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This document corrects document SWD(2021) 544 final of 9.6.2021

It contains a corrected definition of the green bond indicator (indicator 26) and the revised corresponding numbers for green sovereign and private bond issuances (p. 44). Where the initial data source did not provide full coverage of Italian numbers, missing numbers for Italy were added from a second source (indicator 2, 3 and 6). Several charts were replaced because of inaccuracies detected in the underlying data set after publication. In few cases, this led to an alignment of which and in which order the text refers to Member States.

COMMISSION STAFF WORKING DOCUMENT

Monitoring progress towards a Capital Markets Union: a toolkit of indicators

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LIST OF ABBREVIATIONS

AFME	Association for Financial Markets in Europe
BI	Borsa Italiana
CCAF	Cambridge Centre for Alternative Finance
CEE	Central and eastern Europe
CMU	Capital Markets Union
ECB	European Central Bank
EIB	European Investment Bank
EIOPA	European Insurance and Occupational Pensions Authority
ELTIF	European long-term investment fund
ESMA	European Securities and Markets Authority
EU	European Union
ESG	Environmental, social and governance (factor)
ETF	Exchange-traded fund
EUR	Euro
FESE	Federation of European Stock Exchanges
GDP	Gross domestic product
HFCS	Household Finance and Consumption Survey
IMF	International Monetary Fund
IPO	Initial public offering
JRC	Joint Research Centre
LEE	London Economics Europe
MFI	Monetary financial institution
MiFID/R	Markets in Financial Instruments Directive/Regulation
NFC	Non-financial corporation
NPL	Non-performing loan
OECD	Organisation for Economic Co-operation and Development
SAFE	Survey on Access to Finance of Enterprises
SIFMA	Securities Industry and Financial Markets Association
SME	Small and medium-sized enterprise
STS	Simple, transparent and standardised securitisation
SWD	Staff working document
UCITS	Undertakings for collective investment in transferable securities
USD	United States dollar
WB	World Bank
WEF	World Economic Forum

Monitoring progress towards a Capital Markets Union: a tool kit of indicators

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1 INTRODUCTION

The Commission announced in the 2020 Capital Markets Union (CMU) action plan[2] that it will complement its regular reporting of progress on legislative and non-legislative action with monitoring of how EU capital markets are evolving towards the CMU, based on a set of targeted indicators. In the 2020 December Council Conclusions on the Commission's Capital Markets Union Action Plan, the Council further stressed the importance of developing clearly defined and adequate indicators[3]. Various reports prepared in the run-up to the 2020 CMU action plan[4] and the European Court of Auditors recommended the Commission establishes indicators to track progress with CMU[5]. By developing a tool kit of indicators, the Commission services are responding to the Council's request and the recommendations of the European Court of Auditors. While the European Parliament's own initiative report on the CMU does not suggest the creation of an explicit monitoring tool, it identifies various fields in which enhanced monitoring is warranted[6].

This staff working document introduces and explains a set of indicators that the Commission services will use to monitor progress towards accomplishing the objectives of the CMU. By tracking overall progress towards the key CMU objectives, the CMU indicators will complement evaluations and impact assessments of individual measures under the CMU action plans. In contrast to the CMU indicators, these reviews provide a targeted assessment

[1] We like to thank all institutions, associations and firms for their kind cooperation, the permission to use and show their data, the provision of meta data and willingness to explain and discuss the data.
[2] COM(2020)590 final.
[3] Council Conclusions of December 2020 (12898/1/20).
[4] For example, the High-Level Forum on capital markets union and the Next CMU High-Level Group in their reports published June 2020 and October 2019, respectively.
[5] European Court of Auditors, Special Report 25/2020, *Capital Markets Union – Slow start towards an ambitious goal*.
[6] European Parliament, Committee on Economic and Monetary Affairs, Rapporteur Isabel Benjumea (2020/2036(INI)), *Report on further development of the Capital Markets Union (CMU): improving access to capital market finance, in particular by SMEs, and further enabling retail investor participation*.

of the effectiveness, efficiency and coherence of individual measures, based on the available quantitative and qualitative information.

The indicator set builds on the experience drawn from earlier work on the CMU indicators that aimed to track the development of capital markets, as well as on the results of an external study that analysed the work done by academics and think tanks on measuring progress on capital market development. The Commission envisages updating the indicators once per year. As indicators are sensitive to factors other than the effects of new legislation, in particular to economic cycles, financial turmoil and geopolitical developments, the interpretation of annual changes in the indicators will require caution. Nevertheless, the publication of the CMU indicators is timely, as the impact of the first CMU measures[7] becomes gradually visible in data. This staff working document seeks to explain the motivation behind, and the meaning and caveats of, the selected CMU indicators.

The purpose of the CMU indicators is threefold:

- monitor progress towards the CMU objectives;
- provide a framework for the analysis of capital market development and an empirical basis for future analysis of the overall impact of past CMU measures; and
- help identify the areas where existing policies may need to be adjusted or new policies may need to be developed.

In the development of the CMU indicators, the Commission relied on the results of the study, commissioned in 2019 from London Economics Europe (hereinafter 'LEE (2020)'). The contractors were asked to propose both the indicators that would assess progress towards the ultimate CMU objectives (*output indicators*) and the indicators that would provide insight into the factors that policies could influence (*input indicator*s). The contractor had to: (i) identify possible existing indicators based on a review of the relevant literature; (ii) discuss their suitability with academics, market participants and other stakeholders; and (iii) analyse systematically statistical, theoretical and empirical properties of the data. Based on this work, the contractors were to suggest a list of suitable indicators. This study has now been completed and published on the Commission's website[8]. It provides a selection of the indicators, supported by empirical evidence consistent with the CMU objectives.

This staff working document presents the selected CMU indicators based on the results of the study and further analysis by the Commission. The indicators should: (i) strongly relate to the CMU objectives; (ii) be ideally available for all EU Member States; and (iii) cover the period since 2015. This CMU indicator set will be dynamic to allow for future integration of new indicators, especially with regard to green and digital finance, once data become available.

[7] COM(2015)468 final and COM(2017)292 final.
[8] https://op.europa.eu/en/publication-detail/-/publication/18a5d45e-3385-11eb-b27b-01aa75ed71a1/language-en.

2 RATIONALE & METHODOLOGY

2.1 Design principles

The indicator set contains indicators to monitor trends in the EU capital markets that are relevant to the three overarching objectives of the CMU, as set out in the 2020 CMU action plan:

i. making financing more accessible to the EU companies;
ii. making the EU an even safer place for individuals to save and invest long-term; and
iii. integrating national markets into a genuine single market[9].

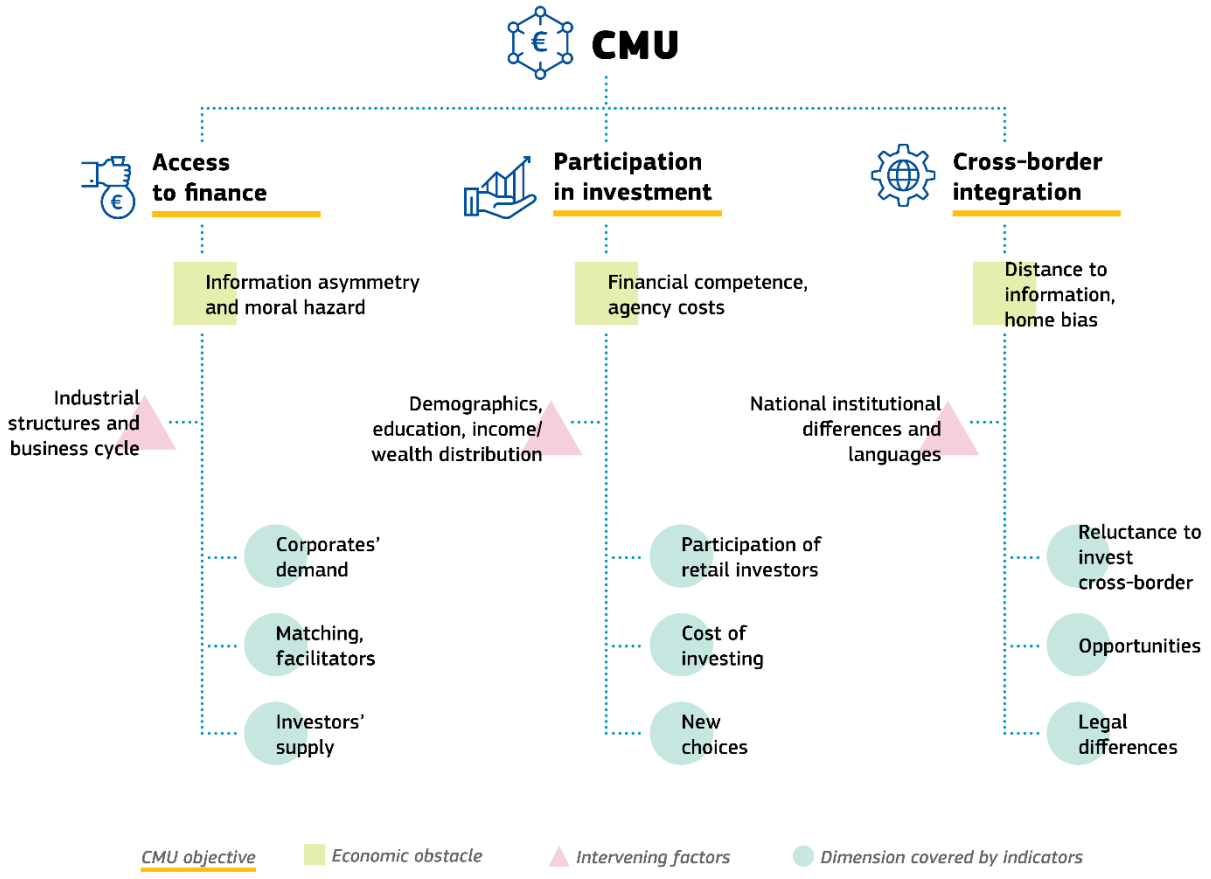
The selection of indicators is primarily determined by their link to these CMU objectives. Economic research establishes a number of factors that could affect these objectives. Furthermore, LEE (2020) provides an exhaustive mapping of the CMU objectives and possible indicators.

Many of the factors that determine capital market development are beyond the direct control of public policies. For example, cyclical factors and industrial structures are key to understanding to what extent and in which form firms use different funding instruments. The distribution of wealth and income, design of the public social security system, age structure and education have a decisive say on a household's saving behaviour, while national traditions and language represent a natural barrier to cross-border investment (ovals in Figure 1 represent factors the CMU needs to take as given).

Economic theory also identifies a number of factors that could affect the CMU objectives. These factors reflect predominantly aspects related to the underlying information and incentives that borrowers, lenders and intermediaries have to overcome. The capacity to cope with asymmetric information and moral hazard has a strong influence on whether debt or equity is chosen, or whether investment occurs directly or via an intermediary. These factors are influenced primarily by the nature of the investment project and the investee's characteristics (green boxes in Figure 1 denote what factors indicators ideally represent). As further explained below, the dimensions covered by available statistical indicators (blue boxes in Figure 1) are loosely linked, if at all, to these microeconomic factors and inform only indirectly about the underlying incentive and information issues.

[9] As political priorities shifted in a changing environment, the three overarching objectives of the 2020 CMU action plan are slightly different yet encompass the six objectives of the first CMU action plan adopted in September 2015. These are: (i) financing for innovation, start-ups and non-listed companies; (ii) making it easier for companies to enter and raise capital on public markets; (iii) promoting investment in long-term, sustainable projects and infrastructure projects; (iv) fostering retail and institutional investment; (v) leveraging banking capacity to support the wider economy; and (vi) facilitating cross-border investing.

Figure 1: CMU objectives, intervening variables and indicator scope



Since the CMU indicators will be used to monitor progress in building a single market for capital or a CMU, their statistical properties have a decisive say on their selection. The CMU monitoring requires a stable and replicable set of suitable indicators. In addition, the underlying data need to be reliable. There needs to be certainty that the data will be reported in the future at regular intervals and a sufficiently small probability that they will be subject to structural breaks or major revisions to the methodology or reporting population, as this will render any comparison and monitoring over time meaningless. While possibly less relevant for official data, these considerations can become very pertinent in cases where indicators rely on data from private sources.

The broad CMU objectives and wide-ranging policy measures suggest that the set of indicators needs to cover a sufficiently wide range of dimensions. The CMU indicators build on a variety of data sources to obtain a holistic perspective on capital market developments over time and across the EU Member States. The underlying data are usually collected for a very different purpose than providing insight into financial structures; the underlying methodologies reflect this different scope. The data sources closest to measuring financial structures are the sectoral national accounts collected by statistical offices. The data collected by central banks and supervisory authorities are also of high relevance. The central bank data collected for monetary policy purposes largely focus on interest rates and market prices relevant for banking. Such data provide a good level of detail for bank credit volumes, but less so for capital market structures. Supervisors collect data from individual entities, often with a concern for financial stability. The data are aggregated across entities, where relevant for macro-financial analysis. Financial associations usually collect data from market players.

Such data provide insight into trends in market size and market shares. They also have the advantage of covering market players or markets that are not on the radar of statistical offices or other public bodies.

Since the first CMU action plan was published in 2015, it seems appropriate to use 2015 as a starting point for the CMU indicators and to focus on how indicators have developed since. It is also a suitable starting point because economic developments stabilised from 2015 until 2020, when the COVID-19 crisis caused a break in economic activity, most likely with an impact on the CMU indicators[10]. An earlier starting point would carry the risk of covering the period when most of the economic and financial developments had been strongly determined by the banking and sovereign debt crisis in the years before.

