART 65](#) [↪ TABLE 20](#) The estimates imply, for example, that a 20 percentage points increase in stock market capitalisation starting from the median of 52 % of GDP is associated with a 0.42 percentage point higher growth rate of real income per capita as well as a 0.18 percentage point

[↪ CHART 65](#)

Wachstum und Aktienmärkte: Partialeffekt¹



1 – Auf den Achsen sind die Residuen von OLS-Regressionen (siehe 2. Spalte der Tabelle 20) der Wachstumsraten bzw. der erklärenden Variable (Aktienmarktkapitalisierung/BIP) auf die Kontrollvariablen (einschließlich Länder und Zeit Fixed Effects) abgebildet; die Steigung der Geraden entspricht dem Koeffizienten (2. Spalte). Das Sample umfasst 15 EU-Mitgliedstaaten (1990 – 2019), wobei für alle Variablen 3-Jahresdurchschnitte verwendet werden.

Quellen: Weltbank, eigene Berechnungen
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higher growth rate of TFP. [↪ TABLE 20 COLUMN 2](#) This increase is roughly equivalent to the difference between the stock market capitalisation in Ireland (52 %) and France (72 %). Given the mean growth rates of 1.61 (per capita income) and 0.53 % (TFP) in the estimation period, these effects are not only statistically but also economically significant. Their magnitude is similar to those estimated by Cournède and Denk (2015) for OECD countries, which are based on comparable data for a shorter time period (1989 to 2011). However, this effect diminishes as the size of the stock market increases: For example, the same 20 percentage points increase in stock market capitalisation starting from 104 % of GDP (i.e. twice the median) is only associated with a 0.23 percentage points higher GDP growth rate and a 0.1 percentage points higher growth rate of TFP, which is roughly half as large as the baseline effect.

200. In **contrast**, the estimated **relationship between private credit and growth rates is zero or negative**. [↪ TABLE 20 COLUMN 6](#) This indicates a diminishing or negative growth effect of the already very large banking sector in Europe. [↪ ITEM 198](#) In contrast, the coefficients of stock market capitalisation remain positive and statistically significant even in this specification.
201. A frequent criticism of stock markets is that **short-term return expectations of investors** may induce companies to make myopic decisions, which could weaken the effect on growth (Stein, 1989; Asker et al., 2015). However, such an effect is already taken into account by these aggregate estimates, but it does not dominate. In addition, more recent empirical studies suggest the opposite effect, i.e. **companies that go public well exploit investment opportunities**. As a result, they tend to be more productive than comparable companies which are privately owned (Maksimovic et al., 2023).

[↪ BOX 13](#)

GCEE analysis: Capital markets, growth and productivity in Europe

The relationship between capital market development, growth and productivity is estimated following an approach of Cournède and Denk (2015) who suggest a panel data regression (Ordinary Least Squares [OLS] with fixed effects). [↪ TABLE 20](#) Accordingly, growth rates of real GDP per capita and TFP are regressed on capital market development as well as on control variables, country and time fixed effects: $y_{it} = \beta Fin_{it-1} + \delta X_{it-1} + \eta_i + \mu_t + \varepsilon_{it}$

Capital market development is measured by the stock market capitalisation (columns 1 to 4 and 6) [↪ TABLE 20](#) and the value of shares traded on domestic stock exchanges (column 5) [↪ TABLE 20](#) relative to GDP, each in the previous year. The latter does not only account for the size but also for the liquidity of the stock market. Given the use of logarithmic values, the **coefficient** represents the **growth effect of a 1 percent (i.e., 0.01) increase in stock market capitalisation**. The control variables include typical determinants of long-run growth, namely, the investment ratio, labour force growth, human capital as measured by years of education, and real GDP per capita in the previous year, as well as an indicator for systemic banking crises widely used in the literature (Laeven and Valencia, 2018). All variables are averaged over three years. Multi-year averages are common in the literature (e.g. Beck and Levine, 2004) to better capture long-term growth effects and to limit the impact of cyclical fluctuations. (However, OLS estimates based on annual data rather than three-year averages yield comparable results).

TABLE 20

Estimates: capital market, productivity and growthRegression coefficients¹

	Growth rate of real GDP per capita					
	(1)	(2)	(3)	(4)	(5)	(6)
Stock market ²	0.877 (0.547)	1.281 *** (0.386)	1.927 * (1.096)	1.359 (0.943)	0.844 *** (0.228)	1.139 *** (0.306)
Lending ³						-2.592 *** (0.824)
Observations	127	127	75	75	129	119
Number of countries	15	15	14	14	15	15
R ²	0.605	0.691	0.734	0.835	0.718	0.749
F-Statistic (first stage)			5.538	5.220		
	Growth rate of TFP					
	(1)	(2)	(3)	(4)	(5)	(6)
Stock market ²	0.383 *** (0.184)	0.541 *** (0.194)	1.807 *** (0.450)	2.186 *** (0.726)	0.337 *** (0.107)	0.528 * (0.291)
Lending ³						-0.310 (0.565)
Observations	125	125	75	75	127	117
Number of countries	15	15	14	14	15	15
R ²	0.413	0.519	0.564	0.622	0.500	0.525
F-Statistic (first stage)			5.538	5.220		
Method	OLS	OLS	IV	IV	OLS	OLS
Control variables ⁴	no	yes	no	yes	yes	yes
Fixed effects (time)	yes	yes	yes	yes	yes	yes
Fixed effects (country)	yes	yes	no	no	yes	yes
Country-specific trend	no	no	yes	yes	no	no

1 – 3-year averages are used for all variables. Robust standard errors clustered at the country level. Significance levels: * p-value < 0.1; ** p-value < 0.05; *** p-value < 0.01. 2 – Log stock market capitalisation (columns 1–4 and column 6) or log value of shares traded (column 5), each relative to GDP. 3 – Log bank lending to the private sector as a share of GDP. 4 – Log GDP/capita, log gross fixed capital formation/GDP, growth rate of the labour force, average number of years of schooling (at age 25) in the previous year, and an indicator variable for systemic banking crises (Laeven and Valencia, 2008, 2018).

Source: own calculations

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Since capital market development is endogenous, the OLS estimates can only identify a **correlation and not necessarily a causal effect**. For instance, higher (expected) growth rates might be reflected in a higher stock market capitalisation. The literature employs various techniques to estimate **effects that can be interpreted causally**. An example is **instrumental variables (IV) estimation**, using institutional factors like legal origin or the quality of accounting standards as instruments for financial development (e.g. Beck et al., 2000; Levine et al., 2000).

instrument. The index aggregates information about seven different dimensions of financial market liberalisation (e.g. market access, credit and interest rate controls, banking regulation) and is available on an annual basis between 1973 and 2005. The results are shown in columns (3) and (4) TABLE 20. They are qualitatively comparable to the OLS estimates and therefore

support the positive relationship between stock market capitalisation and growth. However, like in other studies with the same instrument (Cournède and Denk, 2015), the correlation between the instrument and the endogenous regressor (stock market capitalisation) is rather weak (see F-statistic). In part, this is due to little variation in the Financial Reform Index during the estimation period as well as due to the fact that the instrument is only available up to the year 2005, which reduces the number of observations.

Key mechanisms of action: reallocation and innovation

- 202. Well-developed financial markets, especially capital markets, also foster productivity and growth.** [↪ TABLE 20 BOTTOM](#) After all, one of their most important economic functions to allocate capital efficiently. By screening and monitoring, large investors and banks mitigate information asymmetries, identify the most profitable investments, and direct funds specifically to such projects. In particular, a well-developed financial market facilitates **the reallocation of capital from low- to high-productivity firms and industries**, which boosts aggregate productivity. [↪ ITEM 147](#) Empirical evidence (e.g. Wurgler, 2000; Pang and Wu, 2009) suggests that better developed capital and banking markets help increase investment in industries with rising productivity, while simultaneously decreasing investment in those with declining productivity. Especially the liquidity of capital markets is important in this context (Eisfeldt and Rampini, 2006).
- 203.** In addition, financial markets contribute to productivity growth by **financing innovation and new technologies**. Apart from internal funds, **market finance** is considered **particularly suitable** for this purpose (GCEE Annual Report 2020, items 514 ff.). One example is venture capital, which mainly targets young growth companies (start-ups) that are innovative and very risky but offer high returns if successful. Since their assets are often largely intangible and thus unsuitable as collateral (Bates et al., 2009; Dell'Ariccia et al., 2021), banks are usually not prepared to finance these companies. As active investors, venture capitalists offer start-ups expertise, networks and intensive monitoring in addition to financing. Hence, venture capital-backed start-ups are often particularly successful and make a disproportionately large contribution to innovation and growth. In the United States, venture capital-backed companies account for only 3 % of research expenditures, but 8 % of industrial innovation (Kortum and Lerner, 2000). They also stimulate the innovation activity of established companies via knowledge spillovers (Schnitzer and Watzinger, 2022). Simulations suggest that in a hypothetical scenario without any venture capital, the annual GDP growth rate in the United States could fall significantly by up to 0.5 percentage points from an average of 1.8 % (Akcigit et al., 2022).

Stock markets are key for the development of the high-tech sector, which generates a particularly large number of innovations (GCEE Annual Report 2021 items 438 f.). According to empirical studies that consider various advanced and emerging economies, this sector grows at a faster rate and exhibits a higher degree of innovation whenever companies have better access to the stock market (e.g. Brown et al., 2013; Hsu et al., 2014). In addition, stock markets are better suited

than banks to deal with the uncertainty about technological innovation. Innovative projects can thus still be financed opinions among investors diverge (Allen and Gale, 1999). The **various capital markets complement** one another. For example, a liquid stock market is a prerequisite for venture capitalists who want to withdraw from a successfully established start-up via an IPO.

2. Improve the diversification of risks

204. In addition to the efficient allocation of capital, another important function of **capital markets** is **risk sharing**. [↪ BACKGROUND INFO 4](#) Capital markets that are integrated across national borders can **diversify risks between countries and regions** and help **absorb country-specific shocks**. **This is particularly important in the context of the European Monetary Union**. In addition to fiscal policy, countries normally have monetary policy at their disposal as an instrument for absorbing macroeconomic shocks. In the euro area, however, national central banks cannot react to country-specific shocks due to the delegation of monetary policy to the ECB (Giovannini et al., 2022).



↪ BACKGROUND INFO 4

Definition: Risk sharing

Risk sharing absorbs the impact of a macroeconomic shock, thereby avoiding, for example, a sharp fall in domestic consumption in the event of an asymmetric recession. This is achieved through three channels (Cimadomo et al., 2022). First, via factor income, which, in addition to income from employment in other countries, includes capital income from financial assets held abroad (GCEE Annual Report 2018 item 52). Investment income, such as dividends from foreign companies, contribute to the disposable income of domestic households and can be used directly for consumption smoothing (Bracke and Schmitz, 2011). In addition, capital gains from foreign financial assets increase household wealth. Through this wealth effect they can have an impact on the decision to save and thus promote consumption smoothing (Bracke and Schmitz, 2011). Empirical evidence indicates that greater diversification through equity and bonds holdings in a country is associated with greater risk sharing and with smaller fluctuations in income and consumption in response to GDP (Sørensen et al., 2007). Second, companies that borrow from international banks are less exposed to asymmetrical shocks and can, for example, continue to finance their investments even in the event of a local banking crisis. This is because this type of crisis is less likely to restrict the lending capacity of an international bank than of a local bank (Hoffmann, 2020). Third, these shocks can be cushioned by fiscal transfers between regions that are affected in different ways or financial budgets that are shared across regions.

205. While banks can contribute to risk sharing through the credit channel, their ability to do so depends on how they are integrated. Indirect integration via interbank markets enables banks to better reallocate funds across borders. At the same time, it increases the risk of financial contagion (Fecht et al., 2012). However, in this case **there is no diversification in the sources of financing** for the real economy. If a local banking crisis occurs, international banks withdraw funds and

local banks can no longer raise financing via the interbank market. As a result, they supply less credit (Hoffmann, 2020). A **"direct" integration of the banking markets, on the other hand, can contribute to consumption smoothing**. If a domestic shock occurs in the banking sector, the real economy can then turn directly to foreign banks for bank financing. If, on the other hand, the foreign banking sector experiences a shock, local banks can supply the real economy with credit (Hoffmann, 2020).

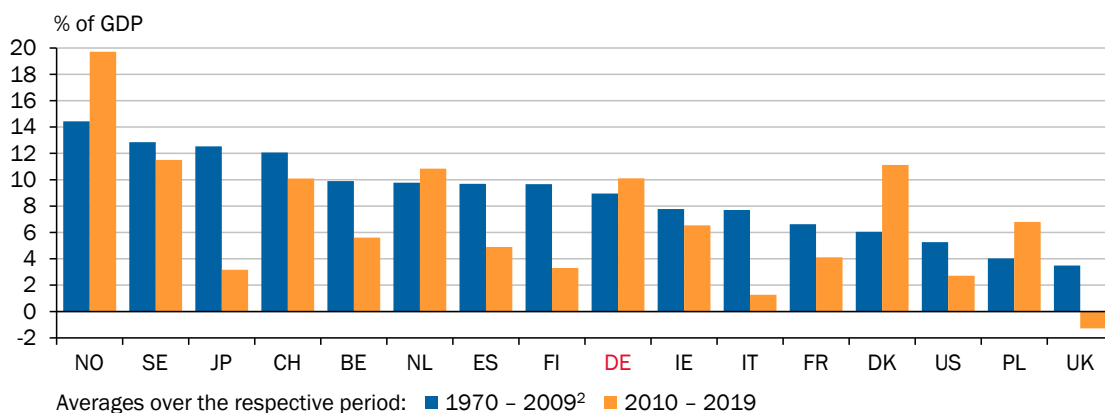
In addition, diversified **financing via capital markets** can ensure that companies continue to be supplied with **liquidity**, thereby mitigating a credit crunch in the banking market. The **bond market** in particular can take on a stronger financing role as a **substitute for the credit market** and expand the range of financing instruments available.

3. Capital markets can promote capital formation

206. The supply of capital is **largely** determined at **macroeconomic level** by the **saving rate as well as by the capital inflows and outflows from abroad**. Savings are defined as the disposable income that is not used for final consumption expenditure and thus available for capital formation. Among the OECD member states considered, the net saving rate (sum of private sector savings, i.e. of households and companies, and of the public sector, net of depreciation, measured as a share of GDP) was highly heterogeneous between 2010 and 2019, ranging roughly from 19.7 % in Norway to -1.3 % in the United Kingdom. [↪ CHART 66](#) A relatively low net saving rate was also recorded in the United States (2.7 %). However, the low net saving rate in the United States was due, for example, to the high deficits and correspondingly to dissaving (6.5 %) in the public sector. The net saving rate in many OECD member states was significantly higher in the period before 2010 than in the period between 2010 and 2019. [↪ CHART 66](#)

[↪ CHART 66](#)

The net saving rate has declined in many advanced economies over the past decade¹



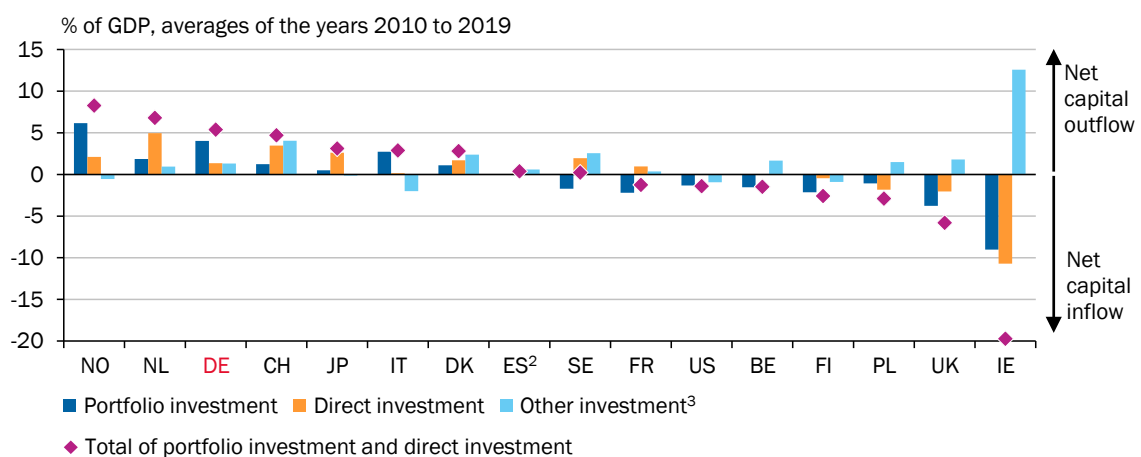
1 – NO-Norway, SE-Sweden, JP-Japan, CH-Switzerland, BE-Belgium, NL-Netherlands, ES-Spain, FI-Finland, DE-Germany, IE-Ireland, IT-Italy, FR-France, DK-Denmark, US-USA, PL-Poland, UK-United Kingdom. 2 – Data from 1970 onwards are not available for all countries: France and Norway from 1978, Poland from 1991, Switzerland from 1995.

