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The role of capital markets in Germany

Five questions on the state of play, current opportunities, and themes for the future

partners for change

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From a current perspective, there are five key questions about the role and importance of capital markets in Germany – this study provides a comprehensive, data-driven view

Five questions about capital markets in Germany

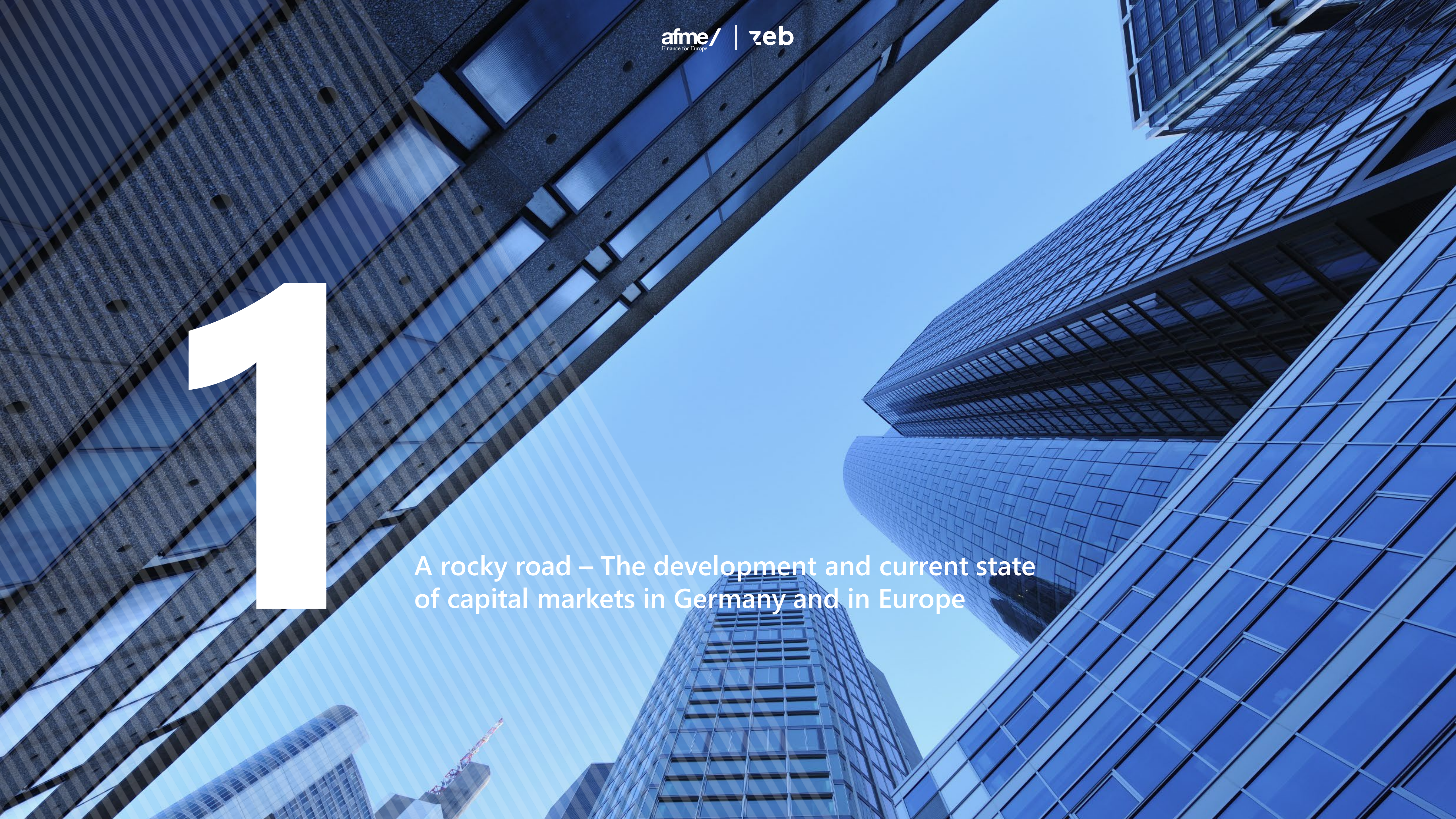
A	**The importance of capital markets[1)]**	Despite some major improvements, the EU has not closed the large gap in capital markets financing and continues as a **predominantly lending-based economy**. What are German specifics and **how important are capital markets** in such an economy?	pp. 13–24
B	**Benefits of risk capital**	In Germany, privately-owned companies might be able to access the capital markets to raise **additional equity capital** but often choose to seek other funding sources. What is **driving different funding sources** and what are the consequences for companies and the financial system?	pp. 25–31
C	**Reasons to get listed abroad**	When companies decide to go public, some companies list on their **local exchange**, others list abroad. One of the concerns is that where the financing goes, the business activities may follow. What is **driving the choice of where to list**, and what are the second-round effects?	pp. 32–35
D	**The emergence of an equity culture**	**Retail participation** in capital markets instruments is low. It is often said that there is a lack of an equity culture in Europe. What can be done about the **equity culture**, what is the role of pensions, and how long will it take to establish such a culture?	pp. 36–42
E	**Investors' ways to German SMEs**	There are limited opportunities for capital market investors to make **investments in SMEs**. What contribution could **securitisation** make, alongside other types of financing?	pp. 43–47

1) This study focuses primarily on equity capital markets; Source: AFME, zeb.research

Management summary

Overview

Source: AFME, zeb.research



1

A rocky road – The development and current state of capital markets in Germany and in Europe

Historic task: promoting the role and importance of capital markets in Germany has long been on the political agenda, across parties and governments

Statements from coalition agreements in Germany, 1998–2021

1998 – 2002 – 2005 – 2009 – 2013 – 2017 – 2021

Schröder I (1998) — SPD, BÜNDNIS 90 DIE GRÜNEN

"It is also important to build up a functioning **risk capital market** in order to improve the financing conditions, especially for SMEs as drivers of innovation and jobs."[1)]

Schröder II (2002) — SPD, BÜNDNIS 90 DIE GRÜNEN

"The Federal Government will work towards the creation of a fully integrated **securities and risk capital market** by 2003 and a fully integrated market for financial services by 2005."[2)]

Merkel I (2005) — CDU CSU, SPD

"One […] important prerequisite for economic and employment growth is an internationally competitive **"financial centre Germany"**. It is the basis for […] a cost-effective supply of capital for the economy"[3)]

Merkel II (2009) — CDU CSU, Freie Demokraten FDP

"An efficient and stable financial system is essential for the economic development of our country. […] For us, a transparent **financial market** is the basis for the free decisions of individual citizens."[4)]

Merkel III (2013) — CDU CSU, SPD

"The **financial markets** fulfil an important function for the national economy. Our financial market policy gives priority to the real economic service function of the financial sector […]"[5)]

Merkel IV (2017) — CDU CSU, SPD

"We will work for attractive framework conditions in Germany as a **financial centre** and further strengthen the digital infrastructure for the financial markets."[6)]

Scholz (2021) — SPD, BÜNDNIS 90 DIE GRÜNEN, Freie Demokraten FDP

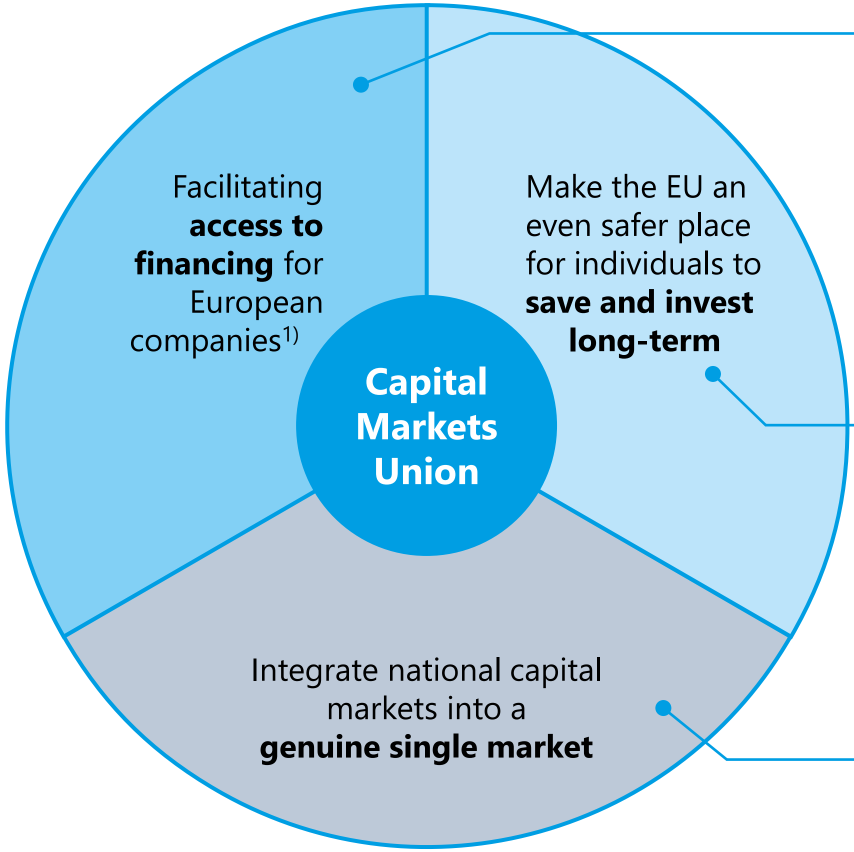
"We are committed to a strong European banking and **capital market** characterised by competition and diversity of business models. We want to deepen the Capital Markets Union."[7)]

Original documents in German, translation into English by zeb; 1) SPD, Bündnis 90/Die Grünen (1998), p. 11; 2) SPD, Bündnis 90/Die Grünen (2002), p. 80; 3) CDU/CSU, SPD (2005), p. 73; 4) CDU/CSU, FDP (2009), p. 52; 5) CDU/CSU, SPD (2013), p. 62; 6) CDU/CSU, SPD (2017), p. 70; 7) SPD, Bündnis 90/Die Grünen, FDP (2021), p. 134; Source: coalition agreements, zeb.research

A marathon, not a sprint: with the implementation of the Capital Markets Union, Europe took a huge political step but there is still a long way to go until its successful implementation

Overview: Capital Markets Union 2020 action plan

Objectives



Selected measures[2)]

- Simplified listing rules
- Guidance for SMEs on alternative financing
- Mobilisation of the securitisation market

- Increasing citizens' financial literacy
- Strengthening confidence of small investors
- Improving pension systems

- Uniform set of rules and supervisory convergence
- Strengthening investment protection and facilitating cross-border investments

Comments

- After the **first CMU action plan in 2015**, the European Commission adopted a second action plan in 2020 to remove remaining obstacles
- The far-reaching need for adaptation has led to initiatives in many EU legal norms – however, despite all measures, **the successful implementation is still not finished** (see AFME's regular publication "Capital Markets Union: Key Performance Indicators" for further details, insights)
- Plans with positive response in Germany[3)]:
  - Common capital market promotes competitiveness (**BdB**)
  - The proposals encompass many good approaches (**DSGV**)
  - Explicit support of a true "single market for capital" that reduces the fragmentation of European financial markets **(BDI & DIHK)**
  - Deepening of the capital market would clearly expand opportunities for insurers (**GDV**)

1) To support a green, digital, inclusive and resilient economic recovery; 2) The Capital Markets Union 2020 action plan encompasses 16 unique actions; see appendix for further details; 3) BdB: Bundesverband deutscher Banken, DSGV: Deutscher Sparkassen- und Giroverband, BDI: Bundesverband der Deutschen Industrie, DIHK: Deutsche Industrie- und Handelskammer, GDV: Gesamtverband der Deutschen Versicherungswirtschaft; Source: AFME (2022), BdB (2020), BDI & DIHK (2017), DSGV (2020), GDV (2020), EC (2023), zeb.research

Looking ahead: the German government is currently working on two legislative initiatives that could significantly expand the role of capital markets over the coming years

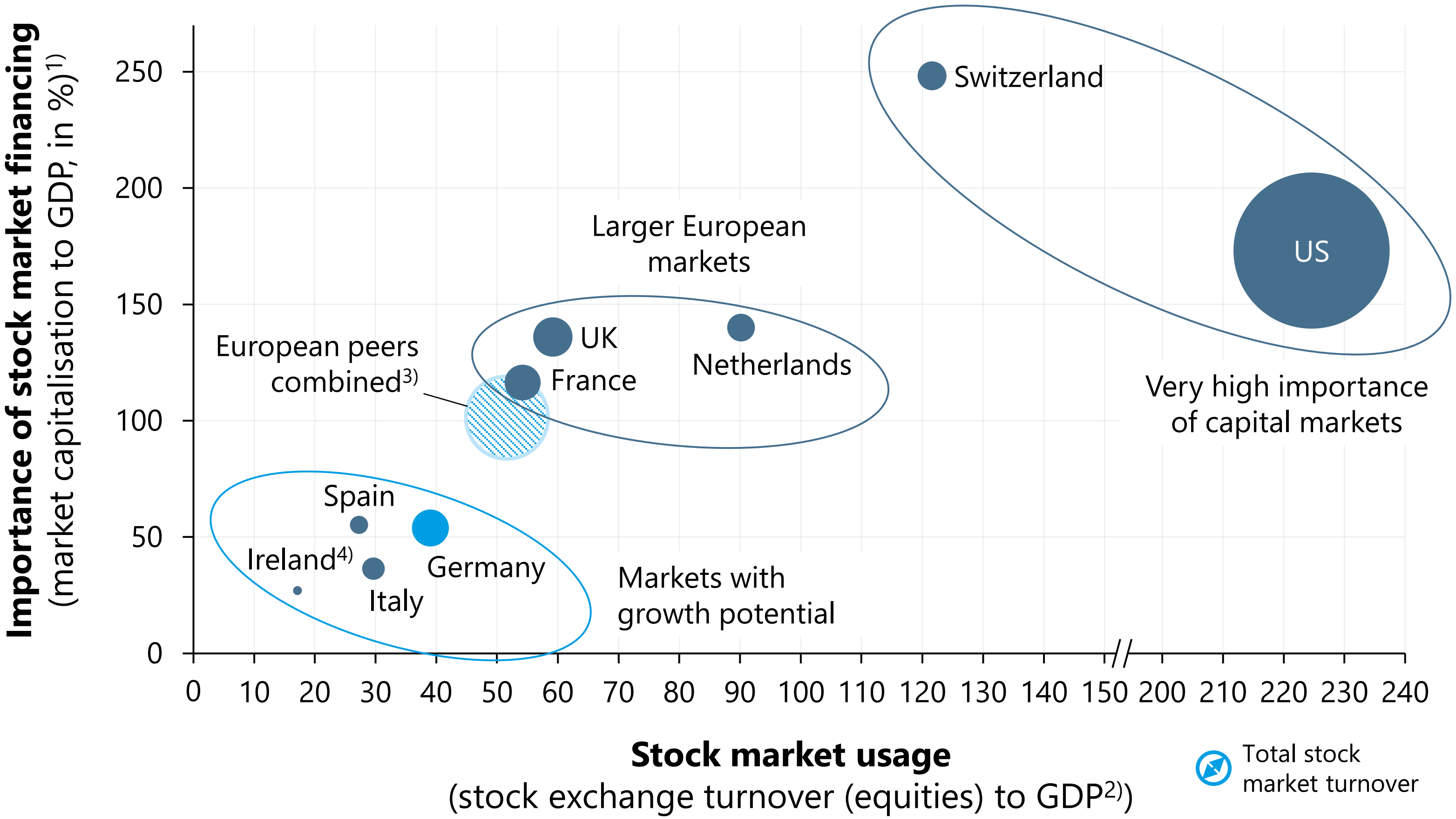
Currently planned major legislative initiatives

	Zukunftsfinanzierungsgesetz	Generationenkapital
Core objective	• **Mobilise private capital** to finance a green and digital economic transition and **support private wealth creation**	• **Modernise the pension system** by building a **capital stock from public funds** to use earnings to stabilise pension contributions
Cornerstones and measures	• **Lowering the minimum capital requirements** and simplifying regulatory requirements for company listings on capital markets • **Facilitating investments** by institutional investors **in start-ups, growth companies and SMEs** • Implementing **multiple voting shares** • Creating **incentives to build private wealth**, especially by investing in shares	• **Creating the capital stock** with an investment of EUR 12 billion[1)] financed by government loans in 2024 and defining subsequent investment patterns • **Establishing an independent foundation** for investing the capital • Defining rules for the **usage of earnings** from the **mid-2030s onwards** • Concrete measures to be clarified
Current status	• **Government draft** published August 2023 • **Entry into force:** Dec. 2023	• **Concept paper** published in 2023; **official draft** by the Ministry of Finance published in March 2024 • **Planned entry into force:** 2024

1) An amount of EUR 10 billion was initially planned; according to media reports, this is now to be raised to initially EUR 12bn per year to a total amount of EUR 200bn until 2035; Source: Bundesministerium der Finanzen, BMF (2023a, 2023b, 2023c), Handelsblatt (2023), zeb.research

Room for growth: the relevance and utilisation of German capital markets clearly lags behind

Comparison of stock markets 2022



Comments

- **In the US, stock markets have high importance** for financing of corporates and are very active (high turnover)
- The relatively low market capitalisation of German companies compared with German economic output reflects the ongoing **low use of the capital market as a source of financing** for German companies (high proportion of family businesses and loan financing)
- **UK, France and the Netherlands** high capital market importance
- **Ireland, Italy and Spain** rather low capital market importance and relatively low stock market activity

1) Market capitalisation of all listed domestic companies in a country as a share of that country's GDP at current prices; 2) Stock exchange turnover of domestic and foreign stocks to GDP, domestic: company that is incorporated in the same country as where the exchange is located, DE: Dt. Börse, Börse Stuttgart, CH: SIX, GB: LSE, FR: Euronext Paris, NL: Euronext Amsterdam, ES: BME, IT: Borsa Italiana, IE: Euronext Dublin, US: Nasdaq U.S., NYSE; 3) Aggregated figures for all shown European exchanges (incl. UK/CH); 4) Relatively low figures as the analysis focuses on equities only and excludes the large investment fund market; Source: Euronext (2023b), FESE (2023a), IMF (2023), LSE (2023a, 2023b, 2023c), Borsa Italiana (2023), WFE (2023), zeb.research

Previous analyses have already looked at partial aspects of the capital markets – current turning of the tide and major future challenges make a new and up-to-date view necessary

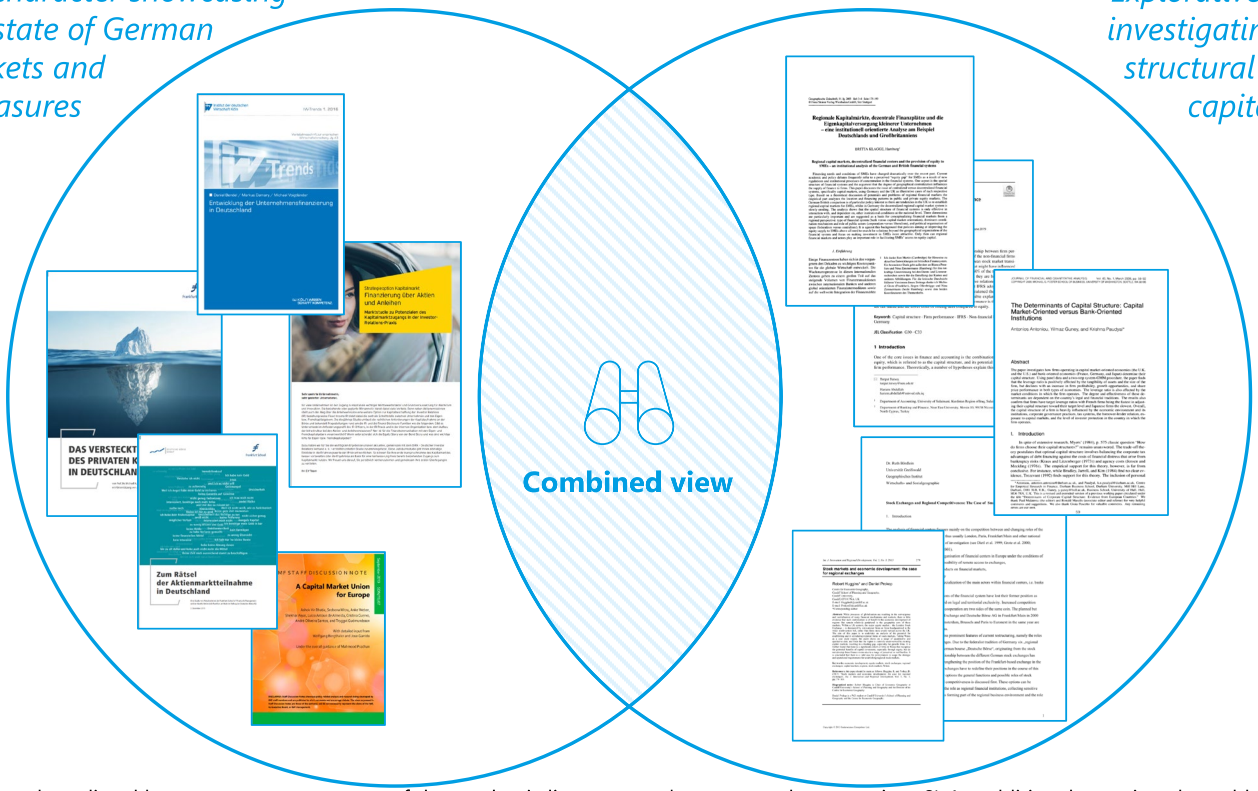
Selection of literature on capital markets[1)]

Market studies

Descriptive character showcasing the current state of German capital markets and political measures

Academic research

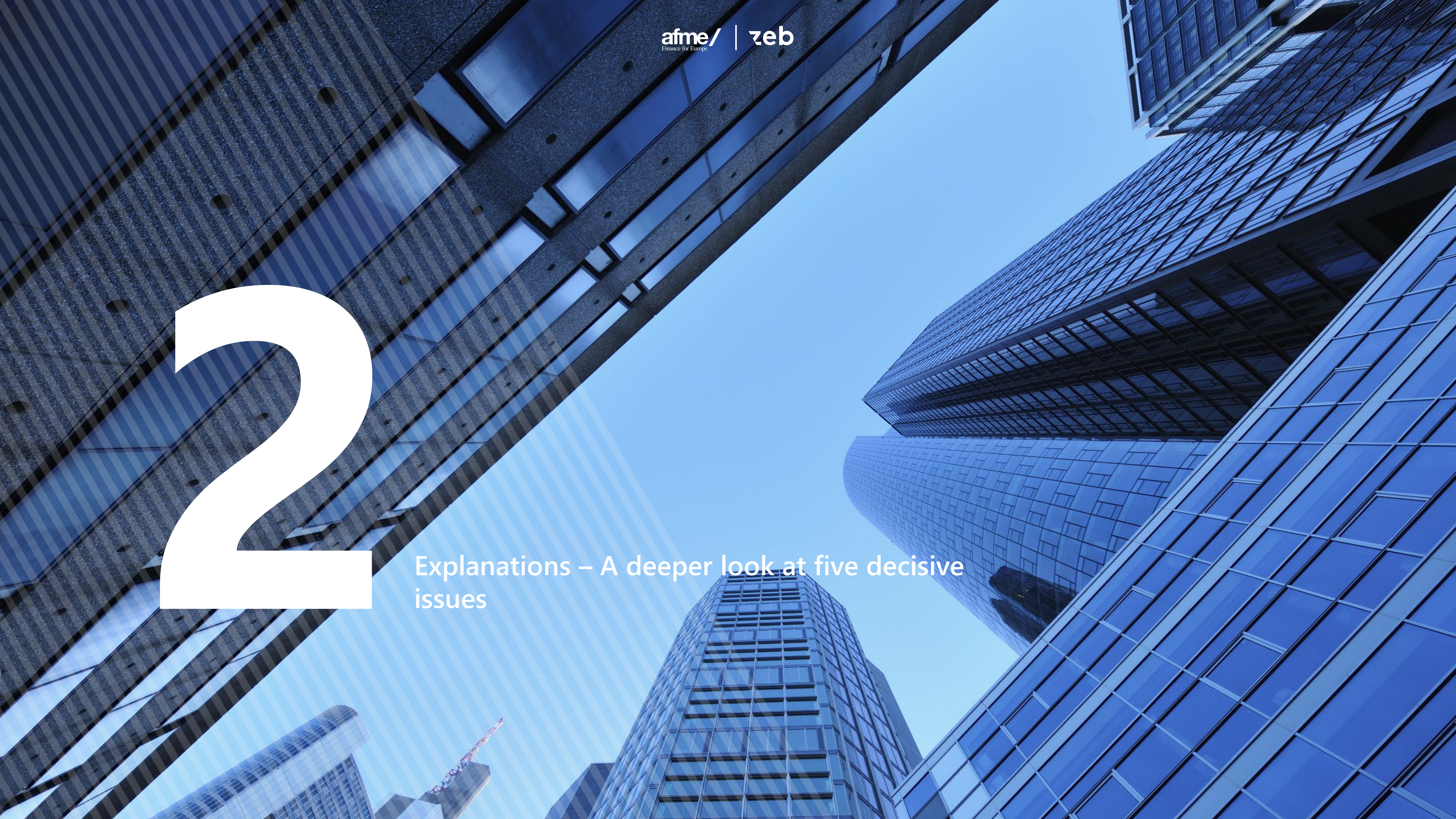
Explorative character investigating isolated structural aspects of capital markets



Comments

- Recent studies analysing structural market data find evidence of an **underdeveloped German capital market[2)]** with low significance as a financing source **compared to banks**
- **Sweet spot:** a combined view of explo-rative research embedded in the bigger picture of Germany's financial system is needed due to current political/economic discussions and developments

1) The papers and analyses listed here represent an excerpt of the academic literature and not a complete overview; 2) An additional overview that addresses many of the issues raised in chapter 2 is also provided by an interview with Ms Sabine Mauderer, member of the Executive Board of the Deutsche Bundesbank in the Frankfurter Allgemeine Sonntagszeitung, FAS (2023); Source: EY (2023); FAS (2023), Grote & Fitza (2022); Ebert et al. (2019); Bhatia et al. (2019); Bendel et al. (2016); Klagge (2003); Bördlein (2002); Huggins & Prokop (2013); Antoniou et al. (2008); Abdullah & Tursoy (2019), zeb.research



2 Explanations – A deeper look at five decisive issues

From a current perspective, there are five key questions about the role and importance of capital markets in Germany – this study provides a comprehensive, data-driven view