National policies play an important role in advancing the CMU objectives by complementing the EU actions and by implementing common rules at national level. Hence, the national dimension is essential in assessing the overall progress. National indicators would allow for the monitoring of progress on the development of local capital markets and tracking the impact of additional national measures (including tax incentives). They could also provide insight into how the Member States catch up or fall back in relative terms. Identifying the Member States that have made the most progress in a given area could contribute to the development and sharing of best practices among the Member States. Nevertheless, since capital markets across the Member States differ considerably and their development is subject to country-specific conditions, a simple country ranking would not do justice to different starting positions, opportunities and constraints.

For the reasons detailed below under data caveats, the currently proposed set of indicators cannot cover all relevant policy areas. Since data gaps are evident, the tool kit assumes a dynamic approach and will progressively include new indicators once data become available.

2.2 Conceptual delineations

Since there are numerous perspectives under which capital markets are discussed by academics, the media and the general public, this section clarifies the dimensions that are relevant for the CMU, as well as details some issues that are not covered by the CMU indicators but may also be relevant in the CMU context.

The priority of CMU is the provision of benefits for the users of financial services. Capital markets and banks are the two forms of financial intermediation between **households** as ultimate savers in the economy and **non-financial corporations** as the sector that invests in machinery, technology and intangible capital. The focus on private end users of finance means that there is no prominent role in the CMU for the needs of the public sector, a traditional net borrower on capital markets. While households are treated in the CMU as the ultimate provider of funds to the economy, they also use credit markets to borrow, predominantly for real estate purchases and almost exclusively via bank credit. Non-financial corporations are traditional net borrowers, although many firms accumulate financial assets and the non-financial corporate sector was a net saver in some Member States for several

[10] This SWD presents the indicators based on data up to and including 2020 (or, in some cases, 2019), so the COVID-19 impact might not be fully factored into these indicators.

years.[11] The more efficient the intra-financial allocation, the cheaper can intermediaries provide financial services to end users.

Although the CMU objective in itself is not about maximising financial activity or the size of capital markets, the size of financial markets matters for economic growth. The economic literature that analyses the factors behind differences in economic growth from a cross-country perspective has shown that the size of financial markets has a positive impact on economic growth. Since the CMU's starting point was the premise that EU capital markets are smaller in international comparison or relative to the share of banks in the EU financial sector, a number of the CMU indicators nonetheless rely on a measure of size. This implicitly assumes that the relevant market or activity is smaller or lower than would be optimal.

The theoretically proper approach to determine the optimal size of efficient capital markets, or at least to measure their benefits to the economy, would be through the amount of money the users of financial services spend on financial services. In an open and competitive market, their payments would reveal the utility they attach to the financial services they use. Measuring this amount is conceptually possible through the value added in the national accounts statistics. In practice, value added data are not granular enough to allow for it[12]. Furthermore, both the low interest rates and the increasing use of technology in finance would render this measure difficult to interpret.

A large share of capital flows and risk allocation occurs within the financial sector and helps facilitate the intermediation of capital from savers to investors. A large share of intra-financial activity takes place in financial centres, which means that the size of financial centres is more representative of intra-financial activity than of the benefits for the ultimate users of financial services. Hence, the competitive position of financial centres has no prominent role in the CMU indicators.

2.3 Caveats on the use of indicators

While CMU indicators are useful to monitor progress towards the CMU objectives, interpreting and using them correctly depends on a clear understanding of their limitations.

2.3.1 Data availability and quality

Data availability is a key constraint on the establishment of a coherent and robust set of indicators. The screening of the universe of indicators used by academics or think tanks to track capital market structures performed in LEE (2020) revealed a number of aspects in this respect.

- Limits to the geographical or time coverage, or limits related to access to data, render many indicators less useful for monitoring purposes. LEE (2020) also showed that

[11] The NFC sector in the EU-27 was a net acquirer of financial assets in 2015, 2016 and 2017. In Denmark, Spain and the Netherlands, it was a net acquirer in each year from 2009 to 2019.
[12] A practical complication stems from banks providing services that relate to lending and deposit taking, as well as to capital market activities.

although there is a wealth of financial data, there is relatively limited reporting on financial structures and in particular on the level of integration[13].

- Not all data can be sourced from public institutions. The use of private data sources is unavoidable in several circumstances and the Commission has limited means to verify whether such data are reliable enough to ensure the stability of definitions or continuous availability. LEE (2020) identified issues with coverage, data quality and other potential limitations of many available indicators. This is mostly the case for data covering specific financial industries. Such data are usually sourced from private entities such as industry associations, which collect the data from their members on a voluntary basis and often without appropriate verifications of their reliability or accuracy. There are also gaps in both private and public statistics with regard to country coverage. For example, the ECB has some data for the euro area, which are not available for Member States with national currencies.
- Some indicators have an ambiguous link to the CMU objectives, and only for few indicators could a sufficient empirical relationship to the CMU objectives be clearly demonstrated[14]. Especially, *input indicators* often have a weak empirical link to *output indicators*. Such a weak link would imply that even where some *input indicators* (such as the number of debt instruments in circulation or the level of assets under management of EU funds) were rising, the *output indicators* – or the primary CMU policy objectives (such as companies' access to financing) – would not necessarily improve. The study found that it therefore is necessary to use *intermediate indicators* to bridge the gap between *input indicators,* on the one hand, and *output indicators* that provide insight into the delivery on the CMU objectives, on the other. These *intermediate indicators* could give an indication of the strength of financial activity and the size of financial markets, but are still too broad to draw any meaningful policy conclusions on the effectiveness of agreed policy measures.
- After having screened almost 150 possible indicators, LEE (2020) came up with only 39 *indicators* with an empirically proven link to the CMU objectives. A significant share of indicators (87) was rejected because of data quality or continuity, problems in accessing the data and poor theoretical links to the CMU objectives. A further 25 or so indicators were discarded because it was not possible to demonstrate a sufficient empirical link to the CMU objectives. The list of indicators in LEE (2020) was used as a starting point for developing the CMU indicators, set out in this document.

2.3.2 Time lags

The overall impact of legislative and non-legislative actions announced under the successive CMU action plans will necessarily occur with a delay. This is because the negotiation between the co-legislators on legislative proposals takes time. In the case of directives, these further need to be transposed in national legislation, which takes more time than in the case of directly applicable regulations. Lastly, any legislation enters into force only after a delay, to allow market participants to prepare for its implementation. Its impact will therefore be felt

[13] For example, while there is a host of timely, even real-time information on financial prices, there are far fewer data on financial volumes and financial structures. Market participants usually act as price takers, which means the information shaping their decisions consists of price data (they need not and do not pay attention to aggregate data and trading volumes). Financial online resources are accordingly rich in information on financial prices.

[14] LEE (2020) applied a more generous 20% threshold than the 5% criterion applied in the academic literature to classify a variable as significant.

only after a longer period. The European Court of Auditors, when assessing progress on the CMU in its 2020 Special report on the CMU[15], acknowledged that all legislative proposals announced in the 2015 CMU action plan had only been implemented very recently or were still in the process of being implemented. Those measures may thus only now start to influence financial activity. The impact of the legislative actions announced under the 2020 CMU action plan will logically also take time to materialise.

In addition to the time lag with which any new legislation is implemented, there are time lags in reporting statistics. As an example, the most comprehensive sources of data on financial structures are audited balance sheets typically released more than 6 months after the reporting date[16] and transactions in financial assets generally published 5 months after each quarter end.

Furthermore, even if the legislative framework is becoming more conducive to capital markets, legal changes often affect actual financial activity with a lag and only gradually. In this context, the preponderance of bank-originated financing in the EU financial system may have led to companies being predisposed to rely more on bank lending and debt funding[17]. Structural inertia is thus likely to increase the lag with which the impact of legislative changes becomes visible. For example, where actions have been taken to facilitate access to market funding, and in particular to equity and risk capital, the data would at first show only a marginal improvement for most innovative or fast-growing firms[18].

2.3.3 Impact of exogenous and non-structural factors

The vast majority – if not all – of the selected indicators will be heavily influenced by factors other than the measures taken under the CMU initiative. Most of them have been and will be subject to other economic and market developments (e.g. the 2008/2009 financial crisis, central banks' purchase of bonds, Brexit, COVID-induced lockdown), or policy action in other areas. Therefore, it is difficult to disentangle the impact of CMU measures from the impact of other factors.

Neutralising the impact of cyclicality and short-term volatility is necessary when analysing structural changes. That is why the relevant economic literature on the link between finance and growth usually uses decades of statistics, often taking 5-year averages as relevant observations[19]. Cyclicality and short-term volatility will thus also need to be taken into account when analysing CMU indicators – these are complicated as part of an annual monitoring exercise.

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[15] European Court of Auditors (2020), *Capital Markets Union – Slow start towards an ambitious goal, Special Report*, Luxembourg 2020.

[16] 2020 data are expected for autumn 2021. Non-consolidated data are currently available until Q4 2020. The data, however, suffer from double entries, for example on equity holdings by firms of other firms.

[17] This argument is made in de Guindos, L., Panetta F. and Schnabel I., 'Europe needs a fully fledged capital markets union – now more than ever', *ECB Blog*, 2020. https://www.ecb.europa.eu/press/blog/date/2020/html/ecb.blog200902~c168038cbc.en.html.

[18] See Brutscher, P-B., and Hols C., 'The corporate equity puzzle', *EIB Working Paper* 2018/03, 2018, https://www.eib.org/attachments/efs/economics_working_paper_2018_03_en.pdf.

[19] For example, Beck, T., and Levine R., 'Industry growth and capital allocation: does having a market- or bank-based system matter?', *Journal of Financial Economics*, Vol 64, No 2, 2002, pp. 147–180. With a focus on Europe, Langfield, S., and Pagano M., 'Bank bias in Europe: effects on systemic risk and growth', *Economic Policy*, Vol. 31, No 85, 2016, pp. 51–106. More recently, Chu, LK., 'Financial structure and economic growth nexus revisited', *Borsa Istanbul Review*, Vol. 20, No 1, 2020, pp. 24–36.

Several other factors will have to be taken into account and – to the extent possible – neutralised when interpreting the evolution of CMU indicators. That includes sharp variations in asset valuations where division by nominal GDP does not always provide a sufficient correction for valuation effects. Financial transactions may also be so volatile that even annual observations are difficult to interpret. In addition, individual large-scale transactions occasionally leave a significant imprint on country-level numbers, particularly in smaller economies.

2.3.4 Data comparability across countries

Although the statistical data allow data comparability within the EU, Member States differ in terms of the state of maturity of their respective capital markets, the role capital markets play in their economy, and their legal frameworks and industrial structures. Country rankings used by various publications therefore do not always provide a fair portrait of a Member State's progress. The Member States with the best performance may therefore provide an indication of what can in principle be accomplished. However, they would shed no light on whether and to what extent this 'best performance' is conditional on factors such as GDP per capita, industrial structure or other determinants. Control for these factors may be possible for some, but not for all indicators.

Benchmarking EU indicators against indicators of non---EU countries, notably those of the United States, Japan or China, also poses significant difficulties. While accounting standards and methodologies for constructing financial statistics are sufficiently uniform among the EU Member States, data from other jurisdictions are often not available or not comparable because different methodologies are used. Different history, tax regimes and legal traditions also impair the usefulness of cross-country comparisons as countries have different starting positions and thus different scope for developing capital markets. Therefore, while it would have been interesting to benchmark EU performance against the performance of global peers, adding global indicators to the set of indicators offers limited value. Nevertheless, statistics compiled by global institutions such as the World Bank and the World Economic Forum (see Section 2.3) are comparable. Furthermore, the annex shows comparisons between the EU-27 and non-EU countries for a few indicators using OECD data. Finally, qualitative and more high-level comparisons with third countries are possible and should be used for general reporting purposes outside the indicator tool kit.

2.3.5 A holistic perspective

Finally, one indicator should not be looked at in isolation from other indicators. On the contrary, the set of indicators selected under each objective of the CMU action plan is meant to cover different angles of information, which, taken together, help form an assessment of the recent developments in capital markets as well as the broader macroeconomic environment relevant to a specific CMU objective.

3 INDICATORS

This section presents the indicators for monitoring progress towards each of the three main objectives of the 2020 CMU action plan. It discusses the rationale for selecting these

indicators and their possible limitations, documents the data and methodology used and explains the development of each indicator since 2015.

3.1 Objective 1: make financing more accessible to European companies

3.1.1 Overview of indicators on access to finance

Improving the access of firms to non-bank funding has been a key objective of the CMU since the initiative was launched in 2015. The 2015 action plan approached this objective from a number of angles (financing for innovation, start-ups and non-listed companies; making it easier for companies to raise capital on public markets; leveraging banking capacity to lend; investing long-term and sustainably). In contrast, the 2020 action plan put more emphasis on conditions for small and medium-sized enterprises (SMEs).

This section presents the indicators that will provide insight into access to funding, explaining first their definition and motivation, and then reporting on the latest trends and cross-country observations. Details, data limitations and caveats are explained in the annex. The indicators in this section are in the table below. Figure 2 below puts them into the context of economic dimensions.