Sources: OECD, own calculations
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207. In **Germany**, the net saving rate of 10.1 % between 2010 and 2019 was **higher than in many OECD member states** and even increased slightly compared to the period before 2010. [↪ CHART 66](#) Public finances contributed significantly to this development through the accumulation of general government budget surpluses. The net saving ratio in the public sector averaged about 1.1 % in the period from 2010 to 2019. In contrast, the private sector saving rate has remained broadly stable at 8-9 % over the past decades. The literature provides strong evidence of a high correlation between the gross as well as the net saving rate and the investment ratio (Feldstein and Horioka, 1980; Tesar, 1991; Bai and Zhang, 2010). However, this correlation may have weakened since 2000, especially for advanced economies (David et al., 2020).
208. In addition to being influenced by the aggregate savings of domestic agents, **the supply of capital available domestically is largely determined by international capital flows**. The domestic supply of capital can be reduced by capital outflows and increased by capital inflows. For example, some OECD member states with low net saving rates, such as the United States or the United Kingdom, experienced significant net capital inflows from abroad between 2010 and 2019. [↪ CHART 67](#) Meanwhile, several euro area member states – including Germany – experienced significant capital outflows.
209. Germany thus has a relatively high supply of financial resources provided by domestic agents, some of which however flows abroad. Sufficient capital would therefore be available for higher capital formation. **To boost investment in Germany, the investment environment needs to be attractive** in terms of regulatory frameworks, the availability of labour, and innovative companies, for example. [↪ ITEMS 163 FF. AND 153 FF.](#) **In addition, financing must be available for this purpose in a suitable form**, i.e. through a mix of credit supply and

[↪ CHART 67](#)

High net capital outflows from Germany among selected OECD member states¹



1 – NO-Norway, NL-Netherlands, DE-Germany, CH-Switzerland, JP-Japan, IT-Italy, DK-Denmark, ES-Spain, SE- Sweden, FR-France, US-USA, BE-Belgium, FI-Finland, PL-Poland, UK-United Kingdom, IE-Ireland. 2 – No data available for portfolio investment. 3 – Sum of the balances of other investment, transactions in financial derivatives and foreign reserves and reserve assets, net acquisition of financial assets. Due to statistically unclassifiable transactions, the sum of portfolio investment, direct investment and other investment differs from the sum of the current account and the capital account.

Sources: OECD, own calculations
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demand for equity investments, for example in the form of shares and venture capital, and exchange-traded debt capital, for example in the form of bonds. [↪ BOX 13](#) This allows a broader range of companies to receive the appropriate financing.

III. INITIAL SITUATION: CAPITAL MARKETS IN EUROPE

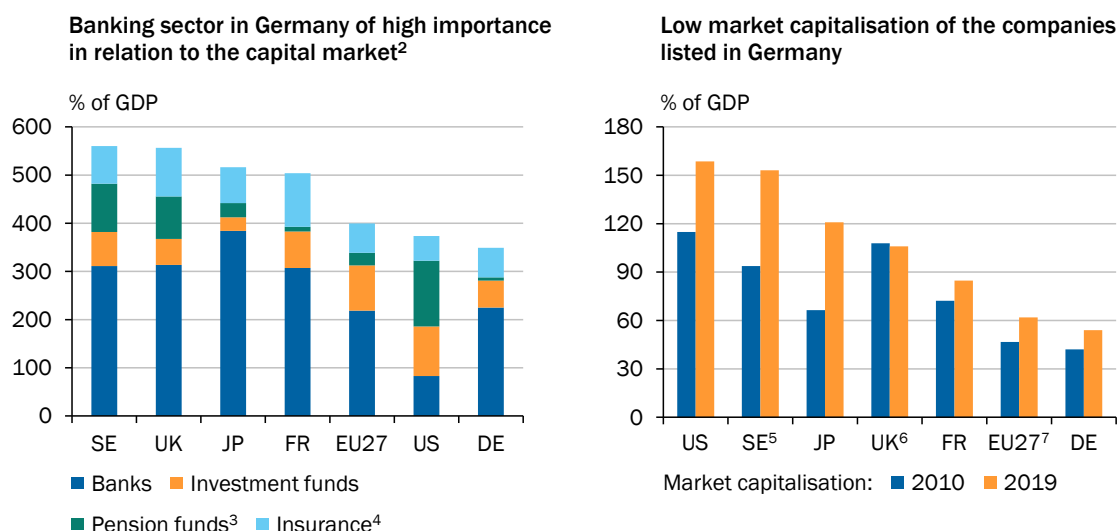
1. Companies highly dependent on bank credit

210. In the euro area, banks account for a large share of the financial market in terms of assets relative to GDP. The importance of banks is similar to Japan and the United Kingdom, but much stronger than in the United States. [↪ CHART 68](#) Banks do not only provide credit, they are also active participants in the capital market themselves: They hold securities in custody (e.g. stock portfolio management), execute securities orders (e.g. issuing corporate bonds), securitise liabilities (e.g. bundling corporate loans) and act as investors themselves. In a market-based system, by comparison, institutional investors such as pension funds, investment funds and insurance companies are considerably more active. In particular, they also invest in stocks, thereby providing companies with more equity.

[↪ BOX 14](#)

[↪ CHART 68](#)

Germany and Europe: Small capital market, large banking market¹



1 – DE-Germany, EU27-European Union, FR-France, JP-Japan, SE-Sweden, UK-United Kingdom, US-USA. 2 – In each case, assets in relation to GDP. Average values from 2010 to 2020. 3 – EU27: Excluding values for Cyprus. 4 – EU27: Excluding values for Luxembourg. 5 – Data for 2011 instead of 2010. 6 – Data for 2018 instead of 2019. 7 – Data for 2010 excluding Denmark, Estonia, Latvia, Lithuania, Sweden and Czechia.

Sources: BoJ, CEIC, ECB, Fed, World Bank, own calculations

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↳ BOX 14

Background: Market vs. bank-based financial systems

The relative advantages of market- and bank-based models of corporate finance has been widely discussed in the literature. **Banks help reduce information asymmetries** between borrowers and lenders (Boot and Thakor, 2000). They have special expertise in activities like monitoring and screening and have comparative cost advantages compared to individual investors (Diamond, 1984). As a result, banks can finance companies that, for example, do not have access to the capital market owing to a lack of established reputation and transparency, such as many SME. In addition, banks **often establish long-term lending relationships** with firms (relationship lending). These relationships have a **stabilising effect** as solvent companies can continue borrowing even in the case of a temporary liquidity shortfall, for example during a recession (Bolton et al., 2016; Beck et al., 2018).

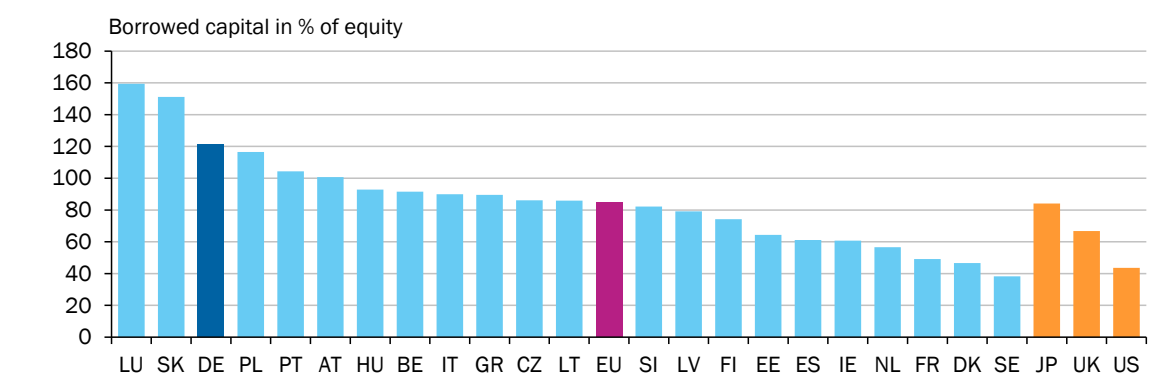
Market finance is generally only available to some companies. In particular, established and large companies with sufficient equity can borrow directly on the capital market by issuing bonds or shares (Boot and Thakor, 1997; Holmstrom and Tirole, 1997; Repullo and Suarez, 2000). **Companies with high equity**, for example, have **better incentives** and are therefore less dependent on intensive monitoring by banks. As a result, such companies can continue borrowing even during a banking crisis, in which lending is severely restricted. This is one reason why **market-based economies**, where companies **on average** have **higher capital ratios**, tend to recover faster from banking crises (Allard and Blavy, 2011; Gambacorta et al., 2014).

Growth of advanced economies is largely driven by **innovation**. For that purpose, market finance such as stock markets and venture capital is more important. Markets are better suited than banks to **finance high-risk investments**, for example in **innovative companies**. [↳ ITEM 203](#) Furthermore, economies that are **heavily bank-dependent** tend to **grow at slower rates** and to be more **vulnerable to financial and real estate crises** (Langfield und Pagano, 2016; Bats und Houben, 2017). This is due to **pro-cyclical bank lending**, which amplifies the impact of asset price shocks (Kiyotaki and Moore, 1997), and the incentives of weakly capitalised banks to continue lending to unproductive firms (Peek and Rosengren, 2005; Acharya et al., 2019). This **"zombie lending"** occurs mainly because banks with little equity cannot absorb losses of restructuring those loans without getting into trouble themselves. This leads to misallocation and thus slows down productivity growth (Caballero et al., 2008; Acharya et al., 2019). Finally, banks mainly finance companies with tangible assets such as real estate that can be used as collateral. However, recent evidence from the United States suggests that such companies are often less productive (Doerr, 2020).

211. Companies borrow from banks mainly in the form of debt, usually loans. Given the importance of banks in **the European Union**, this implies that the **share of debt finance** for non-financial companies is **very high**. [↳ CHART 69](#) However, there is considerable cross-country heterogeneity. Companies in Germany have an especially high debt-to-equity ratio of 121 %. French companies, in contrast, exhibit a debt-to-equity ratio of 49 %, which is only slightly above U.S. companies with 43 %.
212. One **barrier to equity finance** is the **preferential tax treatment of debt over equity**. In Germany, most EU Member States and the United States, companies can deduct the cost of debt but not the cost of equity from the corporate or personal income tax. This **debt-equity bias** creates an incentive for companies and banks to use debt rather than equity, thereby leading to high leverage and insolvency risk. A **positive and significant effect of corporate income tax**

↘ CHART 69

Heterogeneous but high ratio of debt to equity in the EU¹



1 – For non-financial corporations in 2021. LU-Luxembourg, SK-Slovakia, DE-Germany, PL-Poland, PT-Portugal, AT-Austria, HU-Hungary, BE-Belgium, IT-Italy, GR-Greece, CZ-Czechia, LT-Lithuania, EU-European Union (weighted average of member states shown), SI-Slovenia, LV-Latvia, FI-Finland, EE-Estonia, ES-Spain, IE-Ireland, NL-Netherlands, FR-France, DK-Denmark, SE-Sweden, JP-Japan, UK-United Kingdom, US-USA.

Sources: OECD, own calculations

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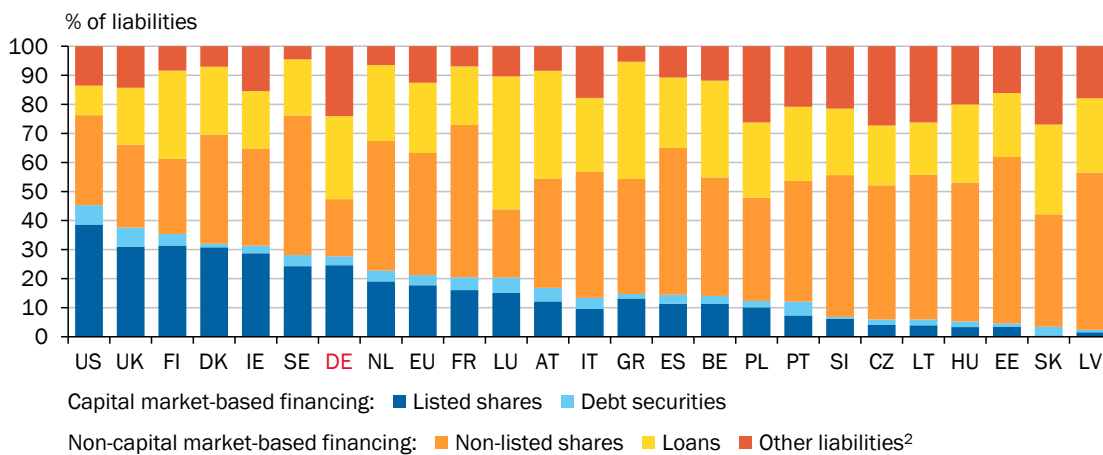
on the debt to assets ratio of companies is well documented in the empirical literature: According to several meta-studies, a one percentage point increase in the corporate tax rate raises the debt-to-assets ratio by 0.17 to 0.28 percentage points (de Mooij, 2011; Feld et al., 2013). Recent studies for the United States and the United Kingdom suggest a long-term increase in the debt-to-assets ratio of around 0.4 and 0.76 to 1.4 percentage points, respectively (Heider and Ljungqvist, 2015; Devereux et al., 2018). For Germany, Dwenger and Steiner (2014) estimate a comparatively high tax elasticity of 0.7 for companies with positive profits that are thus directly affected by the corporate income tax. Hence, a one percent higher marginal tax rate raises the debt-to-assets ratio by 0.7 %.

213. Market finance of non-financial companies especially regarding debt securities and listed shares is **notably more pronounced in the United States than in the European Union**. ↘ CHART 70 To a lesser degree, this also applies to the United Kingdom. Within the European Union, market finance is widely used by companies in the Scandinavian countries, but much less so in Eastern European countries. In Germany, market finance represents about 28 % of corporate borrowing, which is above the EU average of 22 %.

214. In Germany, **the number of companies that raise capital on the stock market is much smaller** than in the United States or the United Kingdom. In 2022, for example, only **one company was newly listed** in the Prime Standard of the **German Stock Exchange**, the market segment designed to attract more foreign investors, after twelve companies in the previous year. In contrast, the New York Stock Exchange recorded 149, Euronext with several exchanges including Paris, Amsterdam and Milan 83, the London Stock Exchange 45 and the Stockholm Stock Exchange 15 IPOs in the same year (Euronext, 2022; Nasdaq OMX Nordic, 2022; EY, 2023; Scheid and Dholakia, 2023). In addition to insufficient depth of the German capital market, the low participation of companies is also explained by the **considerable fixed costs** associated with an IPO or a

↘ CHART 70

Financing structure of non-financial corporations in 2021¹



1 – US-USA, UK-United Kingdom, FI-Finland, DK-Denmark, IE-Ireland, SE-Sweden, DE-Germany, NL-Netherlands, EU-European Union (27 member states excluding Cyprus and Malta), FR-France, LU-Luxembourg, AT-Austria, IT-Italy, GR-Greece, ES-Spain, BE-Belgium, PL-Poland, PT-Portugal, SI-Slovenia, CZ-Czechia, LT-Lithuania, HU-Hungary, EE-Estonia, SK-Slovakia, LV-Latvia. 2 – Consist largely of insurance, pension and standardised guarantee schemes, financial derivatives and employee stock options, as well as supplier's credits and other claims and liabilities from the provision of goods and services. For details, see UN et al. (2009).

Sources: OECD, own calculations

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bond issuance. Hence, market finance is only attractive for companies above a **critical size**. These fixed costs include the costs of preparing a prospectus, of lawyers and investment banks as well as for setting up comprehensive financial reporting and investor relations. For example, the median IPO volume in 2021 was €405 million in Germany compared to €165 million in the United States (Kirchhoff, 2021; WilmerHale, 2022). A volume of several hundred million euros is often considered a prerequisite for issuing new bonds. Most medium-sized companies in Germany falls short of this critical size, which is also reflected in their financing choices. According to a survey, only 3 % of SMEs would like to borrow on the capital market, while bank loans are widely considered the most important source of finance (Bley et al., 2023).

Securitisation plays a minor role in bank financing.

215. **Securitisations** ↘ [BACKGROUND INFO 5](#) can build a **bridge between bank and capital market financing** as an indirect form of capital market financing. Securitisation of assets has advantages for both the issuer and the buyer. By selling financial assets, the issuers, especially banks, can refinance. **Banks gain an additional diversified source of funding that** they can use to grant new loans (Loutskina, 2011). Securitisation allows the maturities of assets and liabilities to be matched. Banks often finance their loans with short-term customer deposits. By selling securitisations, banks can obtain additional liquidity when it is needed earlier. At the same time, they can limit their own risk. For example, if a bank specialises in lending to certain borrowers or in certain regions, it is exposed to cluster risk. The bank can reduce this cluster risk by selling the financial assets. **Institutional investors can use securitisations to invest more easily in**

a wide range of securities exposed to different risks. Buyers are not exposed to the same (cluster) risk as issuers and can thus diversify their own portfolio.