Five questions about capital markets in Germany

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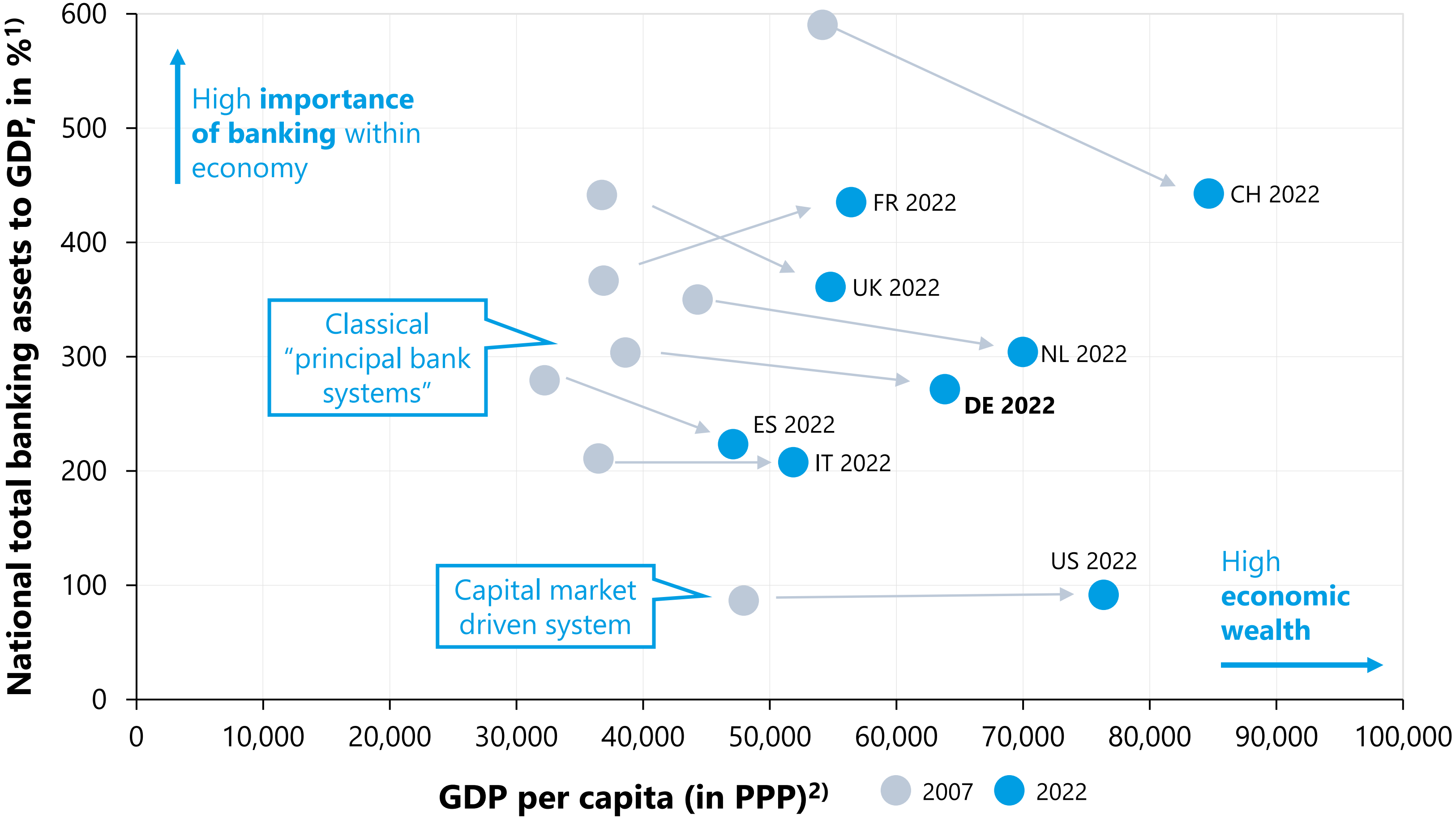
Source: AFME, zeb.research

A Changed importance: since the financial crisis, the importance of banks based on countries' total banking assets on a national basis has changed

Relevance of national banking sectors 2007–2022



Comments

- Figures underline economic development since 2007 and also typically **high importance** of banking sectors across Europe
- A look at the **US underlines systemic differences**: low degree of intermediation indicating the lower importance of banks due to strong capital markets

1) Degree of intermediation (defined as total assets of a country's domestic banking sector (on a national basis, i.e., excluding foreign assets of domestic bank) to its gross domestic product (GDP) at current prices) is an indicator for the importance of the banking sector within an economy; 2) GDP per capita at purchasing power parities (PPP) to ensure international comparability; Source: ECB (2023a), SNB (2023), FRED (2023), IMF (2023), zeb.research

A

The German banking system has always consisted of three main pillars

Germany's three-pillar banking system

German banking sector

Sparkassen

- German Sparkassen Association (DSGV) as umbrella organisation of 12 regional associations
- 6 Landesbank groups
- **362 savings banks** (owned by municipalities)
- 142 other partners[2)]
- 1 data service centre

Cooperative banks

- BVR as a federal association of 4 regional and 2 group associations
- DZ as a "central bank" (owned by cooperative banks)
- **733 cooperative banks**
- 27 other partners[1)]
- 1 data service centre

Commercial banks

- **German and foreign large universal banks, private banks, etc.**
- Association of German Banks (BdB) as an umbrella organisation for 155 banks (commercial banks as well as other banks, e.g., private mortgage or investment banks) and 21 fintech companies with different business models

Other banks

- Mortgage banks[2)]
- Bausparkassen
- Other specialised institutions[3)]

Comments

- Germany shows a fragmented three pillar banking system
- **Absence of huge banking crises** in Germany in recent history solidified sector split
- In contrast to other European countries, there are still relatively **rigid boundaries between the three pillars** of German banking (e.g., regarding collaboration, cross-sectoral mergers,…)
- A **softening of the borders** (e.g., with regard to possible mergers) is not in sight in the short term
- Divided banking system reflects **specific German economy** with a pronounced SME segment

1) E.g., building and loan association, public regional insurance groups, leasing and factoring companies, other service providers, etc.; 2) Partly also organised in the BdB; 3) E.g., governmental banks; Source: DSGV (2023), BVR (2023), BdB (2023), zeb.research

A

Historical comparison of the three pillars

Size comparison of German banking sectors[1]

		Sparkassen: Regional entities	Sparkassen: Landesbanken	Cooperative banks: Regional entities	Cooperative banks: Central bank(s)	Commercial banks[2]
Banks	2007	446	12	1,232	2	282
	2022	362	6	733	1	249
Employees (in k)	2007	253.7	39.9	160.8	4.9	190.3
	2021	195.0	27.2	135.5	5.4	146.9
Market share of loans (in %)	2007	28.6 / 22.5	3.8 / 18.7	19.8 / 12.3	0.0 / 1.5	28.5 / 26.6
	2022	28.9 / 29.7	1.0 / 9.7	23.9 / 20.3	na[3]	32.1 / 27.3
Market share of deposits (in %)	2007	38.0 / 9.9	2.4 / 24.0	24.5 / 6.3	0.0 / 2.8	26.0 / 34.0
	2022	34.6 / 16.3	1.2 / 13.4	25.0 / 12.3	na[3]	31.8 / 48.4

Private clients / Corporate clients

1 The combined Sparkassen sector has the highest market share of loans to corporate clients

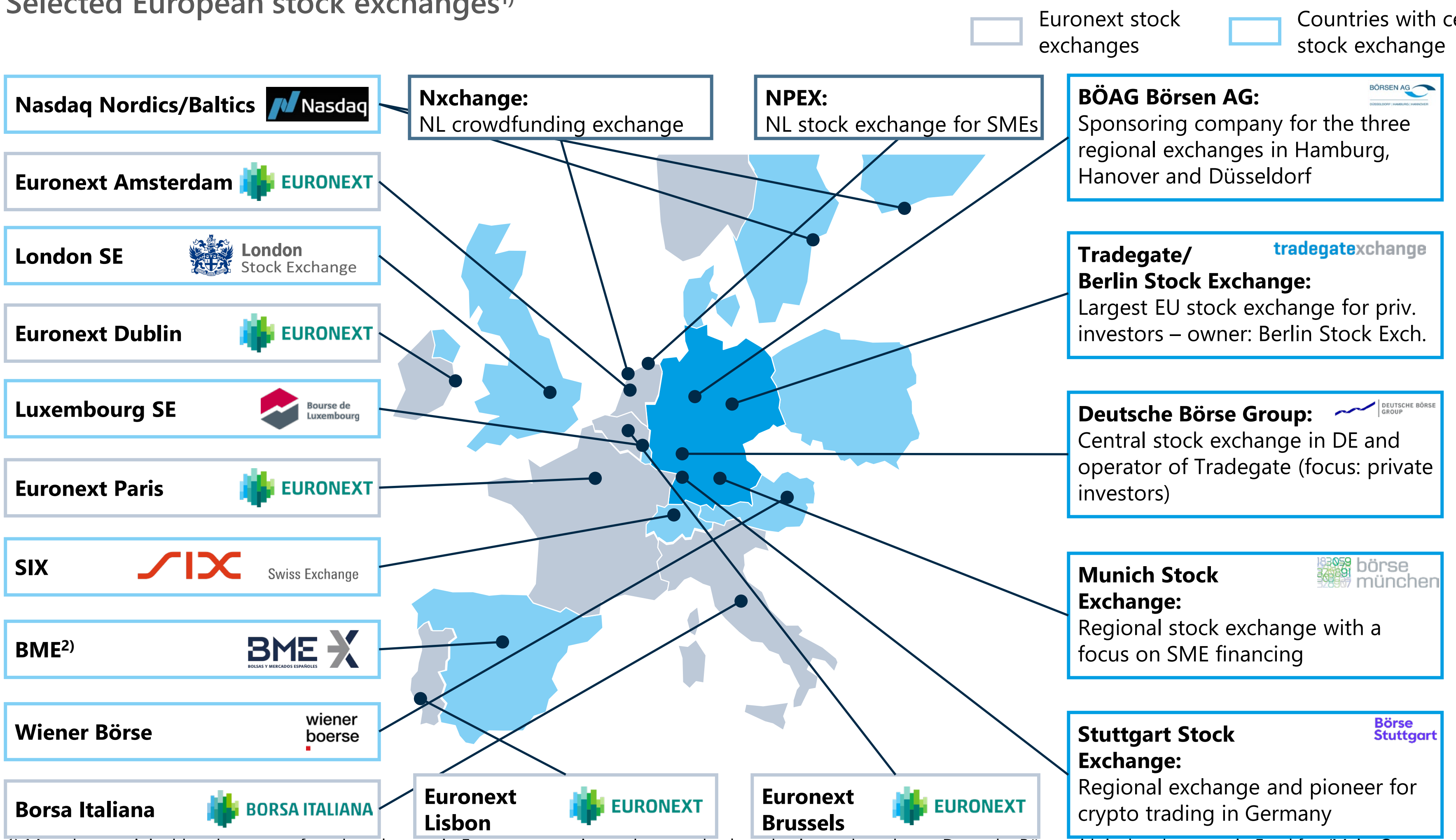
2 Total number of banks decreased massively but mergers still happen only within the sectors and not across

3 In recent years, commercial and foreign banks have gained market shares partly due to specialised business models

1) All values at end of year; shown shares do not sum up to 100% or total banking market figures due to other banks (e.g., governmental banks,…) not considered here; 2) Sector "Kreditbanken" according to Deutsche Bundesbank statistics, includes large banks, private regional banks and branches of foreign institutions; 3) Since the merger between former DG Bank and WGZ Bank into DZ Bank, detailed sector values are no longer available; Source: Deutsche Bundesbank (2023), AGV Banken (2023), zeb.research

A Overview of stock exchange landscape – German regional exchanges with very different unique selling points

Selected European stock exchanges[1]



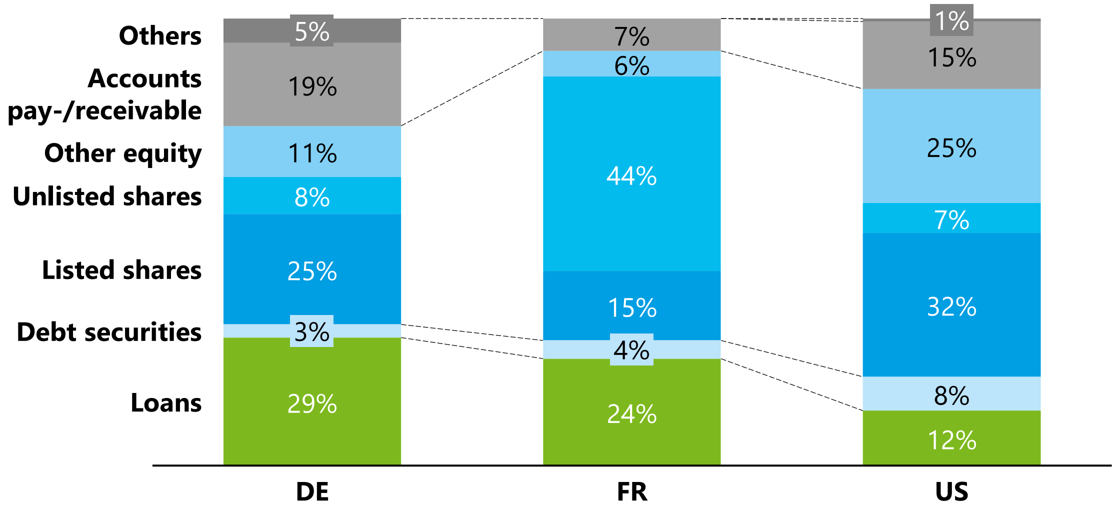
- **Regional exchanges are a German peculiarity** – many European countries have a central exchange
- German landscape dominated by **Deutsche Börse** – regional institutions with very different unique selling points
- **Euronext** continues to expand its strong presence and is Deutsche Börse's largest competitor
- Largest **5 continental European exchanges** in 2022: Euronext (market share: 38.4%), Deutsche Börse (20.3%), Nasdaq Nordics/Baltics (19.3%), SIX (14.1%), BME (5.5%)[3)]

1) Map shows original headquarters of stock exchanges in Europe; respective exchanges also have business abroad, e.g., Deutsche Börse with its headquarters in Frankfurt/Main, Germany, also has offices in London or Luxembourg which serve customers, for example, of Eurex, Clearstream and cash market; 2) BME: Bolsas y Mercados Españoles; 3) Market share based on turnover across all market segments; data according to Federation of European Securities Exchanges (FESE) for 17 continental European exchanges; excl. LSE due to not comparable data; Source: homepages, FESE (2023b), zeb.research

A Breakdown of companies' financing sources underlines high reliance on bank lending but also low share of capital market instruments in Germany

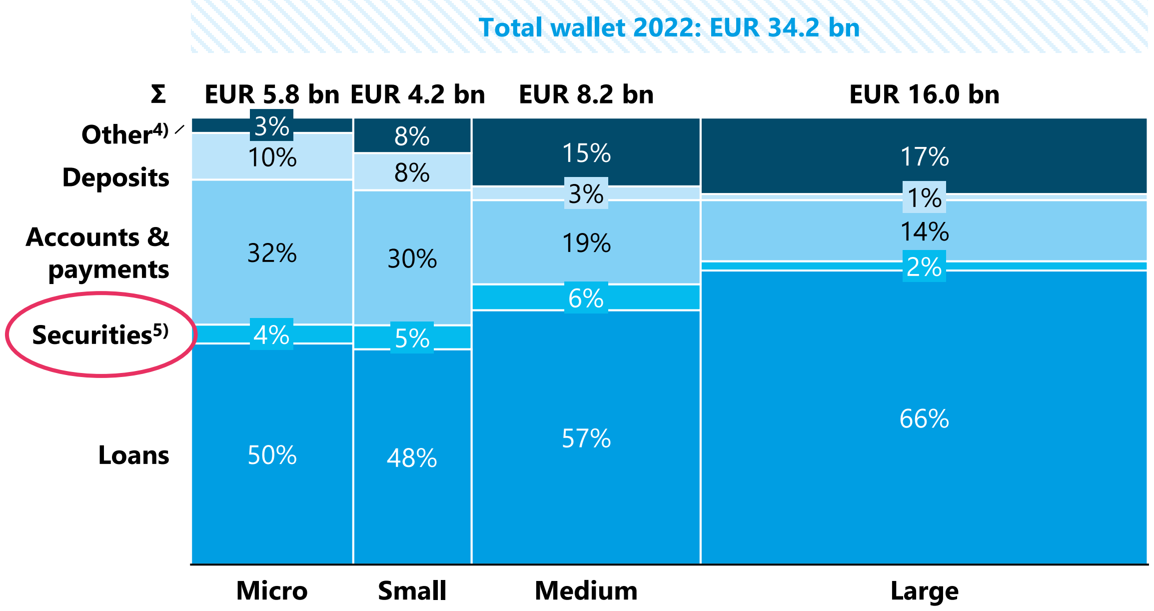
Company liabilities and their importance for the banking business

Financial structure of firms 2022 (in % of total assets)[1)]



- Loans account for the largest share of financing in bank-driven Germany (29%) – more than twice as large as in the US
- Capital market-related financing is most common in the US

German banking: corporate wallet per segment/service 2022[3)]



- Total wallet of corporate business of banks in Germany dominated by loans across all customer segments
- Security business less relevant than other banking services

1) Weighted average of all companies within a country; 2) Debt securities and listed shares; 3) Figures show the total wallet of corporate banking business of banks in Germany based on the zeb.Wallet Model; zeb can support with individual, regional and bank-specific analyses; micro companies: turnover < EUR 0.5m, small: EUR 0.5m–5m, medium: EUR 5m–50m, large > EUR 50m; 4) Incl. insurances, guarantees, leasing, foreign trade finance, derivatives; 5) Incl. fees & commissions, e.g., purchase/sale of shares and custody of securities; excl. issuances (as hardly relevant for the majority of German banks, market share of US/intern. banks: ~80% in equity business, according to Bloomberg); Source: Eurostat (2023), OECD (2023b), zeb (2023b), zeb.research

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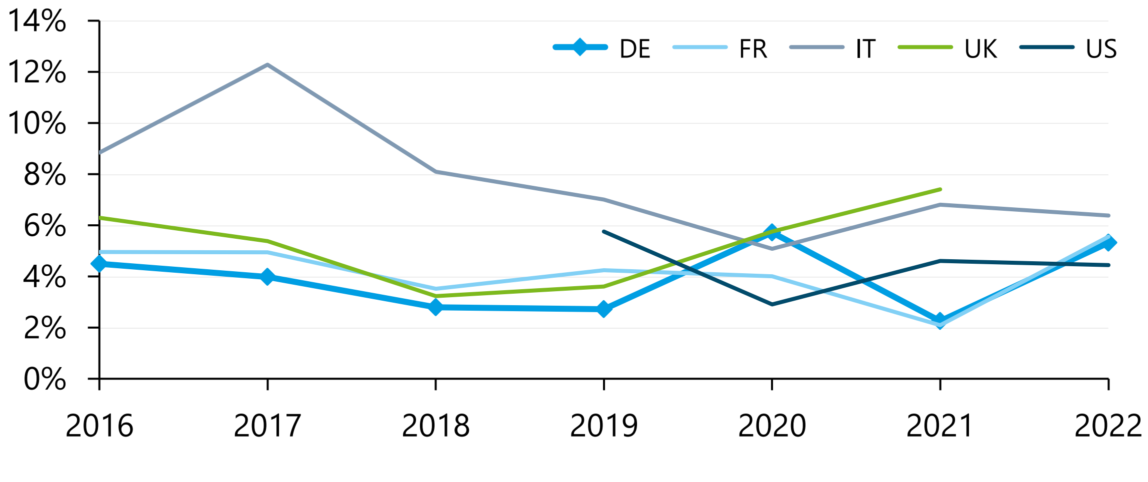
A Despite the varying importance of banks, there is no evidence of systematic gaps in the financing of companies – how will future capital requirements affect this?

Financial constraints and financing gaps over time

Perceived financial constraints[1)]

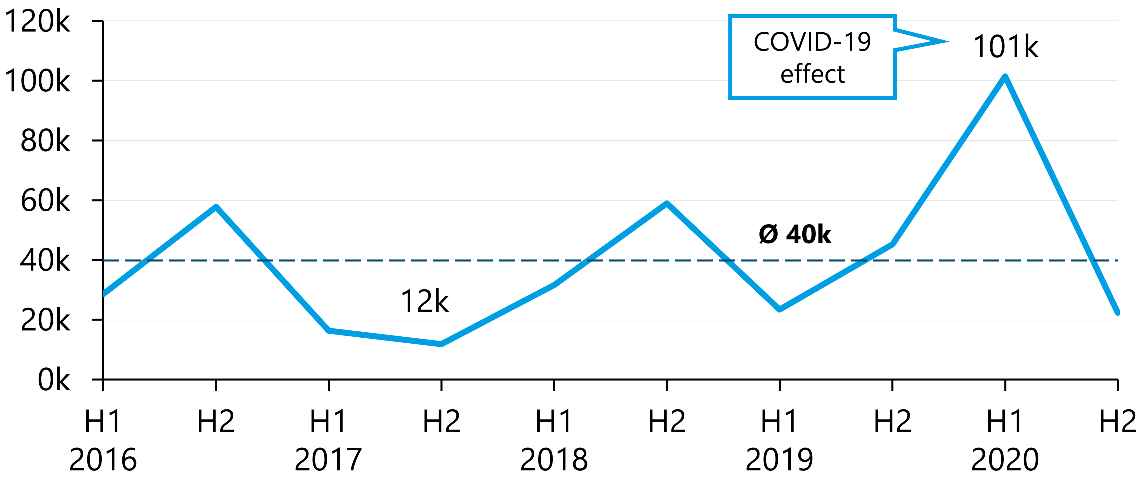
Share of finance-constrained firms in % of all firms surveyed



- Figures underline **volatile** financing environment over last years
- Coming of a period with "excess liquidity", the share of com-panies perceiving financial constraints was very low but current economic environment leads to increasing financial constraints
- However, no evidence of fundamental gaps b/w DE, UK, the US

Estimated financing gaps of German SMEs[2)]

In EUR k per firm



- Study by Beck & Kessler (2023) shows **no systematic problem**, but some German SMEs received less funding than requested
- Macroeconomic (inflation, yields) and geopolitical developments as well as enormous future investment needs (carbon neutrality, digitalisation) **very likely to exacerbate** the issue significantly

1) Results from EIB Investment Survey 2016–2022; finance-constrained firms include: those dissatisfied with the amount of finance obtained (received less), firms that sought external finance but did not receive it (rejected) and those that did not seek external finance because they thought borrowing costs would be too high (too expensive) or they would be turned down (discouraged); 2) Study by Beck & Kessler (2023) using figures from EC's/ECB's "Survey on the Access to Finance of Enterprises (SAFE)", financing gap = loans demanded to loans obtained; Source: EIB (2016-2022), Beck & Kessler (2023), zeb.research

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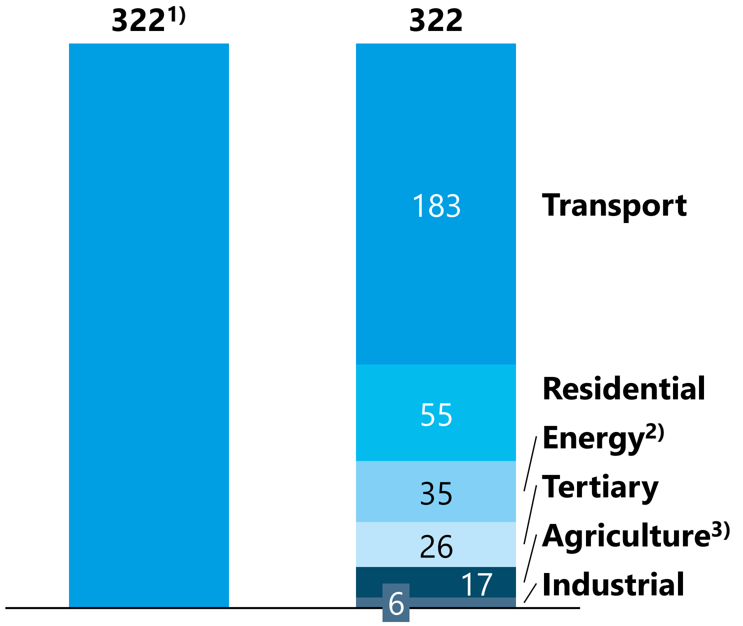
A Historic challenge: conservative estimates indicate an investment need of EUR ~322 bn per annum for Germany to achieve its greenhouse gas targets

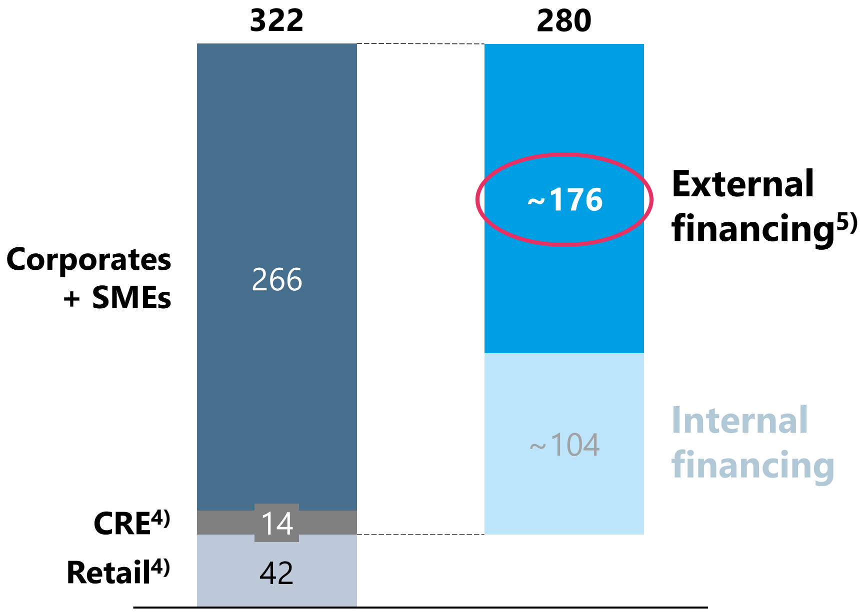
Climate change-induced investment needs in Germany (in EUR bn, 2020–2030)

First estimations

Future total annual investment needs...