#	Indicator	Description	Data source
1	Corporates' use of market funding relative to bank funding	Sum of volume of corporate bonds and listed shares by non-financial corporations relative to the sum of volumes of those two and bank loans to non-financial corporations	Eurostat, Annual sector accounts, ECB balance sheet items
2	Size of public equity primary markets	Value of annual IPOs to nominal GDP	FESE, Eurostat National Accounts
3	Size of public SME equity primary markets	Value of annual SME IPOs relative to nominal GDP	FESE, Eurostat National Accounts
4	Size of corporate bond markets	Value of annual corporate bond issuances relative to number of large firms	ECB, Eurostat National Accounts
5	Breadth of public equity markets	Number of instruments (shares) relative to nominal GDP	ESMA
6	Breadth of public SME equity markets	Number of instruments (SME equity) relative to nominal GDP	ESMA
7	Breadth of bond markets	Number of instruments relative to nominal GDP	ESMA
8	Liquidity on equity markets –	Median bid-ask spread (equity)	Refinitiv/LSEG
9	Liquidity on SME equity markets	Median bid-ask spread (SME equity)	Refinitiv/LSEG
10	Liquidity corporate bond markets	Median bid-ask spread (corporate bonds)	ESMA with Markit data
11	Inflows in private equity markets	Value of annual private equity investment relative to nominal GDP	Invest Europe, Eurostat National accounts
12	Institutional investors' presence (equity holdings of insurers)	Sum of equity investment and investment into equity funds and private equity	EIOPA asset exposure

		funds relative to the total assets of insurance corporations	
13	SME use of equity	Share of SMEs issuing equity	EC/ECB SAFE
14	Scarcity of equity for SMEs	Equity gap: The share of firms in need of equity minus the share of firms for which equity is accessible	EC/ECB SAFE
15	SME research	Share of SMEs with listed shares covered by analysts	Refinitiv/LSEG
16	Venture capital	Value of annual venture capital investment relative to nominal GDP	Invest Europe, Eurostat National accounts
17	Breadth of venture capital investor base	Herfindahl index	Invest Europe
18	Securitisation	Value of outstanding amount of securitisation instruments relative to bank loans to non-banks excluding governments	Association for Financial Markets in Europe, ECB Balance sheet items
19	Covered bonds	Value of outstanding amount of covered bonds relative to bank loans to non-banks excluding governments	Covered Bonds Council, ECB Balance sheet items

Figure 2: Access to funding: dimensions covered by the CMU indicators

	Demand for market funding	**Matching, facilitators**	**Supply of market funding**
(non-financial) Corporations' bonds and shares	Use of listed shares and bonds relative to bank credit	Size, breadth and liquidity of secondary markets Private equity investment	Institutional investors' equity holdings
Financing of small and medium-sized enterprises	Use of equity Equity gap	Size, breadth and liquidity of SME equity markets, SME research, Venture capital	Breadth of venture capital investor base
Banks' lending capacity		Securitisation Covered bonds	

3.1.2 Information about the individual indicators and what they show

As an alternative to bank lending, companies can obtain short- and long-term funding by issuing securities on capital markets, whether in the form of equity or debt. Indicators relate to the actual use companies make of these financial instruments and key determinants related to scale effects on secondary markets, the investor potential and legal parameters conducive to the use of market funding.

Building on measures from the 2015 CMU action plan and the 2017 mid-term review that have already been implemented, the 2020 CMU action plan includes several measures to improve access to funding for firms, in particular SMEs. Their implementation should have a positive impact over time on the indicators presented in this section. The European Single Access Point will be of direct benefit to European firms, as it will make them more visible for cross-border investors and make it easier for them to raise funds, even more so if listing rules on public markets can be further simplified[20]. Several actions will also encourage investors, in particular institutional investors, to invest long-term and in equity. This is the case notably for the review of the Regulation governing European long-term investment funds (ELTIFs), the review of the prudential regime for insurance and reinsurance undertakings in the EU (Solvency II). The review of the rules for securitisation will also aim to foster banks' lending capacity, in particular to the benefit of SMEs. There will also be assessment of the merits and feasibility of introducing a requirement for banks to direct SMEs whose credit application they have turned down towards providers of alternative funding. The creation of a consolidated tape would improve market transparency and allow for better tracking of liquidity and better pricing conditions on secondary markets for all market participants, including retail investors and SME-specialised brokers.

3.1.2.1 Non-financial corporations' use of market funding relative to bank funding

Indicator 1: Sum of listed shares and corporate bonds issued by non-financial corporations (NFCs) relative to the sum of those two and bank loans to NFCs in %

The first indicator to monitor progress on the 'access to finance' objective of the CMU action plan focuses on how listed shares and corporate bonds evolved in the funding structure of NFCs. Listed shares and bonds are the two main capital market instruments. Their share in the total funding of NFCs has emerged as the standard gauge of financial structures used in the academic literature on the link between finance and growth[21]. Empirical studies in this area usually take the sum of stock market capitalisation and outstanding bonds as a measure of market funding and define the total funding as the sum of these two plus a measure of private credit. The total funding of NFCs divided by GDP is the standard metric of the size of the financial system, while the ratio of market funding to the total funding has emerged as the metric of financial structures. While the evidence whether a larger financial system is conducive to economic growth is not unambiguous, there is good support for the case that a more market-oriented financial structure is[22].

The Commission uses a comparable indicator to monitor the importance of market funding for NFCs in the EU, using the same ratio but focusing on listed shares and corporate bonds relative to bank loans. This serves to measure to what extent NFCs shift from bank lending to capital market instruments. It has two implications. First, as this CMU indicator focuses on the funding sources of NFCs and not on the overall economy, it does not include a number of financial instruments that are liabilities of other sectors, namely bonds issued by governments and the financial sector, equity issued by financial corporations, and bank loans to counterparts other than NFCs. Second, the indicator does not include financial instruments

[20] Action 2 of the 2020 CMU Action Plan.
[21] See footnote 19 for references to the literature.
[22] See the overview in SWD(2015) 468 and the studies referred to in footnote19, among which Lan Khanh Chu (2020) provides a recent and comprehensive literature review.

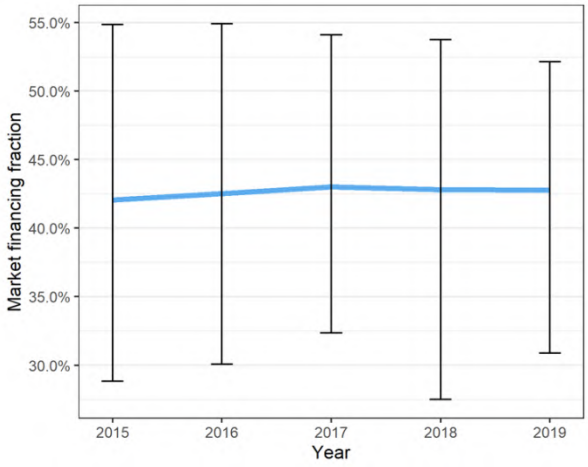
other than bonds and listed shares issued by NFCs and bank loans available to them. It does not capture funding instruments such as trade credit, leasing, intra-firm credit, non-listed equity and loans from non-banks. Table A1 in the annex presents the NFCs' use of other funding instruments. Also noteworthy is the fact that when taking balance sheet data, the ratio is very sensitive to changes in shares' valuations. The indicator used for the tool kit isolates this effect by applying a transaction-based measure (see the annex for more details on this and other indicators).

The evolution of the indicator *NFCs' use of market funding* shows that EU-27 NFCs have slightly increased their reliance on market funding relative to bank lending, with the ratio increasing from 42.1% of their funding in 2015 to 42.8% in 2019. This increase was mainly driven by greater use of corporate bonds, while the use of listed shares remained broadly constant over this period.

Differences across the Member States are large, with the indicator ranging from 7% in Cyprus and below 15% in Bulgaria to about 85% in Ireland and 74% in Luxembourg. These differences largely reflect the varying importance of large firms in national economies (as large companies are more likely to have recourse to market funding). Yet even when large companies have a similar weight in the economy, the indicator still widely varies from one Member State to another. For example, that market funding of NFCs in Austria is much smaller than in Spain despite a comparable share of large firms in the economy, while in Bulgaria it is small in comparison to Slovenia or Slovakia.

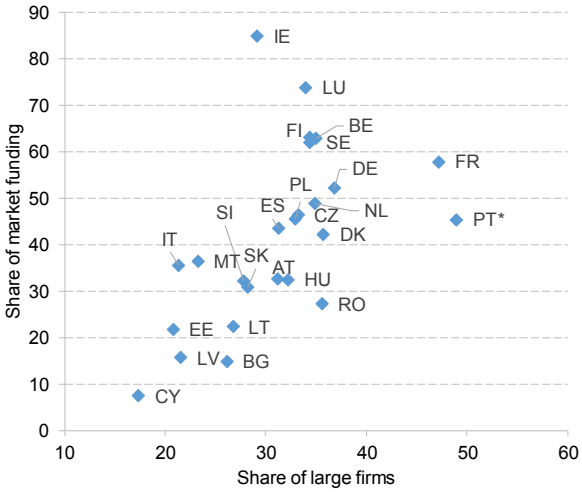
Encouragingly, the situation in Member States with a low market funding ratio in 2015 had been improving until up to 2019. When comparing the Member States over time, it turns out that the share of equity funding actually declined in many Member States, especially the larger ones, including Germany, France, the Netherlands and Sweden. Corporate bond funding, in contrast, declined in fewer countries, in general in smaller Member States, i.e. Slovenia, Denmark, Finland, Austria and Estonia, and in Poland.

Chart 1: Share of market funding of NFCs in the EU-27 and range of Member States (highest and lowest 25%)



Source: European Commission, DG FISMA, based on Eurostat, Annual sector accounts.

Chart 2: Share of market funding of NFCs across Member States 2019



Note: Share of firms with more than 249 employees, 2018 or most recent; for PT the figures are for firms with more than 49 employees[23].
Source: European Commission, DG FISMA, based on Eurostat, Annual sector accounts and Structural business statistics.

The already released non-consolidated data suggest that the COVID-19 crisis dampened the role of market funding for NFCs. Bank lending increased while the public issuance of shares and bonds dropped at least temporarily in early 2020. At that time, only high-quality issuers were able to issue bonds and only firms already present on stock markets were able to tap the market through 'secondary' issuances, while government guarantees fostered bank lending. The magnitude of the decline in the market funding ratio is, however, difficult to quantify as consolidated data are not yet available. EU-27 non-consolidated numbers for 2020 were allegedly strongly impacted by redemptions of listed shares in Ireland and strong issuances of corporate bonds in France. The market funding ratio declined in about two thirds of Member States and, while there were no significant changes in the Member States with the lowest market funding, the ratio fell where market funding was the highest before the COVID-19 crisis set in. Apart from these polar cases, there is no apparent relationship between the starting position and the direction and magnitude of changes.

Although the increase in the *market funding ratio* between 2015 and 2019 was only a small fraction of its 2011-2015 improvement, it marks a structural change. The relationship between corporate bond funding and bank lending changed from substitution to complementarity (see chart A2 in the annex). The strong increase in the ratio from 38% in 2011 to 42% in 2015 is due to declining bank lending, which encouraged firms to seek bond funding. The latter continued when bank lending recovered. This is an encouraging trend. Overall, EU firms are now less dependent on bank lending than they were a decade ago. The ECB's bond purchasing programme has been another significant factor driving the increase in corporate bond issuance. It boosted demand for corporate bonds on secondary markets and is visible in

[23] There is no detailed breakdown for Portuguese firms by firm size between more than 49 and more than 249 persons employed in the Eurostat statistics.

a temporary peak in the *market funding* indicator in 2017 at 43%, shortly after this programme started[24].

When adjusted for the impact of rising share prices, there is no positive contribution of corporate funding through listed shares in the EU-27 over the period 2015-2019. Notwithstanding the difficulty in comparing the EU data to those in other jurisdictions, the available data suggest a similar trend in the US and the UK, but not in Japan, Canada and Norway. Share buybacks and numerous delistings of companies are behind this decline in the contribution of listed shares to NFCs' funding. Oxera (2020) provides a detailed analysis of theories explaining this development on equity markets, backing up the analysis with empirical support[25]. Oxera identified 8 000 large companies in 14 EU Member States that could be listed but are not. If firms with corporate owners were included, the number would rise to 17 000.

Importantly, Oxera (2020) also shows that costs of listing (prospectus, listing fees, as well as legal, accounting and advisory costs) have increased considerably over the last few years, thus explaining to an extent the low contribution of publicly listed equity, as market-based funding, to companies' overall supply of funding[26]. The information on listing costs is based on case studies and ad hoc interviews with market practitioners, putting into question the replicability and adequate coverage of a possible indicator[27]. Hence, while a CMU indicator that would provide insight into issuing costs would be useful, there is at present no possibility to have one.

The annex shows how different possibilities for calculating a *market funding ratio* affect both the level and change of the ratio. It also presents a comparison of the EU-27 with other OECD countries, with a ratio that allows for comparability across countries. It shows a lower *market funding ratio* in the EU than in other OECD countries, and shows hardly any increase in the EU-27 market funding ratio over time when the effect of share price increases is corrected for. This is because it covers total loans on NFCs' balance sheets and not bank loans[28]. While this ratio does not support the notion of rising market funding in the EU, it reveals convergence with other OECD countries since their funding ratio decreased over time when controlled for the effect of rising share prices. The annex provides more details about the underlying calculations.

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[24] The effect of central bank purchases on liquidity is, however, disputed. See Boneva, L., Islami M., and Schlepper K., 'Liquidity in the corporate bond market: has the CSPP made a difference?' *Deutsche Bundesbank Discussion Paper* No 08/2021, 2021, https://www.bundesbank.de/resource/blob/861794/3ce6e1753c0789a0aa33ee20dd9acb07/mL/2021-03-22-dkp-08-data.pdf.

[25] Oxera, *Primary and secondary equity markets in the EU, Final report*, 2020, https://op.europa.eu/en/publication-detail/-/publication/4f38a7ea-27bc-11eb-9d7e-01aa75ed71a1/language-en/format-PDF/source-172197220.