▷ BACKGROUND INFO 5

Clarification of terms: Securitisations

Securitisations are financial instruments in which **several assets**, often bank loans, are **bundled into a single investible security**. This security is traded on the capital market. The assets are sold to a special purpose vehicle, which in turn issues asset-backed securities on the capital market. The securitisations consist of similar assets, e.g. mortgages, car loans or consumer loans. This pool of assets is **divided into tranches with different risk profiles according to risk categories and then issued**. The assets can either be legally transferred, so that they do not remain on the balance sheet of the issuer, or only the credit risk is traded and the assets remain on the balance sheet.

216. However, **securitisation** can bring about **risks and moral hazard**. ▷ BOX 15 If financial institutions eliminate risk on their own balance sheets by selling financial assets, there is an **incentive to grant loans to borrowers despite their poor credit record**, including for example mortgage loans to non-creditworthy households. Some loans are only profitable because of monitoring carried out by the bank and would not otherwise be granted. The **bank's incentive to monitor** the borrower, with the associated costs, is **reduced** due to securitisation. In addition, it can be difficult to correctly assess and price default risk, especially for complex products. For example, valuation is difficult in the case of re-securitisations where securitisation positions are packaged into new securitisations.

▷ BOX 15

Focus: Role of securitisation in the global financial crisis 2007/08

While **securitisation was not the sole trigger**, it was a **major contributor to the spread and deepening of the 2007/2008 financial crisis** (Delivorias, 2016). In the early and mid-2000s, high-risk mortgages were increasingly extended to borrowers with low credit ratings in the subprime segment. Financing was provided through a new financial instrument: Private Mortgage-Backed Securities (PMBS). These securitisations were not issued or guaranteed by any of the government-sponsored enterprises (GSEs) or US federal agencies. These government-sponsored enterprises, primarily Fannie Mae and Freddie Mac, or agencies, primarily Ginnie Mae, assume the default risk on agency residential mortgage-backed securities (RMBS). Many of the mortgages in the subprime segment were issued with initially low interest rates (teaser rates), which rose sharply after a few years. These mortgages had no fixed interest rate. Borrowers fell into arrears with payments over time. Combined with a widespread collapse in house prices, default rates rose sharply, not only in the subprime segment, but also in the prime segment (Amromin and Paulson, 2010).

The **central problem of the securitisation market** before the financial crisis **was that issuers of securitisations often did not keep any significant credit risk on their books**. This reduced the incentives to closely screen the credit rating of borrowers so that only borrowers with sufficiently high credit rating would be granted a loan and subsequently monitored. This business model,

in which loans are only granted in order to securitise them immediately and resell them in their entirety (originate to distribute), is especially profitable for high transaction volumes (Fender and Mitchell, 2009). The easier it was to securitise loans in the subprime and low-documentation market, the less of an incentive lenders had to screen borrowers (Keys et al., 2012). Due to the assumption that house prices would rise, securitisations of mortgage-backed securities were considered a safe product and were often given the highest rating. This was particularly problematic in the case of re-securitisations (collateralised debt obligations or CDOs), which re-bundled and re-securitised the junior tranches of mortgage securitisations. The highest default rates were observed in this asset class during the financial crisis (Levitin, 2023).

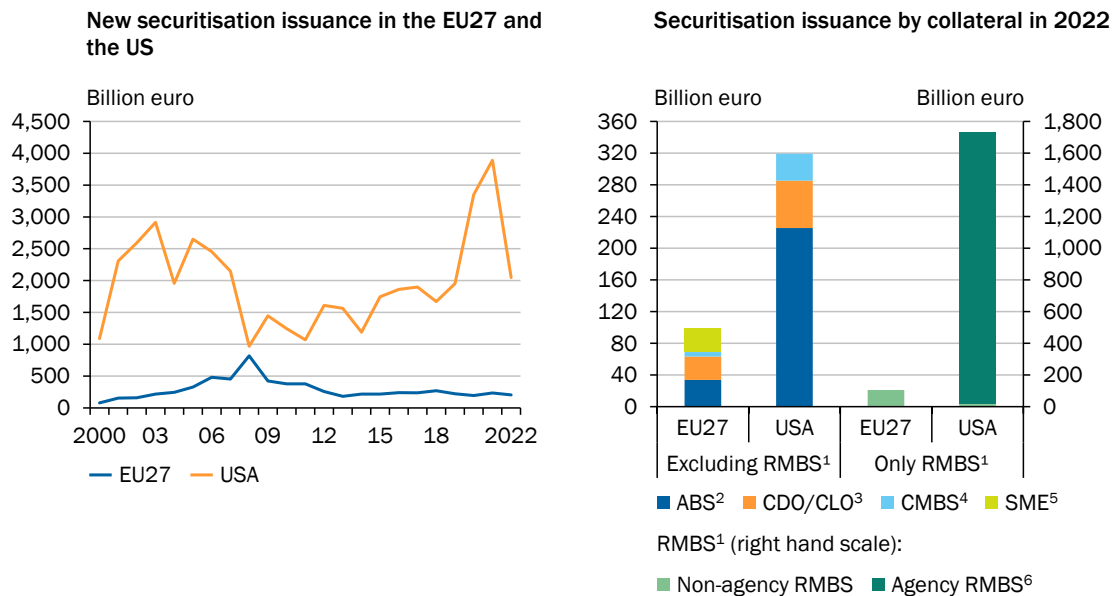
However, the fact that the **crisis was able to spread globally from the subprime mortgage market** was only partly due to foreign investment in US securitisations (Beltran et al., 2008). Rather, contagion through **global banking networks** and **investor behaviour** played an important role. Global banks affected by a liquidity shock reallocated their internal funds and withdrew the funds from some branches (Cetorelli and Goldberg, 2012). Banks that had extended interbank loans to countries affected by the crisis generated lower returns and extended fewer corporate loans. This was likely due to losses incurred in restructuring these non-performing interbank loans (Hale et al., 2016). During the crisis, investors also abruptly withdrew large amounts of capital from emerging markets and, in some cases, from advanced economies (e.g. Fratzscher, 2012; Raddatz and Schmukler, 2012). The extent to which incorrect ratings by rating agencies contributed to the crisis is disputed. Although ratings based on flawed and complex mathematical models were initially considered an important factor (FCIC, 2011), by 2013 the losses incurred on AAA-rated residential mortgage securitisations issued until 2008 amounted to only 2.3 %. For securitisations of all ratings, losses amounted to 6.5 % (Ospina and Uhlig, 2018).

In contrast to the United States, **European securitisations** exhibited very **low default rates** over the same period. In Europe, issuers typically retain a larger share of the pool on their own balance sheets than in the US originate-to-distribute model (Kirschenmann et al., 2018). In Italy, for example, default rates on securitised mortgages were lower than those on non-securitised mortgages in the period from 1995 to 2006 (Albertazzi et al., 2011).

217. Securitisation can provide **indirect access to the capital market** for **companies** that cannot or do not want to raise financing directly on the capital market due to their size or because of high regulatory requirements. In addition, banks can access refinancing at lower cost by selling securitisations. By selling securitised loans to investors who have a longer investment horizon, liquidity is tied up where short-term liquidity is less needed (Gischer and Kaserer, 2021). A study of syndicated **corporate loans** issued and **securitised** in the United States between 2002 and 2007 shows that these loans had **lower yields** than loans that were not securitised (Nadauld and Weisbach, 2012).
218. **Prior to the global financial crisis of 2007/2008, the European securitisation market had grown** from under €100 billion of new issuances in 2000 to over €400 billion, peaking in 2008. ↘ [CHART 71 LEFT](#) After a significant decline, **the volume** of new issuances has **stagnated** over the past 10 years. ↘ [CHART 71 LEFT](#) The share of retained securitisations, i.e. securitisations that are not sold to investors, has accounted for at least half of all new issuances since 2008. An important factor contributing to this high share is likely the possibility of using securitised loans as collateral with the ECB in order to obtain favourable funding. Securitisations posted as collateral for ECB repo borrowing have a lower haircut

↪ CHART 71

Securitisation market in the EU significantly smaller than in the US



1 – Residential mortgage-backed securities. 2 – Asset-backed securities. 3 – Collateralised debt/loan obligations (securitisations of securities backed by financial assets/secured corporate credits). 4 – Commercial mortgage-backed securities (securitised loans for commercial and multi-family properties). 5 – Small and medium-sized enterprises. 6 – RMBS issued or guaranteed by one of the parastatal companies or a US federal agency.

Source: AFME

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than the underlying loans (Levitin, 2023), presumably because they are more liquid due to their marketability. In the second quarter of 2021, 84 % of outstanding securitisations were held by European banks, 7 % by investment funds and 5 % by insurance companies (ESRB, 2022). With regard to bank financing, securitisations play a minor role, apart from financing via the ECB (Levitin, 2023).

219. The **European securitisation market** has historically been dominated by five countries – Germany, France, Italy, Spain and the Netherlands. Pan-European securitisations now account for about one-third of new issuances (AFME, 2023). With the exception of collateralised loan obligations (CLOs), most securitisations are based on **assets from one country**. For example, car loans to French and German households are not securitised together. Differences in the legal system, especially in insolvency law, but also other regulation and heterogeneous tax systems complicate the cross-border assessment of the underlying risks (Levitin, 2023). In the European Union, securitisations of mortgage-backed securities (MBS) accounted for a total of 52 % of issuances in 2022, significantly less than in the United States. ↪ CHART 71 RIGHT

220. Securitisation is used for refinancing to a greater extent in the **United States** than in the European Union. ↪ CHART 71 LEFT The reason for the prominent role of securitisation, especially for mortgages, lies in the **institutional regulatory frameworks**. The market for RMBS is dominated by government institutions that take on the credit risk of RMBS through guarantees. Mortgages in the United States are highly standardised and suitable for securitisation due to their high

degree of comparability. RMBS include mortgages from households across the country, since regulatory differences between states are small (Levitin, 2023).

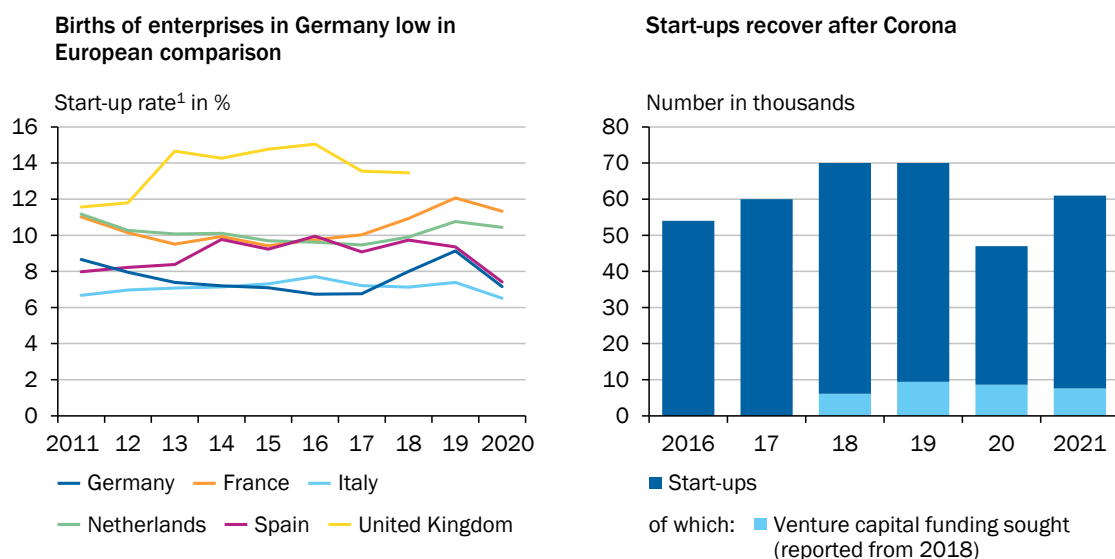
- 221. The main reasons for the differences between the securitisation markets** in the United States and the European Union are the **institutional regulatory frameworks** ↘ ITEM 220, the size of individual EU states, and, to a limited extent, **alternative financing options**. Covered bonds can offer a financing alternative, especially for mortgages and debt secured against the public sector, ships and aircraft. In the Netherlands, which until a few years ago had the largest securitisation market in the European Union, the value of newly issued covered bonds exceeded the value of newly issued securitisations in 2021 (DNB, 2022). Securitisations play a role, albeit on a small scale, in financing corporate loans, especially for SMEs, which are not eligible as an asset class for covered bonds.

Rise in venture capital, but high share of foreign investors

- 222. The rate of new businesses being established** in Germany remains at a **low level** relative to other large economies in Europe. ↘ CHART 72 LEFT Company foundations and company closures significantly determine the reallocation of production factors between companies (GCEE Annual Report 2019 item 183). **Start-ups** make up only a small part of those newly founded businesses. Start-ups are defined as **innovation-driven or growth-driven young companies** that are focused on technological or market innovation (Metzger, 2022a). Following a coronavirus-induced downturn, the number of start-ups in Germany recovered recently and stood at around 61,000 companies. Of these, 7,600 companies sought venture capital funding. ↘ CHART 72 RIGHT

↘ CHART 72

Births of enterprises and start-ups



1 – Number of births of enterprises in the respective year in relation to the number of active enterprises in the same year in the business economy (except activities of holding companies).

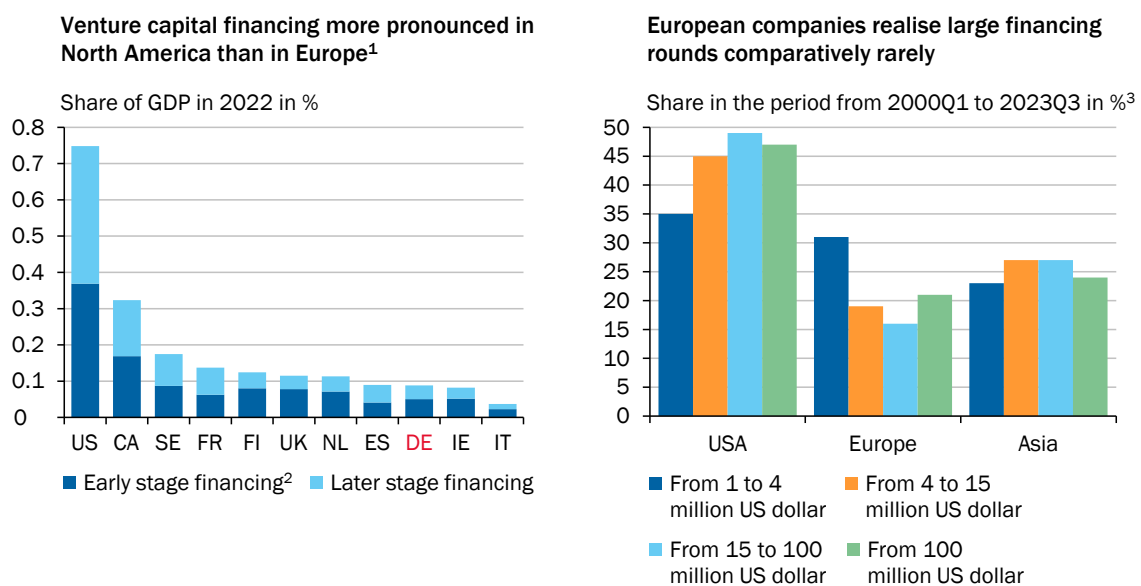
Sources: Eurostat, Metzger (2022a)

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- 223. The German venture capital market is small, both compared to neighbouring European countries and by global comparison.** Nevertheless, there has been a significant increase in venture capital investments in Germany and Europe in recent years (EFI, 2022; GCEE Annual Report 2019 items 285 ff.). For example, venture capital investment in Germany accounted for about 0.088 % of GDP in 2022, a fourfold increase compared to 2010. [↪ CHART 73 LEFT](#) However, this improvement was based on a **low starting point**. Relative to GDP, venture capital investment within Europe was significantly higher in, for example, Sweden (0.175 % of GDP), France (0.137 % of GDP) and the United Kingdom (0.115 % of GDP) in 2022. In the United States, capital formation increased about sevenfold over the same period, to 0.75 % of GDP in 2022. [↪ CHART 73 LEFT](#)
- 224.** Venture capital is an important financing component for start-ups in their various development phases. [↪ CHART 74](#) **In Germany, the supply of capital for early-stage financing** (seed and start-up phase) **in particular** has **improved** since 2007. This development has been favoured by a period of low-interest rates and by public-private venture capital companies such as the High-Tech Gründerfonds (HTGF) (Achleitner et al., 2019). However, in terms of realising large-volume **financing rounds for the subsequent late stage** (expansion and later stage), the German venture capital market has **developed less dynamically** than in other countries during the same period (Röhl, 2021). In the case of large financing rounds, particularly clear differences are evident in the availability of capital between Europe, Asia and the United States (Achleitner et al., 2019; Metzger, 2020). [↪ CHART 73 RIGHT](#) To catch up internationally, there is a **need for substantial venture capital funds** that are capable of supporting start-ups through multiple large financing rounds. On average, the investment volume per deal in Europe