...and corresponding financial requirements



Comments

- Estimates underline historic challenge: until 2030, EUR ~322 billion in investments needed in Germany to achieve GHG targets
- Includes only additional **transition costs**, i.e. without losses due to physical events
- Based on typical financing patterns, necessary investments translate into an **external financing need of EUR ~176 bn** per year in Germany until 2030[1)]
- **Key question**: Which financing sources are capable of providing the money?

1) Based on estimates from the European Commission for the total EU; breakdown for Germany by share of required CO_2 reduction and GDP; various other studies also estimate climate change-induced investment needs, sometimes differing greatly in methodology, the sectors considered, and thus overall results; an overview is provided, e.g., by GFMA & BCG (2020); KfW (2021) and IW (2022) provide a basic confirmation of these figures; 2) Energy incl. power grid, power plants, boilers, new fuels production and distribution; 3) Agriculture: estimate based on relative investment needs of energy sector (not included in official EU estimation); 4) Assumption: 75% of the invest. in the residential sector belong to the retail segment, 25% to CRE; 5) Split between external and internal financing based on figures for Germany from EIB Investment Survey 2022; Source: EC (2020a), EC (2020b), EIB (2022), European Parliament (2018), GFMA & BCG (2020), IW (2022), KfW (2021), zeb (2023a), zeb.research

A Green transformation has a strong impact on capital ratios of German banks – estimate indicates need for other financing sources due to resulting low CET1 ratios of banks

Risk-bearing capacity and capitalisation[1)]

Rough estimate – regional and bank-specific characteristics to be considered

Impact of green transformation investments on CET1 ratios of German banks (in %)

2020 — Key drivers and assumptions → 2030e

RWA growth due to increased need for transformation

- Regular RWA growth in corp. business of 2% p.a.
- RWA growth from Green Deal volumes, taking into account fixed RWA weights
- Distribution of volume growth in line with current credit market share

Regulatory

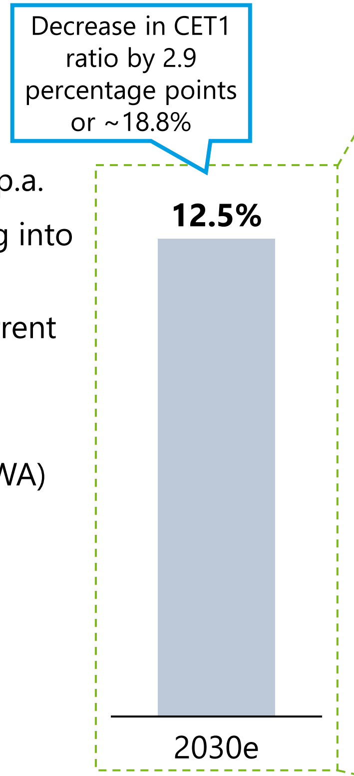
- Regulatory impact of Basel IV (7% on bank RWA)

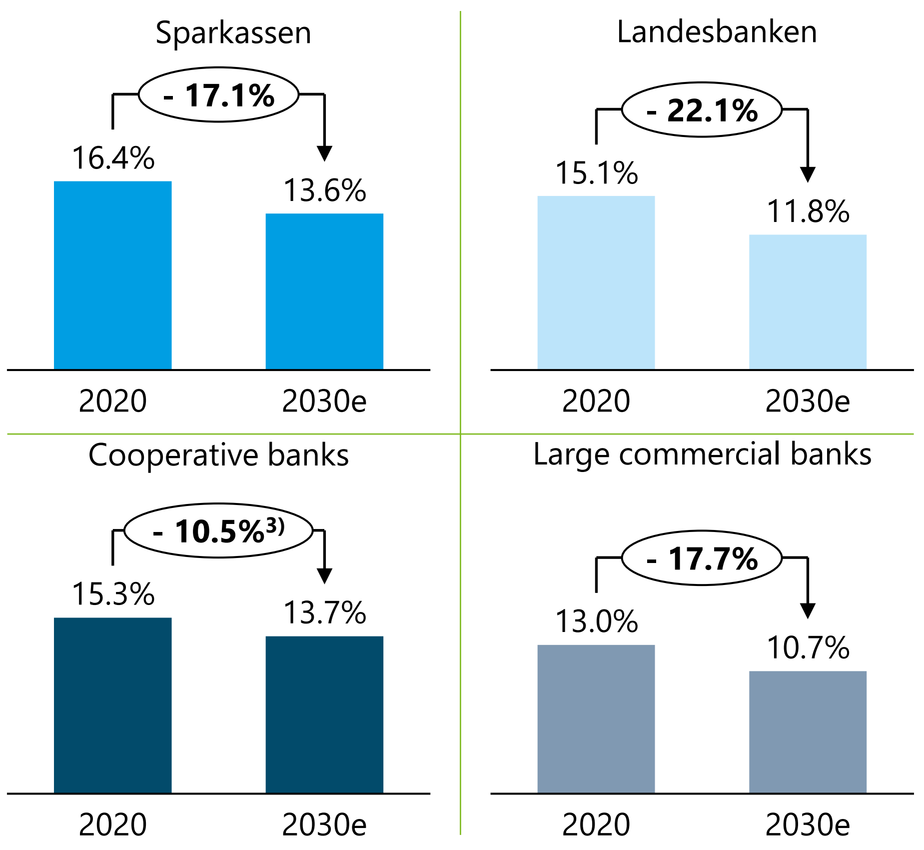
Earnings growth

- Increase in annual profits by ~ 5% p.a.

Capitalisation

- Equity growth via retention of ~ 40% of each year's profits





1) Figures shown are the result of a long-term dynamic simulation (e.g., including effects of retained earnings) for German banking sectors; assumed business increased based on previously shown financing needs to reach GHG reduction targets by 2030; starting point is end of 2020 to be in-line with the European Green deal; due to regional differences in investment/financing needs and individual bank characteristics, results do not apply to every bank; zeb can support with individual, regional and bank-specific analyses; see the appendix for further details; 2) Average CET1 ratio of all German banks; 3) Relatively lower impact due to high net income figures compared to other sectors; Source: zeb.research

A The digital challenge: despite several years of work on digitalisation, a new survey by the ECB underlines the huge budgets and resources needed in the coming years

Deep dive: digitalisation of European banks[1)]

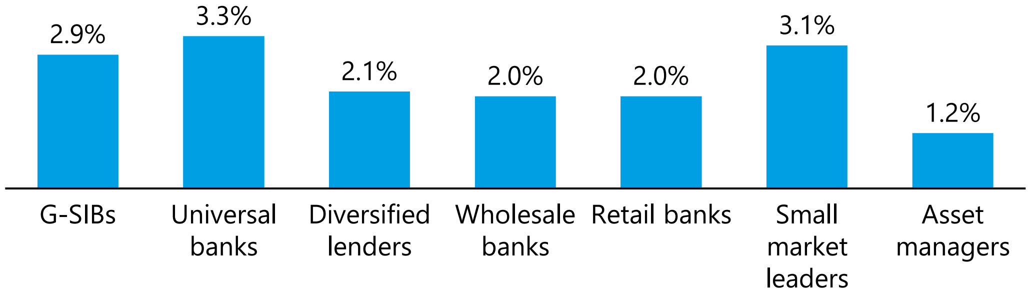
Status quo

- Digitalisation triggers changes in all areas – especially for banks, technological innovation is a **decisive factor** for a stable business model going forward
- Therefore, the ECB conducted a survey among **105 large European banks** about their digital transformation[2)]
- **Key outcome:** there is a high degree of heterogeneity in banks' digital maturity
- Despite having digital **trans-formation strategies** in place, there is still much work to be done and big (monetary) efforts are necessary

Current budgets and effort at banks

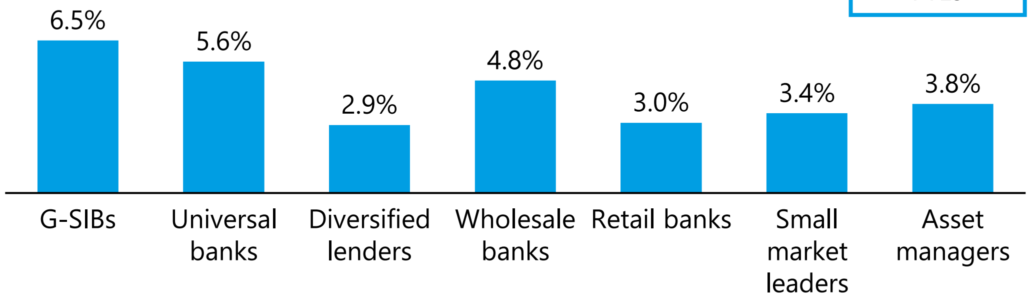
Digital transformation budget as % of operating income 2021

In total: EUR ~5bn per year



Digital transformation FTEs as % of total staff 2021

In total: ~100,000 FTEs



Main conclusions

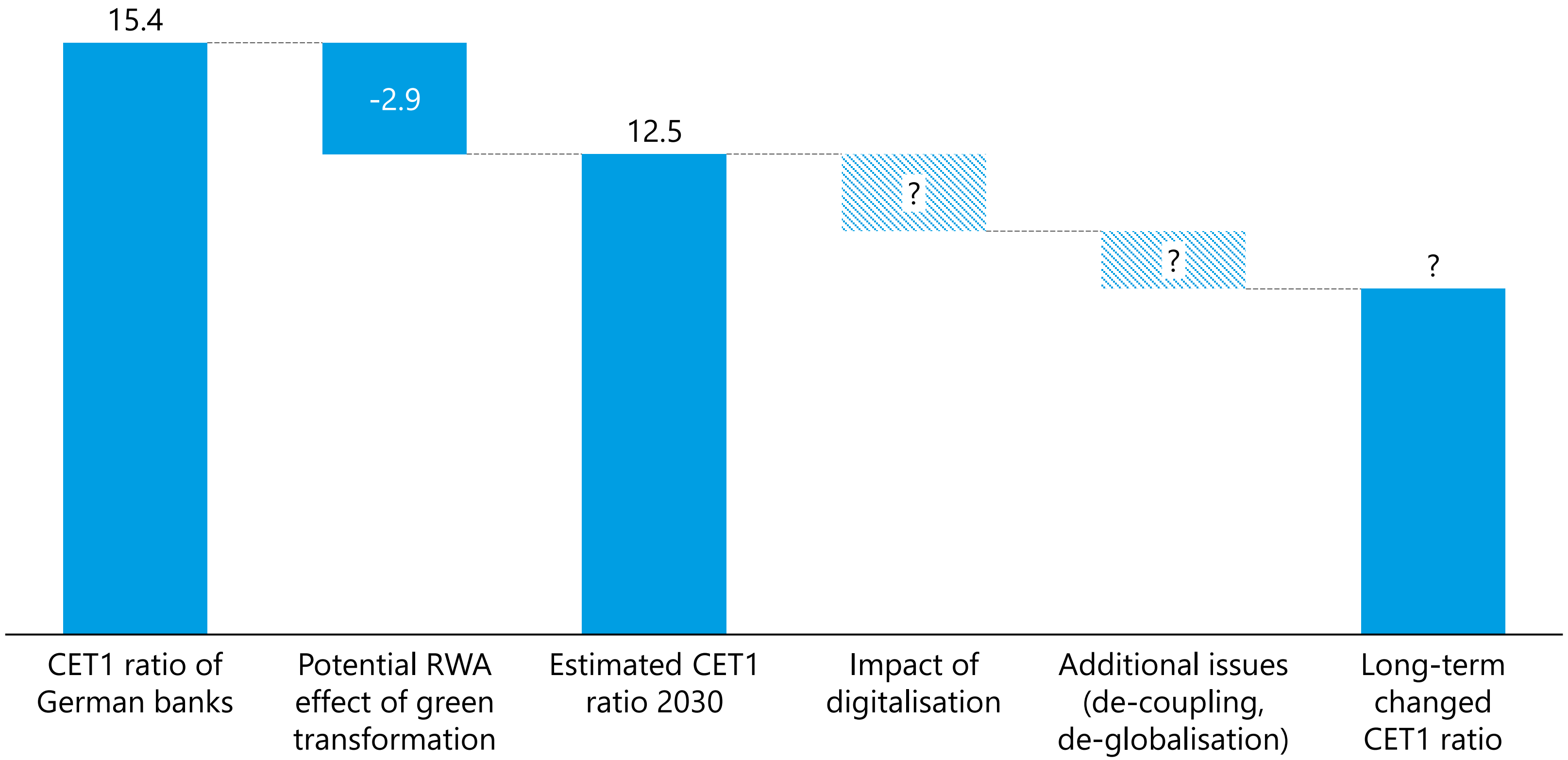
- Digitalisation remains on banks' management agenda with high priority for the years to come
- **New technologies** (AI, etc.) will further increase the required budgets and FTEs (current level as a minimum)
- Necessary investments in digitalisation and the green transformation (see previous slide) additionally burden banks' net income and potentially restrict the room for **further credit growth at least at some banks**

1) Based on ECB's "Horizontal assessment of the survey on digital transformation and the use of fintech" published in February 2023; for further insights see ECB (2023b); 2) Exact breakdown of participating banks not available; Source: ECB (2023b), zeb.research

A Combined effect of green transformation and digitalisation indicates need for additional funding sources

Potential impact of green transformation and digitalisation on German banks

Indicative development of German banks' CET1 ratio[1)]



Comments

- **Green transformation and digitalisation** driving future investment needs
- However, current change of **macro-economic and geopolitical environment** will have additional impact due to economic shifts via a **de-coupling** of supply chains, a reduction of economic **dependencies** and **de-globalisation tendencies**
- As investment needs increase, so does the **need for additional funding,** e.g. through preferably capital markets or (outside the regulated financial system) via non-banks which might cause problems as stated by experts[2)]
- In this case, capital markets are not a substitute to banks, but a **supplement**

1) Figures shown are the result of a dynamic simulation (e.g., including effects of retained earnings) for German banking sectors; see previous slides; due to regional differences in investment/financing needs and individual bank characteristics, results do not apply to every bank; zeb can support with individual, regional and bank-specific analyses; 2) In addition to the capital markets, non-banks will also participate in the financing of the upcoming challenges; however, many actors (including politicians) should prefer the path via classical financial markets, because a too extensive migration of financing into the non-regulated area is associated with several (political and supervisory) problems; several reports and analyses address these issues and the impact on the whole financial system, e.g. see FSB (2023a & 2023 b), IOSCO (2023); Source: zeb.research

A There are historic and economic reasons for the existing banking system in Germany – scientific studies confirm the positive effects of strengthening capital markets

Scientific literature screening: dominance of banks in Germany and benefits of strong capital markets

Scientific literature provides rationale for bank-driven system…

↓

- **Dominance of banks** in Germany's financing system can be traced back to the industrialisation period
- Country-specific regulation favours bank loans as financing source, e.g., through **taxation schemes**
- Germany's decentralised banking system **beneficial due to good fit with German economic structure** with high share of SMEs
- High competition leads to lower interest rates and reduces need for **other (cheaper) alternatives**
- Since reunification, the German private banking sector has changed – indicator for a **higher need for capital market solutions**?

… but also underlines importance of capital market financing.

↓

- The literature clearly underlines the **importance and benefits of capital markets** as a funding source
- There is no clear advantage of one **type of financial system** (bank-based or market-based)
- Instead, analyses show that the overall **degree of financial maturity** (access to financial services, different funding sources, …) is more decisive
- Banks and capital markets are not **substitutive but complementary**
- From a political perspective, it is less a discussion about the right system and more about how the financial system as a whole can be **further developed**

1) The analyses presented here represent an excerpt of the academic literature and not a complete overview but represent the prevailing opinion; see the backup for a more detailed picture including sources; Source: zeb.research

A Key takeaways on the importance of the banking sector and capital markets in Germany

Overview

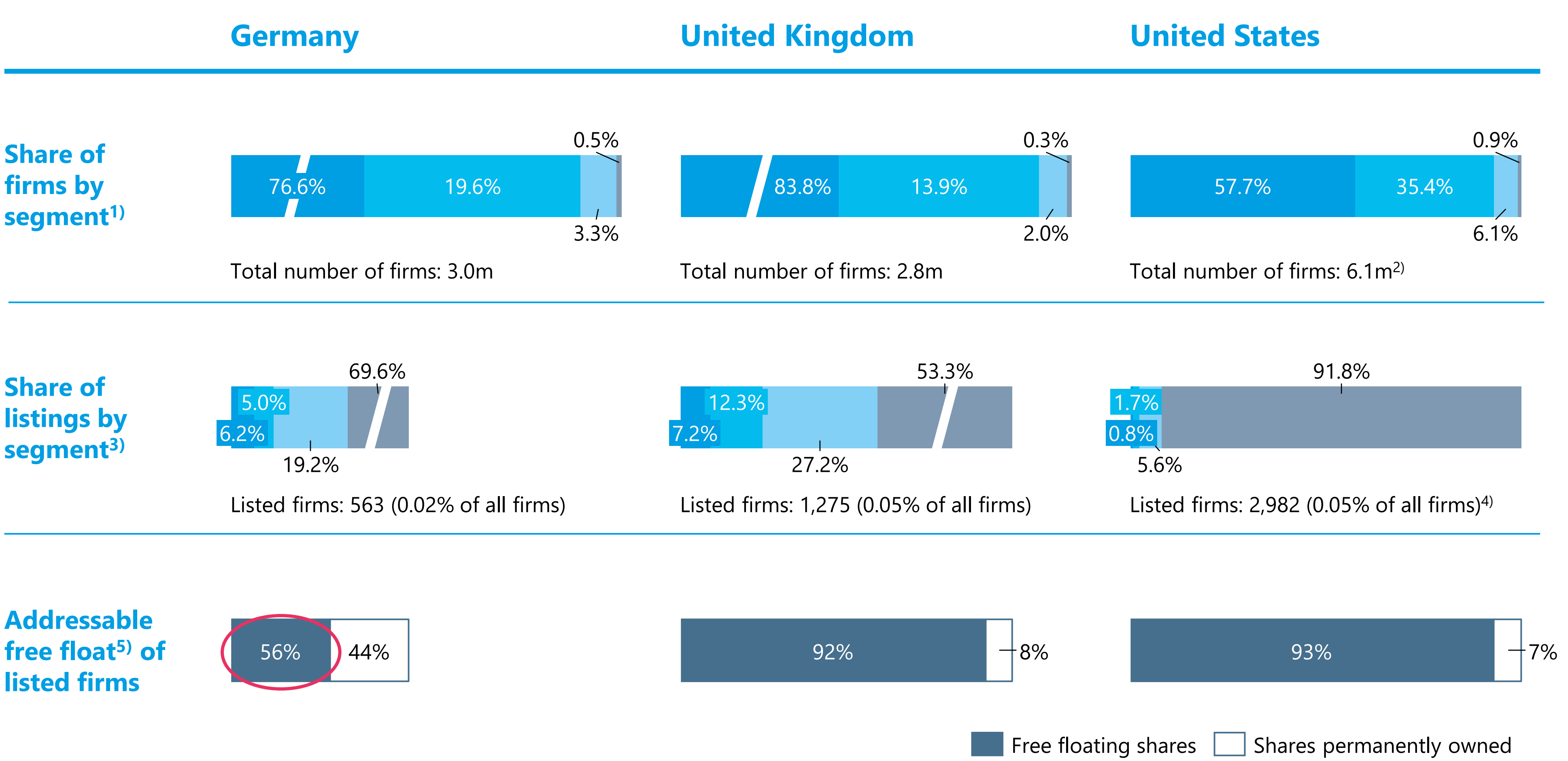
1 Despite several developments since the financial crisis, Germany can still be regarded as a clearly **bank-driven financial system**. German specifics are a classic **3-pillar banking system** (Sparkassen, cooperative banks, commercial banks) with their fixed boundaries and a large number of **regional banks** with a relatively high market share.

2 The **importance of capital market finance is low** compared to other countries. However, there are no signs of a general market failure with regard to financing (measured via financial constraints or financing gaps).

3 The **green transformation**, **digitalisation** as well as the current **macroeconomic and geopolitical changes** will lead to increased investment and financing needs in the future. There are strong indications that these challenges will require **additional funding sources** outside the given lending structure. An **increased role of capital markets as a supplement to bank lending** is therefore beneficial for the whole financial system.

B A comparison of company structures reveals German peculiarities: not only is the share of listed firms significantly lower, there are also far fewer free floating shares

Number of companies and stock market listings by size clusters



- Number of companies and market structure very similar in **DE and the UK** – but, the number of listed firms is twice as high
- The **US** reach a similar share of listed firms than the UK
- **Typically German:** even if a company is listed, a large share of the stocks is held by fixed owners
- **Key question**: What are the reasons for the “German listing reluctance”?

1) Latest figures in respective currencies (DE in EUR: 2021, US in USD: 2017, UK in GBP: 2022), micro firms: turnover < 0.5m, small: 0.5m–5m, medium: 5m–50m, large > 50m; 2) Only firms with > 0 employees considered; the number of non-employer firms for 2020 is 27.1m, but this includes, e.g., shell companies; 3) Listed companies with zero or negative revenue over the past three years excluded; see the appendix for detailed figures on segments; 4) Number based on Refinitiv data and own calculations deviates slightly from other sources; e.g., 4,266 listed domestic firms in 2019 according to Worldbank (2023); 5) Free float: number of shares in a company that are owned by many different shareholders and can be traded freely in the capital market;
Source: Börse Frankfurt (2023), Refinitiv (2023), Destatis (2023a), US Census Bureau (2017, 2023a, 2023b), Office for National Statistics (2022), zeb.research

B A look at market entry barriers explains the low share of listed German companies – clear structural and cultural differences compared to the UK or the United States

Evaluation of listing barriers and stock market accessibilities for companies[1)]

Unfavourable/mediocre/favourable situation with regard to stock market listing (red/yellow/green)

	Capital Market Structure						Taxation	Costs		Culture	Regulation	
	Importance of institut. investors	Private investor engagement	Level of liquidity	Level of adviser servicing	Accessibility for smaller firms	Reporting requirements	Tax incentives for capital gains	Listing fees	Competitiveness to other funding	Willingness to list family-owned business	Control over voting rights	Overall evaluation
KPI	Assets in pension funds to GDP	Shareholding as % of finance of private HH	Stock exchange turnover to GDP	Number of designated market makers	Minimum market cap. required for listing	Frequency[2)] of required financial reports	Taxation rules for capital gains	Listing fees per market capitalisation	Level of equity risk premium[3)]	Share of large unlisted family owned busin.	Option of dual-class shares[4)]	Numeric evaluation scheme[5)]
DE	red	red (1)	red	yellow	yellow	yellow	red	green	green	red	red (2) – Becomes green (point 2)	red – yellow
FR	red	yellow	yellow	red	green	yellow	red	yellow	green	red	green	yellow
UK	green	red	yellow	green	green	yellow	green	red	green	red	green	yellow – green (3)
US	green	green	green	green	green	red	green	red	green	green	green	green

1 The share of private shareholding and the role of pension funds are a key issue for lower no. of listings in Germany (also see thesis D)

2 Enabling dual-class shares[4)] a key point of the German "Zukunftsfinanzierungs-gesetz" (came into force at end of 2023)

3 Overall, the US show very good structural conditions, i.e. low barriers for stock market listings

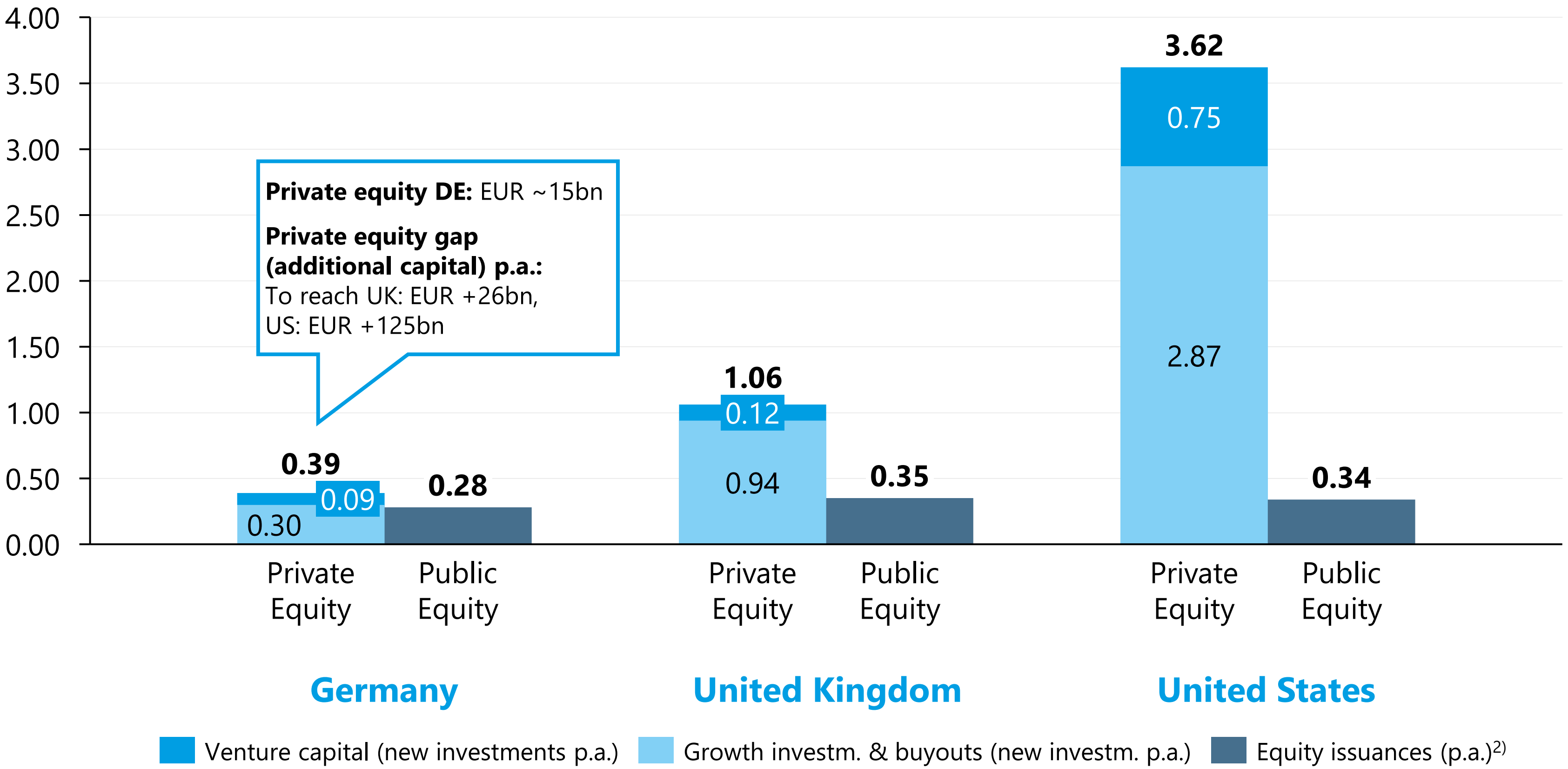
1) The classification unfavourable/mediocre/favourable is based on quantitative/qualitative evaluations of the respective KPIs; 2) A low frequency of required financial reports is considered as favourable; 3) A low level of equity risk premium considered as favourable as cost differential to alternative sources of funding is low; 4) Dual-class shares (Mehrstimmrechtsaktien) occur when a company stock is divided into different share classes with different voting rights ; 5) Each classification is matched with a number (red =1, yellow=2; green=3) used to calculate category sums; each category is weighted with 1; avg. scores: DE= 1.5; FR=1.9, UK=2.3; US=2.7; Source: BMF (2023a), Oxera (2019), Oxera & Kaserer (2021), zeb.research