[26] The costs related to the prospectus and listing fees were, however, dwarfed by other direct and indirect costs related to being listed, such as legal, accounting and advisory costs.

[27] The study also considered indicators based on income investment banks receive from underwriting IPOs, indicators based on data surveys, and even indicators based on regulatory filings. These approaches were rejected because neither replicability nor sufficient coverage of indicators can be ensured.

[28] This means that the increase in non-bank lending and the increase in intra-firm lending is counterbalancing the rise in bond issuances. Since the CMU indicator covers bank lending and not other forms of loan liabilities, it is neutral to the rise in credit by firms and other financial intermediaries.

3.1.2.2 Scale effects on capital markets

Indicator 2: Value of annual initial public offerings (IPOs) relative to nominal GDP
Indicator 3: Value of annual IPOs by SMEs relative to nominal GDP
Indicator 4: Value of annual corporate bond issuance relative to number of large firms
Indicator 5: Number of listed share instruments relative to nominal GDP
Indicator 6: Number of SME IPO issuances relative to nominal GDP
Indicator 7: Number of bond instruments relative to nominal GDP
Indicator 8: Median bid-ask spread (shares)
Indicator 9: Median bid-ask spread (SME equity)
Indicator 10: Median bid-ask spread (corporate bonds)

The use of market funding is more attractive when markets are large and liquid, as price discovery is then more efficient and transaction costs are lower. Although market capitalisation and trade volumes on secondary markets are often used as proxies for market size, the link to the actual use of market funding is difficult to establish[29]. This may be due to two specificities of European capital markets. First, trade takes place on many different types of competing trading venues. Organised exchanges are only part of the trading landscape. At the beginning of 2021, there were 281 trading venues registered in the EU and an additional 169 'systematic internalisers' (see Table A2 in the annex)[30]. Market shares of the different trading venues differ significantly depending on whether numbers or volumes of transactions are looked at, and large transactions tend to take place over-the-counter (OTC) and – in the case of bonds – be often split in several small orders. A number of exchanges operate as cross-border groups and issuers are free to choose to list on the trading venue they find the most attractive. Therefore, the numbers used to calculate the indicators per Member State are based on the domicile of issuers, not on where they list their shares or bonds. The indicators therefore show whether firms in a particular Member State make use of market funding, and not the attractiveness of market venues in that country.

Three categories of indicators are used to measure the importance of equity and bond markets: (i) changes in the size of the market, measured through the value of IPOs and of corporate bond issuance; (ii) the breadth of the market, measured through the number of financial instruments; and (iii) the average bid-ask spread over a year (as liquidity metric).

[29] LEE (2020) did not find that any single indicator measures the strength of public market well, since results differed strongly across empirical specifications. While this study found a positive relationship between the share of market funding and a composite indicator that reflects size, costs, volatility, liquidity, home bias, the underlying variables are neither straightforward theoretically, nor empirically.

[30] For a comprehensive analysis of trading in the EU, see ESMA, 'EU securities markets', *ESMA annual statistical report*, 2020.

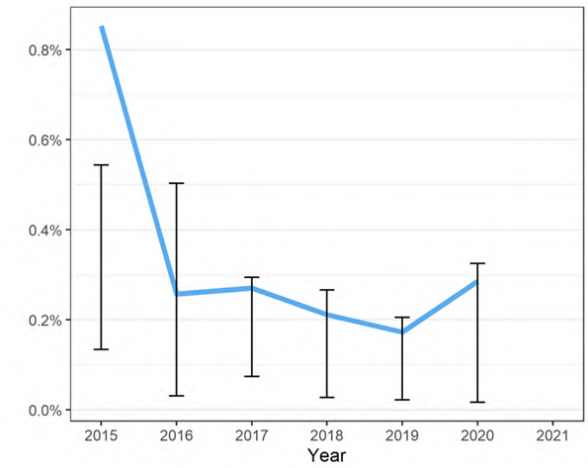
The size indicators reflect the increase in investment opportunities and cover initial public offerings (IPOs), i.e. the first time a corporate lists shares for trading.[31] The data on new issuance provides insight into firms actually making use of equity funding whereas market capitalisation as an alternative metric is sensitive to the valuation effect described in the previous section and hence can be misleading. The number of outstanding financial instruments is a simple gauge of market breadth. It may also be indicative of diversification opportunities for investors. The bid-ask spread is a measure of market liquidity. Typically, the higher the liquidity of a market, the lower the bid-ask spread. Among different liquidity metrics, the bid-ask spread seems to be the most representative of underlying transaction costs. In the case of bonds, Risk Control Limited (2017) found that liquidity would ideally be assessed using a combination of quantity-based and price-based indicators[32].

The value of capital raised through IPOs in the EU declined from 0.9% of GDP in 2015 to 0.2% in 2019. It bounced back somewhat to 0.3% in 2020. Given the volatility of annual capital issuance seen since 2015, it appears premature to read the increase in 2020 as sign of a turnaround or to identify Member States in which a trend reversal could have taken place. The evolution of equity markets' breadth in the EU-27 is broadly the same as that for market size. Large differences between market size and breadth, however, are visible in the cross-country comparison, reflecting the fact that the Member States have different shares of large companies and companies of different sizes make unequal use of equity issuances.

[31] See the annex for a discussion of secondary issuances, i.e. post-IPO capital increases.

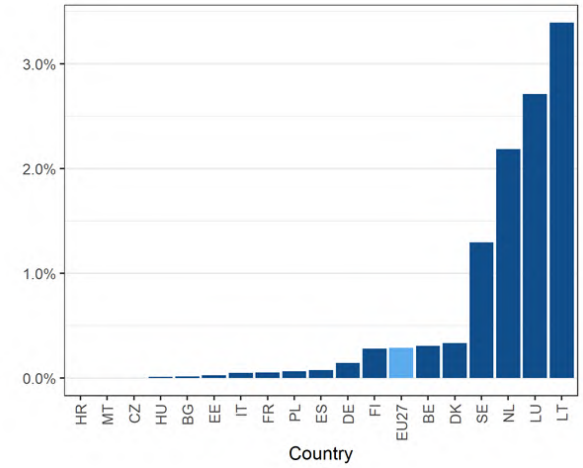
[32] Source: Risk Control Limited (2017), *Drivers of corporate bond market liquidity in the EU*, https://ec.europa.eu/info/publications/171120-corporate-bonds-study_en.

Chart 3: Value of initial public offerings (IPOs) in the EU-27 and range across Member States in % of GDP (highest and lowest 25%)



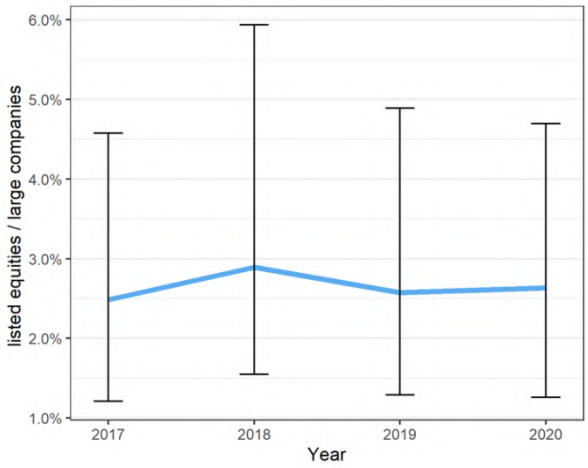
Source: European Commission, DG FISMA based on FESE and BI.

Chart 4: Value of initial public offerings (IPOs) in % of GDP across Member States 2020



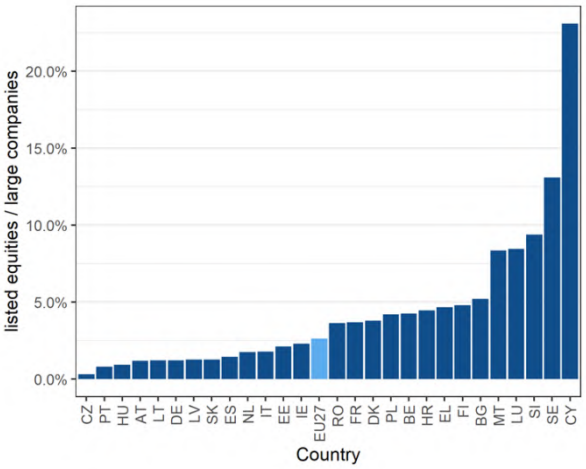
Source: European Commission, DG FISMA based on FESE and BI.

Chart 5: Breadth of public stock markets in the EU-27 and range across Member States (highest and lowest 25%)



Note: Number of companies with listed shares in % of large companies (>250 persons employed).
Source: European Commission, DG FISMA based on ESMA.

Chart 6: Breadth of public stock market across Member States 2020

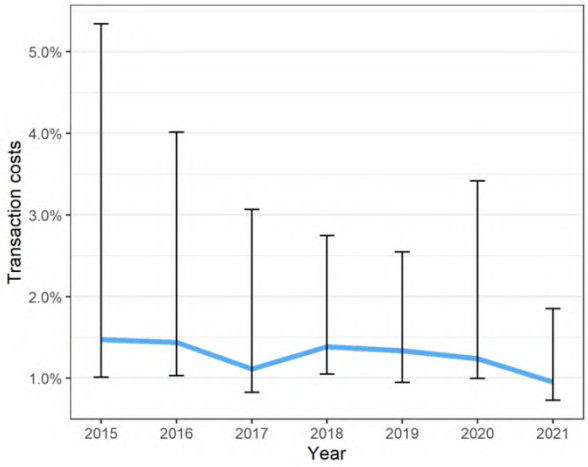


Note: Number of companies with listed shares in % of large companies (>250 persons employed).
Source: European Commission, DG FISMA based on ESMA.

The liquidity yardstick for stock markets is calculated based on the bid-ask spreads of almost 7 500 listed firms in the EU. Liquidity improved, as evidenced by a declining median bid-ask spread across the EU[33]. It became smaller in all Member States and fell strongest particularly where it was among the highest in 2015. For the EU-27 as a whole, the median bid-ask spread fell from about 150 basis points in 2015 to 125 in 2020 and further to below 100 basis points in early 2021. The bid-ask spread for listed SMEs shows similar development over time, albeit from a higher level and with a larger cross-country variation.

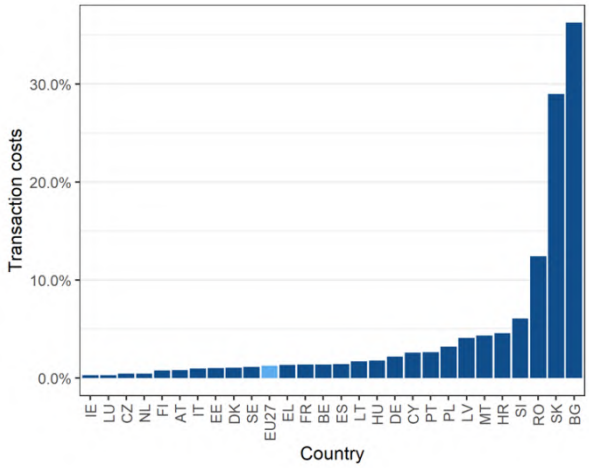
[33] The median is the observation that splits the population in half. It is used when the average is sensitive to the values of outliers.

Chart 7: Bid-ask spread on stock markets in the EU-27 and range across Member States (lowest and highest 25%)



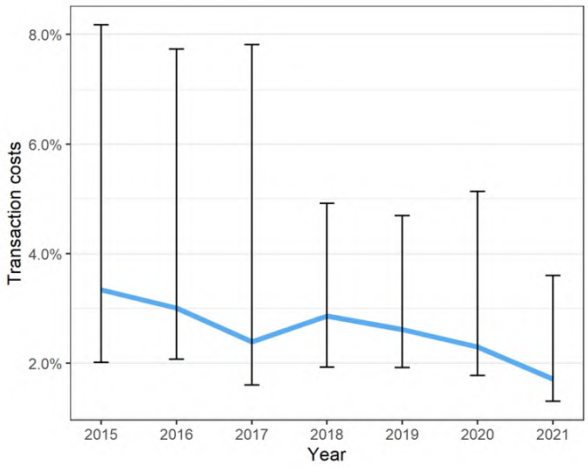
Source: European Commission, DG FISMA based on Refinitiv an LSEG company.

Chart 8: Bid-ask spread on stock markets across EU Member States, 2020



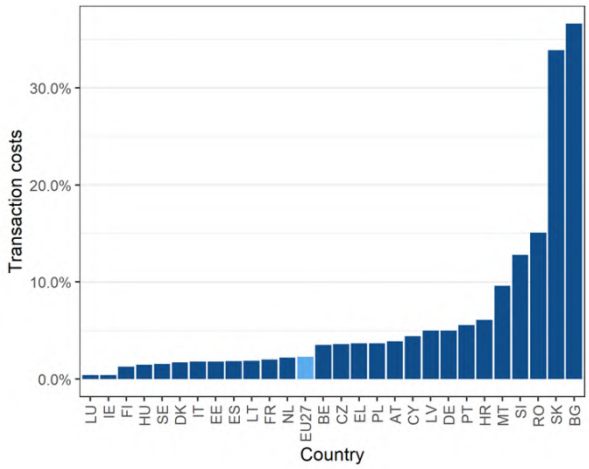
Source: European Commission, DG FISMA based on Refinitiv an LSEG company.

Chart 9: Bid-ask spread on SME stock markets in the EU-27 and range across Member States (lowest and highest 25%)



Source: European Commission, DG FISMA based on Refinitiv an LSEG company.