[↪ CHART 73](#)

International comparison of venture capital financing

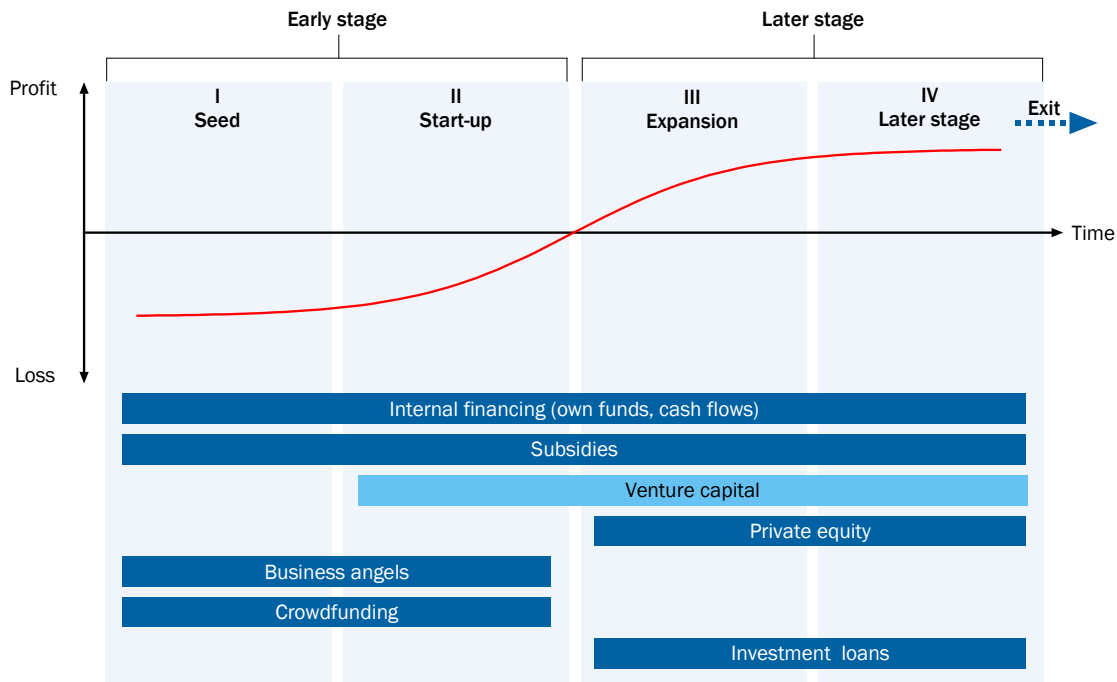


1 – US-USA, CA-Canada, SE-Sweden, FR-France, FI-Finland, UK-United Kingdom, NL-Netherlands, ES-Spain, DE-Germany, IE-Ireland, IT-Italy. 2 – Including seed, start-up and early stage. 3 – Share of global deal volume in the period by target region. The difference to 100 % is distributed across the rest of the world.

Sources: Dealroom.co (2023), OECD
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➤ CHART 74

Financing stages and instruments of start-ups



Source: own depiction

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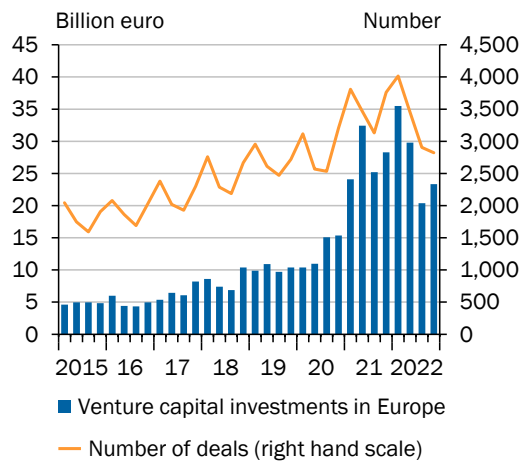
was around €8 million in 2022 (PitchBook and NVCA, 2023). ➤ CHART 75 LEFT This is low compared to the United States, where the average deal size in the same year was around €14 million (PitchBook and NVCA, 2023).

225. **Venture capital from investors outside Europe accounts for a comparatively large share of the European and German venture capital market** at all stages of start-up development (GCEE Annual Report 2020 item 523). More than 40 % of financing rounds for European companies in 2019 took place with the participation of at least one foreign investor. ➤ CHART 75 RIGHT In Germany, this share is even slightly higher (Braun et al., 2021). The share of foreign investors is particularly large in the late stage. A high share of foreign investors in financing rounds is **not problematic per se**. However, empirical evidence suggests that the participation of foreign venture capitalists increases the **risk of profit realisation abroad (exit) and company migration**. This causes problems because non-European venture capital is invested in the most innovative and promising start-ups, whose migration has particularly severe consequences (Braun et al., 2021; Hellmann and Thiele, 2023). Even considering the considerable public funds that flow into venture capital financing in Germany, an exodus of start-ups represents a major loss.
226. In Germany, the public sector's share of funds raised by venture capital funds in 2017 to 2019 was 16 %, which is average in comparison with other European countries (EU28: 17 %). Compared to non-European countries, the **share of public investment in venture capital financing in Europe is high** (Metzger, 2020). Relative to economic output, Germany invested more public funds in government support programmes for new businesses between 1995 and 2019 than, for example, the United States, Sweden or Israel (Bai et al., 2021). Both Israel and

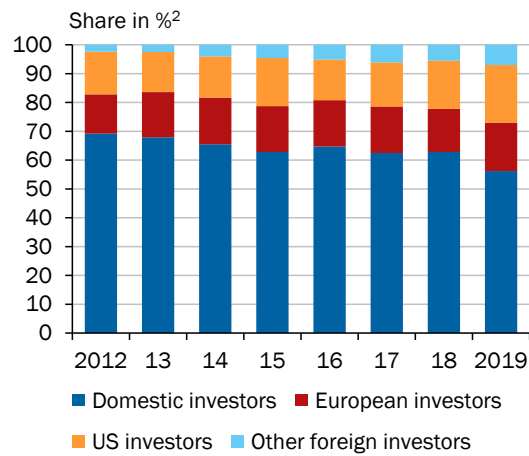
↘ CHART 75

Venture capital investment in Europe

Investment volume and number of deals recently at historically high level



Share of financing rounds with foreign participation increases¹



1 – The sample includes all venture capital financing rounds between January 1990 and August 2019 for companies headquartered in Europe in the Venture Source database. 2 – Percentage of financing rounds involving at least one domestic/European/US investor/other foreign investor.

Sources: Braun et al. (2021), PitchBook and NVCA (2023)
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Sweden have succeeded in building internationally successful venture capital markets since the mid-1990s. Israel’s success can be largely attributed to the government’s Yozma initiative, which offered attractive tax incentives to foreign venture capital investors in Israel and promised to match any private investment with government funds (Avnimelech et al., 2004; Wonglimpiyarat, 2016). The resulting temporarily very high level of state participation in the venture capital market has since been scaled back. Sweden’s success, on the other hand, is attributed less to public funding in the venture capital market and more to government investment in digital infrastructure, which has created an attractive investment environment for start-ups in the country (Davidson, 2015). The international comparison with Israel shows that government initiatives can pave the way for a successful private venture capital market (Avnimelech et al., 2004; Lerner, 2010; Wonglimpiyarat, 2016). Empirical evidence suggests that the way support programmes are designed is a crucial factor in determining whether public venture capital has a complementary effect on private venture capital (Brander et al., 2015; Alperovych et al., 2020; Bai et al., 2021) or whether it crowds out private investment (Engel and Heger, 2005; Brander et al., 2008). ↘ ITEM 255

227. In the past, **funding programmes and domestic venture capital funds** were mostly tailored to **early financing phases**. The Future Fund launched by the Federal Government in 2021 (BMF, 2021) is intended in contrast to boost financing options in the capital-intensive growth phase of start-ups. Through its various modules and the participation of various public and private investors, this initiative is expected to mobilise funds totalling €40 billion for start-ups in Germany by the end of 2030 (BMWK, 2022a). In February 2023, the European Tech Championship Initiative (ETCI), launched by Germany and France, got underway at the European Investment Fund (EIF, 2023). The aim of the pan-European

initiative, which also pools resources from other member states, is to strengthen large-volume financing rounds for growth-oriented start-ups from European investment funds.

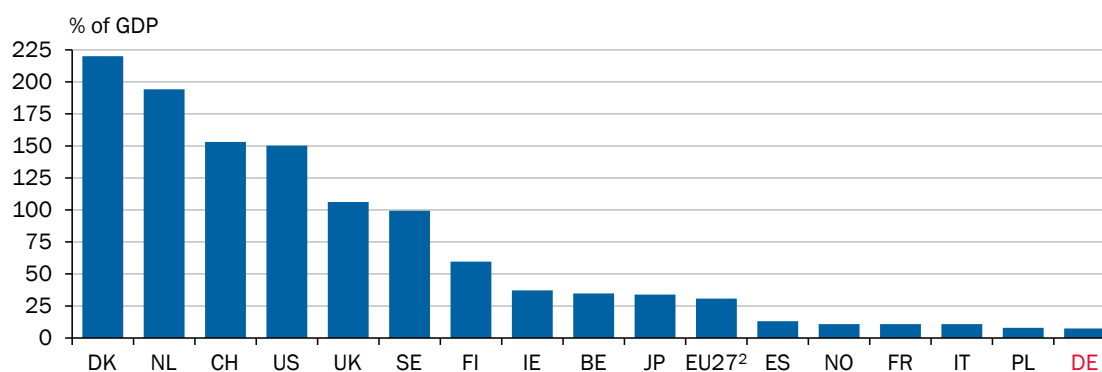
2. Institutional investors play a minor role

- 228. In order to efficiently finance projects or companies that have high capital requirements, investors with large capital pools are necessary.** For these investors, even substantial investment in individual projects do not create a cluster risk. This also applies in the venture capital sector, which typically includes particularly high-risk or new companies. Furthermore, information asymmetries must be addressed so that investors are willing to finance a company in the first place. This is particularly important for projects in the area of new technologies, such as those aimed towards the green transformation (Monk et al., 2015; In et al., 2020). Thanks to greater in-house expertise among institutional investors, higher volumes of capital can be used more efficiently and in a more diversified way, e.g. in private equity, infrastructure and venture capital in addition to bonds and equities (MSCI, 2021).
- 229. The generation of large investment funds often only occurs when institutional investors pool capital** from multiple clients that are independent of each other. **Traditionally, banks have played this role** and financed long-term investment projects using short-term deposits that are often immediately callable. While creating economic value, this maturity transformation (Diamond and Dybvig, 1983) also requires appropriate risk management to avoid liquidity shortages in the event of short-term deposit withdrawals.
- 230. Investment funds, insurance companies and pension funds can** also finance large projects and often create a large demand for capital market instruments such as stocks and bonds. In the United States and Scandinavian countries, pension funds already provide a large pool of capital. These funds hold a smaller share of assets in the European Union and Germany. [↘ CHART 68](#) Pension funds offer the advantage of far more predictable liability maturities and are therefore associated with **fewer risks than with maturity transformation performed by banks**. As a result, liquidity bottlenecks occur less frequently and investments can be structured to focus on the long term.

Furthermore, pension funds have a positive effect on the corporate governance of the companies in which they invest. They are often represented in shareholder committees and supervisory bodies of the respective companies and thus exercise an **active control function**. This improved governance is reflected in better performance over the long term. For example, empirical evidence shows that the value of companies increased when they changed their governance structure following proposals from the California Public Employees' Retirement System (CalPERS) (Smith, 1996). A similar effect has been shown in Sweden for investment by public and independent pension funds. In contrast, investments by pension funds that are controlled by banks or industry groups resulted in a drop in company value (Giannetti and Laeven, 2009).

↘ CHART 76

Investment assets of private pension providers in OECD member states very heterogeneous¹



1 – In 2019. DK-Denmark, NL-Netherlands, CH-Switzerland, US-USA, UK-United Kingdom, SE-Sweden, FI-Finland, IE-Ireland, BE-Belgium, JP-Japan, EU27-European Union, ES-Spain, NO-Norway, FR-France, IT-Italy, PL-Poland, DE-Germany. Not included are parts of occupational pension schemes, especially in Germany. 2 – Weighted average excluding Cyprus.

Sources: OECD, own calculations

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231. Due to the ageing population, **private pension funds are growing in importance**. Non-governmental pension providers, which are defined somewhat more broadly by the OECD than pension funds, have witnessed a substantial increase in pension assets across OECD member countries over the past two decades from 59 % of GDP in 2001 to 105 % in 2021 (OECD, 2023). Pension plan assets are notably high in relation to GDP in Denmark and the Netherlands. In contrast, pension assets play a very minor role in the four largest economies in the euro area. ↘ CHART 76 In addition, **some countries have public pension reserve funds**, which support pay-as-you-go pension systems. An **example** is **Norway**, where the public pension fund reached an investment volume of 1.3 trillion US dollars in 2020, equivalent to 332 % of GDP. Smaller-scale public pension reserve funds also exist, for example, in Japan, Canada, Portugal, Sweden and the United States (OECD, 2020).
232. German non-bank financial institutions are comparatively modest in size and tend to invest their capital at relatively low risk. **German private pension providers and insurance companies** mainly hold bonds and **invest less capital in higher-risk assets such as equities**. ↘ BOX 16 Insurers across the European Union must comply with the uniform Solvency II Directive. However, unlike capital requirements in the banking sector, this directive does not apply directly but must be transposed into national law. Therefore, the exact requirements may differ somewhat between countries. **Differences** also exist in **the national supervisory culture**, which is reflected in the different ways supervisory authorities "think, behave and work" (European Court of Auditors, 2018). It is unclear whether the slight differences in national regulations and supervisory culture explain different investment behaviour, or whether differences in risk culture within national companies play a more important role.

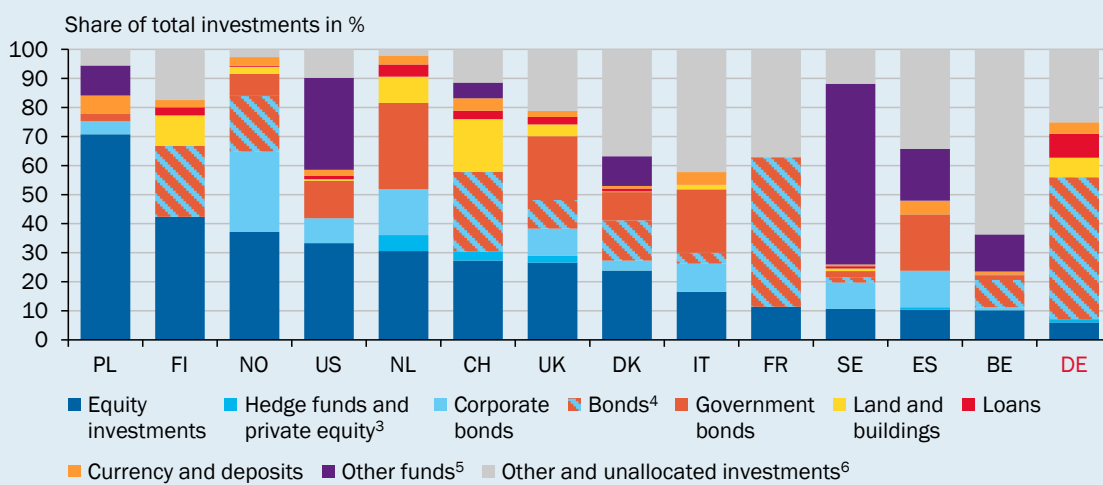
▷ BOX 16

Focus: Investment behaviour of pension providers and insurers

German pension providers, especially *Pensionskassen* and insurance companies, are **notably risk-averse by international comparison**: Less than 10 % of their assets are in equities, while almost half are allocated to bonds. ▷ CHART 77 German occupational pension schemes (*berufsständische Versorgungswerke*), which provide funded pensions in the first pillar of the German pension system for some self-employed people, operate somewhat more closely to the capital market and managed around €257 billion in funds at the end of 2021. Of this, they invested 25.9 % in stocks and 12.3 % in private equity (*Arbeitsgemeinschaft berufsständischer Versorgungseinrichtungen*, 2022). In Poland and Finland, in contrast, the equity share of pension providers is much higher, at around 70 % and 40 % respectively.