B

Volume of private equity as well as public equity in Germany behind peers

Private equity[1] (venture capital & growth investments, buyouts) and public equity issuances in 2022

New private equity and public equity issuances relative to GDP in 2022 (in %)



Comments

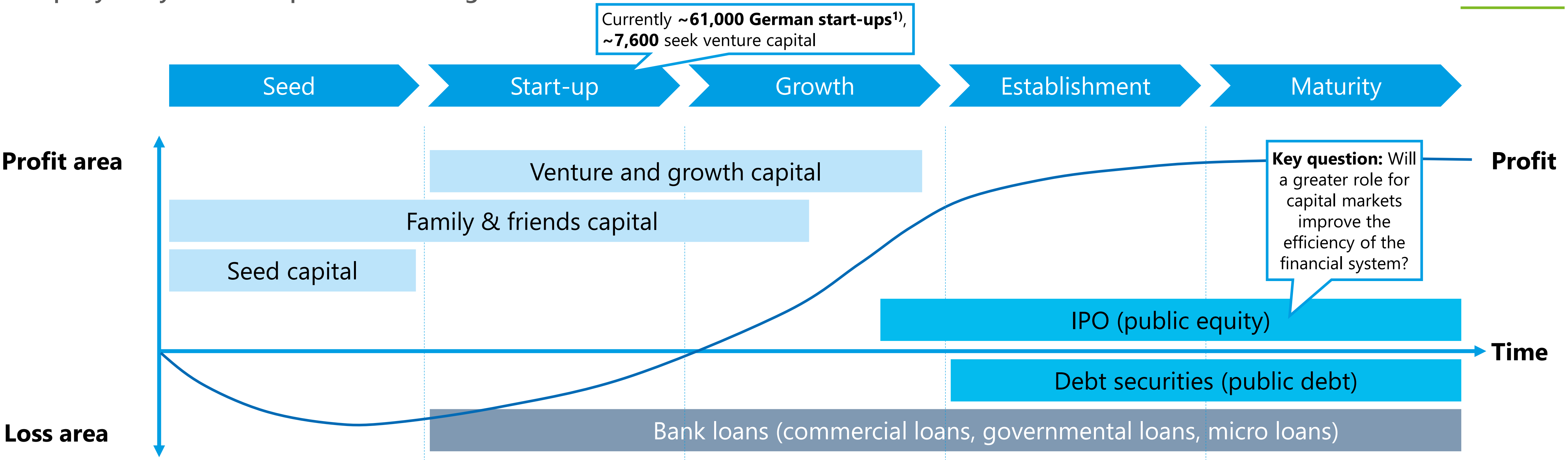
- The German case: public equity and private equity figures are behind – i.e. there is a **general lack of risk capital in Germany**[3]
- The fundamental difference between the US and Germany (and partly the UK) is the **size of the private equity market**
- **Consequence:** young and fast-growing U.S. firms face relatively better financing conditions
- General differences among peers **unchanged** for years
- What are the **implications** of the low level of risk capital in DE and what are **potential levers** to improve funding for start-ups?

1) Private equity: equity investments by private/institutional investors on non-listed firms, here: focus on early stage companies (venture capital, growth investm., buyouts); 2) UK/US includes rank eligible, non-convertible IPOs and follow-on equity deals, DE includes total value of initial public offerings and follow-on public offering; 3) Not a legally defined term but often used in the public discussion; it summarises all private and public equity investments in young, growth-oriented firms; Source: OECD (2023c), SIFMA (2023), Nederlandse Vereniging van Participatiemaatschappijen (2023), American Investment Council (2022), PwC (2019, 2023a), zeb.research

B There are advantages of financing sources across company stages – German peculiarity: large segment of loans/"family & friends capital" but small area of VC and public equity

Company lifecycle and respective financing sources

Indicative



	Seed	Start-up	Growth	Establishment	Maturity
Cash flow	Negative	Negative	Negative	Low	Increasing
Risk	Very high	Very high	High	Manageable	Decreasing
Growth pot.[2]	Uncertain	Very high	Come true and increasing	Stabilising	Moderate

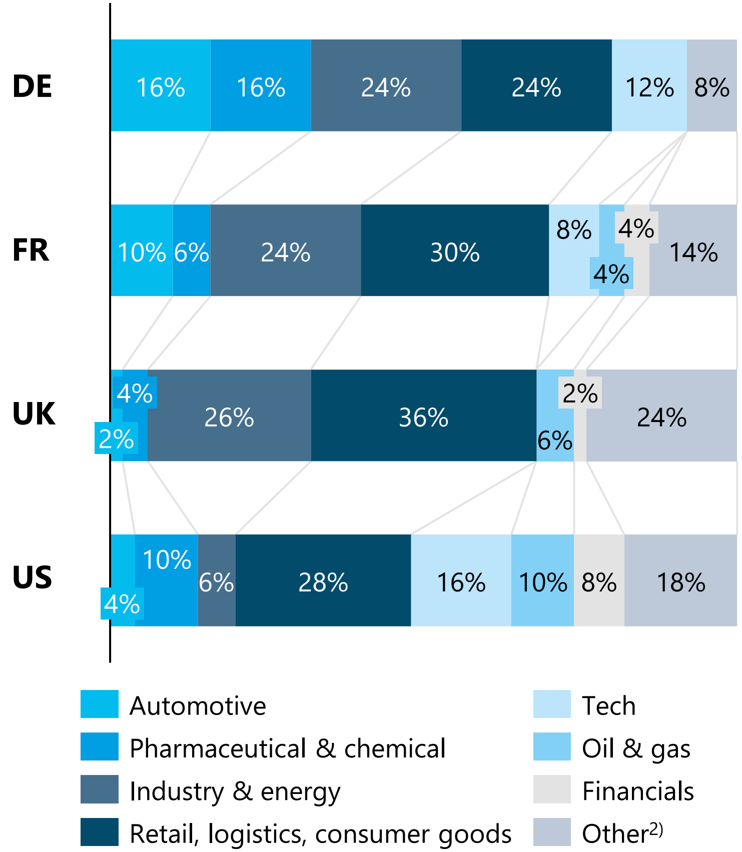
1) Total number of innovation- or growth-oriented young companies at end of 2021, according to KfW-Start-Up-Report 2022; 2) Growth potential; Source: KfW (2022), Levitt (1965), Fasoon (2017), zeb.research

B

A look at the largest companies reveals a low share of growth sectors in Germany

Industry structures and consequences

Sector structure by number of top 50 firms[1)]



Key differences

- Germany has a **moderate share of growth industry firms** but a high share of firms that are in a challenging environment and **under pressure to transform** (automotive)
- **Climate change- and digitalisation-induced investment needs** will come on top within the next years/ decades (see thesis A)
- The US with a **high share of growth industry firms (tech)** but at the same time also a **high share of oil & gas companies**; the "Infrastructure Investment & Jobs Act (IIJA)" provides **funds for infrastructure and zero-carbon technologies, for example**

Consequences for capital markets

- **US company structure reflects financial system**: high share of growth industry firms and high availability of growth-related capital
- German companies' **need for transformation requires new funding sources** aside from bank loans
- **Establishing a growth culture** for German firms requires a corresponding mapping via the capital markets (risk capital)
- Underdeveloped capital markets prevent firms from obtaining adequate financing and hence **fail to realise full potential to promote the economy and jobs**

1) Largest 50 companies by turnover in the respective country by end of 2021, sector structure measured by percentage shares of top 50 firms in respective industries; 2) E.g., media, telecommunications, etc.; Source: Statista (2023), zeb.research

B There are clear differences in risk capital markets between Germany and the United States

Structural differences between risk capital markets

Market structures

- The VC market in the US emerged as early as the end of the Second World War, while in Germany venture capital **did not emerge to any significant extent until the mid-1980s**
- The US market is therefore not only much larger, but also has **much better-established ecosystems** in terms of the interaction between serial entrepreneurs, start-up managers, business angels and exit channels

Funds structures

- US funds are often fed by large **pension funds, insurance companies, large foundations or funds of funds** and are therefore clearly larger than German funds that are fed by **sovereign funds, banks or family offices**
- This creates an **oversupply of capital** – more/riskier projects being financed
- The larger US funds **partly have more efficient structures** and can thus handle relatively more deals

Corporate structures

- The US risk capital market is largely focused on the **Silicon Valley and Boston area** making it very easy for investors to identify relevant start-ups – the German market is more regionally fragmented and non-transparent
- Whereas the German venture capital market is more focused on early-stage financing, VC funds in the US are **more exit-oriented** and clearly invest more into later stages where the chance for higher returns drive VC volumes

Consequences

- In general, it should be noted that the venture capital markets in the USA and Germany are at **different stages of development** – focus must therefore be on the structures
- Opening the funding of German VC funds to **large, financially strong institutional investors**[1)] will increase the capital supply and the financing opportunities for firms
- The German market **needs greater transparency** between capital providers and entrepreneurs
- More **efficient structures** will further increase market volume

1) As in the US, i.e. pension funds, insurance companies, large foundations, funds of funds.; Source: Business Insider (2011), Shafie, Liedtke, & Asghari (2021), VentureCapital Magazin (2019), zeb.research

B

Key takeaways on benefits of risk capital

Overview

1 Despite similar industry structures, Germany has relatively few stock market listed companies. In addition, even **German listed companies exhibit lower free float rates**, i.e. a smaller percentage of stocks are available for trading, and are therefore less attractive for capital market participants.

2 **Market access barriers following structural and cultural differences** between Germany and the UK / the US can explain the low share of listed German companies, i.e. low public equity investments. Furthermore, there is a general **lack of risk capital in Germany.** Overall, the financing environment for young, innovative, growth-oriented firms in Germany is clearly behind other peers, especially the US.

3 The lack of risk capital is clearly correlated with the **lack of growth-oriented firms** in Germany – this can also be seen in the largest companies, which in the US are much more dominated by companies from growth sectors; measures that improve the fundamental structure of the venture capital markets thus always also **promote the spread and further establishment** of growth-oriented companies in Germany.

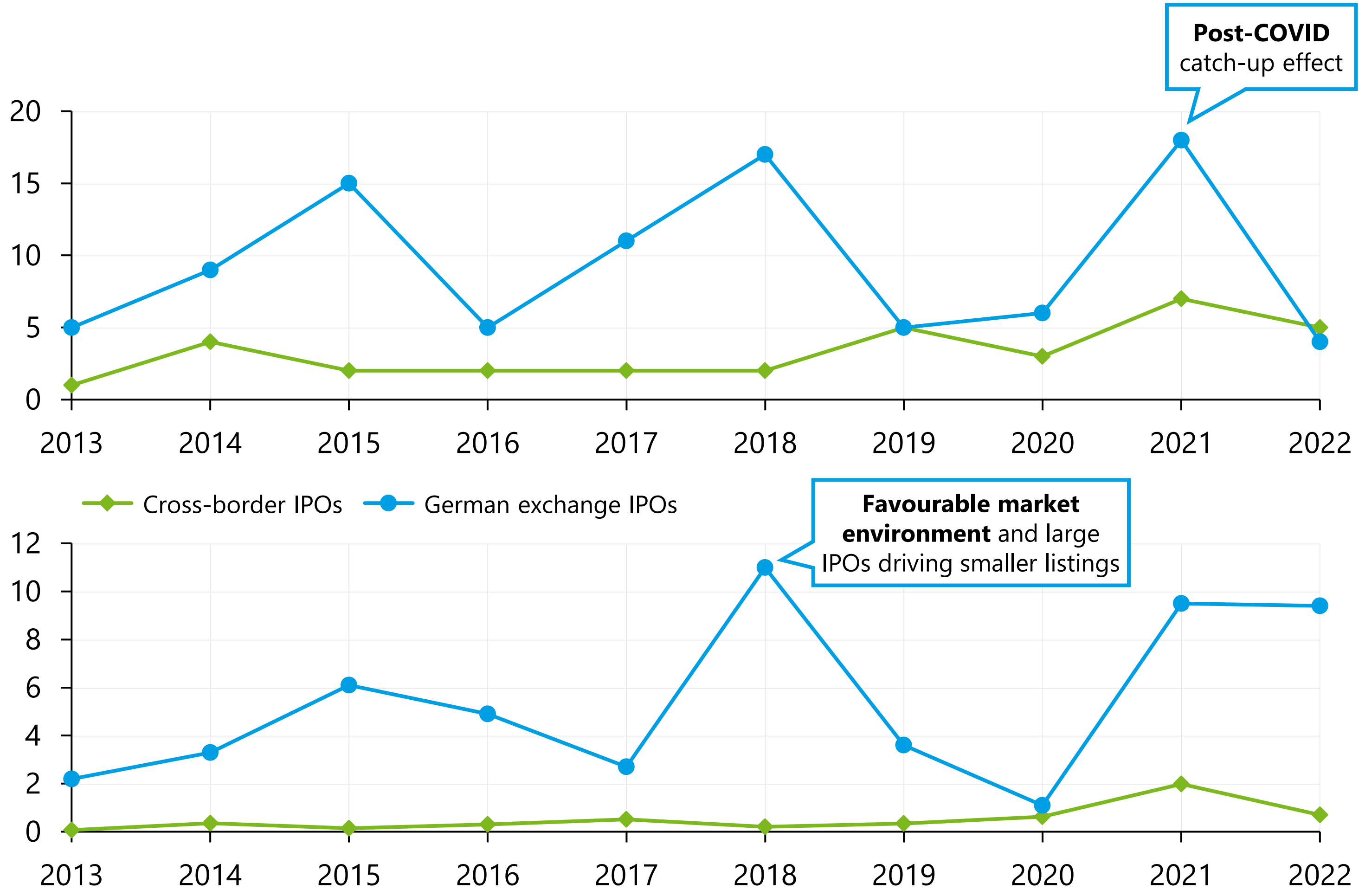
C

Especially since 2019, there has been a trend for German companies to list abroad – particularly companies requiring specialised investors seek for cross-border IPOs

Cross-border and German exchange-based IPOs by German companies[1)]

Number of cross-border and German exchange-based IPOs[2)]

Issuing volumes of cross-border and German exchange-based IPOs (in EUR bn)[3)]



Comments

- **Increasing number of cross-border IPOs** since 2019
- List of companies seeking an IPO abroad reveals **clear sector pattern**: 52% are biotechnology firms, 19% are from IT/internet/ e-commerce, 6% chemical firms[4)]
- IPOs at German exchanges with **diverse picture:** 24% IT/ internet/ e-commerce firms, 16% manufac-turers, 16% financial sector[5)]
- Share of foreign IPOs to **total issuing** volumes significantly lower, indicating that esp. smaller firms choose a listing abroad
- However, small sample size **hampers general conclusions**

1) IPO: initial public offering, analysis considers all firms with headquarters in Germany at time of IPO with cross-border IPOs including dual listings; cross-border IPO: IPO on a foreign stock exchange of a company with headquarters in Germany at the time of the IPO, including dual listings; 2) Based on data provided by DAI, other sources deviate slightly but lead to same conclusion; 3) Cross-border figures based on own analysis of Bloomberg data for each company, excluding missing values; 4) All IPOs of last 10 years; 5) Also media companies (8%) and real estate firms (8%) but only one biotechnology firm; Source: Blättchen Financial Advisory (2021), Bloomberg (2023), DAI (2021), GoingPublic Magazin (2023), PwC (2023a), zeb.research

C A look at recent cases reveals some key reasons to seek a listing abroad – in Germany, a number of core issues unite to reinforce the effect

Reasons for foreign listings of German-based companies

Companies listing abroad …[1)]

BIONTECH

"Nasdaq has been the marketplace for innovative technology-focused companies for years, so it was our first choice."
U. Sahin, CEO Biontech

CUREVAC the RNA people®

"[Biotech] companies are forced to [list abroad] in view of the much more favourable investor environment [in the US] and the restrictions under corporation law in this country."
D. Hopp, Investor Curevac

… due to key structural reasons in Germany …

Strategic factors

- **Geographical alignment:** lower economic importance of German market leads to listing in main market to increase proximity to the customer base and visibility to potential investors
- **Benchmarking:** lack of sector presence on the German capital market (esp. in biotech) leads to market migration in order to achieve a better recognition

Investor-related factors

- **Availability of investments:** low volumes and limited availability of investor funds on the capital market cannot meet capital needs of companies
- **Expertise:** low levels of financial know-how, esp. in funding selected inno-vative sectors, lead to the application of inappropriate decision criteria and disadvantages in company valuation compared to other stock exchanges

Regulatory factors

§

- **Corporate law:** corporate forms eligible for listing in Germany allow less flexibility esp. in raising additional equity in secondary offerings
- **Financing options:** limited flexibility of financing choices, e.g., due to prohibition of dual-class shares[2)] and restrictions on capital increases[3)]

… with diverse consequences

- Fewer domestic investment opportunities in potentially attractive equities for private and institutional investors
- Lost opportunities for German financial market intermediaries
- **Key question:** Does listing abroad lead to a geographical relocation of business activities and thus to far-reaching second-round effects for the German economy?

1) Original statements in German, translation into English by zeb; 2) Dual-class shares (Mehrstimmrechtsaktien) occur when a company stock is divided into two (or more) different share classes which are assigned different voting rights; the enablement of dual-class shares is addressed by the new German "Zukunftsfinanzierungsgesetz"; another point is in the case of capital increases with simplified exclusion of subscription rights, to allow capital increases of up to 20% of the share capital; 3) E.g., in the case of capital increases the exclusion of subscription rights is generally limited to ten percent of the share capital in Germany; the EU allows a limit of 20 percent; Source: Oxera (2019), DAI (2021), Handelsblatt, (2019), zeb.research

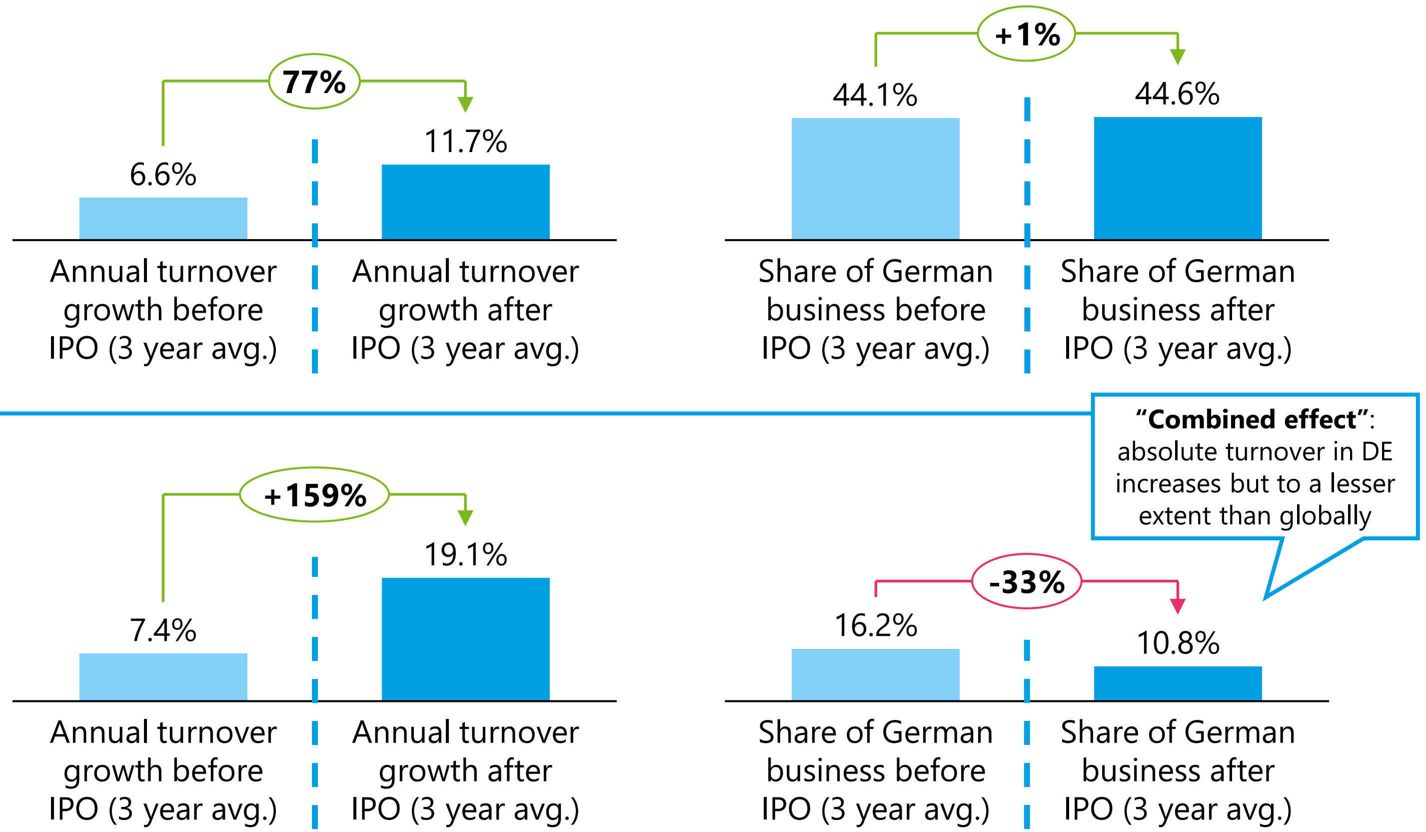
C One major concern is that where the financing goes, the business activities may follow – quantitative analysis underlines this

Pre- and post-IPO development of German companies[1)]

Annual growth of total turnover | Share of German business

Companies with an IPO at a German exchange

Companies with a cross-border IPO at a foreign exchange



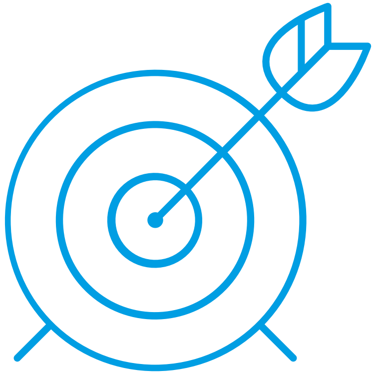
Comments

- Despite starting from a similar growth level, firms with a **cross-border IPO** grow faster[2)]
- Also, companies listed abroad **shift their business activities** clearly to other regions (post IPO)
- **Key problem:** growth is stimulated (especially in periods of stagnation) by outstanding innovations – however, if outstanding inventors leave the country due to insufficient risk capital funding, growth potential suffers
- Analysis based on total assets shows very **similar findings[3)]**
- Results are **confirmed** by Pagano, Röell, Zechner (global sample)[4)]

1) Analysis based on 21 cross-border IPOs and 59 IPOs at German exchanges by companies with headquarters in Germany between 2013 and 2020; segment data provided by Refinitiv; limited data availability (e.g., no segment split available, no historic data, company not included in Refinitiv, …) leads to a relevant sample of 9 cross-border IPOs and 16 IPOs at German exchanges; methodology: t = year of IPO, pre IPO years: t-3 to t-1; post IPO years: t (starting point) to t+3; shown figures are median values; 2) Confirmed by the scientific analysis of Claessens, Klingbiel, Schmukler (2003); 3) But on a smaller sample size; 4) Global sample of cross-border listings from 1986–1997; Source: Pagano, Röell, & Zechner (2002), Refinitiv (2023), zeb.research

C Key take-aways on cross-border listings of German companies and the consequences for the German economy

Overview



1 In recent years, there has been a growing **trend towards cross-border IPOs by German companies**, as the share of IPOs on foreign stock markets has increased significantly. In particular, companies in growth sectors such as biotechnology, IT/Internet/e-commerce or chemicals preferred to go public abroad.