Chart 10: Bid-ask spread on SME stock markets across EU Member States, 2020



Source: European Commission, DG FISMA based on Refinitiv an LSEG company.

The larger the stock market, the more firms are listed in a Member State and the more trading venues tend to exist, especially trading facilities that are not regulated markets and systematic internalisers[34]. Small economies specialised in financial exports have the highest relative stock market capitalisation, driven largely by quoted financial corporations[35]. Market liquidity as measured through the bid-ask spread tends to be larger (and spreads smaller) the higher stock market capitalisation, but there are also some markets in the EU that combine low stock market capitalisation with low bid-ask spreads.

[34] Under the Markets in Financial Instruments Directive, a trading venue is defined as a regulated market, a multiple trading facility (MTF) or an organised trading facility (OTF). A systematic internaliser is defined as an investment firm which, on an organised, frequent systematic and substantial basis, deals on its own account when executing client orders outside a regulated market, an MTF or an OTF without operating a multilateral system.

[35] Luxembourg, Ireland and Cyprus have the highest stock market capitalisation relative to GDP among the EU-27 Member States.

Corporate bonds liquidity is very difficult to monitor because of the absence of sufficiently harmonised reporting[36]. The European Securities and Markets Authority (ESMA) in its first statistical report on EU securities markets in 2020 found that the majority of bonds were not traded at all and classified 595 bonds as liquid, of which 19% were corporate bonds[37]. Only 17% of corporate bonds were traded at least once per month. They were mainly traded over the counter or via systematic internalisers. Breaking the sample down into country-specific observations would not lead to a reliable picture. Changes in liquidity metrics over time would more likely be determined by a combination of cyclical factors, changes to the composition of the bond universe and structural factors. At the EU level, ESMA monitors the bid-ask spread of an EU-wide composite index.

3.1.2.3 Investor potential

Indicator 11: Value of annual private equity investment relative to nominal GDP

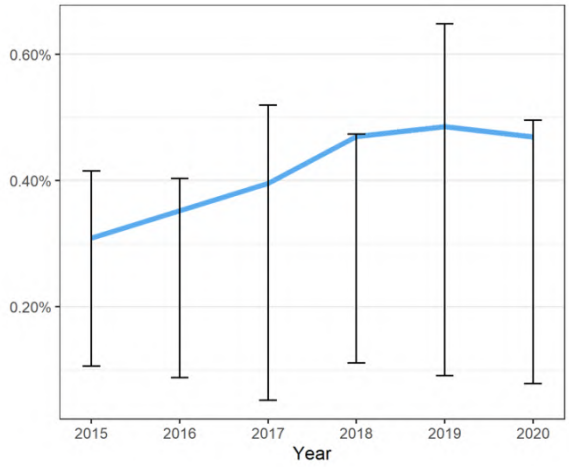
As NFCs have been relying less and less on public equity markets to raise funds, the private equity markets have been growing in importance. Private equity refers to investments in the equity of a corporation provided on a private basis, typically by institutional investors such as pension funds and asset managers (e.g. private equity funds), but also by NFCs, banks, governments or high-net-worth individuals.[38] By investing in private equity, NFCs typically aim to acquire a strategic interest in entities that will generate synergies, and hence strategic, economic and financial benefits for their businesses. [39] Other investors use private equity as high risk investment with high return. The most visible private equity investments target start-ups (SMEs), fast-growing scale-ups and firms subject to buy-out strategies. Economically, a buy-out aims to increase the productivity and financial performance of targeted firms[40].

There are no data on private equity collected from official sources. Data from the industry association Invest Europe is considered the best dataset available[41]. It covers almost all EU Member States since 2007[42]. The data show that EU-27 private equity investment increased from 0.3% of GDP in 2015 to slightly below 0.5% in 2019, reaching again the level recorded before the financial crisis. Country differences are wide and have been increasing over time. In the Member States with relatively high private equity investment, it coincides with weaker or even declining public equity issuances over 2015-2019[43]. Private equity investment, for

[36] For an analysis of corporate bond liquidity in the EU and its measurement, see Risk Control, *Drivers of Corporate Bond Market Liquidity in the European Union*, 2017, https://ec.europa.eu/info/sites/info/files/171120-corporate-bonds-study_en.pdf.
[37] ESMA, *Annual Statistical Report on EU securities markets – 2020*, ESMA-50-165-1355, 2020, https://www.esma.europa.eu/document/asr-eu-securities-markets-2020.
[38] Venture capital is a subset of private equity, dedicated to investment in start-ups and small firms. Indicators 16 and 17 cover venture capital markets.
[39] 2020 data are expected for autumn 2021. Non-consolidated data are currently available until Q4-2020. The data, however, suffer from double entries, for example on equity holdings by firms of other firms.
[40] For a review on studies about the link between private equity and productivity: Gulliver, J., and Jiang W., *The Impact of Private Equity Buyouts on Productivity and Jobs*, Committee on Capital Markets Regulation, 2020, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3672264. For analysis of the link with firms' profitability and investors' returns, see Biesinger, M., Bircan, C., and Ljungqvist, A., 'Value Creation in Private Equity' *EBRD Working Paper* No 242, 2020, https://www.ebrd.com/publications/working-papers/value-creation-in-private-equity.
[41] Like the other private data sources, Invest Europe is not liable for the data it provides.
[42] Outside the EU, country data are available for the United Kingdom, Switzerland, Norway and Ukraine.
[43] Those above 0.5% of GDP. This inverse point is particularly notable for Luxembourg and the Netherlands.

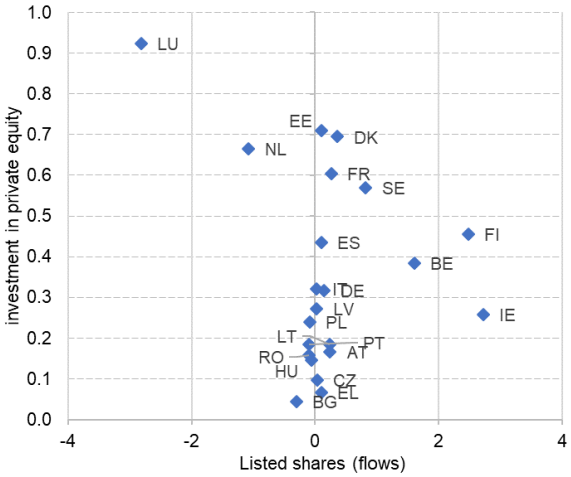
example, picked up between 2015 and 2020 in Estonia, the Netherlands, Portugal and Sweden[44]. Overall, the situation in the EU is comparable to that in other European countries for which data are available[45].

Chart 11: Private equity investment in % of GDP in the EU-27 and range across Member States (lowest and highest 25%)



Note: Private equity investment includes venture capital (indicator 16).
Source: European Commission, DG FISMA based on Invest Europe/ECD.

Chart 12: Investment in private equity and listed shares across EU Member States, average 2015-2019 in % of GDP.



Note: there is not yet a 2020 observation for the flow of listed shares.
Source: European Commission, DG FISMA based on Invest Europe/ECD and Eurostat Annual sector accounts.

Indicator 12: Equity investment by insurance corporations as a % of their total assets

The main function of capital markets is to enable that demand for funding meets its supply. Corporates seeking funds on capital markets, and especially on equity markets, should be able to find investors interested to acquire shares. Insurance corporations and pension funds play an important role in the investor base notably because they are the intermediaries with a long-term investment horizon through which many households save for retirement (see Section 2.2.2). These intermediaries are therefore 'natural' investors in equity. The evidence, however, suggests that a rising market share of long-term investors does not automatically translate into improved long-term funding opportunities for the economy. This is because they tend to allocate a large share of their investment in bank deposits and government debt[46].

Insurance corporations and pension funds are in principle better covered by statistics than other institutional investors. For other institutional investors comparable data of sufficient coverage could not be identified. Furthermore, while it would be preferable to have an indicator covering both investment by both insurance corporations and pension funds, the

[44] A noteworthy increase in 2019 over 2018 is also observable in Norway, Switzerland and the United Kingdom.
[45] Private equity investment in Switzerland and Norway is similar to the average in the EU-27. The UK is comparable to the best EU-27 performers: Luxembourg, the Netherlands, Estonia and Denmark. See Chart A5 in the annex.
[46] See Stewart, F., Despalins R., and Remiova I., 'Pension funds, Capital Markets and the Power of Diversification', *Policy Research Working paper* No 8136, World Bank, 2017, http://documents1.worldbank.org/curated/en/217121499259303193/pdf/Pension-funds-capital-markets-and-the-power-of-diversification.pdf.

proposed indicator only focuses on the insurance sector because similar data for pension funds appear to be not yet comparable across the Member States and across the time dimension.

National account statistics show that the EU-27 insurance corporations and pension funds held EUR 12 trillion in financial assets in 2019, of which EUR 9.7 trillion in tradable securities (listed shares, bonds, investment funds), representing 8% of all holdings of financial assets in the EU-27 and 23% of the tradable securities respectively[47]. Yet the size of these intermediaries varies significantly from one country to another, as it depends strongly on political and social determinants such as the public pension system and population demographics. The indicator selected for the CMU tool kit therefore covers the composition of insurance companies' investment rather than their size. For equity holdings of pension funds, data gaps prevent a meaningful comparison across the Member States or aggregation across the Member States.

The equity investment of insurers for the purpose of the CMU indicator is defined as the sum of direct equity investment plus investment in public and private equity funds. Insurers' equity investment is of importance because the use of equity funding has been weak over the past decade (see above) and the recovery and future economic growth will particularly rely on firms' ability to use equity funding.

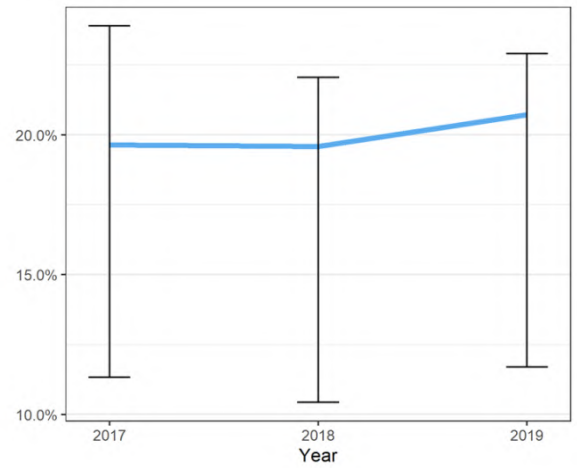
The equity investment by the EU-27 insurance industry has remained within a narrow and moderate range of 19 and 21% of their total assets in 2017-2019 (see chart 11), while their holdings of government bonds amounted to 25% in 2019. Although there has been a slight upward trend for the EU-27 equity investment aggregate over the more recent quarters, i.e. between early 2018 and mid-2020, this was largely driven by insurers in the two largest Member States.

The weight of equity holdings in insurance companies' portfolios is very different from one Member State to another. Yet prudential regulation is comparable across the EU, and therefore the domicile of insurance companies (as well as pension funds) should not have an impact on the importance of their equity holdings. This suggests that there is scope for increased equity holdings by some insurance firms. Insurers' equity holdings are high in Nordic Member States and low in Belgium and the Netherlands. They also tend to be low in Member States that experienced serious sovereign bond market turmoil before the start of CMU. The data also suggest convergence: insurers' equity holdings tend to have increased the most since 2017 in the Member States where they were the lowest in 2017, and to have declined the most in the Member States where they were above average in 2017.

While insurance companies and pension funds also hold sizeable amounts of corporate bonds, it seems not possible to identify which shares of these bonds are held as long-term investment (see annex).

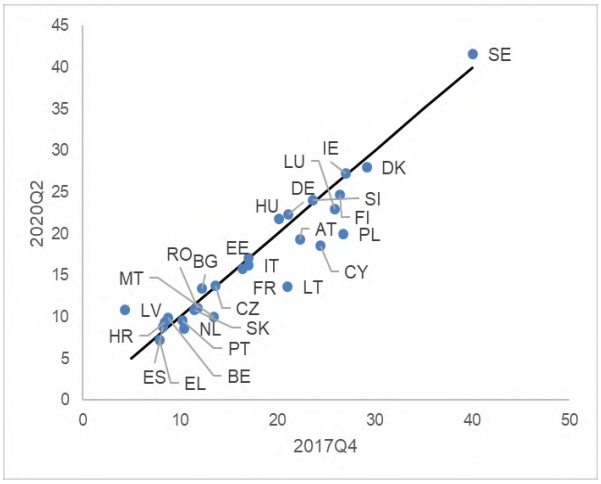
[47] These numbers stem from unconsolidated data of Eurostat's sectoral accounts. The shares are 15% and 36% respectively for data consolidated over the institutional sectors, i.e. including NFCs' and financial corporations' holdings of other NFCs and financial corporation liabilities.

Chart 13: Equity holdings of insurance corporations in % of total investments in the EU-27 and range across Member States (lowest and highest 25%)



Source: European Commission, DG FISMA based on EIOPA asset exposures.

Chart 14: Equity holdings of insurance corporations based on their domicile in % of total investments, 2017 and Q2-2020



Source: European Commission, DG FISMA based on EIOPA asset exposures.

Although cross-country comparison and EU aggregation are impossible for pension funds, the coverage of their equity holdings via investment funds is very different and for those Member States for which such data are available, it suggests that the magnitude of these indirect holdings is too high to be ignored. According to tentative analysis, pension funds seem to allocate a somewhat higher share of their investment to equity than insurance corporations and this share appears to be relatively stable over time. However, observations in some individual Member States tend to differ from what was found for insurance companies. For example, funds in Belgium and the Netherlands have a relatively high equity ratio whereas those in Denmark have a low one (see charts in the annex).