▷ CHART 77

Heterogeneous asset allocation of pension providers in selected OECD member states¹



1 – In 2019. Data include domestic as well as foreign investment and refer to pension plans via pension funds, pension insurance contracts or other funding instruments depending on the organisation of each funded pension scheme as well as on data availability for each member state. PL-Poland, FI-Finland, NO-Norway, US-USA, NL-Netherlands, CH-Switzerland, UK-United Kingdom, DK-Denmark, IT-Italy, FR-France, SE-Sweden, ES-Spain, BE-Belgium, DE-Germany. 2 – For some member states, due to data availability, it is not possible to break down investment via open-ended investment funds into individual asset classes or bond investments into corporate bonds and government bonds. The actual share of some asset classes in total investment for these member states might differ from the share shown here. 3 – Structured products included. 4 – Excluding breakdown by corporate or government bonds. 5 – Not broken down into open-ended mutual funds, funds managed by banks and investment companies managed funds. 6 – Unallocated pension contracts, pension funds (autonomous), provisions (non-autonomous) and unallocated and other investments.

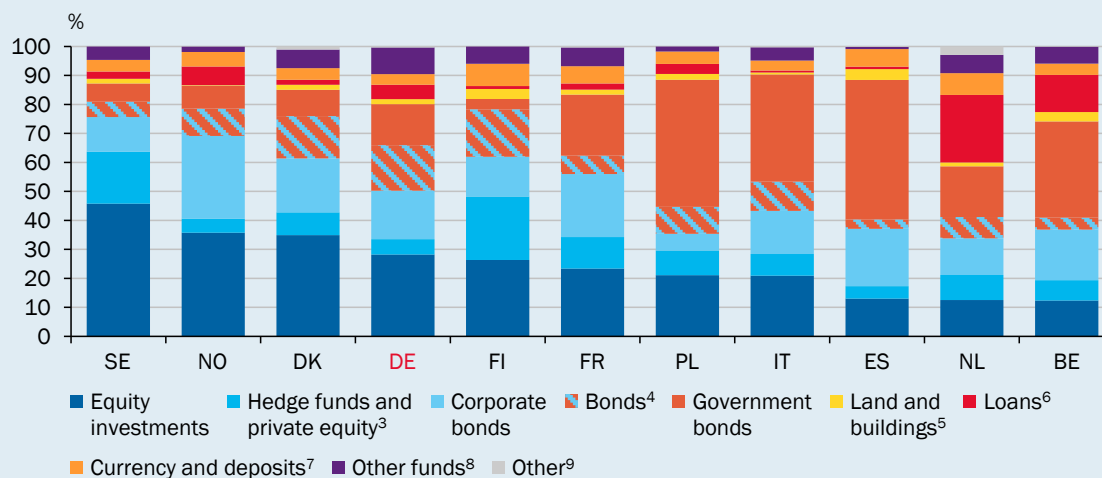
Sources: OECD, own calculations

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German insurance companies also invest more in capital markets than German pension providers, ▷ CHART 78 but invest a large portion of their capital in bonds. German insurers and (other) pension providers thus provide a **smaller volume of equity financing directly through stocks or indirectly through hedge funds** and private equity funds than pension or sovereign wealth funds in other countries. For example, at the end of 2022, the Norwegian sovereign wealth fund held only 27.5 % of its capital in bonds and a full 69.8 % in equities (Norges Bank Investment Management, 2022). Similarly, US public pension funds held 47 % of their capital in equities and only 21.2 % in bonds in 2021 (NASRA, 2022).

CHART 78

Asset allocation of insurance companies in selected countries in Q4 2022



1 – SE-Sweden, NO-Norway, DK-Denmark, DE-Germany, FI-Finland, FR-France, PL-Poland, IT-Italy, ES-Spain, NL-Netherlands, BE-Belgium. 2 – Including equity funds. 3 – Including structured products, asset allocation funds and alternative funds. 4 – Bonds not further broken down. 5 – Including real estate funds. 6 – Including mortgages. 7 – Including money market funds. 8 – Infrastructure funds and other funds. 9 – Including collateralised securities.

Sources: EIOPA, own calculations
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233. Private equity funds and infrastructure funds in particular **can play an important role in providing capital**. Private equity funds provide venture capital financing and offer exit options for venture capital investors by also investing in later-stage companies. They thus contribute to the refinancing of early-stage investors and the financing of innovative start-ups. [ITEM 186](#) Infrastructure funds provide long-term financing for private infrastructure projects, which are essential for long-term economic growth. [BACKGROUND INFO 6](#) Given the long duration of infrastructure projects, institutional investors are particularly relevant (Della Croce and Yermo, 2013). **However**, such funds are **not widespread in Germany**, and German financial institutions are not very active in this asset class in Germany. [BOX 17](#)

The low volume of investments indicates untapped potential. However, this is not an endorsement of further privatisation of public infrastructure or additional public-private or additional public-private partnerships (PPPs). Such arrangements have often proven in the past to be non-transparent and costly compared to public financing. For example, the Federal Court of Audit (*Bundesrechnungshof*) and other audit institutions regularly warn against the public sector switching to PPP projects in response to short-term budgetary needs. In this case, current payment obligations from project contracts replace interest and redemption payments and place a burden on future budgets in the same or similar way (Bundesrechnungshof, 2015; Meier, 2018). Instead, **infrastructure funds** can be used to **invest in private infrastructure projects**, for example in wind farms or fibre-optic networks. [BACKGROUND INFO 6](#)



➤ BACKGROUND INFO 6

Focus: Infrastructure funds

Infrastructure funds offer private and institutional investors a **low-threshold opportunity to invest indirectly in infrastructure projects** or companies active in the infrastructure sector. Infrastructure funds manage the relatively complex equity investments in infrastructure projects such as wind farms, which are structured as independent limited liability companies (GmbH). At the same time, this provides the opportunity to invest in infrastructure in a diversified manner. In 2021, the Fund Location Act (FoStoG) expanded the range of possibilities for investments in infrastructure funds (Federal Government, 2021). The new infrastructure funds allow easier and more liquid access to **infrastructure project companies**, which, unlike in the past, are **no longer limited to public-private projects** (EY, 2022). Infrastructure project companies are those "which [...] have been established to construct, rehabilitate, operate or manage facilities, assets, structures or in each case parts thereof which serve the functioning of the community" (section 1 paragraph 19 no. 23a KAGB). The definition of infrastructure was significantly expanded so that infrastructure no longer has to fulfil public services. Infrastructure funds focus on private infrastructure projects, such as digital infrastructure, the circular economy, sustainable transportation, energy efficiency, photovoltaic plants, wind farms and hydro-power plants or electricity lines, recycling and fibre optic networks.

➤ BOX 17

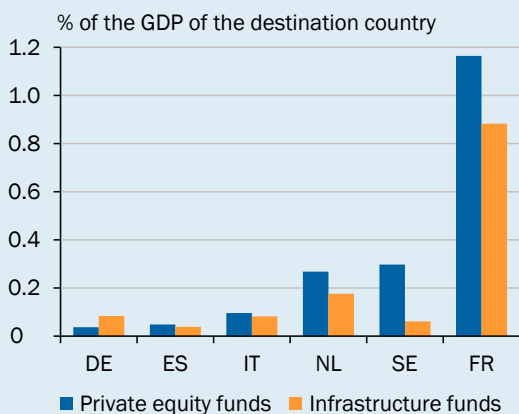
Focus: Insurers' investment in private equity funds and infrastructure funds

European insurance companies rarely invest in private equity and infrastructure funds in Germany. ➤ CHART 79 At the end of 2022, European insurers held assets equivalent to 2.05 % of

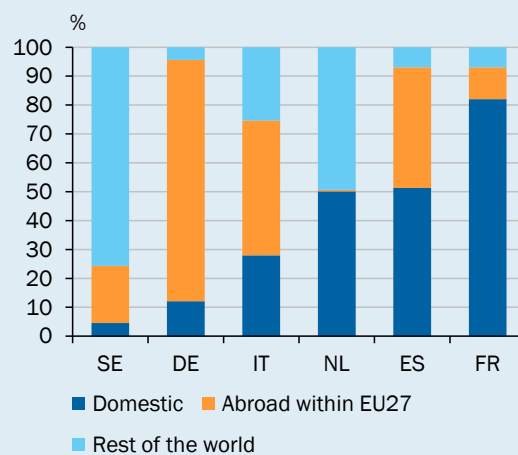
➤ CHART 79

Investment behaviour of European insurers¹

Investment volume of European insurance companies in selected assets



Destination of insurance companies investment in private equity funds and infrastructure funds by place of origin



1 – In the fourth quarter of 2022. DE-Germany, ES-Spain, FR-France, IT-Italy, NL-Netherlands, SE- Sweden.

Sources: ECB, EIOPA, own calculations
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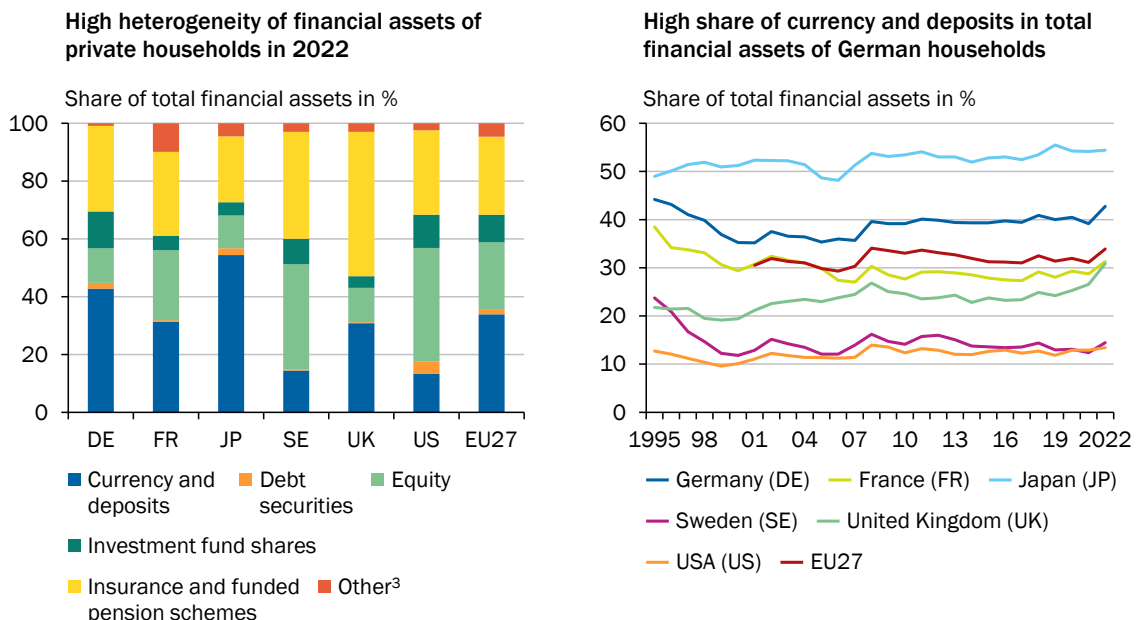
French GDP in French private equity funds and infrastructure funds, but only assets equivalent to 0.12 % of German GDP in comparable German funds. **Even German insurers are barely active domestically.** ↘ CHART 79 In the fourth quarter of 2022, they held six times as much capital in private equity and infrastructure funds in Luxembourg compared to German funds. While Luxembourg, as a financial centre, is not the final investment destination, it is unlikely that much of this capital will flow back to Germany. The German fund association BVI, for example, criticises the fact that German capital in Luxembourg infrastructure funds is not reinvested in Germany, but in foreign infrastructure projects (BVI, 2023). Since fund managers usually invest disproportionately in their own country (Oehler et al., 2007), it can indeed be assumed that a smaller share of this capital ultimately ends up in German infrastructure projects than if these investments were made via German infrastructure funds. In contrast, France's insurance companies invest mainly in domestic infrastructure funds. It is therefore to be expected that a large portion of these funds will also be invested in French infrastructure.

3. Households with low capital market participation

234. The main **investment options available** to private households are **real estate** and **financial assets**. Cash and bank deposits account for 42.8 % of financial assets in Germany, 33.9 % in the European Union and only 13.4 % in the United States. ↘ CHART 80 LEFT Both in Germany and the European Union, investment in equities in the form of stocks and other equity account for a much smaller share

↘ CHART 80

Financial assets of private households¹



1 – Including non-profit institutions serving households. 2 – Excluding non-life insurance reserves. 3 – Loans, households' claims on non-life insurance reserves, provisions for standardised guarantees, financial derivatives and employee stock options, other financial assets.

Sources: Eurostat, OECD, own calculations

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than in the United States (11.9 % of financial assets in Germany, 23.2 % in the European Union and 39.2 % in the United States). One reason for this in the German context could be the lack of an equity culture. ↘ [BOX 18](#) In 2015, the European Commission announced the goal of fostering retail investments in the capital market instruments (European Commission, 2015). However, little progress has been made so far. Both in Germany and on average in the European Union, the share of cash and deposits as a share of financial assets is stagnating. ↘ [CHART 80 RIGHT](#)

235. An important factor explaining the different levels of stock market participation between countries is the **structure of the pension system**. Lower state pay-as-you-go pension payments are typically compensated by higher funded pensions. The more generous public pensions are, the smaller the size and growth of institutional investors and ultimately the smaller the equity portfolios of private households are (Guiso et al., 2003). The fixed costs of participating in the stock market, understood as the effort required to collect and process information, are lower relative to savings when households have to save extensively (Ball, 2008). One way to increase incentives for stock market participation and reduce participation costs is to include capital market and especially stock market instruments in individual pension savings. The introduction of a mandatory funded pension in Sweden increased stock market participation. Funded pensions can induce households to engage with and learn from the stock market (Massa et al., 2006). Sweden has very high stock market participation compared to other EU countries, with a stock market participation of over 60 % (in addition to stock market participation in the pension system) (Kaustia et al., 2023).
236. Furthermore, the literature identifies **three factors for the low stock market participation** of private households: country-specific cultural environment, individual factors, and behavioural-economic-psychological factors (Kaustia et al., 2023). **Country-specific factors** include, for example, the regulatory environment, cultural factors such as uncertainty avoidance (Aggarwal and Goodell, 2014) or shareholder rights (Christelis et al., 2013). **Individual factors** include, for example, household wealth (Briggs et al., 2015), participation costs in the stock market (Khorunzhina, 2013; Gomes and Smirnova, 2021), the overall level of education (Cole et al., 2014) and in particular financial literacy (Thomas and Spataro, 2018).

Behavioural or psychological determinants include, for example, social interactions with other individuals (Duflo and Saez, 2002), personal experiences e.g. in the stock market (Malmendier and Nagel, 2011) or personal circumstances (Laudenbach et al., 2020), ↘ [BOX 18](#) that influence trust in institutions (Guiso et al., 2008), and financial behavioural biases such as overconfidence (Barber and Odean, 2001; Xia et al., 2014).

237. Numerous studies show that **financial literacy** has a **positive** impact on **wealth accumulation** (Behrman et al., 2012), **debt management**, **retirement planning** (Bucher-Koenen and Lusardi, 2011), **capital market participation** (van Rooij et al., 2011) and **investment decisions** (Gaudecker, 2015). In Germany, the level of financial literacy is relatively high compared to other countries (Stolper and Walter, 2017). However, significant differences exist

between socio-demographic groups. In particular, there is a lack of competency among women, people with a migration background and financially vulnerable households that necessitates policy intervention (Bachmann et al., 2021).

▸ BOX 18

Focus: Stock market participation in Germany

Stocks have historically generated the highest real returns compared to other forms of investment besides residential real estate (Jordà et al., 2019). The MSCI World global stock market index has averaged a return of 8.6 % (8.0 %) per year over the period from 1972 to 2022 after an investment period of 20 (30) years. The lowest return was 2.2 % per year over 20 years (when invested from 1988 to 2008) and 6.2 % per year over 30 years (when invested between 1978 and 2008) (Deutsches Aktieninstitut, 2023a). Given these high returns, participation in the stock market is surprisingly low across countries (Haliassos and Bertaut, 1995). Economic theory suggests that every investor should invest in equities as long as there is a sufficiently high equity risk premium (Mehra and Prescott, 1985; Guvenen, 2009). The low participation rate can be explained by behavioural economic factors such as a particularly high aversion to losses (Kahneman and Tversky, 1979) or uncertainty about future events (uncertainty avoidance; Rieger, 2022). These factors are also evident in a survey conducted in **Germany in 2019: The main reasons for the lack of participation among people who do not own shares are the fear of losses, a perception of inadequate personal wealth, a lack of knowledge and a lack of trust in the stock market** (Ebert et al., 2019).