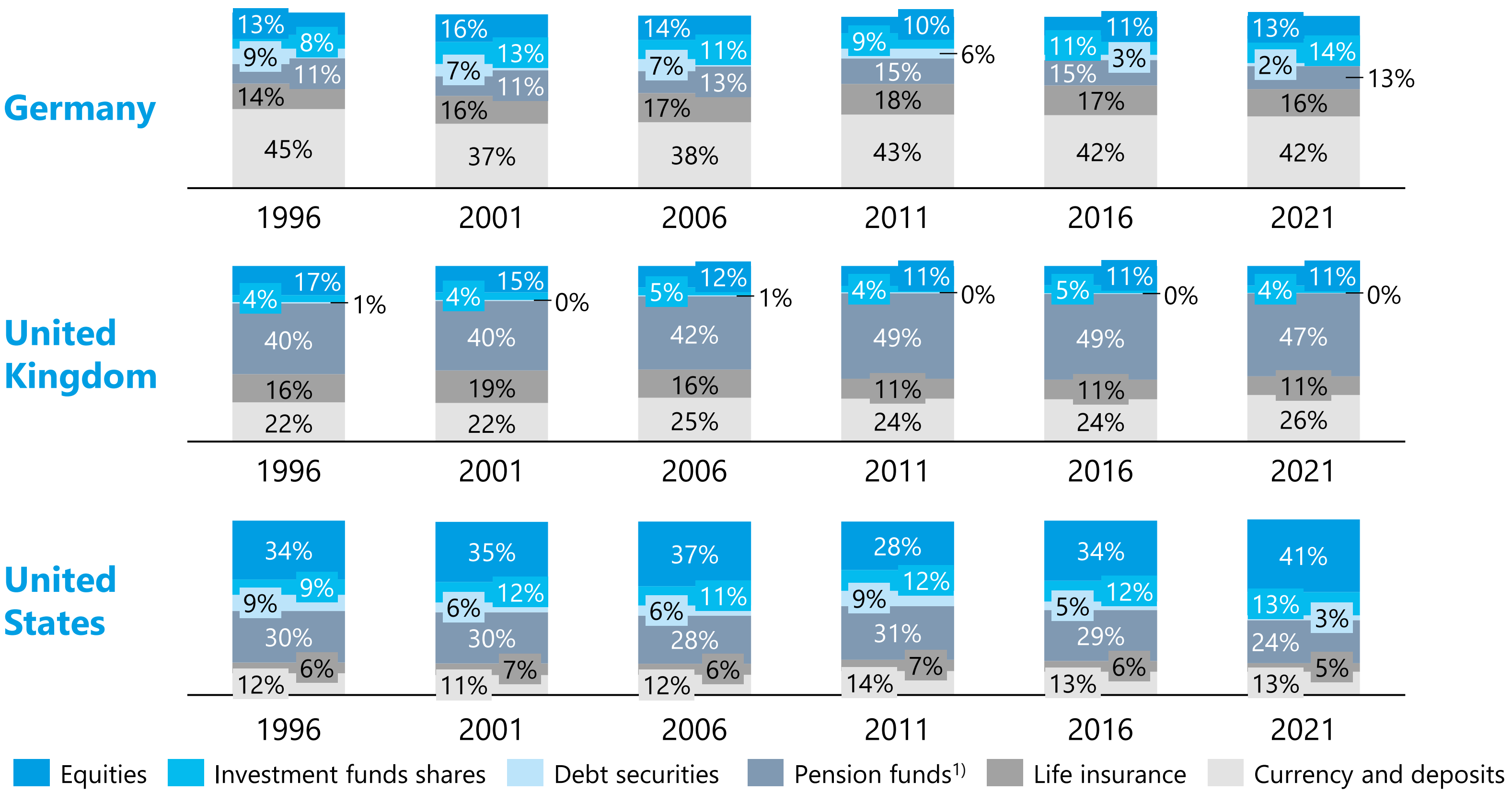
2 There are clear reasons for listings abroad: **strategic factors** (e.g., the geographical alignment with customers or a lack of sector presence on the German capital markets), **investor-related factors** (e.g., low volumes and limited availability of investor funds as well as low levels of sector know-how) and **regulatory factors** (e.g., corporate law issues).

3 An analysis of IPOs of German companies at German or foreign exchanges brings clear results. Firms with a cross-border IPO not only grow faster after getting public equity, there is also a tendency for these companies to **increasingly shift their business away from Germany** to other countries. This may be due to the nature of the companies concerned, but it leads to negative effects for the German economy.

D In Germany, the share of private households' financial assets invested in bond/equity markets is rather low compared to peers

Financial assets of private households

Household financial assets by asset class (in % of total financial assets, all age groups)



Comments

- **Distribution of financial assets** classes varies greatly among countries, but remains relatively stable over years, indicating that culture determines investment strategies, rather than economic events
- **Low risk appetite of German population** as currency and deposits traditionally constitute the largest part of households' total financial assets, e.g. life insurance
- In line with previous findings, **risk appetite is higher in the UK and US** with pension funds and shares being the most important asset class respectively
- In addition to cultural aspects, studies[2)] indicate partly **lower financial literacy in Germany** than in peer countries – but, gap is too small to explain all differences

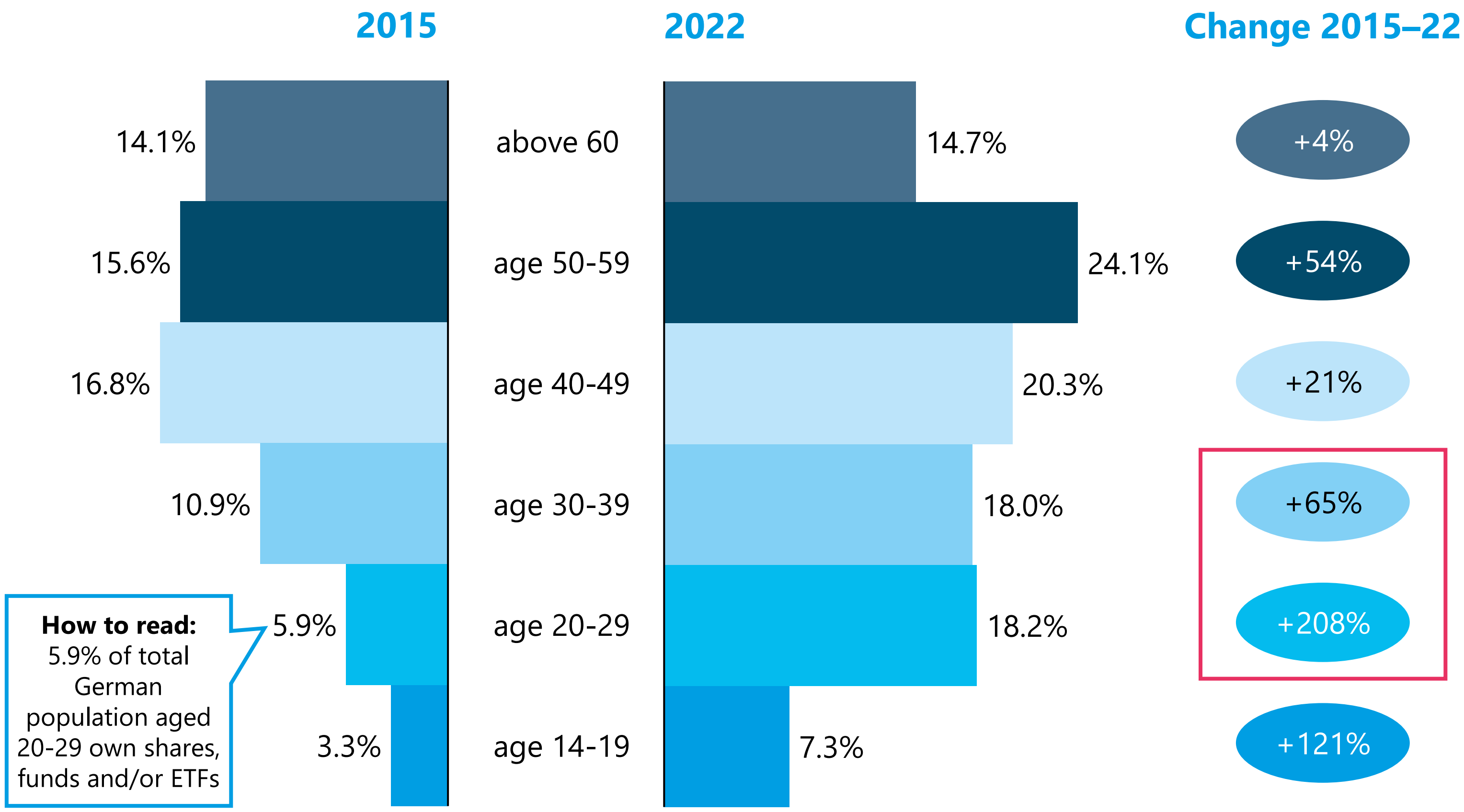
1) Pension fund: a fund invested in the capital market for the purpose of financing old-age pensions; pension funds can be operated both by private-sector employers for the purpose of occupational pension provision and by states or state pension funds; figures here are based on OECD (2023a) calculations: pension entitlements are only included if they relate to (funded) employment-related schemes, which may affect cross-country comparability; 2) E.g. see Allianz Research (2023); Source: Allianz Research (2023), OECD (2023a), zeb.research

D

The trend is your friend: equities gain popularity in the German population, especially amongst younger generations, indicating an improving equity culture in the future

Equity holders by age group[1)]

Proportion of equity holders in total population by age group[1)]



Comments

- 20- to 29-year-olds with **largest increase since 2015** – trend fuels hope for increasing proportions in the future
- Positive development **among 50- to 59-year-olds** (still time to retirement) explains investment activity
- Overall, it is clear that the demographic developments in Germany mean that state pensions alone will no longer be sufficient in the future – the population is becoming increasingly aware of this, leading to a **strengthening of private pension provision**; however, without a change in the pension system, this is still a relatively slow development.
- **Key question:** Does the German pension system prevent a more widespread equity culture?

1) Share of population invested in shares, funds or exchange traded funds of the total population by age group; Source: DAI (2023), Destatis (2023b), zeb.research

D Income perspective: due to the high state share in pensions, there is less need for private individuals to invest in an equity-based pension plan in Germany as compared to UK/US

Public pension systems and income of population above 65 years

Backup

Structure of the public pension system …

Germany

Statutory pension insurance

- Financed via **insurance contribution**; level of income and years of work determine the amount of the pension
- **Pay-as-you-go system** w/o investments in capital markets – currently proposed "**Generationenkapital**" brings change

United Kingdom

State pension and workplace pension

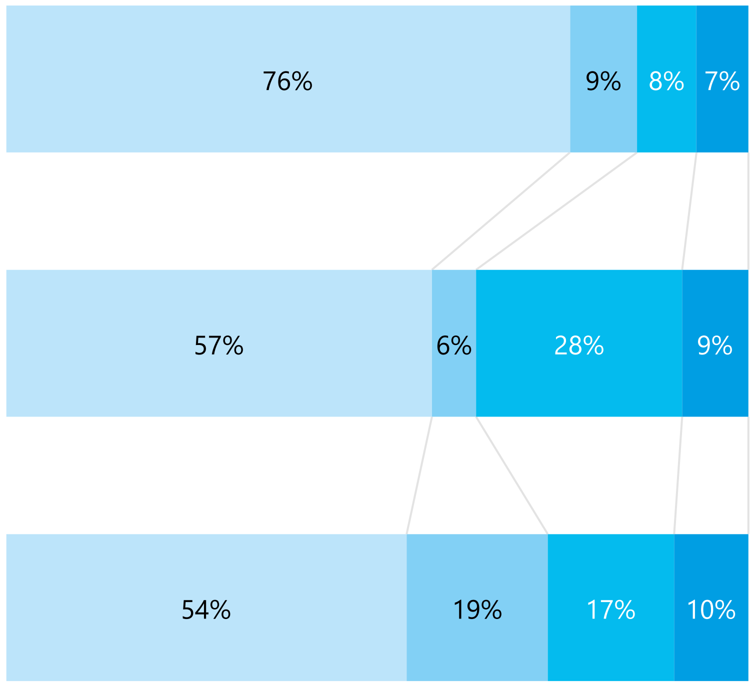
- State pension financed via national **insurance contribution, pay-as-you-go system** w/o investment in capital markets
- Workplace pension with mandatory enrolment, **contributions** can be invested via funds

United States

Social security

- Financed via **payroll taxes**; years of work determine the amount of the pension
- Surplus contribution is **invested via funds**

… affects income types of pensioners[1)]



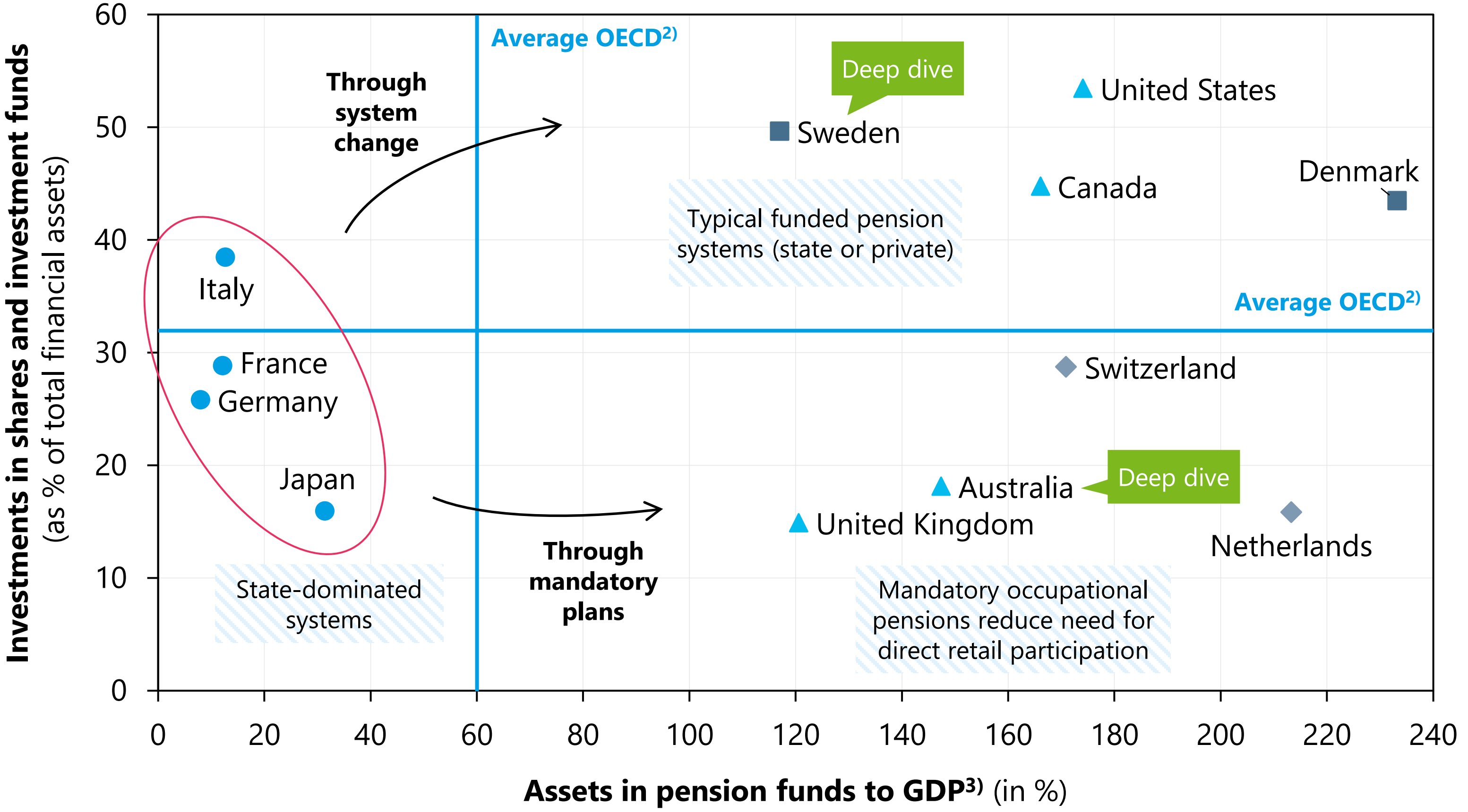
Comments

- **In Germany**, state benefits clearly dominate income, low level of occupational provision
- In the **UK**, relevance of capital market products clearly higher due to high level of funds-based occupational pension
- **US** shows expected pattern with lowest share of state benefits and 27% of pensions coming from personal provisions

1) Germany: income sources of population over 65, state benefits incl. statutory pension insurance & civil servant pensions, occupational pension schemes equivalent to statutory pensions and other transfer payments; returns from personal investments incl. life insurance and personal pension schemes; UK: income sources of single pensioners (above 65), state benefits incl. state pension, returns from personal investments incl. investment income & personal pensions; US: income sources of population over 65, state benefits incl. social security income, supplemental security income, occupational pension incl. pension and retirement account income, returns from personal investments incl. property income, private compensations and other cash income; US occupational pension cannot be displayed due to lack of data granularity; Source: BMAS (2023), US Census Bureau (2022), Gov.UK (2023a), zeb.research

D Behaviour follows structure: state-dominated systems come with rather low retail participation in capital markets – funded/mandatory systems increase direct or indirect shares

Correlation between pension funds and private participation in capital markets[1)]



Comments

- OECD countries with partly **fundamentally different pension systems** – share of state benefits (high or just basic) and mandatory occupational pension plans or funded systems as **key differentiators**
- It is clear that **only mandatory plans or funded pensions** decisively increase indirect or direct capital market participation
- Key problem for **state-dominated systems:** demographic change pushes for private pension provision, as in 2040 the ratio of 15-64 to 65+ year-olds in Germany will only be 2.0 (FR: 2.1, IT: 1.6, JP: 1.5)

● State-dominated system with voluntary other pensions
▲ Basic state pension system with (mandatory) other pensions
■ State pension system supplemented by funded pensions
◆ State-dominated system with mandatory occup. pensions

1) Due to the complexity of international pension systems, the present analysis cannot comprehensively consider all aspects; however, it still provides a valid basis for the discussion on increasing private capital market participation via possible changes in the pension system; 2) Unweighted average of OECD countries; 3) Pension plans incl. funded and private pension plans; pension entitlements are only included if they relate to (funded) employment-related schemes, which may affect cross-country comparability; Source: Mercer (2022), OECD (2023a, 2023b), UN (2022), zeb.research

D Case study Sweden: due to changes in the state pension system, the share of private investors increased significantly in the years after

Pension system and equity culture in Sweden

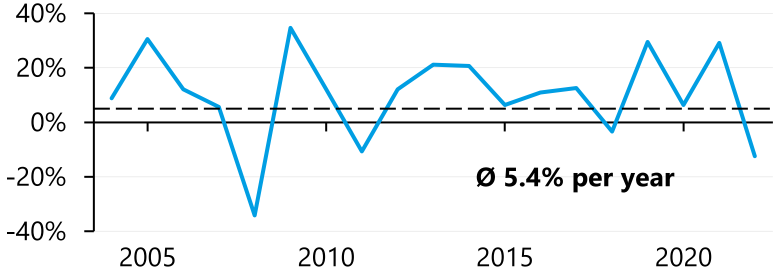
Deep dive

Key facts 2022

- Population: 10.5m
- Share above 65 years: 20.4%[1)]
- Pension system characteristics:
  - State pension: blended system of pay-as-you-go and government-run or private funded system[2)]
  - Large share of occupational pension

State pension fund ("Tilläggspension")

Investment performance per year 2000–2022[3)]

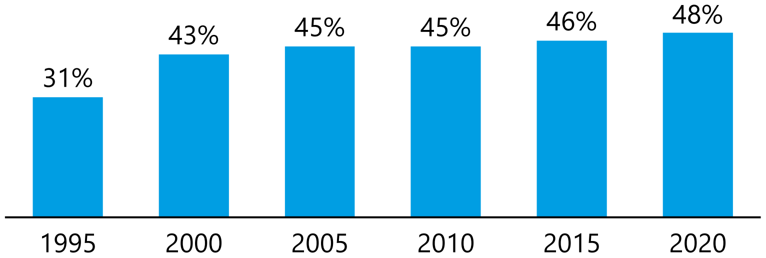


- Established in year 2000 as part of fundamental pension system change[4)]
- Contribution structure: 2.5% of pension income (18.5% of salary)
- Assets under management: EUR 75bn[5)]
- Consists of several sub-funds, e.g.:
  - "AP7 Equity Fund": investments in global equity portfolio[6)]
  - "AP7 Fixed Income Fund": bonds

Reference: **MSCI All Countries World Index**, i.e. ~2% of assets invested in ~40 German firms

Equity culture

Households' financial assets in equities and investment funds (in % of households' total financial assets)[7)]



- Pension fund and pension system change impact: clear rise of private investments in equities/investment funds starting in 2000
- Need of a systemic change in the pension system (fully pay-as-you-go to funded) has fuelled the openness for equity investments by private investors
- Additional cultural aspect: employee share ownership plans enjoy high popularity in Sweden

1) Germany: 22.1%; 2) Private individuals can choose b/w investing in certified private funds or government-run state funds; 3) Investment performance excl. contributions and pay outs; 4) Share of population >65 years in 2000: 17.2%; 5) For more information incl. figures on performance, contributions and pay outs, see Sjunde AP-fonden (2023); 6) MSCI All Countries World Index as reference, in addition, selected companies excluded from portfolio based on social or governmental criteria (arms manufacturers, labour rights,…); 7) Share of total financial assets according to analysis of first page of thesis D; Source: Mercer (2022), OECD (2023a, 2023b), SCB (2023), Sjunde AP-fonden (2023), zeb.research

D Case study Australia: the mandatory Superannuation System is the most important pillar of the Australian pension system and a key reason for a very sound equity culture

Pension system and equity culture in Australia

Deep dive

Key facts 2022

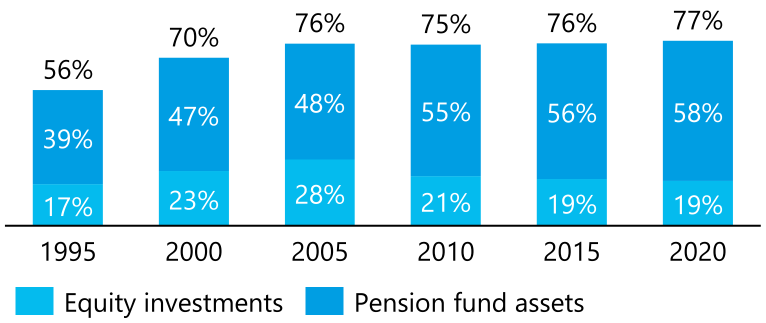
- Population: 26.5m
- Share above 65 years: 16.6%[1)]
- Pension system characteristics:
  - Means-tested age pension (government paid)
  - Superannuation System: mandatory contribution paid into private DC plan[2)]
  - Voluntary private-sector plans

Superannuation System

- Most important part of Australian pension system, fully funded, capital market-based system
- Implemented 1992 to **reduce reliance on a publicly funded pension system** and to promote self-funded retirement savings
- **Core idea:**
  - All employers are required to contribute an amount equal to at least **11% of gross earnings** to an employee-designated investment fund
  - Shares to be made legally available to fund members **upon retirement**
- **Average return** 2012–2021: 6.2% per year
- **Number of regulated funds** (June 2023): 1,383

Equity culture

Households' financial assets in equities and pension funds[3)]



- Overall share of retail participation in capital markets currently stable
- Especially **pension funds** (Superannuation System) increasingly attractive for private investors
- **Australian pension funds** with EUR 2.2tr total assets (June 2023), Australia 4th largest holder of pension fund assets globally

1) In Germany: 22.1%; 2) Defined contribution plan; 3) Share of total financial assets; Source: APRA (2023), Mercer (2022), OECD (2023a, 2023b), visapath (2023), zeb.research

D Key take-aways on the emergence of an appropriate equity culture and the structural impact of the respective existing pension systems

Overview

1 Nearly 60% of German households' financial assets are in deposits or life insurances – the **share of typical capital market-related investments** (bonds, pension funds, investment funds or equities) is significantly lower than in other markets.

2 Due to demographic trends, developments toward greater private provision via the capital market are already discernible. Without a **fundamental change in the pension system**, however, this development will progress only relatively slowly.

3 International comparison reveals that in all typical state-dominated pension systems the **equity culture is less developed** compared to either systems with only a basic state pension extended by mandatory or voluntary pension or private funds or the **Scandinavian systems of public, funded pensions**.

E Despite several existing channels to directly invest in SMEs, only a minority of SMEs consider equity and capital market financing a possible source of funding

Direct SME investment opportunities and SMEs' considered external financing sources

Direct investment vehicles

Private equity

Non-public equity incl. venture capital and growth capital

Stocks

Equity of publicly traded companies

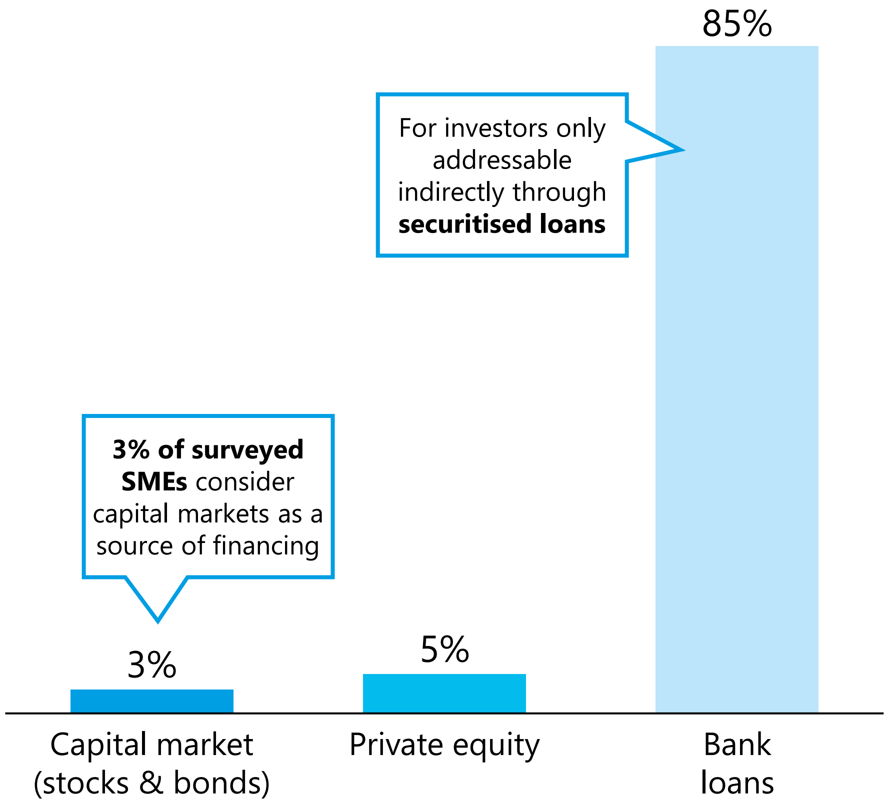
Mezzanine capital

Equity and debt properties with usual terms of >5 years

Bonds

Publicly traded debt, typically issued at volumes >EUR 200m

SMEs' considered external financing sources in %[1)]



Comments

- Several ways for investors to invest directly in SMEs, yet **capital market and equity financing** are seen as possible sources of funding by only a tiny **minority of SMEs**
- Key obstacles: dominant and overarching **banking system**, **low percentage of listed firms**, high **barriers for private equity**, non-transparent and **regionally scattered market**
- Key question: to what extent exist **indirect ways – i.e., through securitised bank loans via capital markets –** that investors can choose to invest in SMEs?