3.1.2.4 SMEs' access to finance

Indicator 13: Share of SMEs issuing equity

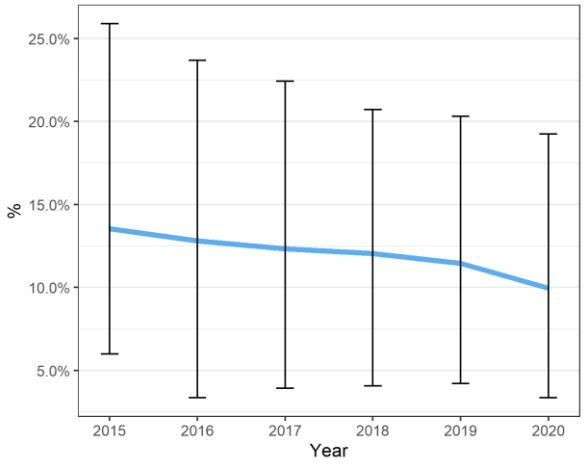
For many SMEs, being able to strengthen their equity base is essential, for a variety of reasons: to ensure their solvency, to finance their growth or to diversify. Yet since raising equity publicly entails relatively high costs, any issuance needs to be large enough for it to be economically justified, thus often representing an amount going beyond the funding needed by smaller firms[48]. That is why access to private equity funding may be an important stepping stone for fast-growing and innovative SMEs that are still too small to list on public markets. Such a firm may be able to find the capital it needs from venture capital funds, private equity funds or business angels. This indicator is broader than indicator 3 as it covers both public and private issuances of equity, whereas the former covers only IPOs, i.e. issuance of shares on public markets.

[48] A recent paper finds evidence that the growth of small, young and research-intense firms is stronger the more capital markets are developed relative to banks; see Didier, T., Levine, R., Llovet Montanes, R., Schmukler, S., 'Capital market financing and firm growth', *Policy Research Working Paper* No 9337, World Bank, 2020 http://documents.worldbank.org/curated/en/879651595862883790/pdf/Capital-Market-Financing-and-Firm-Growth.pdf.

The Survey on Access to Finance of Enterprises (SAFE)[49] is the most prominent and authoritative source on business and financing conditions of SMEs in Europe. SAFE is a joint exercise of the Commission and the European Central Bank. The Commission publishes annual data for all EU Member States and some neighbouring countries. The ECB releases semi-annual data for the euro area Member States.

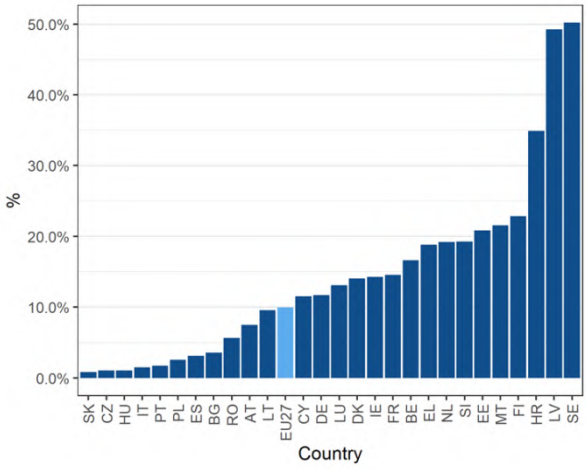
In recent years, firms replying to the SAFE survey indicated that funding was not one of their strongest concerns. Only 10% of the firms participating in SAFE in 2020 said that equity funding was important to them, that they had used it in the past or that they considered using it in the future. This figure was 13.5% in 2015 (see chart 13). Less than 2% of firms reported having actually issued equity in the past half a year. However, two factors suggest that this may change. First, firms face higher corporate debt levels as a consequence of the COVID-19 crisis. Issuing equity will help them keep their indebtedness at bay. Second, the establishment of SME growth markets (under MiFID II) is expected to facilitate access to public equity for smaller firms. A trend reversal is, however, not yet detectable in the SAFE data for the majority of the Member States, nor for the EU as a whole.

Chart 15: SMEs' importance of equity in the EU-27 and range across Member States (highest and lowest 25%)



Note: Share of firms indicating equity is relevant to the firm, that they used it in the past or consider using it in the future.
Source: European Commission, DG FISMA based on EC and ECB SAFE.

Chart 16: SMEs' importance of equity across Member States, 2020



Note: Share of firms indicating equity is relevant to the firm, that they used it in the past or consider using it in the future.
Source: European Commission, DG FISMA based on EC and ECB SAFE.

Indicator 14: Equity gap measured as the share of firms in need of equity minus the share of firms for which equity is accessible

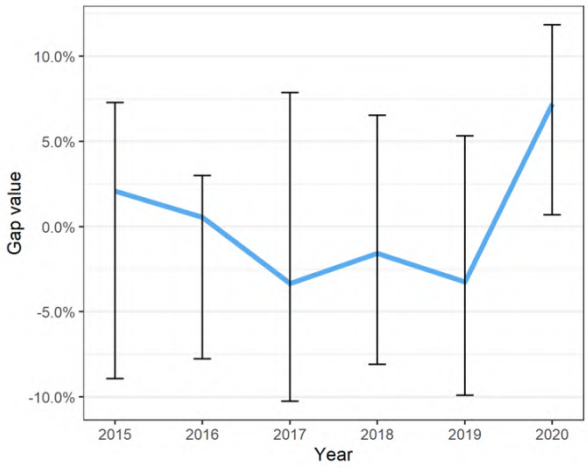
A major SAFE indicator is the external financing gap, which is defined as the difference between the availability of, and the need for, external funding. It is often quoted as the reference for SME financing bottlenecks and enters into various quantifications of SME financing needs (see annex). The calculation of the financing gap, however, includes a broad set of financing sources, notably bank loans and intra-firm credit that are not targeted by the CMU project. A subset of the firms replying to SAFE provide information about the need for,

[49] See https://ec.europa.eu/growth/access-to-finance/data-surveys_en.

and availability of, equity, such information making it possible to calculate an SME equity gap.

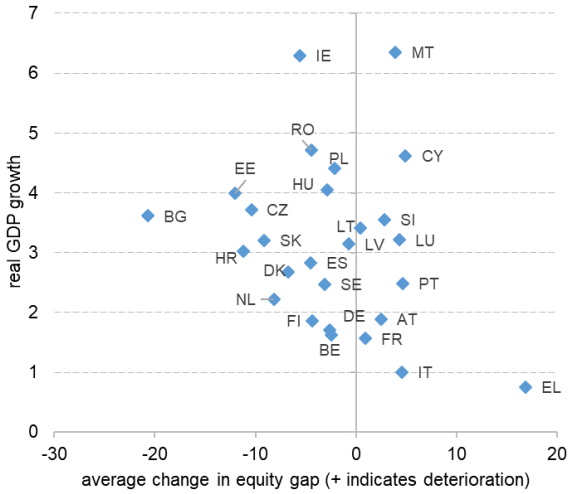
SAFE reveals that, until the COVID-19 crisis, SMEs were more concerned about other problems than funding. In fact, over the last few years, a growing share of firms participating in the SAFE survey had been signalling an improvement in the availability of external funding. In the 2020 survey, the external financing gap was negative in the EU overall and in most Member States, indicating that there was more funding available than what firms needed. The equity gap, which was close to 2% in 2015, also gradually decreased to reach minus 3% in 2019 (chart 15). This improvement was quite widespread in the EU[50] and the differences across the Member States were broadly consistent with the average real GDP growth (chart 16)[51]. However, this improvement in SMEs' access to equity was largely undone as a result of the COVID-19 crisis. The equity gap became positive again in 2020 as it abruptly rose to more than 7% (chart 15), signalling a shortage of equity funding in all Member States, except for a few with a small number of respondents.

Chart 17: SME equity gap in the EU and range across Member States (highest and lowest 25%)



Note: EU-28 until 2019, EU-27 for 2020.
Source: European Commission, DG FISMA based on EC and ECB SAFE.

Chart 18: Change in SME equity gap across Member States and GDP growth 2015-2019



Note: The equity gap of AT, BG, CY, CZ, EE, HU, IT, LU, MT, PT, RO and SK is based on a small panel of firms that provided a response.
Source: European Commission, DG FISMA based on EC and ECB SAFE.

Indicator 15: Share of SMEs with analyst coverage

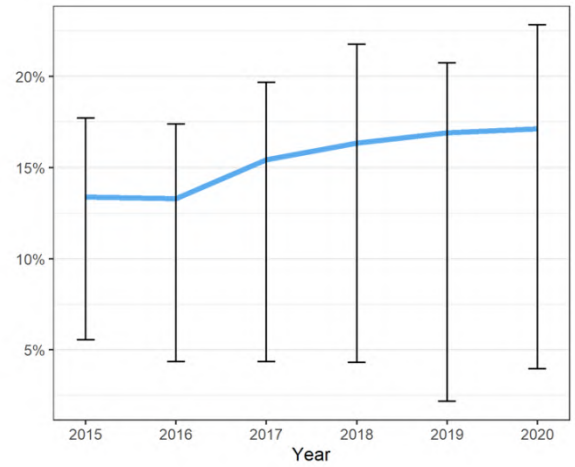
The lack of information about SMEs through dedicated research publications is a factor that holds back public listings. A survey by FESE (2020) even yielded the finding that market participants regard the lack of research on SMEs as the second most significant obstacle to

[50] Among the few Member States where the equity gap did not improve are four Member States with a high sovereign debt level (Greece, Cyprus, Portugal and Italy).
[51] Malta is an outlier as the equity gap deteriorated despite the GDP growth being considerably higher than the EU average.

investment[52]. The empirical analysis in LEE (2020) identified a significant link between SMEs' use of public equity markets and the share of listed SMEs for which there is analyst coverage. This is consistent with earlier results in the academic literature[53].

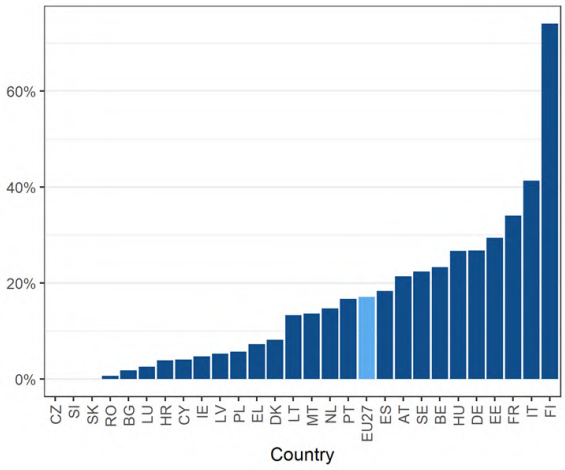
The share of SMEs with analyst coverage[54] trended upwards between 2015 and 2020, surpassing 17% in 2020. Finland largely outperformed other Member States, with 70% in 2020, followed by Italy, France, where SME research reached more than 30%. While the coverage was below 5% in the smallest economies, it was above the EU average in two other small economies, namely Hungary and Estonia, which suggests that a small economy is not the main obstacle to a high SME research coverage.

Chart 19: Share of SMEs with listed shares covered by analysts, EU, and range across Member States (highest and lowest 25%)



Source: European Commission, DG FISMA based on Refinitiv an LSEG company.

Chart 20: Share of SMEs with listed shares covered by analysts across the EU Member States, 2020



Source: European Commission, DG FISMA based on Refinitiv an LSEG company.

More generally, the types of funding sources available to SMEs and their weight are also important factors in closing the SME funding gap. LEE (2020) found that venture capital and business angel investment delivered the best empirical results in explaining the SME equity gap, while that of private equity investment came out less strongly in this respect. It also found that variables that influence public markets in general also affect SME equity markets (see indicators 3 and 6). A metric for the breadth of the venture capital investor base also showed good empirical results[55]. However, whereas these indicators provide insight into the supply of venture capital to SMEs, an indicator that would measure entrepreneurs' interest in seeking alternative funding sources to bank lending currently does not exist. When analysing

[52] See FESE, *European IPO Report 2020*, 2020, available at: https://fese.eu/app/uploads/2020/03/European-IPO-Report-2020.pdf.

[53] See Dhiensiri, N. and Sayrak, A., 'The value impact of analyst coverage', *Review of Accounting and Finance*, Vol. 9, Issue 3, 2010, pp. 306–331; Stagliano, R., La Rocca, M. and Dionigi, G., 'The impact of ownership concentration and analyst coverage on market liquidity: comparative evidence from an auction and a specialist market', *Economic Modelling*, Vol. 70(C), 2017, pp. 203–214. For an empirical analysis of the effect of research unbundling under MiFID II, see Amzallag, A., Guagliano, C. and Lo Passo, V., 'MiFID II research unbundling – assessing the impact on SMEs', *ESMA Working Paper* No. 3 2021, 2021, https://www.esma.europa.eu/sites/default/files/library/esma_50-165-1269_research_unbundling.pdf.

[54] For the purpose of this indicator, all SMEs with listed shares covered by at least one sell-side analyst were identified from the database of Refinitiv, which is part of the London Stock Exchange Group.

[55] See annex/below. The measure used in LEE (2020) was the Herfindahl index over the market share of five groups of investors: institutional investors, private investors, funds, corporates and public agencies.

the supply of, and demand for, venture capital, the market in which firms operate is also an important factor. Innovative and high-growth firms in technology sectors are more likely to raise venture capital than those active in more mature markets. Access to venture capital helps the diffusion of new technologies in an economy; it also spurs industrial adjustment[56].