The proportion of people who own stock (stock market participation rate) peaked at 20 % in Germany in the early 2000s, but fell again to 13 % by 2010. One reason for the **decline** is likely to be the **fallout after the dotcom bubble stock market crash in 2000** and in particular widespread **losses associated with the crash of the Deutsche Telekom stock** (Kim and Kriwoluzky, 2021). When Deutsche Telekom was privatised, a total of 1.9 million individuals invested in the new Telekom “*Volksaktie*“ or “people's share”. After an initial seven-fold surge in the share price, the Deutsche Telekom stock faced significant losses in March 2000, with the price remaining below the issuance price for an extended period (Balz, 2023). Some twenty years later, households that invested in Telekom shares are less likely to participate in the stock market than households that witnessed the bursting of the bubble but did not own Telekom shares (Kim and Kriwoluzky, 2021). Since 2014, the stock market participation has steadily increased again, and in 2022 it stood at 18.3 %, close to the level in 2000. ▸ CHART 81 The repercussions of adverse experiences in the stock market are also evident in other crises (Guiso et al., 2008; Malmendier and Nagel, 2011).

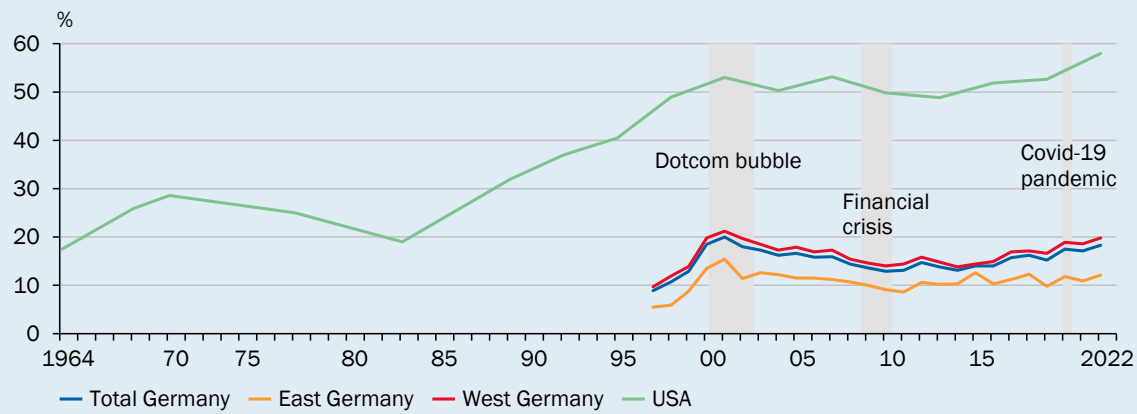
The low stock market participation rate could also be due to **the costs** of investment funds available in Germany, which were significantly more expensive than in the United States over a long period. In 2002, the average total shareholder cost for investment funds over a 5-year holding period was still 1.79 %, 72 % higher than the US average (Khorana et al., 2009). However, the costs of investment funds from domestic financial institutions were lower than the costs of funds from foreign providers (Khorana et al., 2009). One possible reason could be the development of an infrastructure for foreign financial institutions. In addition, funds from domestic financial institutions that focused on international investment cost significantly more than funds that focused on domestic investment (Heyden and Röder, 2020) and thus made it more difficult for investors to diversify risks. Passive index funds were launched in the United States in the 1970s. These funds are particularly cost-effective for investors because they are not actively managed. Annual costs in the European Union are 1.5 % for active funds and 0.3 % for exchange traded funds (ETF) (ESMA, 2022a). However, ETFs only became available in Europe in 2000 (Vogt, 2020). As late as 2022, a total of 77 % of German households' fund assets were invested in products that are actively managed, while only 14 % were invested in passive

products (Deutsches Aktieninstitut, 2023b). From 2017 to 2022, a median of only 34 % of actively managed funds achieved an excess return compared to a passive investment product, and only 30 % for global investments (Scope, 2019, 2020, 2021, 2022, 2023).

There is a clear difference in **stock market participation between East and West Germany**. This difference has increased since 2015, when the rates were only 1.8 percentage points apart. By 2022 it had jumped to 7.7 percentage points. [↘ CHART 81](#) In addition to a generally higher level of scepticism towards the capital market, the literature indicates that East Germans are more likely to hold stocks from other former communist countries and distrust stocks from the United States in particular. Explanations offered for this behaviour are problems of adjustment to the capitalist system for people born in the German Democratic Republic (GDR) and living under an anti-capitalist doctrine from an early age (Laudenbach et al., 2020). Moreover, the literature indicates that interpersonal trust as well as trust in institutions play a role in stock market participation (Pagano and Volpin, 2006; Guiso et al., 2008). In West Germany (excluding Berlin), the interpersonal level of trust, defined as the proportion of people who state in a survey that most people can be trusted, is 45.3 %. In East Germany (excluding Berlin) that figure is 32.5 % (EVS, 2022). The differences can also be partly explained by experiences from the communist era (Mishler and Rose, 1997; Campbell, 2012; Laudenbach et al., 2020). A comparison with other European countries such as the Scandinavian countries Sweden, Finland and Denmark, where between 66 % and 77 % of people trust other people, suggests that lower levels of interpersonal trust in Germany could be a possible reason for the lower overall German stock market participation (Börsch-Supan, 2022; EVS, 2022). There are also significant differences between West and East Germany with regard to the level of trust in the institutions of parliament, government and the legal system (EVS, 2022).

[↘ CHART 81](#)

Stock market participation¹ in Germany rises again after 2014



1 – Stock market participation in Germany is based on a survey conducted by Deutsches Aktieninstitut and includes all participants with direct stockholdings and stocks held through equity funds and ETFs. The survey in the USA is conducted at the household level and stock market participation includes direct and indirect stock holdings.

Sources: Deutsches Aktieninstitut, Fed
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4. European capital markets remain fragmented

Sluggish integration of European capital markets

238. Despite efforts to establish a Capital Market Union, **European capital markets remain fragmented**. For example, price-based indices [↪ BACKGROUND INFO 7](#) for the bond and equity markets indicate that integration has not returned to the level seen before the financial crisis and sovereign debt crisis. [↪ CHART 82 LEFT](#) Furthermore, equity investments exhibit a "home bias". A large share of equity investments continues to be held by domestic investors, although this share has decreased. [↪ CHART 82 RIGHT](#) One reason for this is the lack of transparency due to the absence of standardised reporting and uniform accounting standards, especially for SMEs. This dampens cross-border investments, leading portfolios to remain focused on domestic equities which forego the benefits of cross-border diversification.



[↪ BACKGROUND INFO 7](#)

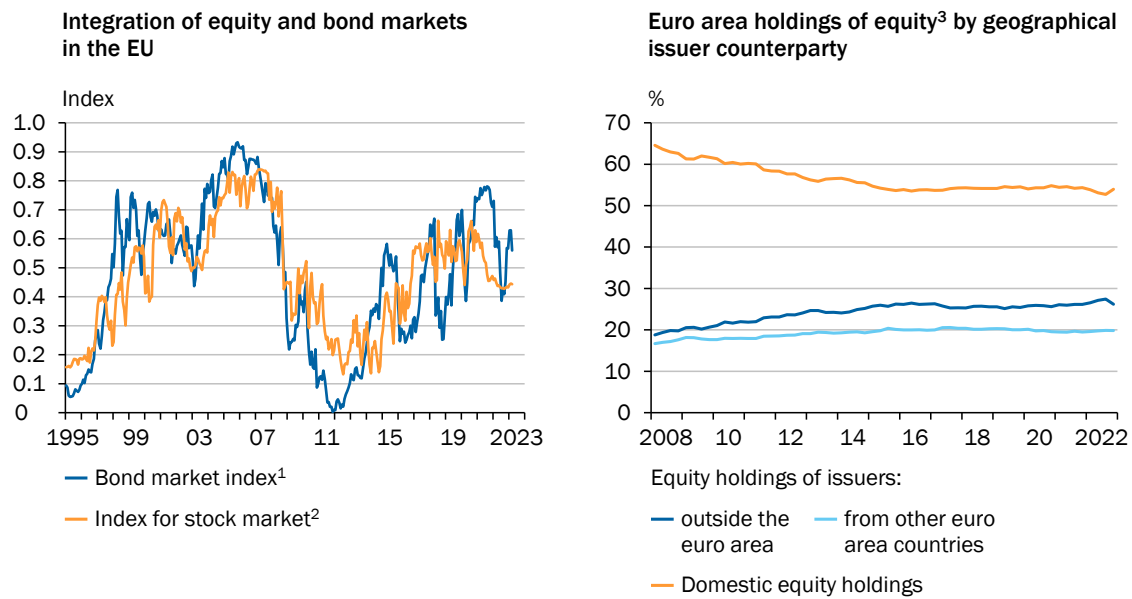
Focus: Indicators for measuring financial integration

The ECB measures financial market integration using two types of indicators. The price-based index assumes that in a perfectly integrated market, two assets with the same risk profile and the same cash flows should trade at the same price, according to the law of one price (Hoffmann et al., 2020). The quantity-based index assumes that investors with similar characteristics would hold a similar portfolio regardless of their location (Hoffmann et al., 2020).

239. More recently, **major European companies** have decided to **raise funds primarily in the US capital market** and to list themselves primarily on US stock exchanges. CRH (Cement Roadstone Holdings) and Linde have delisted from the Irish and German stock exchanges respectively in order to move to US exchanges. Biontech, CureVac, Spotify and Birkenstock have conducted their initial public offerings (IPOs) in the United States. The main reason for this is that capital markets in Europe lack depth compared to those in the United States. [↪ ITEM 454](#) However, fragmented stock exchanges is likely to be another reason. While the United States has only three exchanges, the European Union has 30 (Wright and Hamre, 2021). Clearing and custody costs are higher in Europe than in the United States due to fragmentation, especially for international transactions (Giovannini Group, 2001). However, there are early signs that these structures will be consolidated as a result of mergers between the operators of exchanges such as Amsterdam, Brussels, Lisbon, Paris and Oslo. Despite these developments, **European stock markets remain highly fragmented at national level**, thus hampering Europe's ability to compete with the US stock market.
240. **Differing taxes on capital gains present a barrier to cross-border investments in securities**. Capital gains are usually taxed at source, i.e. paid directly by the executing bank to the tax authorities of the state in which the distributing company is located. As a result, in some cases higher capital taxes are

➤ CHART 82

European capital markets fragmented



1 – The indicators aggregated to the price-based index are the cross-country standard deviations of two-year and ten-year government bond yields (excluding Greece) and the cross-country standard deviation of bond yields on uncovered corporate bonds issued by non-financial companies (data are aggregated at the country level). 2 – The indicators aggregated to the price-based index are the segmentation index and the absolute value of the difference between the cross-sectional dispersion of the sector and country index yields. The segmentation index estimates how similar valuations are for similar companies in different countries. The sector and country index uses the country and sectoral dispersions of stock returns. Data for Greece are included. See Hoffman et al. (2020) for details. 3 – Equity investments include listed and unlisted shares, investment fund shares (all types of investment funds) and other shares, including investments in international organisations (e.g. the ECB or the European Stability Mechanism) and in real estate outside the domestic economy.

Source: ECB

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deducted abroad than at home due to the tax paid in the State of source or “withholding tax”. Double taxation agreements are designed to address this problem. Germany, for example, has double taxation agreements with more than 90 countries worldwide (BZSt, 2023): although investors must initially pay a higher tax rate than the final withholding tax applicable in Germany, the difference is refunded. In the case of investment income in the United States, the banks issue the refund immediately and automatically. In the case of investment income from many EU countries, however, investors have to take action themselves and sometimes pay high fees for the refund. According to a survey by DSW and Better Finance, this procedure is perceived as highly complicated, time-consuming and cost-intensive (DSW and Better Finance, 2023). About 50 % of the reimbursement procedures take more than 6 months and 10 % of the respondents report administrative costs of more than 100 euros. As a result, 70 % of investors do not exercise their right to reimbursement. Small investors are those most affected. The European Commission estimates that the volume of overpaid withholding tax in the European Union amounts to €5.17 billion (European Commission, 2023).

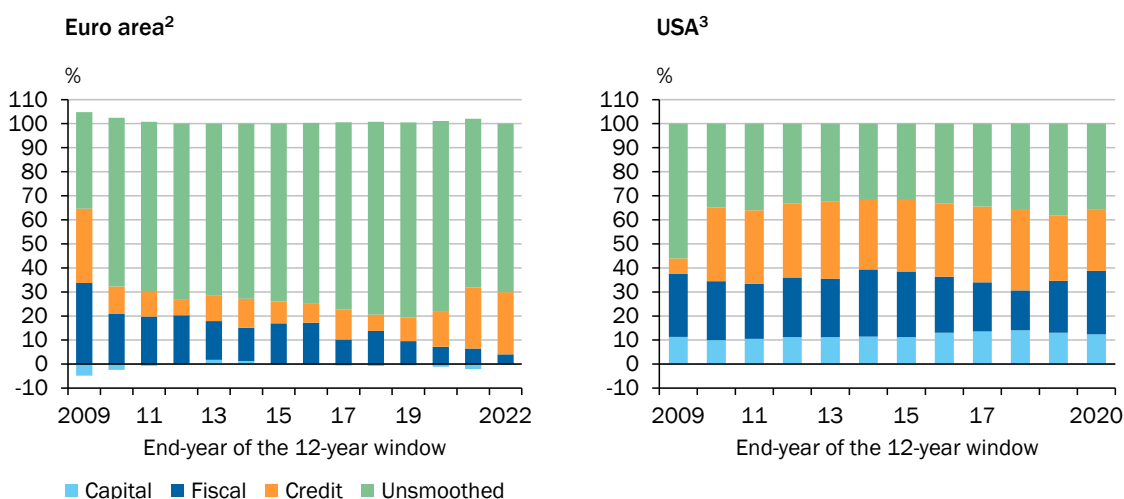
➤ ITEM 270

Risk sharing in the euro area remains low

- 241. Risk sharing** [↘ BACKGROUND INFO 4](#) **between euro area Member States is low** compared to other currency areas. After the introduction of the euro, there was no initial notable increase in risk sharing contrary to expectations. In fact, risk sharing decreased during the European sovereign debt crisis, partly due to fiscal austerity programmes in the GIIPS countries (Greece, Italy, Ireland, Portugal, Spain) (Kalemli-Özcan et al., 2014; Cimadomo et al., 2018). After 2011, shocks have been absorbed by EU financial assistance to euro area countries, mainly in the form of the European Stability Mechanism (ESM) and the European Financial Stabilisation Facility (EFSF). Both instruments provide for loans to European states experiencing financing difficulties and thus belong to the credit channel. [↘ BACKGROUND INFO 4](#) The ESM and EFSF represent the most important consumption smoothing channel following income derived from internationally diversified debt securities (Cimadomo et al., 2020).
- 242.** An analysis for the period from 1997 to 2022 estimates the extent of co-movement between national consumption and national GDP over consecutive periods of 12 years each (Cimadomo et al., 2022). If both national consumption and national GDP follow exactly the same course, there is no risk sharing and each national GDP shock reduces consumption accordingly. The results show that in **the euro area** (in relation to the EU Member States) **only about 30 % of a GDP shock was absorbed** (green bar). [↘ CHART 83 LEFT](#) An average of 15 % was absorbed via the capital market channel (dark blue bar). In the **United States** (in relation to the US federal states), by contrast, some **65 % of a shock was smoothed out** in

[↘ CHART 83](#)

Risk sharing for consumption smoothing between euro area member states significantly lower than between states in the US¹



1 – The charts show the percentage of consumption growth that is smoothed out through the capital, fiscal and credit channels, as well as the unsmoothed component, following a shock to domestic GDP. These contributions are computed on the basis of the cumulative impact of the shock at the two-year horizon. The contributions of the channels are calculated using a panel VAR model based on parameters estimated over a 12-year rolling window of annual data. The x-axis reports the end-year for the 12-year window. 2 – The sample covers the period 1997 to 2022. 3 – The sample covers the period 1997 to 2020.