1) Percentage of firms with financing needs indicating they consider the respective source of financing (multiple selections possible, internal financing omitted), clustering by company size available for the percentage of firms with financing needs but not for the considered financing sources; Source: DZ Bank (2023), zeb.research

E A German peculiarity allows direct investments in SME loans: "Schuldscheindarlehen" combine properties of a single company's loans and bonds

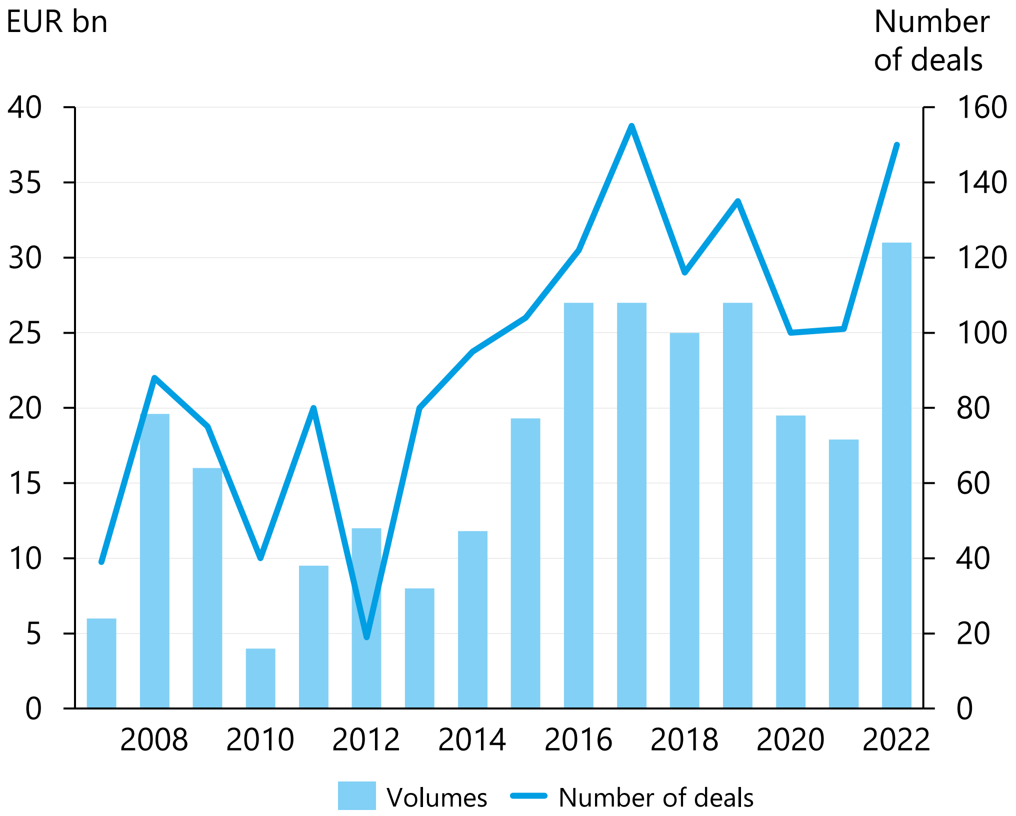
SME investments through „Schuldscheindarlehen“

Characteristics

- German peculiarity, combining **properties of loans and bonds**
- Schuldscheindarlehen are **unsecured issued loans with low documentation require-ments** that can be financed by several investors – banks usually serve as arrangers and investors (~80% market share)[1)]
- The arranger often acts as a **first-lender**, subsequently **transferring individual tranches** to investors[2)]
- Schuldscheindarlehen can **easily be transferred from one creditor to another**, yet they are not traded publicly[3)]

"Schuldscheindarlehen" issuances per year

(volumes in EUR bn / number of deals)



Assessment

- **Advantages:**
  - Issuances are **cheaper** compared to, e.g., bonds
  - Companies can tap **higher volumes** compared to loans
- **Challenges:**
  - **Financing costs** exceed those of bonds due to lack of securities and illiquidity
  - **Fixed maturities** do not allow premature repayment
- **Consequence:** The relatively high volumes of SSDs[4)] in Germany and the possibility to get loans even for higher leveraged firms (theses A+B) burdens sec. volumes

1) Remaining 20% of investors are mainly insurance companies, pension funds, funds, and family offices; 2) Typical volumes range between EUR 20m–500m with maturities between 2–10 years; 3) However, Schuldscheindarlehen can also be bundled within a special purpose vehicle and converted into tradable tranches; 4) Schuldscheindarlehen; Source: LBBW (2016, 2017, 2020, 2021, 2023), Helaba (2019, 2023), kapitalmarktteam.de (2021), zeb.research

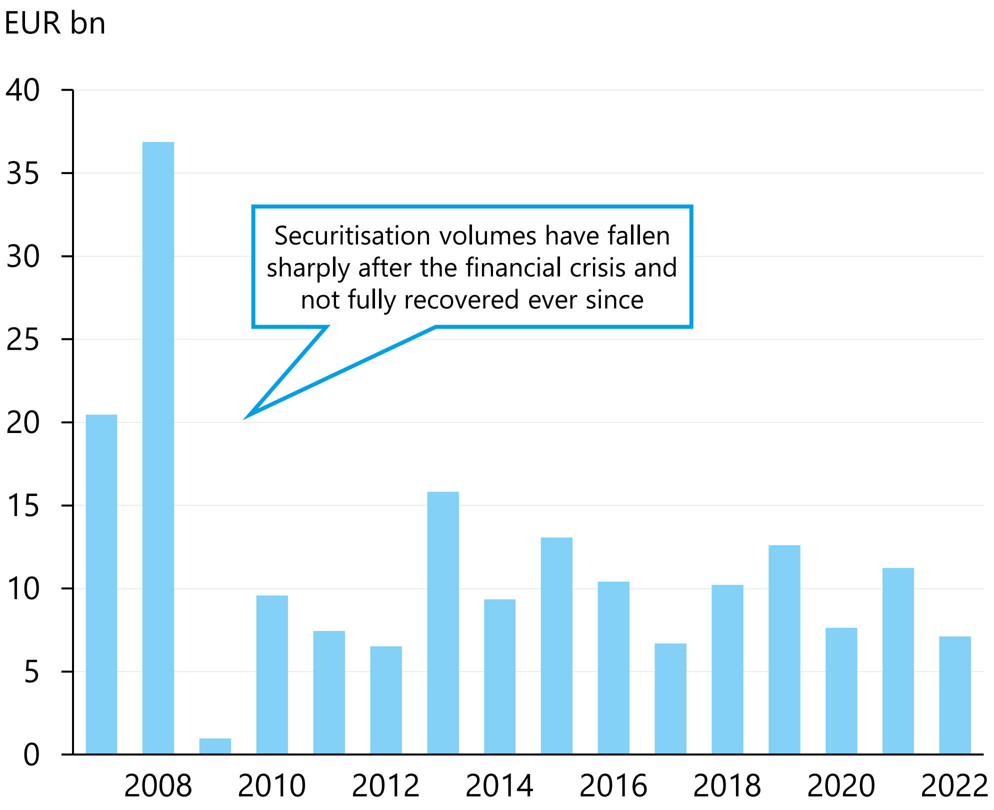
E Securitisations are bundles of assets converted into tradable securities, enabling indirect investments into SMEs – current volumes on significantly lower level than 2007/08

SME investments through securitised loans

Characteristics

- In its **most basic form** (traditional or true-sale securitisation), securitisation is the process of pooling illiquid assets together, converting them into tradeable securities and dividing them into tranches of different risk profile
- Commonly, banks sell loans held on their balance sheet to a special purpose vehicle **which finances the purchase of the loans** by issuing bonds to institutional investors
- Institutional investors bear risk depending **on own risk appetite**, but banks have a **retention requirement of min. 5%**
- Securitisations are easy to transfer and entail **higher liquidity** due to being traded publicly[1)]

Placed securitisation issuances per year (in EUR bn)



Assessment

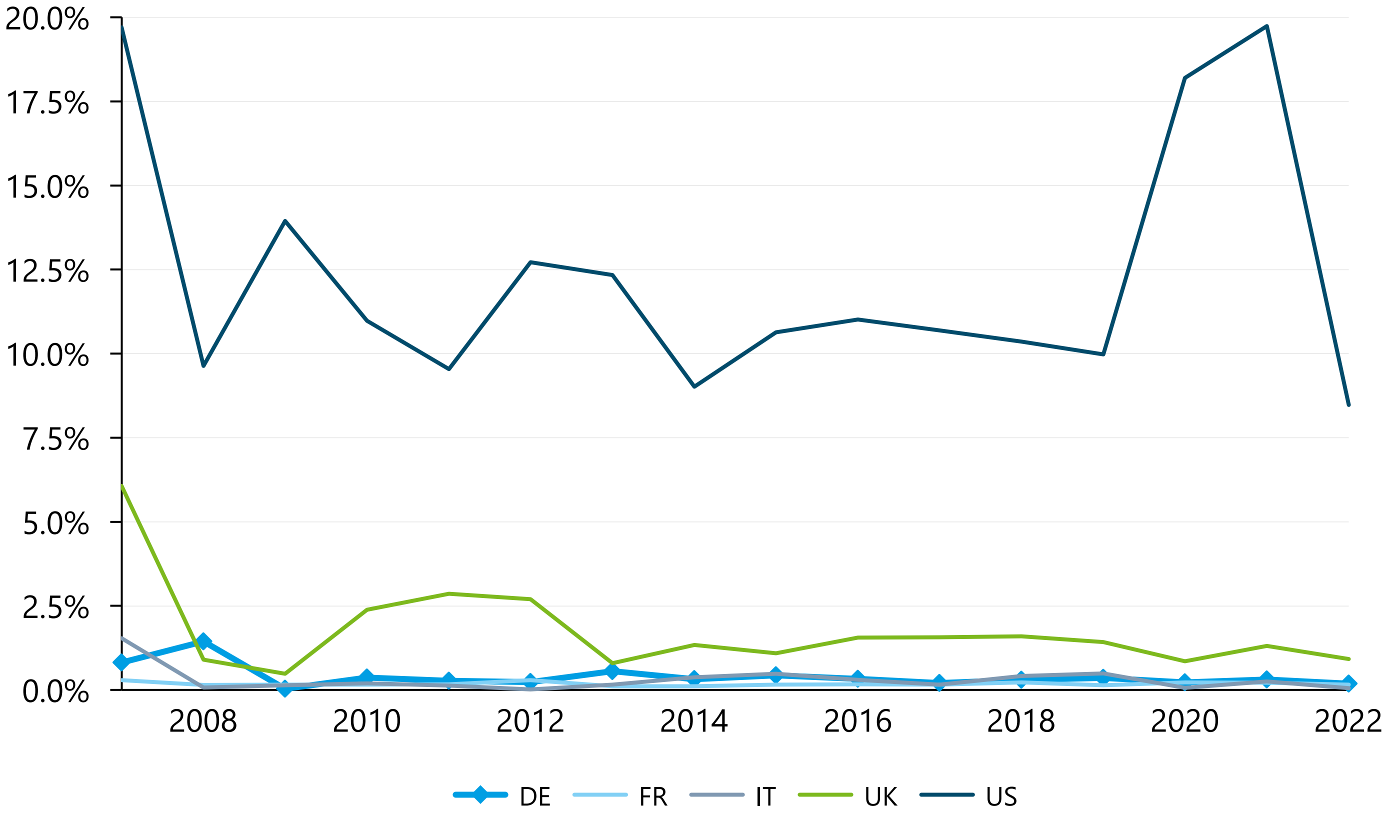
- **Advantages:**
  - Funding source for banks
  - Frees up banks' capital[2)] thereby increasing capacity to finance the real economy
  - Provides banks with another tool for the mgmt. of their non-performing exposures
  - It is a tool for banks to channel more capital to the SMEs segment of the market
- **Challenge:**
  - Market experts underline that prescriptive regulation constrains the growth of the European securitisation market
- **Consequence:**
  - A well-functioning sec. market can strengthen the economy through better funding for SMEs

1) Yet, securitisations represent investments into many companies as opposed to one company as with SSDs; 2) Only securitisations fulfilling the regulatory criteria for significant risk transfer (SRT) free up lending capacity; Source: AFME (2023), Deutsche Bundesbank (2019), Die Bank (2021, 2022), IW (2022), Zeitschrift für das gesamte Kreditwesen (2022, 2023), zeb.research

E There are clear differences between the size and development of securitisation markets in Europe and the US – Europe and Germany specifically lagging behind the US

Placed securitisation issuance by country of collateral

Placed securitisation volumes to GDP[1)] (in %)



Insights from AFME securitisation experts:[2)]

- Since the Global Financial Crisis, the EU has sought to **revive the European securitisation market** by implementing the Securitisation Regulation (EU 2017/2402) ("SECR") in 2019. Amongst other things, the SECR created the framework for simple, transparent and standardised securitisations (STS)
- Despite the fact that the SECR has created an **international "gold standard"** both for STS and non-STS securitisations, certain aspects of the regulatory framework require targeted adjustments for the market to be able to grow
- While there is **political will evidenced**, for example, by the French-German roadmap for the CMU which stresses that "some regulatory imbalances might curtail the full potential of this tool for financing the economy", full alignment by the supervisory authorities is also required to ensure that such improvements to the regulatory framework are achievable indeed

1) Interpolated volumes for France and Italy for 2009; 2) The assessment is solely based on the market expertise of AFME securitisation experts; Source: AFME (2023), BMF (2023d), Deutsche Bundesbank (2015), IMF (2023), zeb.research

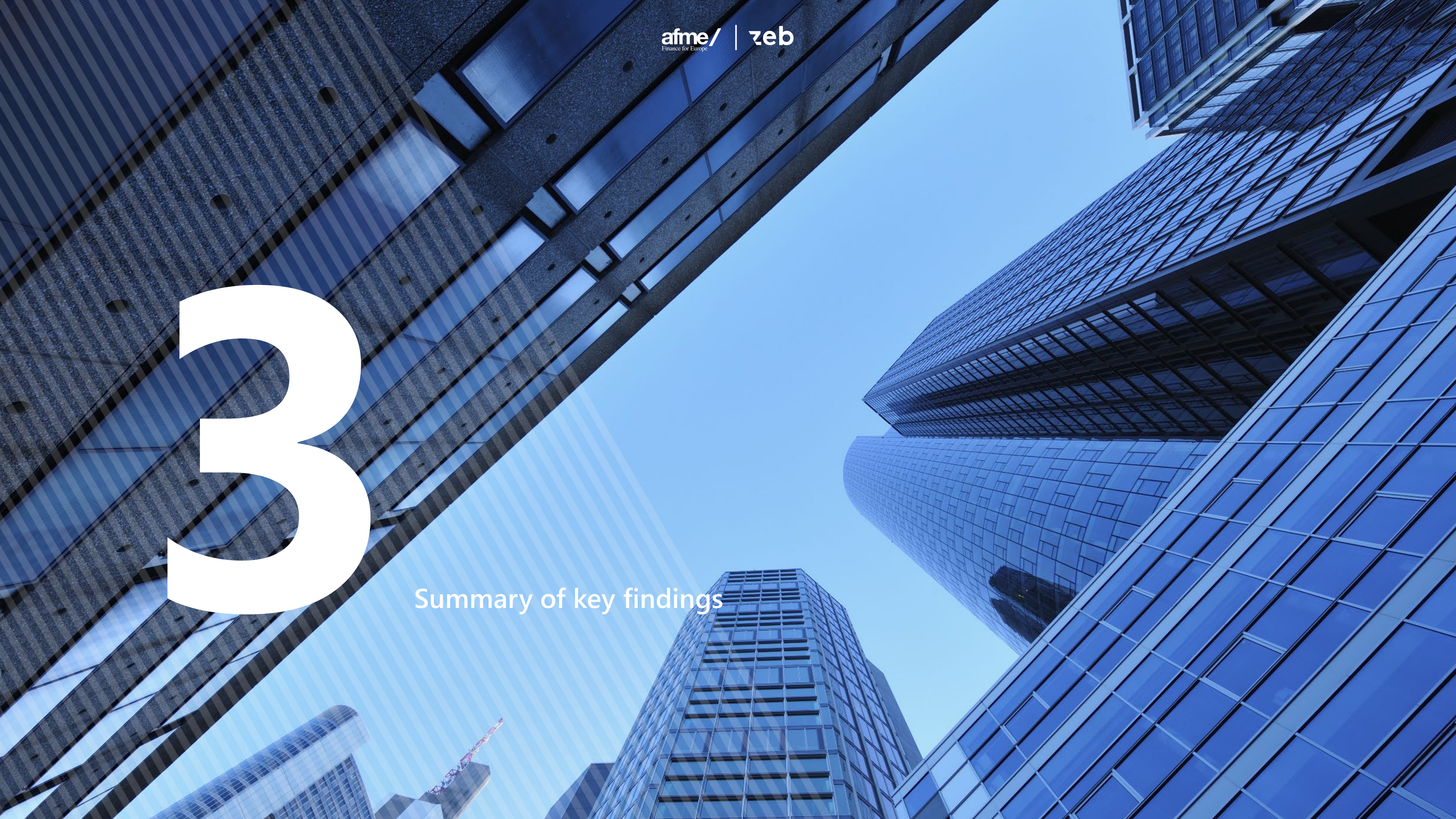
E Key take-aways on investing in SMEs in Germany and securitisation's potential to make a significant contribution

Overview

1 In Germany, small and medium sized enterprises **rely almost exclusively on bank loans** as an external funding source; capital market-related instruments or institutional private equity (outside of investments from family and friends) play a very minor role.

2 Since the financial crisis in 2007/08, **securitisation volumes have declined** significantly in Germany and reached just 0.18 % of the German GDP in 2022 (in total EUR 7.1bn), far behind the figures of the UK (0.92%) and the US (8.47%). The volume of the **German-specific Schuldscheindarlehen** has not only been increasing for several years, it is also more than 3-times larger than the classic securitisation market, but their general structure (e.g. non-tradable) hinders a wider use by (foreign) investors.

3 In general, a **larger securitisation market in Germany would be beneficial** not only for investors but especially for SMEs and banks, as it would have clear advantages in terms of opening up new sources of funding and the opportunities to actively manage a bank's risk-return ratio, thus improving the general stability of the financial system.



3

Summary of key findings

In summary, this comprehensive study on the role of capital markets in Germany provides three main findings

Summary of key findings

1	**German capital markets do indeed lack relevance**	The importance of the capital markets in Germany actually **lags behind other countries** in many crucial respects – not only the UK and the US, but to some extent also in a continental European comparison (especially France)
2	**A greater role of capital markets is needed**	The **major financial challenges of the future** (green transformation and digitalisation) cannot be solved within the existing bank-driven, loan-focused system alone (no matter how good it currently is and how well it refers to the political structure)
3	**The German capital markets can make a contribution to the challenges of the future**	The study analyses and explains concrete themes for the development of the capital markets, with a **focus on risk capital to support growth and innovation** of German businesses, and the development of an equity culture in Germany

Appendix

The current Capital Markets Union action plan proposed by the European Commission on 24 September 2020 encompasses 16 unique measures

Key measures of EU action plan 2020

New action plan 2020 of the European Commission on Capital Markets Union

Objective 1: Facilitating access to financing for European companies

1. EU-wide platform with company information for investors[1)]
2. Easier access to public markets through simplified listing rules
3. Provision of supporting instruments for long-term investments (esp. infrastructure)
4. Incentives for institutional investors (insurers and banks) to invest in shares and other long-term assets
5. Mandatory guidance for SMEs on alternative financing in case of loan rejection
6. Mobilisation of the securitisation market to support lending by banks

Objective 2: Make the EU an even safer place for individuals to save and invest long-term

7. Increasing citizens' financial literacy through financial education (incentives for Member States to promote financial literacy)
8. Strengthening the confidence of small investors in the capital markets (reducing information overload, improving the quality of financial advice)
9. Supporting Member States in improving pension systems

Objective 3: Integrate national capital markets into a genuine single market

10. Reducing the cost of cross-border investments through simplified tax procedures
11. Promoting more similar insolvency rules in the Member States (increased legal certainty)
12. Easier enforceability of cross-border shareholders' claims
13. Expansion of cross-border settlement services
14. Creation of a consolidated data source for trading conditions on all EU trading venues
15. Strengthening investment protection and facilitating cross-border investments
16. Uniform set of rules and supervisory convergence in capital market supervision

1) European Single Access Point (ESAP); Source: EC (2023), zeb.research

A

The zeb.potential model for corporate banking provides the best possible view of regional corporate client wallets by linking external sources with zeb data

zeb.Corporate Banking Study

Input/parameters

Statistics of the Bundesbank
- Monthly reports
- Capital market statistics

zeb-benchmark database
- Product usage
- Adressability

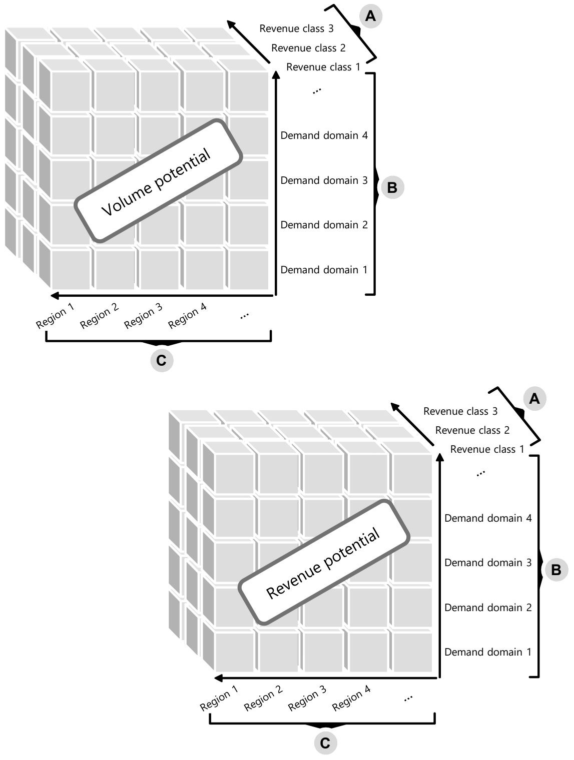
Dafne database
- Turnover to ratio assets/liabilities
- Industry specifics

zeb.Corporate Banking Study
- Structure of potential
- Usage of demand domains

Sales tax statistics
- Number of firms
- Structural development

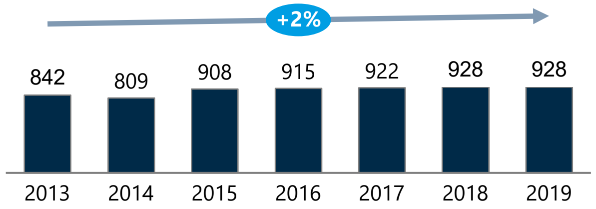
Others
- zeb.research
- Experts know-how

Calculation

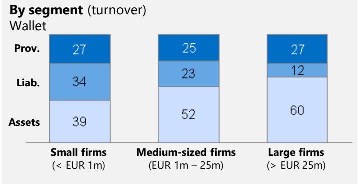


Output

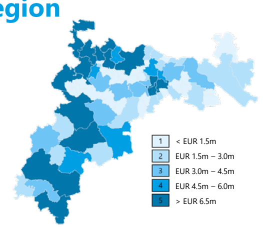
Wallets over time



Wallets by revenue type



Wallets per region



A Based on several assumptions, a multi-period simulation model estimates the impact of climate change-induced investments on the capitalisation of banks

Overview and key points

01 Approach and assumptions

- All values **starting at end of 2020** (in line with EC estimate for financing needs)
- **Sample**: all Sparkassen, cooperative banks, Landesbanken, DZ Bank, Deutsche Bank and Commerzbank with the German part of their business; sample covers ~75% of German loan business
- **General assumptions:**
  - Basel IV Impact (+7% RWAs)[1)]
  - Increase in net profits by ~ 5% p.a.[2)]
  - Retention rate of 40% of net profits[3)]
- **Financing needs-related assumptions:**
  - RWA growth in corp. business: 2% p.a.[2)]
  - RWA growth from Green Deal figures
  - Distribution of volume growth in line with current credit market share

02 Calculation model

- The simulation is based on a **multi-period, dynamic model** that determines the impact of future financing requirements on the capitalisation of banks in Germany in the event of financing via bank loans on the basis of the starting point 2020
- The model thus takes into account the new annual investment volume until 2030 and, in addition, also corresponding repayments and the increase in the banks' equity via profit retention

Bank	2020 CET 1	RWA avg.	CET 1 Ratio (stated)	Basel IV Factor	2018 Jahresüberschuss	2019 Jahresüberschuss	2020 Jahresüberschuss	Proxy p.a. Jahresüberschuss
DB Privat- und Firmenkunden AG	8.351.000.000,00	67.766.000.000,00	12,3%	1,07	1.006.000.000	622.000.000	-	622.000.000
DZ BANK AG	22.370.296.000,00	147.173.000.000,00	15,2%	1,07	918.000.000	1.873.000.000	980.000.000	1.257.000.000
Commerzbank AG	23.572.692.000,00	178.581.000.000,00	13,2%	1,07	964.000.000	744.000.000	-2.861.000.000	854.000.000
Landesbank Baden-Wuerttemberg	12.388.342.000,00	82.042.000.000,00	15,1%	1,07	413.000.000	444.000.000	172.000.000	343.000.000
Bayerische Landesbank	10.330.866.000,00	64.974.000.000,00	15,9%	1,07	828.000.000	466.000.000	232.000.000	508.666.667
Norddeutsche Landesbank Girozentrale	5.806.939.600,00	39.692.000.000,00	14,6%	1,07	-2.404.000.000	-69.000.000	25.000.000	0
Landesbank Hessen-Thueringen Girozentrale	8.893.500.000,00	60.500.000.000,00	14,7%	1,07	278.000.000	480.000.000	177.000.000	311.666.667
Sparkassen	124.623.589.743,59	758.974.358.974,36	16,4%	1,07	5.519.000.000	5.799.000.000	4.217.000.000	5.178.333.333
Genossenschaftsbanken	87.900.000.000,00	572.674.418.604,65	15,3%	1,07	4.251.000.000	5.394.000.000	4.331.000.000	4.658.666.667
Summe	304.237.225.343,59	1.972.376.777.579,01	15,4%	1,07	11.773.000.000	15.753.000.000	7.273.000.000	13.733.333.333
RWA-Wachstum aus normalem Geschäft	2,0%							
Ertragswachstum aus normalem Geschäft	5,5%							
CET 1 Ratio 2030 Ziel:	13,0%							
Thesaurierungsquote:	49,8%							

	2020	2021	2022	2023	2024	2025	2026	2027
RWA (inkl. RWA-Wachstum)	2.110.443.152.010	2.152.652.015.050	2.195.705.055.351	2.239.619.156.458	2.284.411.539.587	2.330.099.770.379	2.376.701.765.786	2.424.235.801.102
Additional RWA (ESG Wallet)	-	129.346.556.823	237.686.816.262	325.827.942.488	394.577.099.670	444.741.451.979	477.128.163.585	492.544.398.658
Total RWA	2.110.443.152.010	2.281.998.571.873	2.433.391.871.613	2.565.447.098.946	2.678.988.639.257	2.774.841.222.358	2.853.829.929.372	2.916.780.199.760
Gesamtes Eigenkapital (c.p.)	304.237.225.344	304.237.225.344	304.237.225.344	304.237.225.344	304.237.225.344	304.237.225.344	304.237.225.344	304.237.225.344
CET 1 Ratio (B IV)	14,4%	13,3%	12,5%	11,9%	11,4%	11,0%	10,7%	10,4%
Delta Eigenkapital in 2030								
Delta Eigenkapital p.a.		8.805.861.527	8.805.861.527	8.805.861.527	8.805.861.527	8.805.861.527	8.805.861.527	8.805.861.527
Entwicklung JÜ gemäß Wachstum	13.733.333.333	14.488.666.666,7	15.285.543.333,3	16.126.248.216,7	17.013.191.868,6	17.948.917.421,4	18.936.107.879,5	19.977.593.812,9
Thesaurierung gemäße Quote		6.839.316.163,0	7.215.478.551,9	7.612.329.872,3	8.031.008.015,3	8.472.713.456,1	8.938.712.696,2	9.430.341.894,5
CET1 inkl. Thesaurierung	304.237.225.344	311.076.541.507	318.292.020.059	325.904.349.931	333.935.357.946	342.408.071.402	351.346.784.098	360.777.125.993
CET! Ratio (BIV + Thesaurierung)	14,4%	13,6%	13,1%	12,7%	12,5%	12,3%	12,3%	12,4%

03 Results and interpretation

- Although the calculations were made on the basis of a **comprehensive model**, the focus of the analysis is on the effects of future financial requirements on the capitalisation of banks
- Other effects and special countermeasures, e.g. cost reductions or strategic changes in the portfolio, market changes or changes in the macroeconomic or legal environment cannot be taken into account - the calculations are thus subject to the **"ceteris paribus" principle** to a certain extent
- For these reasons, the results should be seen as **indicative of the potential impact –** the actual values in 2030 will differ from the assumption due to the effects described above
- Overall, the results support our thesis of the impact of climate change-indexed investments on banks

1) Average Basel IV impact on German banks based on zeb estimations; 2) Assumptions based on an average historic long-term development for all banks operating in Germany; 3) Average retention rate across business models and banking sectors in Germany; Source: zeb.research

A There are historic but also economic reasons for the existing banking system in Germany – scientific literature underlines correspondence to the economic system

Scientific literature on the dominance of banks in the German financial system

Backup

Scientific foundation[1)]

Vitols (2001)

The origins of bank-based and market-based financial systems: Germany, Japan and the United States

- Regulatory peculiarities of the countries determine the structure of the financial system
- In Germany, the dominant position of banks in the financial system has been strengthened by tax regulations and a focus on bank self-regulation

Burghof, Gehrung, Schmidt (2021a)

Banking Systems and Their Effects on Regional Wealth and Inequality

- Regional headquarters of banks have a positive impact on prosperity and reduce income disparities
- Regional banking systems consisting of smaller banks have a positive impact on local economies

Passarge (2010)

Institutional Change in Germany's Financial System

- Intensified financing needs during industrialisation fostered importance of banks as growth enabler
- Different focus of banks on customer segments marks the emergence of the three-pillar banking system

Hackethal, Schmidt (2005)

Structural Change in the German Banking System?