Indicator 16: Value of annual venture capital investment relative to GDP

Venture capital is a subset of private equity that targets young and unlisted companies, helping the business to start, develop and grow[57]. Data on this market segment are collected and published by Invest Europe.[58]

Venture capital investment doubled relative to GDP between 2015 and 2020, accounting for only 0.05% of GDP in the EU-27 in 2020 (chart 19). The Member States can be grouped in two clusters based on venture capital activity. The first cluster, in which venture capital investment is low, comprises all central and eastern Europe (CEE) countries except for Estonia and Hungary. The second cluster, in which venture capital investment is high, includes most non-CEE Member States, except for Italy, Portugal, Luxembourg, Greece and Austria (chart 20). The importance of venture capital markets seems broadly correlated with statistics indicating the weight of technology in the Member States' industrial structure. These two clusters were relatively stable and most Member States in the high-activity cluster improved more than those in the low cluster, further contributing to the bifurcation.

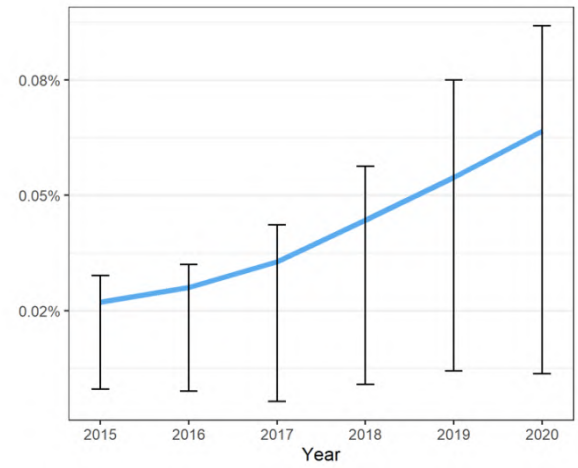
The finding of a self-reinforcing trend in venture capital investment seems not limited to the EU. The international comparison with OECD data (see charts A7 and A8 in the annex) suggests that venture capital investment accelerated over the last years of the reference period most in those countries where it had been sizeable before.

[56] Venture capital moved into pandemic-related investment projects in 2020, as demonstrated in Bellucci, A. et al., *The reallocation effects of COVID-19: Evidence from venture capital investments around the world*, JRC Technical report, 2020, https://ec.europa.eu/jrc/en/publication/reallocation-effects-covid-19-evidence-venture-capital-investments-around-world.

[57] Funding through business angels is an important complement to venture capital, especially for very small firms and start-ups. Data on business angels are, however, not included in the CMU indicator set because of lack of representativeness. The European Business Angel Network (EBAN) publishes data on 'visible investment' and estimates that the true amount might be tenfold the reported numbers. See EBAN, Statistics compendium European early stage market statistics 2019, https://www.eban.org/statistics-compendium-2019-european-early-stage-market-statistics/.

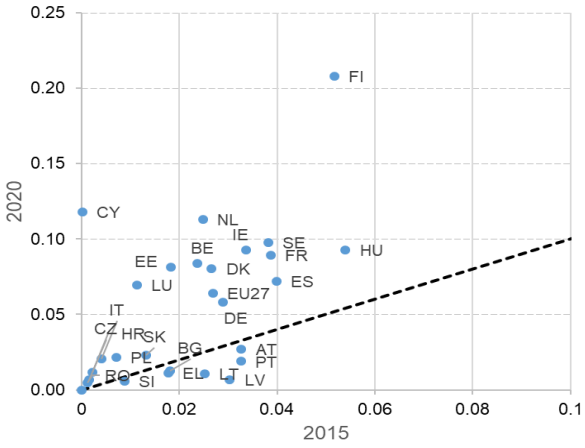
[58] Invest Europe also collects data on growth capital, which is investment directed at helping mature firms grow or restructure operations. Growth capital is part of private equity and covered under indicator 11.

Chart 21: Venture capital investment in % of GDP in the EU-27 and range across Member States (lowest and highest 25%)



Source: European Commission, DG FISMA based on Invest Europe/EDC.

Chart 22: Changes in venture capital investment in % of GDP in the EU Member States between 2015/2016 and 2019/2020



Note: The dashed line represents equal values in 2015 and 2020.
Source: European Commission, DG FISMA based on Invest Europe/EDC.

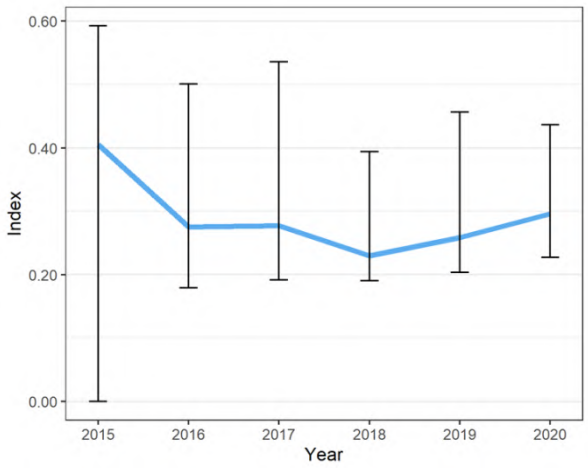
Indicator 17: Breadth of venture capital investor base – (Herfindahl index)

A supplementary indicator to the size of venture capital markets is the breadth of its funding sources a venture capital market can draw on, based on who is investing in venture capital funds. The more dispersed the investor base, the less concentrated and the more dynamic venture capital markets are expected to be. This is assessed by using the market share of institutional investor groups sourced from Invest Europe to calculate a Herfindahl index[59]. This index measures the concentration of investors in venture capital funds. A low index means that the investor base is dispersed, which improves firms' chances of attracting suitable investors.

The Herfindahl index for venture capital declined in the EU between 2015 and 2019, suggesting that new investors entered venture capital markets. Since the EU-27 is much larger than any individual Member State, the breadth of the venture capital investor base in the EU is also much larger than in any individual Member State. The dispersion across Member States also declined, meaning that investor bases have widened across the board. The broadest investor bases are in France, Netherlands and Spain, while the slimmest are in CEE countries. The cross-country perspective reveals an overall negative correlation between the Herfindahl index and the size of venture capital as a percentage of GDP, meaning that the more concentrated a venture capital market is, the smaller its size. However, there are also some exceptions. For example, Ireland, Hungary and Denmark combine a high concentration of venture capital investors with a high venture capital investment, while Italy and Austria are characterised by a low concentration of venture capital investors and low venture capital investment. The latter group of the Member States therefore has lower venture capital investment than would be expected based on the breadth of their respective investor base.

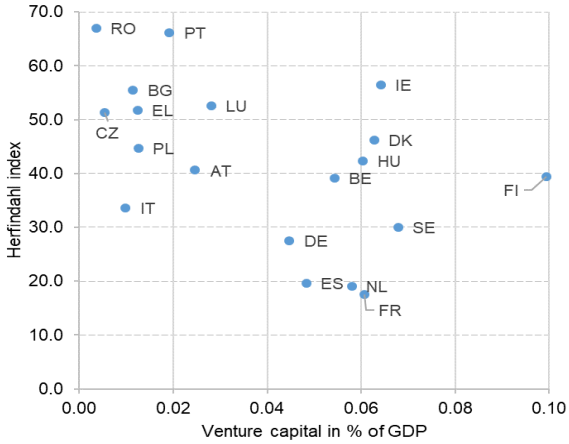
[59] The Herfindahl index is the sum of the squared market shares of institutional groups of investors.

Chart 23: Breadth of venture capital across investor groups in the EU-27 and range across Member States (lowest and highest 25%)



Source: European Commission, DG FISMA based on Invest Europe/EDC.

Chart 24: Size and Breadth of venture capital markets across the EU Member States, average 2015-2020



Source: European Commission, DG FISMA based on Invest Europe/EDC.

3.1.2.5 Markets to support banks' lending capacity

Indicator 18: Value of outstanding amount of securitisation instruments relative to bank loans to non-banks, excluding governments

Given the non-trivial costs of equity and in particular of public equity, the use of market funding is oftentimes more economical for larger firms. As larger firms increasingly tap market funding, there are signs that bank lending is increasingly dedicated to smaller firms. Access to lending – especially for SMEs – improves when banks are in a position to easily transform loans into marketable securities that can then be sold off to investors. The LEE (2020) analysis shows that a larger issuance of asset-backed securities and of covered bonds is typically associated with more bank credit for firms, in line with findings in the empirical literature[60].

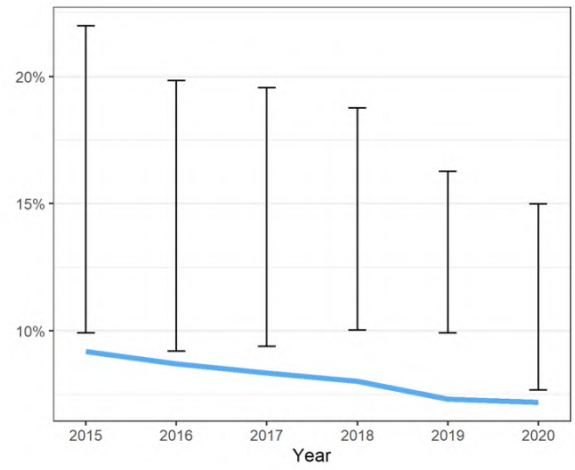
Securitisation allows banks to expand their lending capacity by issuing asset-backed securities. Loans or other assets on banks' balance sheets are re-packaged and transferred to an off-balance sheet vehicle. Banks thereby have more capital available that can be used for their lending activity. Other market participants invest into this vehicle, which gives them exposure to credit risk and provides funding to the bank for the underlying loans. The liabilities of the vehicle are structured in such a way that investors can select the risk exposure they are willing to take.

According to data on outstanding securitisation volumes collected by the Association for Financial Markets in Europe (AFME), securitisation activity in the EU-27 has been declining since 2015. While it represented 9.2% of outstanding bank loans in 2015, by 2020 it was only

[60] See Carbó-Valverde, S., Degryse H. and Rodriguez-Fernandez F., 'Lending relationships and credit rationing: the impact of securitization', *Midwest Finance Association 2013 Annual Meeting Paper*, 2012, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2146137. See also Bonner, C., Streitz D. and Wedow M., 'On the differential impact of securitization on bank lending during the financial crisis', *De Nederlandsche Bank Working Paper No 501*, 2016, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2740418.

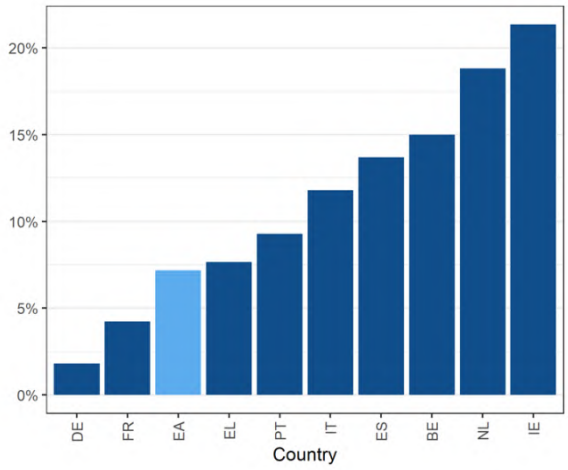
7.2%. EU-27 securitisation also declined as a percentage of securitisation outstanding volumes in the US, from 10% in 2015 to less than 8% in 2019. Within the EU-27, the securitisation market was comparatively large in Belgium, the Netherlands and Ireland, and, until 2018, in Portugal. In many Member States, however, securitisation has not yet emerged as a means for banks to offload their credit risk. A positive development on securitisation markets is that issuance of simple, transparent and standardised (STS) securitisation assets, a new EU label of high-quality securitisation introduced as part of the CMU, accelerated in 2019 and 2020, passing a market share of 50% of all securitisation issuances for the first time in the final quarter of 2020.

Chart 25: Securitisation – outstanding amounts in % of bank loans in the EU-27 and range across Member States (lowest and highest 25%)



Note: relative to loans to domestic non-banks excluding governments.
Source: European Commission, DG FISMA based on Association for Financial Markets in Europe Securitisation data and ECB Balance sheet items.

Chart 26: Securitisation – outstanding amounts in % of bank loans across the EU-27 Member States



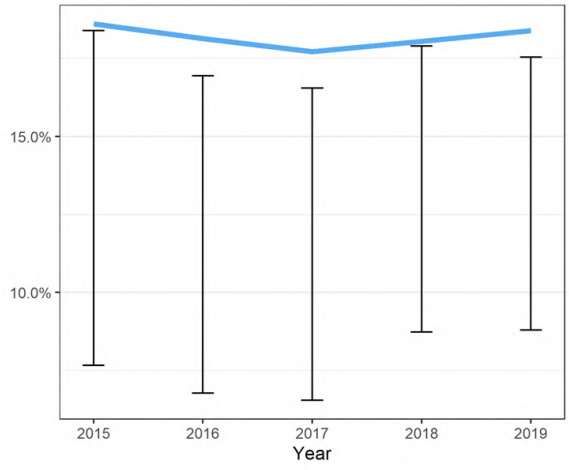
Note: relative to loans to domestic non-banks excluding governments.
Source: European Commission, DG FISMA based on Association for Financial Markets in Europe Securitisation data and ECB Balance sheet items.

Indicator 19: Value of outstanding amount of covered bonds relative to bank loans to non-banks, excluding governments

Covered bonds are debt securities issued by a financial institution that are collateralised against a pool of assets, typically loans. Banks and mortgage institutions are able to use the loans they have on their balance sheet as collateral to reduce their funding costs. The possibility to originate covered bonds, using on-balance loans as collateral, provides banks with additional funding at lower cost that they can use to expand lending to companies.