Source: Cimadomo et al. (2022)

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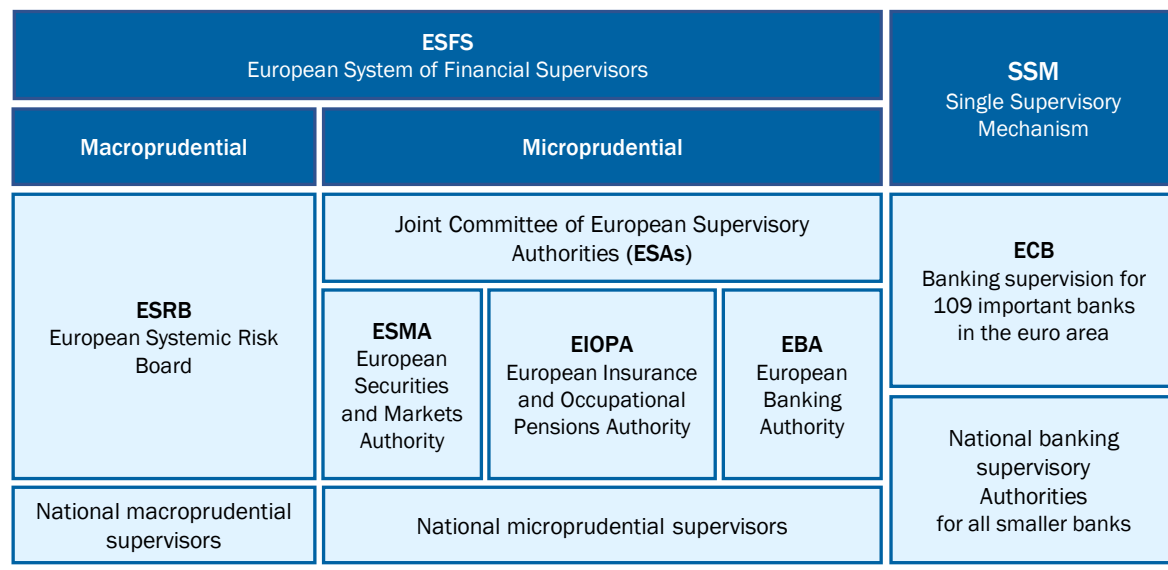
the period from 1997 to 2020. Here, the capital market channel made a significant contribution to consumption smoothing of approximately 24 %. [↪ CHART 83 RIGHT](#) The share of a shock smoothed in the euro area fell during the financial crisis and rose during the COVID 19 crisis (Cimadomo et al., 2022). Even in the event of a global shock like the COVID-19 crisis, risk-sharing can contribute to consumption smoothing if individual countries are affected differently. [↪ BOX 3](#)

Heterogeneous financial market supervision in the EU

243. Financial markets in the European Union are harmonised to varying degrees in terms of regulation and institutions. **Some areas of EU capital market regulation** have already been **comprehensively harmonised**. **The integration of capital markets is thus increased** and has positive effects on growth and risk sharing. [↪ ITEMS 197 AND 204](#) Examples include the Markets in Financial Instruments Directive and Regulation (MiFIR/MiFID), the European Market Infrastructure Regulation (EMIR) and the accounting and auditing framework. Under MiFIR and MiFID and their revisions, the authorisation and supervisory tasks of European securities supervisory authorities were expanded throughout the European Union, for example. Transparency requirements for securities products were also increased (BaFin, 2018, p. 123 ff.). By implementing uniform and transparent requirements. EMIR regulates over-the-counter derivatives trading in particular (BaFin, 2022a). However, even fully harmonised legislation can still lead to **different national outcomes** if the relevant national authorities **enforce the EU laws differently** and **monitor for compliance in different ways**. This **applies to EU capital market regulation**, where national supervisory authorities play a major role in enforcement, for example in securities supervision or for auditors. (Sapir et al., 2018).
244. The **institutional integration of capital market supervision**, on the other hand, has **only made modest progress**. The main aim of the European Securities and Markets Authority (ESMA) is not to act as a supervisory authority, but rather support the European Commission in developing uniform financial market regulations, similar to the European Banking Authority (EBA) and the European Insurance and Occupational Pensions Authority (EIOPA). It also assumes the task of coordination between national supervisory authorities, for example through exchanges and agreements on the implementation of regulatory requirements or through reviews of national supervisory practices (ESMA, 2022b, p. 21). [↪ BACKGROUND INFO 8](#) In addition to these three European supervisory authorities entrusted with microprudential [↪ GLOSSAR](#) tasks, the European System Risk Board (ESRB) is responsible for macroprudential [↪ GLOSSAR](#) supervision, but only entrusted with issuing warnings and recommendations. [↪ CHART 84](#) **Supervisory competences**, such as the right to scrutinize balance sheets, other publications and corporate takeovers, as well as to approve prospectuses for investment products and the establishment of financial services institutions, remain **largely within the remit of the national supervisory authorities**. This means that the enforcement of regulation is fragmented, for example because of the timing of enforcement or the specific details of implementation. Companies face additional red tape if they are active in different countries, require legal expertise for each jurisdiction and need to adapt their products and services.

➤ CHART 84

Institutions of European financial market supervision



Source: own representation
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➤ BACKGROUND INFO 8

Focus: Competences and institutional design of ESMA

The European Securities and Markets Authority (ESMA) was established in 2011 to provide **uniform supervision of financial institutions other than banks and insurance companies in the European Union**. The ESMA's objectives are to provide investor protection and financial stability. To this end, it assesses market developments and their impact on investors and the markets. It **establishes a single regulatory framework for EU financial markets, promotes convergent implementation of rules** across Member States and supervises credit rating agencies, securitisation and trade repositories, data reporting service providers, central counterparties (CCPs) that bear the settlement risk of securities transactions, and critical EU benchmark administrators (such as the European Money Markets Institute as Administrator of the Euro InterBank Offered Rate, EURIBOR) (ESMA, 2021, 2023a). ESMA's decision-making supervisory body – the Board of Supervisors – consists of representatives of the national supervisory authorities of the EU Member States as well as the three other states of the European Economic Area, Iceland, Liechtenstein and Norway, the European Commission and other European supervisory authorities (ESRB, EBA and EIOPA), as well as the ESMA Chair. However, only the representatives of the national supervisory authorities of the EU Member States are entitled to vote, along with the ESMA Chair for some decisions (ESMA, 2023b).

- 245. **Banking regulation** has been **harmonised to a large extent, both in terms of regulatory and supervisory frameworks**. In the euro area (as well as in some other, voluntarily participating EU Member States), the Single Supervisory Mechanism (SSM) carries out banking supervision. For 109 "significant" banks, the ECB assumes direct supervision; for all other "less significant" banks, supervision lies with the national supervisory authorities, in close cooperation

with the ECB (ECB, 2023). Although the banking market is already more strongly harmonised compared to the capital market, completion of the banking union can also contribute to a more integrated financial market. (GCEE Annual Report 2022 items 256 ff.). [↘ ITEM 269](#)

IV. POLICY OPTIONS: IMPROVE LIQUIDITY AND CAPITAL MARKET INTEGRATION

1. Facilitate market finance for companies

Improve capital market access for companies

246. The planned **Financing for the Future Act** (Zukunftsfinanzierungsgesetz) in Germany [↘ BACKGROUND INFO 9](#) and the **Listing Act** proposed by the European Commission in December 2022 aim at reducing the costs of accessing the capital market. In particular, this legislation seeks to **alleviate the administrative burden of an IPO** for small and medium-sized companies. For example, provisions of the Listing Act should help simplify and harmonise the information and disclosure requirements for SMEs going public in the EU. These companies should also benefit from increased information by brokers and financial analysts, which makes them better known to potential investors.



[↘ BACKGROUND INFO 9](#)

Financing for the Future Act

The Financing for the Future Act (ZuFinG), which was presented by the Federal Cabinet in August 2023 and is currently being discussed in parliament, aims at **streamlining the access of companies to the capital market**. The key elements are **lower minimum market capitalisation for an IPO** of €1 million instead of €1.25 million along with generally simplified requirements for companies issuing new equity. For example, a company should be able to proceed with an IPO without having an investment bank underwrite the issued shares. Similar to the EU Listing Act, the Financing for the Future Act envisages dual class shares with voting rights of up to 10:1. This should benefit founders who can raise external equity without losing control of their firm. Other plans include issuing electronic securities to advance the digitalisation of the stock market, facilitating participation by institutional investors in SMEs and start-ups, tax benefits for employee stock ownership, in particular by increasing the income tax allowance for employees from €1,440 to €5,000 per year (Federal Government, 2023).

247. The **fixed costs of accessing the capital market** should be **reduced** such that going public or issuing bonds becomes more attractive for medium-sized companies, thereby allowing the latter to diversify their sources of finance. [↘ ITEM 214](#) Several measures in the Financing for the Future Act are expected **to lower**

the critical firm size for an IPO and to induce more companies, especially large SMEs, to borrow via the stock market. The economic benefit is less evident for one specific measures, however. This applies, for example, to the planned introduction of dual class shares: Germany has long distinguished between preferred and common stock, which offers many of the advantages of dual class shares. For example, founders can raise new equity while retaining control of their company by issuing preferred stock without voting rights. The owners of these shares are compensated in return with a higher dividend. The advantage of dual class shares is therefore limited to offering some founders additional flexibility.

Increasing the tax allowance for employee stock ownership appears to be useful **within the narrowly defined area of start-ups**. Start-ups usually have low cash flow. Employee stock ownership allows them to offer their employees competitive salaries without eroding their liquidity. However, favourable tax treatment of employee stock ownership **beyond the limited scope of start-ups** would be **problematic** in terms of diversification, [↘ BACKGROUND INFO 4](#) as this creates a concentration of income and asset risks among employees (double risk in case of insolvency).

Lower tax barriers to equity finance

248. In Germany, companies heavily rely on debt finance, which also reflects the favourable tax treatment of debt compared to equity. Reducing or eliminating this debt-equity bias can **boost equity finance**, thereby contributing to more liquid stock markets as well as to lower risk and improved governance on the firm side. [↘ ITEM 230](#) Reform proposals for a **more symmetric taxation of equity and debt** have been discussed for some time. A key proposal is the Allowance for Corporate Equity (ACE), which enables companies to deduct the notional cost of equity from the tax base in parallel with the interest expense on debt (Devereux and Freeman, 1991; IFS, 1991). The key advantage of this approach is that it achieves **tax neutrality with respect to financing and investment decisions**: First, decisions about a firm's capital structure are undistorted because equity and debt are taxed symmetrically. Second, if the notional cost of equity is adequately calculated, the tax burden falls only on economic rents, i.e. profits that exceed the returns required by the capital market. The marginal investment decisions of firms therefore remain undistorted (de Mooij and Devereux, 2011; de Mooij, 2012).

For Germany, the GCEE has further developed this approach as an **ACE for nominal capital** (GCEE Annual Report 2012 items 402 ff.) and taken it up in later annual reports (GCEE Annual Report 2015 items 728 to 734; GCEE Annual Report 2019 item 224). Accordingly, only profits above the market return on equity are subject to the corporate income tax, whereby the notional return should be based on the variable interest rate for corporate loans larger than €1 million (GCEE Annual Report 2012 item 415). The nominal capital only represents a part of equity and does not include retained profits. Unlike dividends, the latter are not subject to any further taxation.

249. In **Belgium**, an Allowance for Corporate Equity was introduced in 2006. Empirical studies suggest that Belgian **companies increased their equity ratio** by around three percentage points from the previous average of 39 % **as a result of the ACE** (Meki, 2023). Multinational companies increased the equity of their Belgian subsidiaries (Hebous and Ruf, 2017). Banks also increased their equity ratio on average by almost one percentage point, from a previous average of 6.8 % (Schepens, 2016), thus improving the resilience of the banking sector. However, the evidence on investment effects is less consistent: Some studies suggest that companies increased investment because of this reform (aus dem Moore, 2014), while others find no significant effects (Hebous and Ruf, 2017).
250. However, deducting the cost of equity from the tax base leads to a **decline in tax revenue**. According to estimates, the ACE in Belgium has led to a direct reduction in tax revenue of €6.2 billion in the medium term. This corresponds to roughly one third of the corporate tax revenue that could have been achieved without the ACE. Taking into account behavioural responses, e.g. companies substituting equity for debt and therefore deducting lower costs of debt from taxes, the revenue loss is between 5 % and 15 % lower (Zangari, 2014). For a comparable reform in Germany, Finke et al. (2014) used a microsimulation model to estimate the possible decline at around €9 billion or 18.4 % of corporate income tax revenue. **A revenue-neutral reform** would therefore require a corresponding **adjustment of the statutory tax rates** for corporate income tax or, alternatively, for the withholding tax (*Abgeltungsteuer*). This would leave the effective tax burden on companies or capital owners unchanged, while eliminating the distortions of capital structure and (marginal) investment. However, higher statutory corporate tax rates may encourage profit shifting of multinational companies, which in turn erodes the domestic corporate tax base (Haufler and Schjelderup, 2000; de Mooij and Devereux, 2011). In particular, incentives for profit shifting via transfer prices do not depend on the effective average tax rate, which remains unchanged, but rather on the tax rate differential between two countries.
251. An alternative approach is a **tax allowance for marginal equity** such that only the notional cost of new equity is tax deductible. This does not benefit existing equity and would therefore likely lead to significantly **lower tax losses** in the short to medium term (GCEE Annual Report item 823). In **Italy**, the cost of new equity has been tax-deductible since 2011 (Zangari, 2014). Empirical evidence suggests that, similar to Belgium, this has significantly increased the equity ratios of industrial companies (Branzoli and Caiumi, 2020) and banks (Martin-Flores and Moussu, 2019).

The European Commission's proposal for a **Debt-Equity Bias Reduction Allowance (DEBRA)** in spring 2022 also includes an allowance for new equity, the cost of which should be made tax-deductible for 10 years. At the same time, the existing deductibility of the cost of debt should be limited to 85 % of the excess interest costs, i.e. the difference between interest paid and interest received. This is precisely why DEBRA does not ensure complete neutrality between equity and debt (Advisory Board to the Federal Ministry of Finance, 2023). Furthermore, DEBRA is limited to non-financial corporations, and banks are excluded although excessive leverage is especially problematic for them and such a reform would

promise considerable financial stability gains (Langedijk et al., 2015). Partnerships, which accounted for 12.1 % of all companies in Germany in 2021 and a total of 21.1 % of turnover in 2020, are also excluded (IfM, 2022; Federal Statistical Office, 2022).

252. Finally, **abolishing the final withholding tax on interest income** (GCEE Annual Report 2015 item 820; GCEE Annual Report 2019 items 238 f.) could also help reduce the debt-equity bias. The asymmetric taxation of debt and equity at the firm level would thus be **taken into account when taxing capital income of households**: The interest income of debt providers would consequently be subject to the progressive personal income tax, while dividend income would continue to be subject to the final withholding tax. In equilibrium, this could increase the marginal cost of debt relative to equity provided that the individual marginal tax rate exceeds the withholding tax rate. If these incentives measurably affect companies, they will rely less on debt finance. However, this only applies if equilibrium interest rates are predominantly determined on the domestic debtmarket. Foreign debt is not affected by the final withholding tax since foreign capital owners are taxed in their country of residence. However, this proposal, like the specific DEBRA proposal, is less systematic and less clear in its effects than the ACE for nominal capital.

Facilitate securitisation for bank financing

253. Although the **European Union** did not experience the same problems with securitisation as the United States during the financial crisis, the **securitisation market in Europe** is stagnating. One possible reason proposed by financial industry stakeholders for the slow recovery is that prudential treatment is considered "more conservative than for comparable products with a similar risk profile" (European Commission, 2022a). While there are **differences in regulatory requirements** between the United States and the European Union, these are **unlikely to have a significant impact** on economic rationale (Levitin, 2023). For example, the lower limits for risk weights, which determine how much equity must be held, for simple, transparent and standardised (STS) securitisations in Europe are lower than in the United States (Levitin, 2023). Extensive risk retention relief, which is available in the United States for certain securitisations, does not seem to be an appropriate measure in Europe. The introduction of risk retention after the financial crisis was crucial in counteracting moral hazard that arises in securitisation. ↘ [ITEM 216](#) Nevertheless, there should be scope to revise the calculation of risk weights (EBA, 2022), simplify disclosure requirements and increase the predictability of the supervisory body's assessment of whether a significant risk transfer (SRT) has occurred (Levitin, 2023). Further standardisation of representations and warranties could help investors to assess risks.
254. **Pan-European securitisation** could be facilitated by **harmonising regulations** between EU Member States on **debt collection, foreclosures, and insolvency law**. ↘ [ITEM 215](#) This would likely benefit smaller countries that do not have sufficiently large asset pools, making only cross-border securitisations worthwhile (Levitin, 2023). It would also make it easier for investors to assess the risks associated with securitisations based on cross-border assets. However, there

are insufficient pan-European banks capable of issuing securitisations based on cross-border assets. Europe's incomplete banking union is relevant in this context. [▶ ITEM 269](#)

More growth capital and better exit options

- 255. Government venture capital funding** can provide the stimulus for further development of the venture capital market in Germany (Hellmann and Thiele, 2019; Alperovych et al., 2020; Bai et al., 2021). **Mobilising private funding in parallel** is a **vital** goal. Public venture capital funds are particularly successful in the case of co-financing with private investors, as also targeted by the Federal Government's Future Fund. [▶ ITEM 227](#) For example, Brander et al. (2015) show that start-ups that are co-financed receive more funding than companies financed only by private venture capitalists and substantially more than companies financed only by public venture capitalists. In addition, the probability of a start-up achieving a successful exit via an IPO is also increased (Brander et al., 2015). Start-ups that receive co-funding also generate more innovations and achieve higher growth than when supported only by public funding or only by private funding (Grilli and Murtinu, 2014; Bertoni and Tykvová, 2015; Cumming et al., 2017). Successful international initiatives, such as the Israeli Yozma initiative, additionally relied on learning effects by integrating Israeli venture capital funds into an international network (Avnimelech et al., 2004). To receive public funding, Israeli venture capital funds had to acquire additional private funding and also attract a reputable foreign venture capital fund willing to make an investment. This type of element could also enhance German venture capital initiatives, although it could increase the risks [▶ ITEM 225](#) associated with the involvement of foreign investors.
- 256.** In some components, the Future Fund explicitly **focuses on individual technology fields**, such as climate tech or deep tech. A top-down approach like this can be problematic if public venture capitalists are less capable of assessing growth potential and return opportunities than private operators. The literature suggests that this is the case (Cumming et al., 2017). In addition, there could be a risk of conflation with policy objectives. In the area of climate tech and deep tech, private venture capital investors consider the growth opportunities to be exceptionally promising (Schwarz and Viète, 2023). Moreover, in relation to their economic performance, other countries invest significantly more in these technology fields (Metzger, 2022b; Viète, 2022). One advantage of defining priority areas is that venture capital funds can gain industry-specific experience in order to help start-ups in a particular field become more successful in the long term (Alperovych et al., 2020) and thus expand their technological lead in this field (Janeway et al., 2021). However, it must be ensured that the performance of the venture capital market as a whole can catch up with key comparable markets. [▶ ITEM 223](#)
- 257.** The **Growth Fund Germany**, as a component of the Future Fund, seeks to engage institutional investor groups for the German venture capital market (BMWK, 2022b). The Federal Government's plans called for the establishment of a fund of funds (FOF) [▶ GLOSSAR](#) based on the international model, in which priority shares for institutional investors are combined with subordinate shares for the public

sector (Deutscher Bundestag, 2021; Röhl, 2021). According to the progress report on the Federal Government's start-up strategy, the Growth Fund has started its investment activity and is currently investing in more than ten German and European venture capital funds (BMWK, 2023). Further details are not yet known. That this type of fund of funds can successfully engage institutional investors in the venture capital market is demonstrated by the Danish programme Dansk Vækstkapital, which invests in large venture capital funds as a joint project of the state with Danish pension funds (EFI, 2019). Under this programme, *Pensionsskassen* can invest a share of the investment volume at fixed interest, and invest the remaining funds directly in the fund of funds. The risk-return distribution achieved in this way makes it easier for pension funds to invest in venture capital. Köppl-Turyna et al. (2022) show that public venture capital funds are particularly successful when they are organised as funds of funds and do not themselves invest in individual start-ups.