- Challenges: Profitability problem in the German banking sector. Possibly, strong role of public-sector banks as reason
- Reason: Change within sectors via mergers, but hardly national/internal at private institutions

Schmidt, D. (2021)

The Impact of Regional Banking Systems on Firms and SMEs

- Decentralised banking systems with smaller institutions lead to higher profitability of companies in the region
- Results apply esp. to SMEs

Schmidt, R. (2019)

On the Change of the German Financial System

- After reunification, the German banking system has changed, as "large private banks have withdrawn from their former dominant role in financing & corporate governance"
- "It is argued that this transition to stronger capital-market and, accordingly, shareholder value orientations has occurred at the expense of consistency"

Main conclusions

- **Dominance of banks** in Germany's financing system can be traced back to the industrialisation period
- Country-specific regulation favours bank loans as financing source, e.g. through **taxation schemes**
- Germany's decentralised banking system **beneficial due to good fit with German economic structure** with high share of SMEs[2)]
- High competition leads to lower interest rates and reduces need for **other (cheaper) alternatives**
- Since reunification, the German private banking sector has changed – indicator for a **higher need for capital market solutions**?

1) The analyses presented here represent an excerpt of the academic literature and not a complete overview, but represent the prevailing opinion; the core contents presented do not represent a complete overview of all results; the results do not necessarily reflect the opinion of AFME/zeb; 2) Further confirmation is provided by Burghof, Gehrung, Schmidt (2021b), Braun & Deeg (2020), while Beck (2012) and Belke, Haskamp, Setzer (2017) are critical; Source: publications mentioned, zeb.research

A Scientific studies confirm the positive effects of strengthening the capital markets as an additional relevant source of financing

Scientific literature on the benefits of strong capital markets

Backup

Scientific foundation[1)]

Didier et al. (2020)

Capital Market Financing and Firm Growth

- Issuance of equity positively stimulates asset growth and productivity of firms
- Esp. small firms experience high levels of growth upon equity issuance as they overcome financial constraints
- Result: young and innovative firms more prevalent in countries with strong capital market

Bossone & Lee (2004)

In finance, size matters: The 'Systemic Scale Economies' Hypothesis

- Evidence for positive effect of large capital markets on banks: both through provision of enhanced risk management opportunities and reputation signaling
- Result: Capital markets improve information availability and reduce bank costs

Cournède et al. (2015)

Finance and Inclusive Growth

- "Debt bias" in financial systems slows economic growth and increase systemic instability
- In contrast: increased stock market finance associated with higher levels of growth in OECD countries

Levine (2002)

Bank-based or Market-based Financial Systems: Which is better?[2)]

- There is no clear evidence that bank-based or market-based financial systems are better with regard to growth and innovation
- Instead, the maturity of the financial system, i.e. a high degree of both bank and market development, and the efficiency of the legal system are essential for long-term economic growth

Song & Thakor (2010)

Banks and capital markets as a coevolving financial system

- Complementarity of capital markets and banks established through securitisation market
- Securitisation signalling credit quality of borrower for capital market, and allowing bank to raise additional capital

Main conclusions

- The literature clearly underlines the **importance and benefits of capital markets** as a funding source
- There is no clear advantage of one **type of financial system** (bank-based or market-based)
- Instead, analyses show that the overall **degree of financial maturity** (access to financial services, different funding sources, ...) is more decisive
- Banks and capital markets are not **substitutive but complementary**
- From a political perspective, it is less a discussion about the right system and more about how the financial system as a whole can be **further developed[3)]**

1) The analyses presented here represent an excerpt of the academic literature and not a complete overview, but represent the prevailing opinion; the core contents presented do not represent a complete overview of all results; the results do not necessarily reflect the opinion of AFME/zeb; 2) Further confirmation is provided by Passarge (2010); 3) E.g., through strengthening underdeveloped services or funding sources; Source: publications mentioned, zeb.research

B

Deep-dive: Comparison of entry barriers of capital markets for companies in Germany, France, UK and United States (1/2)

Overview of measurements

Backup

Barrier	Measurement	Germany	France	UK	United States	Source
Importance of institutional investors	Total assets in funded and private pension plans, as a % of GDP in 2021	8%	12%	121%	174%	OECD (2022)
Private investor engagement	Shares and other equity as a share of total total financial assets of private households in 2021-2022	12.6%	23.6%	11.2%	39.2%	OECD (2023)
Level of liquidity	Stock exchange turnover (equity trading) to GDP in % in 2022[1)]	39%	54%	59%	224%	FESE (2023), WFE (2023), IMF (2023), Euronext (2023b), zeb calculations
Level of adviser servicing	Number of designated market makers in 2023[2)]	49	15	117	At least figure of UK (based on market expertise)	ESMA (2023), FCA (2023b)
Accessibility for smaller firms	Minimum market capitalisation required for listing in 2023[3)]	Deutsche Börse scale: 30m EUR	Euronext Access: no minimum requirement	LSE AIM[4)]: no minimum requirement	Nasdaq CM[5)]: no obligatory minimum requirement	Deutsche Börse Cash Market (2022), Euronext (2023a), LSE (2021), Nasdaq (2023)

1) Stock exchanges Germany: Deutsche Börse and Börse Stuttgart; UK: London Stock Exchange; US: NYSE and NASDAQ; 2) Germany/UK: Market makers who are using the exemption under the Regulation on short selling and credit default swaps; 3) Stock exchanges: Germany: Deutsche Börse; UK: LSE; US: Nasdaq; 4) London Stock Exchange Alternative Investment Market; 5) Nasdaq Capital Market; Source: publications mentioned, zeb.research

afme/ | zeb

B Deep-dive: Comparison of entry barriers of capital markets for companies in Germany, France, UK and United States (2/2)

Overview of measurements

Backup

Barrier	Measurement	Germany	France	UK	United States	Source
Reporting requirements	Frequency of required financial reports as a listed company[1)]	quarterly/half-yearly[2)]	half-yearly	half-yearly	quarterly	Deutsche Börse (2023), Euronext (2023a), LSE (2021), Listing Center Nasdaq (2023)
Tax incentives for capital gains	Taxation rules for capital investments	25% flat tax rate	30% flat tax rate	10%/20% based on income band, allowances for LSE AIM	0%/10%/20% based on income bracket[3)]	BZSt (2023), PwC (2023b), Gov.UK (2023b), Bessler & Book (2021), IRS (2023)
Listing fees	Initial listing fee per market capitalisation[4)]	EUR 54,400	EUR 112,000	EUR 280,000	EUR 250,000	Xetra (2022), LSE (2023d), Nasdaq (2023)
Competitiveness to other funding	Level of equity risk premium	5.00%	5.75%	5.90%	5.00%	Damodaran, 2023
Willingness to list family-owned business	Share of large unlisted family-owned businesses[5)]	79%	66%	71%	29%	Oxera, 2019, p. 302, US Census Bureau (2020), zeb calculations
Control over voting rights	Option of dual-class shares	no	yes (loyalty shares)	yes (since late 2021)	yes	Oxera, 2019, pp. 43f, FCA (2023a)

1)Stock exchanges Germany: Deutsche Börse; France: Euronext Paris; UK: London Stock Exchange; US: Nasdaq; 2) Quarterly: applies to regulated market (Prime Standard), half-yearly: other market segments; 3) for assets held for over one year 4) Germany: calculation for company listing at Deutsche Börse with EUR 250m market capitalisation; France: calculation for company with EUR 250m market capitalisation, UK: calculation for company with GBP 250m market capitalisation; US: calculation for company listing at Nasdaq with EUR 250m market capitalisation; 5) Germany/UK: unlisted firms with more than 250 employees and turnover > EUR 50m; US: companies with more than 250 employees; Source: publications mentioned, Oxera, zeb.research

C

Since 2013 there have been 33 cross-border IPOs of German companies

Details of cross-border initial public offerings (IPOs) since 2013[1)]

Backup

Year	Company	Sector	Offer size (IPO volume) in EUR m
2013	voxeljet AG	IT hardware	72.8
2014	Affimed N.V.	Biotechnology	41.1
2014	Orion Engineered Carbons S.A.	Chemicals	258.3
2014	Pieris Pharmaceuticals GmbH	Biotechnology	25.1
2014	Vivoryon Therapeutics N.V.	Biotechnology	23.2
2015	OpGen Inc.	Biotechnology	15.3
2015	Superior Industries Inc.	Automotive supplier	123.3
2016	trivago N.V.	Tourism	307.3
2016	Noxxon Pharma N.V.	Biotechnology	1.0
2017	InflaRx N.V.	Biotechnology	89.6
2017	X-FAB Silicon Foundries SE	Semiconductor	426.4
2018	Biofrontera AG	Biotechnology	10.7
2018	Morphosys AG	Biotechnology	194.3
2019	BioNTech SE	Biotechnology	142.7
2019	Centogene N.V.	Biotechnology	n/a
2019	EuroEyes DE Holding GmbH & Co. KG	Optics	n/a

Year	Company	Sector	Offer size (IPO volume) in EUR m
2019	Immunic AG	Biotechnology	n/a
2019	Jumia Technologies AG	E-marketing	199.4
2020	CureVac N.V.	Biotechnology	207.3
2020	Immatics N.V.	Biotechnology	311.1
2020	VIA optronics AG	IT hardware	110.5
2021	MyTheresa.com GmbH	E-commerce	n/a
2021	Atotech Deutschland GmbH	Chemicals	475.1
2021	Lilium GmbH	Air taxi	703.1
2021	Atai Life Sciences	Biotechnology	213.6
2021	Mainz Biomed	Biotechnology	14.7
2021	Sono Group	Solar technology	152.8
2021	Signa Sport	E-commerce	428.9
2022	European Healthcare	Health care	200.0
2022	Mynaric AG	Laser communication	65.2
2022	Evotec SE	Biotechnology	432.6

1) In total, there have been 33 cross-border IPOs of German companies since 2013, years 2013–2020: number of IPOs and company names based on Deutsches Aktieninstitut (DAI), for 2021: number of IPOs and company names based on both, DAI and GoingPublic Magazin, for 2022: number of IPOs based on GoingPublic Magazin, names based on own Bloomberg research, for four IPOs, offer sizes not available in Bloomberg (see n/a in list above); in addition, two IPOs in 2022 not included in Bloomberg (names and offer sizes not available) and in list above; all years: offer sizes based on figures from Bloomberg and DAI; Source: Bloomberg (2023), GoingPublic Magazin (2023), DAI (2021), zeb.research

E

A sound securitisation market brings advantages for companies, investors and banks

Benefits of securitisation

Backup

SMEs

- Better **funding opportunities** – meeting funding needs that the bank may not otherwise have been able to meet, e.g. due to **capital constraints** or from a **risk perspective**
- In case of capital market capability of SME: **likely lower risk premiums (better funding costs)** as the bank has better insight into the local company than capital market investors

Banks

- Opportunity to separate sales and risk management within a bank – this allows an optimised steering of a **bank's risk appetite** and improves the **risk-return profile**
- Active balance sheet management frees up **equity** and expands **financing capacities** by releasing risk-weighted assets ("RWA relief approach")
- Reduction of **concentration risk** in different sectors, regions or companies

Investors

- Expanded investment spectrum by usually **non-public SME loans**[1)]
- **Comparatively attractive**[2)] investment depending on the tranche; also: higher liquidity compared to private debt funds
- CLOs[3)]: advantages in case of **rising interest rates** due to variable interest rate and short interest duration

1) Exemptions: corporate loans (usually not issued by SMEs) and private debt funds; 2) Given the good performance of European securitisations in the past (includes complexity premium); 3) CLO: collateralised loan obligation; Source: Die Bank (2021, 2022), IW (2022), Zeitschrift für das gesamte Kreditwesen (2022, 2023), zeb.research

Sources & abbreviations

Bibliography (1/7)

Abdullah, H. & Tursoy, T. (2021). Capital structure and firm performance: evidence of Germany under IFRS adoption. Review of Managerial Science, 15, 379–398.

AFME (2022). Capital Markets Union: Key Performance Indicators. https://www.afme.eu/key-issues/cmu (accessed on 04.09.2023).

AFME (2023). Internal compilation of publicly available data on securitisation volumes based on Bloomberg, JP Morgan, SIFMA.

Allianz Research (2023). Playing with a squared ball: the financial literacy gender gap.

American Investment Council (2022). 2022-Q4 Private Equity Trends. https://www.investmentcouncil.org/wp-content/uploads/2023/04/2022-Q4-AIC-Trends-Report-Final-85.pdf (accessed on 31.08.2023).

Antoniou, A., Guney, Y., & Paudyal, K. (2008). The Determinants of Capital Structure: Capital Market-Oriented versus Bank-Oriented Institutions. Journal of Financial and Quantitative Analysis, 43(1), 59-92.

BdB, Bundesverband deutscher Banken (2020). Bankenverband begrüßt Pläne zur Kapitalmarktunion. https://bankenverband.de/newsroom/presse-infos/bankenverband-kapitalmarktunion/ (accessed on 04.09.2023).

BdB, Bundesverband deutscher Banken (2023). Mitglieder. https://bankenverband.de/bankenverband/mitglieder/ (accessed on 24.08.2023).

BDI, Bundesverband der Deutschen Industrie & DIHK, Deutscher Industrie- und Handelskammertag (2017). Stellungnahme zum Konsultationsdokument der Europäischen Kommission „Capital Markets Union Mid-Term Review 2017“. https://issuu.com/bdi-berlin/docs/20170317_stellungnahme_bdi_dihk_kapitalmarktunion (accessed on 13.09.2023)

Beck, T. (2012). The Role of Finance in Economic Development: Benefits, Risks, and Politics. Oxford Handbook of Capitalism, 161-203.

Beck, T. & Kessler, N. (2023), The SME finance gap in the European Union. RSC Working Paper Nr. 2023/07, Florence School of Banking and Finance.

Belke, A. H., Haskamp, U., & Setzer, R. (2017). Bank Efficiency and Regional Growth in Europe: New Evidence from Micro-data. ECB Working Paper No. 1983.

Bendel, D., Demary, M., & Voigtländer, M. (2016). Entwicklung der Unternehmensfinanzierung in Deutschland. IW-Trends, 43(1), 37-54.

Bessler, W. & Book, T. (2021). Strategien zur nachhaltigen Finanzierung der Zukunft Deutschlands. Deutsche Börse AG. https://www.deutsche-boerse-cash-market.com/resource/blob/2782450/2060ad27facf5bb6e0f6515da2042469/data/Studie_Strategien%20zur%20nachhaltigen%20Finanzierung%20Deutschlands.pdf (accessed on 03.09.2023).

Bhatia, A. V., Mitra, S., Weber, A., Aiyar, S., de Almeida, L., Cuervo, C., Santos, A., & Gudmundsson, T. (2019). A Capital Market Union for Europe. IMF Staff Discussion Note SDN/19/07.

Blättchen Financial Advisory (2021). Jahresrückblick 2020.

BMAS, Bundesministerium für Arbeit (2023). Alterseinkommen und zusätzliche Vorsorge. https://www.bmas.de/DE/Soziales/Rente-und-Altersvorsorge/Fakten-zur-Rente/Alterseinkommen-und-zusaetzliche-Vorsorge/alterseinkommen-und-zusaetzliche-vorsorge.html#:~:text=Die%20gesetzliche%20Rentenversicherung%20ist%20die,anderen%20Alterssicherungssystemen%20stammen%2014%20Prozent. (accessed on 19.09.2023).

BMF, Bundesministerium der Finanzen (2023a). BMF Monatsbericht August 2023. Das Zukunftsfinanzierungsgesetz im parlamentarischen Verfahren.

BMF, Bundesministerium der Finanzen (2023b). BMF Monatsbericht Januar 2023. Das Generationenkapital: für Gerechtigkeit und solide Staatsfinanzen.

BMF, Bundesministerium der Finanzen (2023c). Zukunft finanzieren. https://www.bundesfinanzministerium.de/Content/DE/Standardartikel/Themen/Schlaglichter/Start-ups/zukunftsfinanzierungsgesetz.html (accessed on 21.08.2023).

Bibliography (2/7)

BMF, Bundesministerium der Finanzen (2023d). French-German roadmap for the capital markets union. https://www.bundesfinanzministerium.de/Content/EN/Standardartikel/Topics/Europe/Articles/roadmap-capital-markets-union.html (accessed on 17.10.2023).

Bördlein, R. (2002). Stock Exchanges and Regional Competitiveness: The Case of Small German Exchanges. European Regional Science Association, ERSA conference papers.

Börse Frankfurt (2023). Free float. https://www.boerse-frankfurt.de/en/know-how/glossary/free-float

Bossone, B. & Lee, J.-K. (2004). In Finance, Size Matters: The "Systemic Scale Economies" Hypothesis. IMF Staff Papers, 51(1), 19–46.

Braun, B. & Deeg, R. (2020). Strong Firms, Weak Banks: The Financial Consequences of Germany's Export-led Growth Model. German Politics, 29(3), 358-381.

Burghof, H. P., Gehrung, M., & Schmidt, D. (2021a). Banking Systems and Their Effects on Regional Inequality and Wealth. Working Paper.

Burghof, H. P., Gehrung, M., & Schmidt, D. (2021b). Under Italy's Sun or in an Economic Shadow - The Effects of Regional Banking Systems on Economic Development in the Italian Mezzogiorno Regions. Working Paper.

Business Insider (2011). Die deutsche Venture-Capital-Szene. Gründerszene. https://www.businessinsider.de/gruenderszene/allgemein/venture-capital-szene-deutschland-vs-usa/ (accessed on 27.09.2023).

BVR, Bundesverband der Deutschen Volksbanken und Raiffeisenbanken (2023). Genossenschaftliche FinanzGruppe. https://www.bvr.de/Wer_wir_sind/Genossenschaftliche_FinanzGruppe (accessed on 24.08.2023).

BZSt, Bundeszentralamt für Steuern (2023). Kapitalertragsteuerentlastung. https://www.bzst.de/DE/Unternehmen/Kapitalertraege/Kapitalertragsteuerentlastung/kapitalertragsteuerentlastung_node.html#:~:text=Kapitalertr%C3%A4ge%20unterliegen%20in%20Deutschland%20einem,im%20Ausland%20ans%C3%A4ssigen%20Empf%C3%A4nger%20zuflie%C3%9Fen. (accessed on 07.09.2023).

CDU/CSU & FDP (2009). Wachstum. Bildung. Zusammenhalt.

CDU/CSU & SPD (2005). Gemeinsam für Deutschland. Mit Mut und Menschlichkeit.

CDU/CSU & SPD (2013). Deutschlands Zukunft gestalten.

CDU/CSU & SPD (2017). Ein neuer Aufbruch für Europa. Eine neue Dynamik für Deutschland. Ein neuer Zusammenhalt für unser Land.

Cournède, B., Denk, O., & Hoeller, P. (2015). Finance and Inclusive Growth. OECD Economic Policy Paper, No. 14.

DAI, Deutsches Aktieninstitut (2021). Auslandslistings von BioNTech, Curevac & Co. Deutsches Aktieninsititut. https://www.dai.de/fileadmin/user_upload/210714_Studie_Auslandslistings_von_BioNTech__CureVac___Co..pdf (accessed on 12.09.2023).

DAI, Deutsches Aktieninstitut (2023). Deutschland kann Aktie!. https://www.dai.de/fileadmin/user_upload/230117_Deutsches_Aktieninstitut_Aktionaerszahlen_2022.pdf (accessed on 12.09.2023).

Deutsche Boerse (2023). Follow-up obligations. https://www.deutsche-boerse-cash-market.com/dbcm-en/primary-market/being-public/ipo-line-being-public/regulated-market/!ipo-21956-0 (accessed on 03.09.2023).

Bibliography (3/7)

Deutsche Boerse Cash Market (2022). Scale. https://www.deutsche-boerse-cash-market.com/resource/blob/3239422/48b5a32da2c70d0ba5293c80e66c21ba/data/Factsheet-Scale.pdf (accessed on 03.09.2023).

Deutsche Bundesbank (2015). Der Verbriefungsmarkt ist besser als sein Ruf. https://www.bundesbank.de/de/presse/gastbeitraege/der-verbriefungsmarkt-ist-besser-als-sein-ruf-608114 (accessed on 26.09.2023).

Deutsche Bundesbank (2019). Verbriefungen. https://www.bundesbank.de/de/aufgaben/bankenaufsicht/einzelaspekte/eigenmittelanforderungen/kreditrisiko/verbriefungen-598450 (accessed on 10.10.2023).

Die Bank – Zeitschrift für Bankpolitik und Praxis (2021). Positiver Beitrag zur Weiterentwicklung der Kapitalmarktunion, 8. https://webkiosk.die-bank.de/die-bank-08-2021/65867822 (accessed on 26.09.2023).

Didier, T., Levine, R., Llovet Montanes, R, & Schmukler, S. (2020). Capital Market Financing and Firm Growth. Policy Research Working Paper 9337.

Die Bank – Zeitschrift für Bankpolitik und Praxis (2022). Bankbasierte Mittelstandsfinanzierung – Verbriefung kann die nachhaltige und digitale Transformation unterstützen, 7. https://webkiosk.die-bank.de/die-bank-07-2022/67167194 (accessed on 26.09.2023).

DSGV, Deutscher Sparkassen- und Giroverband (2020). Pläne der EU Kommission zur Kapitalmarktunion. https://www.dsgv.de/newsroom/presse/200924_PM_EU_Kapitalmarktunion_50.html (accessed on 04.09.2023).

DSGV, Deutscher Sparkassen- und Giroverband (2023) Verbundstruktur. https://www.dsgv.de/sparkassen-finanzgruppe/organisation/verbandsstruktur.html (accessed on 24.08.2023).

DZ Bank (2023). Mittelstand Im Mittelpunkt – Frühjahr 2023. https://www.bvr.de/p.nsf/0/1AE8BD8BD206280AC12589DA0031624B/%24FILE/Mittelstand%20im%20Mittelpunkt%20Fr%C3%BChjahr%202023.pdf (accessed on 26.09.2023).

Ebert, S., Grote, M., & Laudenbach, C. (2019). Zum Rätsel der Aktienmarktteilnahme in Deutschland. Frankfurt School of Finance & Management & Goethe-Universität Frankfurt.

EC, European Commission, (2020a). Stepping up Europe's 2030 climate ambition – Investing in a climate-neutral future for the benefit of our people Part 1/2. COM(2020) 562 final.

EC, European Commission, (2020b). Stepping up Europe's 2030 climate ambition – Investing in a climate-neutral future for the benefit of our people Part 2/2. COM(2020) 562 final.

EC, European Commission (2023). Capital Markets Union 2020 action plan: A capital markets union for people and businesses. https://finance.ec.europa.eu/capital-markets-union-and-financial-markets/capital-markets-union/capital-markets-union-2020-action-plan_en (accessed on 04.09.2023).

ECB (2023b). Take-aways from the horizontal assessment of the survey on digital transformation and the use of fintech. ECB Banking Supervision. https://www.bankingsupervision.europa.eu/ecb/pub/pdf/Takeaways_horizontal_assessment~de65261ad0.en.pdf (accessed on 26.09.2023).

EIB, European Investment Bank (2016). EIB Investment Survey 2016 – EU overview. EIB Investment Survey.

EIB, European Investment Bank (2017). EIB Investment Survey 2017 – EU overview. EIB Investment Survey.

EIB, European Investment Bank (2018). EIB Investment Survey 2018 – EU overview. EIB Investment Survey.

EIB, European Investment Bank (2019). EIB Investment Survey 2019 – EU overview. EIB Investment Survey.

Bibliography (4/7)

EIB, European Investment Bank (2020). EIB Investment Survey 2020 – EU overview. EIB Investment Survey.

EIB, European Investment Bank (2021). EIB Investment Survey 2021 – EU overview. EIB Investment Survey.

EIB, European Investment Bank (2022). EIB Investment Survey 2022 – EU overview. EIB Investment Survey.

Euronext (2023a). Choosing your market. https://www.euronext.com/en/raise-capital/how-go-public/choosing-market (accessed on 13.09.2023).

European Parliament (2018). Senkung der Treibhausgasemissionen in der EU: nationale Ziele für 2030. https://www.europarl.europa.eu/news/de/headlines/priorities/klimawandel/20180208STO97442/senkung-der-treibhausgasemissionen-in-der-eu-nationale-ziele-fur-2030 (accessed on 05.09.2023).

EY, Ernst & Young (2023). Strategieoption Kapitalmarkt - Finanzierung über Aktien und Anleihen. https://www.ey.com/de_de/ipo/kapitalmarkt-finanzierung-ueber-aktien-und-anleihen (accessed on 27.09.2023).

FAS, Frankfurter Allgemeine Sonntagszeitung (2023, October 01). Der deutsche Kapitalmarkt ist unterentwickelt, p. 26.

Fasoon (2017). Kapitalbeschaffung (Teil 2) - Die Lebensphasen eines Unternehmens. https://fasoon.ch/kapitalbeschaffung-teil-2/ (accessed on 27.09.2023).

FCA (2023a). FCA proposes to simplify rules to help encourage companies to list in the UK. https://www.fca.org.uk/news/press-releases/fca-proposes-simplify-rules-help-encourage-companies-list-uk (accessed on 26.09.2023).

FSB, Financial Stability Board (2023a). Enhancing the Resilience of Non-Bank Financial Intermediation.

FSB, Financial Stability Board (2023b). The Financial Stability Implications of Leverage in Non-Bank Financial Intermediation.

GDV, Gesamtverband der deutschen Versicherungswirtschaft (2020). Statistisches Taschenbuch der Versicherungswirtschaft.

GFMA, Global Financial Markets Association & BCG, Boston Consulting Group (2020). Climate finance markets and the real economy. https://www.sifma.org/wp-content/uploads/2020/12/Climate-Finance-Markets-and-the-Real-Economy.pdf (accessed on 27.09.2023).

GoingPublic Magazin (2023). Listed Germany – Die börsennotierte Deutschland AG in Zahlen, Teil II, 3.

Gov.UK (2023a). How is Social Security financed. https://www.gov.uk/government/statistics/pensioners-incomes-series-financial-year-2021-to-2022/pensioners-incomes-series-financial-year-2021-to-2022#sources-of-pensioners-incomes (accessed on 13.09.2023).

Grote, M. & Fitza, M. (2022). Das versteckte Potenzial des privaten Kapitalmarktes in Deutschland. Frankfurt School of Finance & Management.

Hackethal, A. & Schmidt, R. H. (2005). Structural Change in the German Banking System?. Working Paper Series: Finance & Accounting No. 147.

Handelsblatt (2023). Bundesregierung will Aktienrente immens vergrößern: 200 Milliarden Euro bis 2035. https://www.handelsblatt.com/politik/deutschland/altersvorsorge-bundesregierung-will-aktienrente-immens-vergroessern-200-milliarden-euro-bis-2035/29300134.html

Handelsblatt (2019). Biontech-Chef Sahin erklärt, was sich durch den Börsengang ändert. https://www.handelsblatt.com/technik/forschung-innovation/biotechunternehmen-biontech-chef-sahin-erklaert-was-sich-durch-den-boersengang-aendert/25107840.html (accessed on 12.09.2023)

Bibliography (5/7)

Helaba, Landesbank Hessen-Thüringen (2019). Corporate Schuldscheinmarkt 2018 – Gute Bonitäten weiterhin dominierend. Credit Special. https://www.helaba.de/blueprint/servlet/resource/blob/docs/485240/c5061aafd6f6b78768e7cc293736cd87/cs-20190116-data.pdf (accessed on 26.09.2023).

Helaba, Landesbank Hessen-Thüringen (2023). Corporate Schuldschein: Primärmarkt im 1. Quartal 2023. Credits and Covered Bonds. https://www.helaba.de/blueprint/servlet/resource/blob/docs/612444/b3fb302c48a943efe4d305aa4f38e31b/primaerm-ssd-20230411-data.pdf (accessed on 26.09.2023).

Huggins, R. & Prokop, D. (2013). Stock markets and economic development: the case for regional exchanges. International Journal of Innovation and Regional Development, 5(3), 279-303.

IOSCO, The Board of the International Organization of Securities Commissions (2023). Thematic Analysis: Emerging Risks in Private Finance.

IRS, Internal Revenue Service (2023). Capital gains and losses. https://www.irs.gov/taxtopics/tc409 (accessed on 07.09.2023).

IW, Institut der deutschen Wirtschaft (2022). Transformation in NRW. IW-Gutachten. https://www.iwkoeln.de/studien/markus-demary-jonas-zdrzalek-wie-kann-die-digitale-und-klimaneutrale-transformation-der-unternehmen-in-nrw-am-besten-finanziert-werden.html (accessed on 20.09.2023).

kapitalmarktteam.de (2021). Wer kauft Schuldscheindarlehen?. https://schuldscheine.kapitalmarktteam.de/schuldscheindarlehen-die-basics/wer-kauft-schuldscheindarlehen/ (accessed on 09.10.2023).

KfW, Kreditanstalt fuer Wiederaufbau (2021). Beitrag von Green Finance zum Erreichen von Klimaneutralität in Deutschland.

KfW, Kreditanstalt fuer Wiederaufbau (2022). KfW-Start-up-Report 2022 – Nach Corona-Knick hat sich Zahl der Start-ups 2021 wieder erholt,

Klagge, B. (2003). Regionale Kapitalmärkte, dezentrale Finanzplätze und die Eigenkapitalversorgung kleinerer Unternehmen – eine institutionell orientierte Analyse am Beispiel Deutschlands und Großbritanniens. Geographische Zeitschrift, 175-199.

LBBW, Landesbank Baden-Württemberg (2016). Schuldscheinmarkt 2016: „Bond to SSD“ treibt den Markt. Pressemitteilung. https://www.lbbw.de/konzern/medien-center/presseinfos/2016/20161219-lbbw-presseinformation-schuldscheinmarkt-schreibt-2016-neue-rekorde--bond-to-ssd-treibt-den-markt_8ydiggecq_m.pdf (accessed on 26.09.2023).

LBBW, Landesbank Baden-Württemberg (2017). Schuldscheinmarkt 2016: „Bond to SSD“ treibt den Markt. LBBW behält Spitzenposition am SSD-Markt – Emissionszahl am Schuldscheinmarkt im Jahr 2017 um ein Viertel gestiegen. Pressemitteilung. https://www.lbbw.de/konzern/medien-center/presseinfos/2017/20171222-lbbw-presseinformation-lbbw-behaelt-spitzenposition-am-ssd-markt-emissionszahl-am-schuldscheinmarkt-im-jahr-2017-um-ein-viertel-gestiegen_8ydifr233_m.pdf (accessed on 26.09.2023).

LBBW, Landesbank Baden-Württemberg (2020). Schuldscheinmarkt wächst 2019 trotz ruhigen Schlussquartals wieder auf Rekordniveau. Pressemitteilung.

LBBW, Landesbank Baden-Württemberg (2021). Schuldscheinmarkt mit gutem Jahresabschluss. Blickpunkt. https://www.lbbw.de/konzern/research/2021/studien/20211222-lbbw-research-ausblick-schuldscheinmarkt-2022_ad3k5ono75_m.pdf?origin=/2021-studie-schuldschein (accessed on 26.09.2023).

LBBW, Landesbank Baden-Württemberg (2023). Schuldscheinmarkt legt 2022 Rekordjahr hin. Blickpunkt. https://www.lbbw.de/konzern/research/2023/studien/20230103-lbbw-blickpunkt-schuldscheinmarkt-gj-2022_afwmfwso1z_m.pdf (accessed on 26.09.2023).

Levine, R. (2002). Bank-Based or Market-Based Financial Systems: Which is Better? NBER Working Paper No. W9138.

Levitt, T. (1965). Exploit the Product Life Cycle. Harvard Business Review.

Listing Center Nasdaq (2023). 5200. General Proedures and Prerequisites for inital and continued listing on the Nasdaq Stock Market. https://listingcenter.nasdaq.com/rulebook/nasdaq/rules/nasdaq-5200-series#:~:text=Except%20in%20unusual%20circumstances%2C%20a,securities%20or%20influence%20investors%27%20decisions (accessed on 03.09.2023).

Bibliography (6/7)

LSE (2021) AIM Rules for companies. https://docs.londonstockexchange.com/sites/default/files/documents/n2020_attachment_b.pdf (accessed on 03.09.2023).

LSE (2023d). Fees for Issuers. https://docs.londonstockexchange.com/sites/default/files/documents/Fees_for_Issuers-Jan_2023.pdf (accessed on 03.11.2023).

Mercer (2022). Mercer CFA Institute Global Pension Index 2022. https://www.mercer.com/insights/investments/market-outlook-and-trends/mercer-cfa-global-pension-index/ (accessed on 27.09.2023).

Nasdaq (2023). Initial Listing Guide. https://listingcenter.nasdaq.com/assets/initialguide.pdf (accessed on 03.09.2023).

Oxera (2019). Primary and Secondary Equity Markets in the EU. Final Report. European Commission. https://www.oxera.com/wp-content/uploads/2020/11/Oxera-study-Primary-and-Secondary-Markets-in-the-EU-Final-Report-EN-1.pdf (accessed on 27.09.2023).

Oxera & Kaserer, C. (2021). Wie können Börsengänge für Start-ups in Deutschland erleichtert werden? Internationaler Vergleich und Handlungsempfehlungen. https://www.bmwk.de/Redaktion/DE/Publikationen/Studien/studie-wie-koennen-boersengaenge-fuer-startups-in-deutschland-erleichtert-werden.pdf?__blob=publicationFile&v=1. (accessed on 27.09.2023).

Pagano, M., Röell, A.A., & Zechner, J. (2002), The Geography of Equity Listing: Why Do Companies List Abroad?. The Journal of Finance, 57, 2651-2694.

Passarge, E. (2010). Institutioneller Wandel im Finanzsystem Deutschalnds. Vom bank- zum marktbasierten Modell?. Bamberger Beiträge zur Soziologie. University of Bamberg Press.

PWC (2019). Emissionsmarkt Deutschland Q1 2019. https://www.pwc.de/de/newsletter/kapitalmarkt/emissionsmarkt-deutschland-q1-2019.pdf (accessed on 31.08.2023).

PWC (2023a). Emissionsmarkt Deutschland Q2 2023. https://www.pwc.de/de/kapitalmarktorientierte-unternehmen/emissionsmarkt-q2-2023.pdf (accessed on 31.08.2023).

PWC (2023b). Worldwide Tax Summaries - France. https://taxsummaries.pwc.com/france/individual/other-taxes (accessed on 13.09.2023).

Schmidt, D. (2021). The Impact of Regional Banking Systems on Firms and SMEs – Evidence from five European Countries. Working Paper.

Schmidt, R. (2019). On the Change of the German Financial System. SAFE White Paper No. 61. Center for Financial Studies and Goethe University Frankfurt.

Shafie, S., Liedtke, M., & Asghari, R. (2021). Der deutsche Venture-Capital-Markt – Investitionen und Rahmenbedingungen. Wirtschaftsdienst, ISSN 1613-978X, Springer.

Sjunde AP-fonden (2023). Hompage with several topics and areas. https://www.ap7.se/english/

Song, F. & Thakor, A. (2010). Financial system architecture and the co-evolution of banks and capital markets. Economic Journal, 120(547),1021-1055.

SPD & Bündnis 90/Die Grünen (1998). Aufbruch und Erneuerung – Deutschlands Weg ins 21. Jahrhundert.

SPD & Bündnis 90/Die Grünen (2002). Erneuerung – Gerechtigkeit – Nachhaltigkeit.

SPD, Bündnis 90/Die Grünen & FDP (2021). Mehr Fortschritt wagen – Bündnis für Freiheit, Gerechtigkeit und Nachhaltigkeit.

US Census Bureau (2022). Income sources of Older Households. https://www.census.gov/content/dam/Census/library/publications/2022/demo/p70br-177.pdf (accessed on 13.09.2023).

VentureCapital Magazin (2019). Europa vs. USA: Wie ticken die beiden Wagniskapitalmärkte? Eine Einschätzung über den Atlantik hinweg. https://www.vc-magazin.de/blog/2019/08/01/europa-vs-usa-wie-ticken-die-beiden-wagniskapitalmaerkte/ (accessed on 27.09.2023).

Bibliography (7/7)

Vitols, S. (2001). The origins of bank-based and market-based financial systems: Germany, Japan, and the UnitedStates. (Discussion Papers / Wissenschaftszentrum Berlin für Sozialforschung, Forschungsschwerpunkt Arbeitsmarktund Beschäftigung, Abteilung Wirtschaftswandel und Beschäftigung, 01-302). Berlin: Wissenschaftszentrum Berlin für Sozialforschung

visapath (2023). Über Australien. https://visapath.de/allgemeine-informationen/australien/leben-und-arbeiten-in-australien/ (accessed on 27.09.2023)

Xetra (2022). Gebührenordnung für die Frankfurter Wertpapierbörse. https://www.xetra.com/resource/blob/35140/4bf781b171b18fa68bfdab75ca78de08/data/2022-06-13_Geb%C3%BChrenordnung.pdf (accessed on 03.09.2023).

Zeitschrift für das gesamte Kreditwesen (2022). Verbriefte Unternehmenskredite trotzen den steigenden Zinsen. https://www.kreditwesen.de/kreditwesen/themenschwerpunkte/aufsaetze/verbriefte-unternehmenskredite-trotzen-steigenden-id81545.html (accessed on 26.09.2023).

Zeitschrift für das gesamte Kreditwesen (2023). Der Beitrag von Verbriefungen zur Finanzierung des Mittelstands in der nachhaltigen Transformation. https://www.kreditwesen.de/kreditwesen/themenschwerpunkte/aufsaetze/beitrag-verbriefungen-finanzierung-mittelstands-na-id87115.html (accessed on 26.09.2023).

List of data sources (1/2)

APRA, Australian Prudential Regulation Authority (2023). Quarterly superannuation statistics. https://www.apra.gov.au/quarterly-superannuation-statistics (accessed on 27.09.2023).

Arbeitgeberverband des privaten Bankgewerbes, AGV Banken (2023). Beschäftigte im Kreditgewerbe. https://www.agvbanken.de/grafiken/beschaftigte-im-kreditgewerbe-seit-1991 (accessed on 16.08.2023).

Bloomberg (2023). Financial market data. (Accessed on 02.09.2023).

Borsa Italiana (2023). Analysis and statistics – monthly update December 2022. https://www.borsaitaliana.it/borsaitaliana/statistiche/sintesi-mensili/2022/sintesimensili202212.en_pdf.htm (accessed on 15.08.2023)

Damodaran, A. (2023). Country Default Spreads and Risk Premiums. https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fpages.stern.nyu.edu%2F~adamodar%2Fpc%2Fdatasets%2FctrypremJuly23.xlsx&wdOrigin=BROWSELINK (accessed on 03.09.2023).

Destatis (2023a). Umsatzsteuerstatistik. https://www-genesis.destatis.de/genesis//online?operation=table&code=73311-0004&bypass=true&levelindex=0&levelid=1693922374784#abreadcrumb (accessed on 02.09.2023).

Destatis (2023b). Bevölkerung: Deutschland, Stichtag, Altersjahre. https://www-genesis.destatis.de/datenbank/beta/statistic/12411/table/12411-0005/ (accessed on 12.09.2023).

Deutsche Bundesbank (2023). Bankenstatistiken. https://www.bundesbank.de/de/statistiken/banken-und-andere-finanzielle-unternehmen/banken/bankenstatistiken-803956 (accessed on 16.08.2023).

ECB (2023a). BSI - Balance sheet items. https://sdw.ecb.europa.eu/browse.do?node=9691312 (accessed on 15.08.2023).

ESMA (2023). List of market makers and authorised primary dealers who are using the exemption under the Regulation on short selling and credit default swaps. https://www.esma.europa.eu/sites/default/files/library/list_of_market_makers_and_primary_dealers.pdf (accessed on 04.09.2023).

Euronext (2023b). Euronext Factbook 2022. https://live.euronext.com/resources/statistics/factbook (accessed on 04.09.2023).

Eurostat (2023). Financial balance sheets – annual data. https://ec.europa.eu/eurostat/databrowser/view/NASA_10_F_BS/default/table?lang=en (accessed on 29.08.2023).

FCA (2023b). List of market makers and authorised primary dealers using the exemption under the UK version of Regulation (EU) No236/2012 of the European Parliament and of the Council of 14 March 2012 on short selling and certain aspects of credit default swap. https://www.fca.org.uk/publication/documents/market-makers-authorised-primary-dealers.pdf (accessed on 04.09.2023).

FESE, Federation of European Securities Exchanges (2023a). FESE statistics (January 2022 - December 2022). https://www.fese.eu/statistics/ (accessed on 15.08.2023).

FESE, Federation of European Securities Exchanges (2023b). FESE-EEMR-2022. https://fese.eu/app/uploads/2023/01/FESE-EEMR-2022.xlsx (accessed on 04.09.2023).

Federal Reserve Economic Data, FRED (2023). Balance Sheet: Total Assets https://fred.stlouisfed.org/series/QBPBSTAS (accessed on 15.08.2023).

Gov.UK (2023b). Capital Gains Tax. https://www.gov.uk/capital-gains-tax/rates#:~:text=If%20this%20amount%20is%20within,above%20the%20basic%20tax%20rate (accessed on 07.09.2023).

IMF, International Monetary Fund (2023). World Economic Outlook Database April 2023 Edition. https://www.imf.org/en/Publications/WEO/weo-database/2023/April (accessed on 15.08.2023).

List of data sources (2/2)

LSE (2023a). LSEG market report December 2022. https://www.londonstockexchange.com/reports?tab=monthly-market-report (accessed on 15.08.2023).

LSE (2023b). Secondary Market factsheet December 2022. https://www.londonstockexchange.com/reports?tab=market-summary (accessed on 15.08.2023).

LSE (2023c). Trading statistics December 2022. https://www.londonstockexchange.com/reports?tab=equities (accessed on 15.08.2023).

Nederlandse Vereniging van Participatiemaatschappijen (2023). Research- Investments. https://nvp.nl/facts-figures/market-figures/investments/ (accessed on 31.08.2023).

OECD (2022). Global pension statistics. https://www.oecd.org/finance/private-pensions/globalpensionstatistics.htm (accessed on 04.09.2023).

OECD (2023a). Household financial assets. https://data.oecd.org/hha/household-financial-assets.htm (accessed on 04.09.2023).

OECD (2023b). Non-consolidated financial balance sheets by economic sector. https://stats.oecd.org/Index.aspx?DataSetCode=QASA_TABLE720R (accessed on 29.08.2023).

OECD (2023c). Venture Capital Investments. https://stats.oecd.org/Index.aspx?DataSetCode=VC_INVEST (accessed on 31.08.2023).

Office for National Statistics (2022). UK Business: activity, size and location. https://www.ons.gov.uk/businessindustryandtrade/business/activitysizeandlocation/bulletins/ukbusinessactivitysizeandlocation/2022/relateddata (accessed on 02.09.2023).

Refinitiv (2023). Pricing and Market Data. (Accessed on 02.09.2023).

SCB, Statistics Sweden (2023). Summary of Population Statistics 1960–2022. https://www.scb.se/en/finding-statistics/statistics-by-subject-area/population/population-composition/population-statistics/pong/tables-and-graphs/population-statistics---summary/summary-of-population-statistics/ (accessed on 09.10.2023).

SIFMA (2023), Capital Markets Factbook - Global Equity Issuance. https://www.sifma.org/wp-content/uploads/2022/07/2023-SIFMA-Capital-Markets-Factbook.pdf (accessed on 31.08.2023).

SNB (2023). Total Aktiven. https://data.snb.ch/de/warehouse/BSTA/facets?facetSel=toz_bsta_bsta(2579) (accessed on 15.08.2023).

Statista (2023). Top 100 companies: Germany, UK, U.S. US Census Bureau (2023a). NES Tables. https://www.census.gov/programs-surveys/nonemployer-statistics/data/tables.html (accessed on 07.09.2023).

UN, United Nations (2022). 2022 Revision of World Population Prospects. https://population.un.org/wpp/ (accessed on 09.10.2023).

US Census Bureau (2023b). SUSB Tables. https://www.census.gov/programs-surveys/susb/data/tables.html (accessed on 07.09.2023).

US Census Bureau (2020). Annual Business Survey 2020. https://data.census.gov/table?q=ab2000*&tid=ABSCB2020.AB2000CSCB04&nkd=BUSCHAR~A1:BM:BN:BO,EMPSZFI~652:657,QDESC~B02,RACE_GROUP~00,SEX~001,VET_GROUP~001 (accessed on 03.09.3023).

US Census Bureau (2017). County Business Patterns and Economic Census. https://www.census.gov/data/tables/2017/econ/susb/2017-susb-annual.html (accessed on 02.09.2023).

WFE (2023). Market Statistics – February 2023. https://focus.world-exchanges.org/issue/february-2023/market-statistics (accessed on 15.08.2023).

Worldbank (2023). Listed domestic companies, total – United States. https://data.worldbank.org/indicator/CM.MKT.LDOM.NO?locations=US (accessed on 07.09.2023).

zeb (2023a). zeb.ESG Wallet Model, August 2023 Update. zeb internal source.

zeb (2023b). zeb.Wallet Model, August 2023 Update. zeb internal source.

Abbreviations (1/5)

Abbreviation	Explanation
AFME	Association for Financial Markets in Europe
AG	Aktiengesellschaft
AGV Banken	Arbeitgeberverband des privaten Bankgewerbes
AI	artificial intelligence
AIM	alternative investment market
avg.	average
BdB	Bundesverband deutscher Banken
BDI	Bundesverband der Deutschen Industrie e.V.
BME	Bolsas y Mercados Espanoles
BMF	Bundesministerium der Finanzen
bn	billion(s)

Abbreviation	Explanation
BVR	Bundesverband der Deutschen Volksbanken und Raiffeisenbanken
busin.	business
b/w	between
BZSt	Bundeszentralamt für Steuern
CDU	Christlich Demokratische Union Deutschlands
CET1	common equity tier 1
CEO	Chief Executive Officer
CH	Switzerland
CLO	collateralised loan obligation
CMU	Capital Markets Union
corp.	corporate
CRE	commercial real estate

Abbreviations (2/5)

Abbreviation	Explanation
CSU	Christlich-Soziale Union in Bayern
DAI	Deutsches Aktieninstitut
DC plan	defined contribution plan
DE	Germany
DG Bank	Deutsche Genossenschaftsbank
DIHK	Deutscher Industrie- und Handelskammertag e.V.
Dr.	doctor
DSGV	Deutscher Sparkassen- und Giroverband
Dt. Börse	Deutsche Börse
DZ Bank	Deutsche Zentral-Genossenschaftsbank
EBA	European Banking Authority
EC	European Commission

Abbreviation	Explanation
ECB	European Central Bank
e.g.	exempli gratia / for example
EIB	European Investment Bank
ES	Spain
ESAP	European Single Access Point
ESG	environmental, social and governance
ESMA	European Securities and Markets Authority
esp.	especially
et al.	et alii
etc.	et cetera
ETF	exchange-traded fund(s)
EU	European Union

Abbreviations (3/5)

Abbreviation	Explanation
EUR	Euro
Exch.	exchange
EY	Ernst & Young
FCA	Financial Conduct Authority
FDP	Freie Demokratische Partei
FESE	Federation of European Securities and Exchanges
Fintech	Financial Technology
FR	France
FRED	Federal Reserve Economic Data
FSB	Financial Stability Board
FTE	full time equivalent
GBP	Great British Pound

Abbreviation	Explanation
GDP	Gross domestic product
GDV	Gesamtverband der Deutschen Versicherungswirtschaft
GHG	Greenhouse gas
GmbH	Gesellschaft mit beschränkter Haftung
GSIB	Global systemically important bank
HH	Households
i.e.	id est
IE	Ireland
IMF	International Monetary Fund
Inc.	Incorporated company
incl.	including/include/includes
investm.	investment(s)

Abbreviations (4/5)

Abbreviation	Explanation
IOSCO	The Board of the International Organization of Securities Commissions
IPO	initial public offering
IRS	Internal Revenue Service
IT	Italy
k	thousand(s)
KfW	Kreditanstalt für Wiederaufbau
KG	Kommanditgesellschaft
KPI	key performance indicator
LSE	London Stock Exchange
m	million(s)
n/a	no answer/not available

Abbreviation	Explanation
Nasdaq	National Association of Securities Dealers Automated Quotations
NL	Netherlands
No.	number
NPEX	Nederlandsche Participatie Exchange
N.V.	naamloze vennootschap
NYSE	New York Stock Exchange
OECD	Organisation for Economic Co-operation and Development
%p	percentage point(s)
p.	page
p.a.	per annum
pot.	potential
pp.	pages

Abbreviations (5/5)

Abbreviation	Explanation
PPP	purchasing power parity
priv.	private
PwC	PricewaterhouseCoopers
RWA	Risk-weighted assets
S.A.	Société Anonyme
SE (company)	Societas Europaea
SE (country)	Sweden
SIFMA	Securities Industry and Financial Markets Association
SIX	Swiss Infrastructure and Exchange
SME	small and medium enterprises
SNB	Swiss National Bank
SPD	Sozialdemokratische Partei Deutschlands

Abbreviation	Explanation
SRT	significant risk transfer
SSD	Schuldscheindarlehen
STS	simple, transparent, standardised
tr	trillion
UK	United Kingdom
US	United States of America
USD	US-Dollar
VC	venture capital
WGZ Bank	Westdeutsche Genossenschafts-Zentralbank
WFE	World Federation of Exchanges
Xetra	Exchange electronic trading

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