258. An important **exit option** for venture capital investors is the IPO path, which often offers the best return prospects compared to other exit options (Jeng and Wells, 2000). However, the comparatively small IPO market in Germany makes this more challenging. The existence in the United States of more receptive exit market for large-volume investments is probably one reason why investment volumes in the US venture capital market are significantly larger than in Germany (Acevedo et al., 2016). Due to greater competition between investors, US start-ups also tend to achieve significantly higher valuations than European start-ups (Röhl, 2021). **Pan-European stock exchanges could increase the attractiveness of the European IPO market** by enlarging the investor pool. Initial promising initiatives are seeking to build a European network of stock exchanges in order to provide liquidity to companies across Europe, regardless of the country in which they choose to list (Asgari, 2023). Empirical evidence suggests that the presumed loss of control by founders when going public is also a barrier to IPOs (Oxera and Kaserer, 2021). This is why the planned dual class shares could make IPOs more attractive for start-ups. [↪ ITEM 247](#)

2. Strengthen institutional investors

259. In the European Union and especially **in Germany**, insurance companies and pension funds have played a **less significant role to date** as capital providers. [↪ ITEM 231](#) However, insurance companies in particular have the potential to raise capital and thus co-finance large long-term projects and venture capital. At present, German insurers are relatively risk-averse, investing to a large extent in bonds. [↪ BOX 16](#) Even when investing directly in venture capital, for example through private equity funds, or when investing in infrastructure, German insurers tend to invest abroad. [↪ BOX 17](#) However, foreign insurers also do not invest in these asset classes in Germany. Since capital market barriers only play a minor role in these investment decisions, the general attractiveness of Germany as a location for doing business and investments is likely to deter large investors. The regulatory framework in the real economy needs to be improved. At the same time, German insurers need to overcome their reluctance to invest in equity and venture capital.

260. Strengthening **supplementary funded pensions** [↘ ITEM 454](#) **could increase the amount of capital collected by pension funds in Germany.** This would create large pools of capital and provide high investment volumes over extended periods. Of course, these funds should also invest globally and in as broadly diversified a manner in order to protect pension assets. However, large sums should also be invested in the European Union and Germany, given their economic importance. In the case of individually attributable shares in pension funds, the broad population would also be brought into contact with capital markets. This would potentially promote the equity culture as a whole. [↘ ITEM 454](#)
261. Although **regulatory requirements** are not likely a major obstacle for investment decisions, they may prevent pension funds from investing directly in stock and bonds (OECD, 2022). In most countries, assets that are not traded on regulated markets, such as unlisted shares, are subject to stricter limits than listed securities. Furthermore, most countries have bans or caps on investment in private investment funds. Some of these are below 5 % of an investor's capital (OECD, 2022). **In Germany, the Investment Ordinance (AnlV) defines the possible forms of investment and their respective upper limits for *Pensionskassen*, pension funds, and small insurance companies. *Pensionskassen* in Germany are made up by occupational and private pension funds. They are subject to the applicable State law. North Rhine-Westphalia, for example, has allowed occupational pension schemes to hold a higher infrastructure quota since 2021, i.e. more investments in infrastructure projects (Deka, 2022). In general, the Investment Ordinance sets upper limits for certain forms of investment. **Raising and standardising these limits for all *Pensionskassen* would be welcome** and give them more room to make their own investment decisions.**
262. Similar measures have already been successful in the United States. There, the **growth of venture capital funds is largely attributed to a change** in the regulation of pension funds (ERISA) in 1979, which allowed them to invest in riskier assets for portfolio diversification purposes (Gompers and Lerner, 1999). This played an important role in increasing the total volume of investment in venture capital funds from 424 million US dollars in 1978 to more than 4 billion US dollars in 1986. The share of this money sourced from pension funds grew from 15 % to more than 50 % over the same period (Gompers and Lerner, 2001).

3. Household participation in capital markets

263. There are essentially two ways to increase the currently low household participation in capital markets. The conventional approach is to **strengthen individual competencies**, especially through financial literacy. More recent approaches also focus on encouraging households to participate through targeted incentives and simplifications motivated by behavioural economics. The second approach is to develop **effective protection for small investors** and enable households to make better financial decisions. What matters here is not the amount of financial information passed on to households, but how it is presented. Even well-informed and mathematically literate households can systematically deviate from

rational behaviour. Standardising and reducing the amount of information provided can help households make better investment decisions (Chater et al., 2010).

264. To protect households from poor financial decisions while still facilitating access to the capital market, the **European Commission** has drafted **new legislative proposals** as part of its Action Plan for the Capital Markets Union. These aim to **strengthen the protection of small investors and increase access to financial products**. In addition to increasing capital market investments by households, the goal is to [ITEM 234](#) enhance confidence in financial markets.

A **less helpful move** by the European Commission is the **ban of the "Payment for Order Flow" (PFOF) mechanism** [GLOSSAR](#), thus making it much more difficult for "neo-brokers" to do business. In recent years, neo-brokers have made it easier especially for young people to access the stock market by enabling low-cost transactions via app (Kritikos et al., 2022). Capital market access, especially for young people, more financially vulnerable groups of people, should not be hindered. While studies from other European countries observe higher bid-ask spreads [GLOSSAR](#) (Rosov, 2016) or disadvantageous prices in connection with neo-brokers (AFM, 2022; CNMV, 2022), BaFin (2022b) concludes that the PFOF mechanism is beneficial for low transaction volumes due to the low transaction costs. For high transaction volumes, however, the cost of higher bid-ask spreads outweigh the lower transaction costs.

265. One possible way of improving financial literacy and thus individual competencies, especially at an early age, could be games based on the capital market and stock market (Harter and Harter, 2010; Hinojosa et al., 2010). These should be designed in such a way that players experience the benefits of broadly diversified assets and the advantages of long-term investments become tangible. Furthermore, sensitivity to the costs of financial products should be increased. In addition to **integrating financial literacy into the regular school curriculum, further training** should **prepare teachers** for the new task (Bachmann et al., 2021). For adults, **financial education in vocational schools and in the workplace** would have the greatest effect on capital market knowledge (Prawitz and Cohart, 2014). However, empirical evidence on the success of financial education interventions to date is mixed (Mandell, 2008; Kaiser et al., 2022).
266. One way of facilitating access to capital markets for every young person would be to provide **10 euros per month in the form of a fund share for every child from their 6th birthday** until they turn 18. The costs would amount to €1.2 billion annually. This model could be implemented in a similar way as in Israel, where since 2017 51 shekels (equivalent to 12 euros) per month are paid into an account from birth until a child's 18th birthday (Haran Rosen et al., 2021). This type of starting capital could be invested in a standard product. A publicly managed pension fund, for example, would be a good choice. [ITEM 454](#) Additional payments could be made to this account at any time.
267. A core component for increasing household participation is the **reform of the supplementary funded pension**. If this were accompanied in the future by auto-enrolment in the pension scheme with an opt-out, capital market participation would rise sharply. [ITEM 454](#) The literature on behavioural finance (see for

example Mitchell and Utkus, 2004) shows that auto-enrolment with an opt-out option can increase participation by 25 to 35 percentage points (Beshears et al., 2006). In the United Kingdom, the introduction of auto-enrolment increased the participation rate in the occupational pension schemes to 86 % of all private sector employees (Department for Work & Pensions UK, 2020).

4. Integrate European capital markets more closely

268. In order to further develop and better integrate capital markets in the European Union, the European Commission presented an **Action Plan on implementing the Capital Markets Union (CMU)** in 2015. The proposed measures particularly concern access to capital markets for companies and private investors, including issues such as facilitating investments in venture capital, simplifying prospectus requirements for listed companies, and promoting infrastructure investments by insurance companies or banks. In 2020, a new action plan was presented with a stronger focus on retail investors and cross-border investments (European Commission, 2020). To date, the European Commission has proceeded in small steps without presenting ideas that could be game changers for the development of a Capital Markets Union. These include the full implementation of the banking union discussed in this report, [↘ ITEM 269](#) the introduction of a broad funded pension scheme, [↘ ITEM 454](#) and genuine alignment in the areas of tax and insolvency law [↘ ITEM 272](#) and accounting (Véron and Wolff, 2015). In addition, the introduction of a European Safe Asset is being discussed in the context of more comprehensive reform packages (Brunnermeier et al., 2017; Bénassy-Quéré et al., 2018; Panetta, 2023).

Reduce fragmentation and mitigate home bias

269. Given the size of European banks and their role as capital market players [↘ ITEM 210](#), the **completion of the banking union** would **foster cross-border capital market integration** (GCEE Annual Report 2022 items 257 ff.). Even if there are no direct legal barriers to cross-border banking, the institutional and regulatory frameworks play an important role (Hoffmann, 2020). For example, cross-border bank mergers are hindered by the lack of a common **European deposit guarantee scheme** (GCEE Annual Report 2018 items 516 ff. and 537; GCEE Annual Report 2022 item 259) as well as the bank resolution regime, which has not yet been fully implemented at the EU level (GCEE Annual Report 2022 item 258). If a bank abroad incurs large losses and declares insolvency, the domestic deposit guarantee scheme has to step in if the bank can no longer service its deposits. As a result, the approval of national supervisory authorities for cross-border mergers of banks could be limited (Hoffmann, 2020).
270. The complicated treatment of foreign investment income through **withholding tax contributes to home bias**. The **European Union has proposed new rules to tackle this problem**. First, these rules seek to expedite procedures through digital proof of tax residency. Second, they aim to prevent the misuse of tax refund opportunities such as cum-cum or cum-ex transactions [↘ GLOSSAR](#) (European Commission, 2023). To this end, EU Member States will be able to

introduce one of two possible procedures: either the "tax relief at source", where taxes are directly offset in the source country, or a "quick refund procedure", through which the overpaid tax is refunded within a maximum of 50 days. The rules are to be implemented in national law by 2027. The European Union's plan to process refunds exclusively through certified financial intermediaries poses a problem, since the fees could exceed the refund amount, especially for private investors. Tax refunds should be simple, quick and, if possible, free of charge.

Create transparency and comparability

271. Transparency is a prerequisite for the proper and efficient functioning of financial markets. More transparency, for example through **uniform accounting standards** for companies and a **better legal framework**, can limit the occurrence of phenomena such as herd behaviour, waves of sentiment-driven capital flows and investor overreaction to news (Brandao-Marques et al., 2018). This in turn reduces problematic side effects of financial globalisation, such as the amplification of shocks emanating from global financial centres.
272. The **lack of harmonised insolvency rules** has long been **considered** one of the main obstacles to the free movement of capital in the European Union and to greater integration of European capital markets (European Commission, 2022b). Insolvency law for non-financial companies varies widely across the European Union in terms of the length of proceedings, costs and recovery rates (EBA, 2020). The European Commission has presented a new proposal on harmonisation which, while making progress in aligning insolvency procedures in certain areas, such as asset recovery, more efficient liquidation of micro-enterprises and harmonisation of rules for creditors' committees, it does not seek to achieve full harmonisation (European Commission, 2022b). While it is welcome that alignment is still being pursued, full harmonisation should remain the goal. The German and French finance ministers have emphasised the relevance of insolvency law in their roadmap for the Capital Markets Union (Lindner and Le Maire, 2023). In this context, a Franco-German initiative could be launched to promote harmonisation between Germany and France. Other countries could then follow suit.
273. The **lack of standardised reporting by SMEs in Europe**, for whom the capital market is relevant, limits the comparability of companies and **prevents investors from conducting** comprehensive and informed **analysis of the relevant credit risk** (OECD, 2015, 2022). The European Union is **addressing the problem of transparency gaps** through various measures in the Capital Markets Union Action Plan, including **in particular** the establishment of the **European Single Access Point (ESAP)** for company and product data. The ESAP is intended to provide public financial and sustainability-related information on companies and investment products across the European Union. This information already comprises harmonised reporting requirements and should also contain voluntary information that is readily comparable internationally. Similar databases already exist in the United States, Japan and Canada. [↘ BACKGROUND INFO 10](#) Rapid implementation by the summer of 2027 according to plan and at the lowest possible cost to companies is essential for the European Union to

catch up with other established capital markets, such as the United States, in terms of transparency.



▷ BACKGROUND INFO 10

Background: Public databases on company data in selected industrialised countries

In many other industrialised countries, there are **public databases** that provide **free access to documents** filed by companies with supervisory authorities. These databases allow searches on **financial data and the business activity of listed companies**. For example, the US Securities and Exchange Commission operates the EDGAR database (Electronic Data Gathering, Analysis, and Retrieval), the Japanese Financial Services Agency operates the EDINET (Electronic Disclosure for Investors' NETwork), and the umbrella organisation of Canadian securities regulators (Canadian Securities Administrators) operates SEDAR+ (System for Electronic Document Analysis and Retrieval). These databases increase the transparency of securities markets, benefitting investors, companies and the corresponding economies as a whole. ▷ ITEM 530

Promote regulatory harmonisation

274. A **stronger European Securities and Markets Authority (ESMA)** could deepen the integration of capital markets by ensuring the **uniform application of regulation** ▷ ITEM 244 and by acting as a point of contact for international investors. The efficiency of capital market supervision could also be significantly improved through closer integration of national supervisory authorities. A similar problem exists in the United States with respect to cooperation between the US Federal Reserve and the US Treasury. Both monitor systemic risk and have overlapping goals. However, due to insufficient cooperation, they do not benefit from each other's work and sometimes conduct unnecessary duplicative analyses (GAO, 2016).
275. In order to facilitate cross-border investment by financial market participants, **ESMA's mandate** should be **extended to other areas**. ▷ ITEM 244 Sapir et al. (2018) propose that the **supervision of professional financial services providers** be carried out directly by ESMA. For example, ESMA could be specifically entrusted with the supervision of central counterparties, central securities depositories, trading venues and auditors, as well as the **enforcement of International Financial Reporting Standards (IFRS)**. In Germany, these tasks are currently mainly the responsibility of the Federal Financial Supervisory Authority (BaFin). At the same time, tasks with a stronger focus on retail banking (i.e. to protect savers and investors) should continue to be performed chiefly by the national supervisory authorities, but with binding instruments to enforce real supervisory convergence.
276. **Governance and funding reforms** may strengthen **ESMA's** independence and ability to take enforcement action. A smaller **decision-making body, accountable to EU institutions** and without representation from national supervisory authorities, would be better suited to this purpose than the current

structure (Sapir et al., 2018), where national representatives are likely to feel obliged to favour national interests. [↘ BACKGROUND INFO 8](#) Some fundamental decisions could still involve national supervisors. **Funding** could be modelled on the SSM and the Single Resolution Board (SRB) and financed by **levies on capital market institutions** rather than by contributions from member states, as is currently the case. The participants in the European Commission's consultation process (2022c) on reviewing the regulations relating to the operation of the European supervisory authorities have also addressed these points.

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