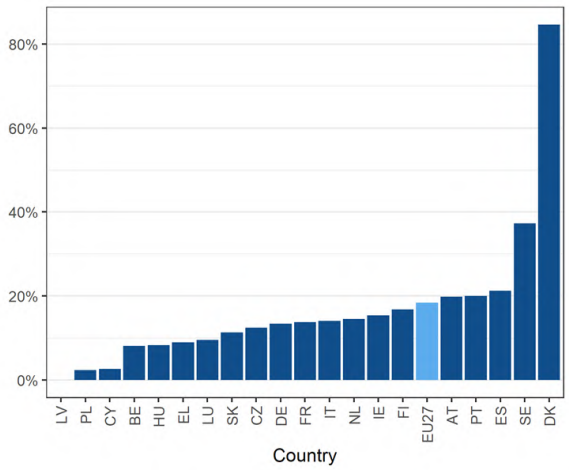
Covered bond data are not collected through official statistics, but assembled by the Covered Bonds Council through surveys among its members. Issuance of covered bonds has not yet recovered to the level seen before the 2007-2008 financial crisis and reached its lowest level in 2017. Since, the value of covered bonds outstanding has been slightly increasing, reaching 18.4% of bank loans to private NFCs in 2019. Given the important role of covered bonds for mortgage funding in Denmark, Sweden, Germany and Spain, the EU-27 figures are strongly determined by developments in these Member States, which hold a combined market share of about 60%. Issuance has been on the rise since 2015 in a few other Member States, in particular in the Netherlands, Greece, Italy and Austria.

Chart 27: Covered bonds outstanding amounts in % of bank loans in the EU-27 and range across Member States (lowest and highest 25%)



Note: relative to loans to domestic non-banks excluding governments.
Source: European Commission, DG FISMA based on Covered Bond Council and ECB Balance sheet items.

Chart 28: Covered bonds outstanding amounts in % of bank loans across the EU Member States, 2019



Note: relative to loans to domestic non-banks excluding governments
Source: European Commission, DG FISMA based on Covered Bond Council and ECB, Balance sheet items.

3.1.3 Conclusions on access to finance

Overall, European NFCs slowly increased their use of market funding between 2015 and 2019. A major improvement consists in corporate bonds having become an established funding tool for some of the larger firms. Corporate bonds changed from being a substitute to bank lending in times when the latter was constrained to being a fully-fledged complement. This freed some lending capacity for SMEs in banks – their remaining main source of funding. Even though a favourable economic environment between 2015 and 2019 boosted the use of internal funding by corporates (i.e. retained earnings), SMEs have been increasingly relying on alternative sources of funding, albeit starting from a very low level. In particular, SME equity growth markets – venues specialised in trading SME stock – increasingly became established in the EU, and the provision of venture capital increased.

Despite this, EU firms made much less use of equity markets than of debt markets over the 2015-2019 period. Despite high valuations, companies have been increasingly delisting and launching share buybacks. Private equity markets seem to have partly filled the gap in the Member States where this funding instrument was already widely used.

As regards the role of institutional investors, equity holdings by insurance corporations have remained rather stable over the last few years.

The COVID-19 crisis led to what appears to be short-lived turmoil on capital markets in 2020 that temporarily interrupted the positive structural trends towards more market-based funding. Even so, capital markets recovered quickly. In the Member States where corporate bonds already played an important role prior to the 2020 turmoil, firms were able to tap this funding source via secondary issuances. As regards equity markets, since the decline in economic activity induced by the COVID-19 crisis is leading to higher corporate debt levels, equity

financing could play a bigger role in the future to strengthen firms' capital structure and solvency.

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

3.2.1 Overview of indicators on retail investment

Households' savings are the traditional ultimate source of investment in the economy, notwithstanding the significant contribution of external capital flows and the fact that the corporate sector has become a net saver in some Member States. The 2020 CMU action plan focuses on the measures that aim to channel households' savings to capital markets.

Stronger participation of retail investors in capital market would enlarge the pool of funds that firms can tap using market instruments (as opposed to borrowing from banks). It would equally enable retail investors to avoid exposure to low or even negative real interest rates on bank deposits. The general perception is that households have made too little use of the choice capital market investment opportunities offer, especially with regard to their needs to save for consumption in older age (i.e. post-retirement). Measuring whether households use market instruments as a saving vehicle, either directly – or indirectly by investing via non-bank financial intermediaries – can shed light on their willingness to participate. Obtaining data on the costs of investing has been difficult, but a first indicator has emerged thanks to the work of financial supervisors.

This section also puts forward indicators on sustainable and digital finance, since both are important issues not only for companies but also for investors, including retail investors. On sustainable finance, retail (and institutional) investors are increasingly interested in investing in environmental, social and governance (ESG) assets and concerned about ESG risks, but struggle to find high quality and comparable ESG information. On digital finance, investors are set to benefit from the many advantages brought by new technologies. As both sustainable finance and digital finance have been developing recently, statistics are still under development. Nevertheless, two indicators – on green bonds and crowdfunding[61] – appear already sufficiently robust to be included in the CMU indicators set. While work on sustainable and digital finance started under the CMU initiative, both have by now become self-standing EU priorities that complement the CMU. Sustainable finance also plays a key role in the context of the European Green Deal to enable the transition to a climate-neutral, green economy.[62]

A host of factors influences the engagement of retail investors in capital markets. The level and distribution of income and wealth as well as demographics are among the most important structural determinants[63]. House prices also play a significant role, because investments in

[61] These indicators may not allow for the measurement of participation by retail investors. However, in the absence of other/more relevant indicators, they will be used to assess – by approximation – overall progress with ESG investment and investment via novel digital means.

[62] European Green Deal, *Communication from the Commission*, COM/2019/640; Sustainable Europe Investment Plan European Green Deal Investment Plan, *Communication from the Commission*, COM/2020/21.

[63] For a recent analysis on the non-linear relationship between finance and income distribution, see Cihak, M. and Sahay, R., 'Finance and inequality', *IMF Staff Discussion Note 20/01*, 2020. Their analysis suggests that financial inclusion may lead to lower inequality.

real estate are, from many households' point of view, a significant substitute for the storage of wealth in financial assets. Primarily because of the difficulty to control for the influence of these factors, the empirical analysis by LEE (2020) of the relationship between households' holdings of financial assets and potential determinants did not yield convincing results. LEE (2020) thus suggested two additional indicators to measure trust in the providers of financial products and negative experiences endured. These indicators would be based on surveys on consumer sentiment run by the Commission[64]. These surveys are, however, not sufficiently regular to be included in the tool kit of indicators (for example, the last survey only covered banking and insurance services, but not investment services). LEE (2020) also found that indicators on financial literacy, measures of transparency, cost and quality of financial advice are not usable because of their insufficient coverage and regularity.

Several measures in the 2020 CMU action plan aim to support higher participation by retail investors in capital markets, notably by empowering them through financial literacy and building trust through more streamlined rules for inducements and disclosure. The Commission has in the meantime carried out a feasibility analysis on a competence framework for financial literacy[65] and has now started work with the OECD on the development of a financial competence framework for adults. In parallel, the EIOPA, upon the Commission's request, is looking into best practices for national pension tracking systems and and will advise the Commission on the design of a pension dashboard with a view to supporting people in their retirement.[66]

At this stage, no suitable indicators measuring the overall impact of measures in this area could, however, be identified. Additional measures from the 2020 CMU action plan aimed at fostering transparency over the need to cater for adequate retirement income could further contribute to more retail investment, in particular through pension and insurance products, as well as provide for new CMU indicators.

#	Indicator	Description	Data source
20	Direct retail investment by households	Sum of volumes of bonds and listed shares held by households relative to the sum of volumes of both and cash holdings and deposits	Eurostat, Annual sector accounts
21	Intermediated retail investment by households	Sum of investment funds and claims against insurers and pension funds of households relative to the sum of these items and cash holdings and deposits	Eurostat, Annual sector accounts

[64] The latest survey is at https://ec.europa.eu/info/policies/consumers/consumer-protection/evidence-based-consumer-policy/market-monitoring_en. Data for older surveys are at https://ec.europa.eu/info/policies/consumers/consumer-protection/evidence-based-consumer-policy/consumer-scoreboards_en#dissemination-database.

[65] DG FISMA report, report on the feasibility assessment for the development of a financial competence framework in the EU, April 2020, https://ec.europa.eu/info/sites/default/files/business_economy_euro/banking_and_finance/documents/210408-report-financial-competence-framework_en.pdf

[66] DG FISMA, Request to EIOPA for technical advice on the development of best practices for national pension tracking systems and pension dashboard, December 2020, https://ec.europa.eu/info/files/201221-request-eiopa-pension-tools_en

22	Direct and intermediated retail investment by households	Volume of direct and intermediated investment by households relative to the sum of both and cash holdings and deposits	Eurostat, Annual sector accounts
23	Dispersion of financial securities holding in the population (direct investment by households)	Share of households that directly hold bond or listed shares in total number of households	Household Finance and Consumption Survey (ECB)
24	Dispersion of claims against non-bank financial intermediaries in the population (intermediated investment by households)	Share of households that hold claims against investment funds, life insurance or pension funds in total number of households	Household Finance and Consumption Survey (ECB)
25	Costs of retail investment	Total expense ratio of equity UCITS funds	ESMA based on Refinitiv/LSEG, Lipper
26	Green bonds	Issuance of green bonds by the private and public sector relative to total private and public sector bond issuance	Bloomberg Finance
27	Crowdfunding	Credit and equity allocated through crowdfunding relative to GDP	Cambridge Centre for Alternative Finance

Figure 3: A safer place for individuals to save and invest: Dimensions covered by the CMU indicators

3.2.2 Information about the individual indicators and what they show

3.2.2.1 Retail investment of marketable financial assets

Indicator 20: Sum of bonds and listed shares held by households relative to the sum of bonds, listed shares and cash holding and deposits

Indicator 21: Sum of investment funds and claims against insurers and pension funds of households relative to the sum of these items and cash holding and deposits

Indicator 22: Direct plus intermediated investment by households relative to the sum of both and cash holding and deposits

Since one of the key CMU objectives is to increase the share of households' savings channelled to capital markets, a number of indicators measure the relative importance – over deposits – of households' direct and intermediated investment in market instruments. The first indicator is thus defined as the sum of listed shares and bonds held by households relative to listed shares, bonds and cash holdings and deposits (indicator 20)[67]. Another useful indicator is the amount of intermediated investments by households in capital markets (defined as claims against non-bank intermediaries such as investment funds, insurance corporations or pension funds) relative to the sum of these intermediated investments, and cash holdings and deposits[68]. All components of these indicators are adjusted for valuation effects, which are significant for listed shares and non-trivial for claims against investment funds, insurance and pension providers.

The traditional high saving rate of EU households had not led to sizeable holdings of financial securities by households at aggregate economy-wide level, as households still tend to favour investment in real assets, i.e. their main residence, other real estate or self-employed business wealth. Households tend to hold only a small portion of their financial wealth in bonds and listed shares, while indirect holdings of marketable securities via investment funds, claims against life insurance companies and pension providers are more significant (see table A3 in the annex).

Furthermore, the share of households' direct holdings of financial securities in the EU-27 steadily declined over 2015-2019. While households' holdings of listed shares remained broadly stable when adjusted for valuation effects (from EUR 1 063 billion in 2015 to EUR 1 061 billion in 2019[69]), holdings of bonds declined (from EUR 788 billion to EUR 559 billion[70]). In contrast, claims against investment funds, life insurance and pension entitlements increased in absolute terms and as a share in financial asset holdings. They grew in the EU-27 by about 10% between 2015 and 2019, when adjusted for valuation effects, which is a bit more than half of the increase in households' deposits over the same time. However, overall,

[67] The inverse ratio for indicator 20 might be more intuitive for interpretation, i.e. 1 minus the amount of cash and deposits held relative to the sum of listed shares, bonds, cash and deposits.
[68] Similar to indicator 20, indicator 21 can be interpreted more intuitively as 1 minus the ratio of the amount of wealth held in cash and deposits held relative to the sum of investment funds, insurance, pension claims, cash and deposits.
[69] EUR 1 267 billion in 2019 nominal value.
[70] Households' bond holdings fell most pronouncedly between 2015 and 2019 in countries where they had been the highest at the beginning of this period, namely Malta, Italy, Belgium, followed by Austria and Luxembourg.

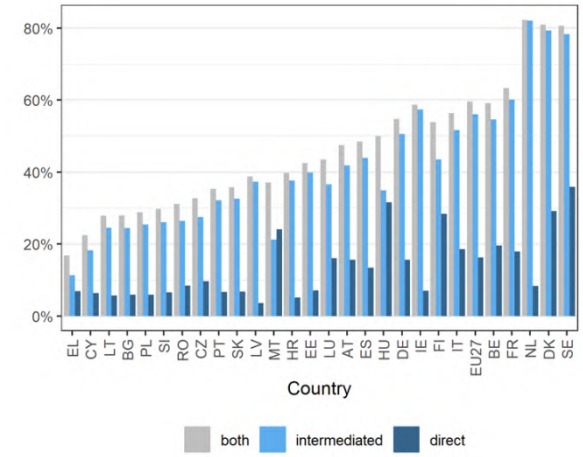
the total direct and intermediated holdings in valuation-adjusted terms of market instruments by the EU-27 households remained at about the same level relative to their holdings of financial assets in cash and deposits between 2015 and 2019 (i.e. the growth in intermediated holdings by EU households compensated for a fall in their direct holdings).

The COVID-19 crisis boosted households' holdings of cash and bank deposits during 2020, which accentuated the decline in their holdings of financial securities relative to their financial assets. The precautionary motive and limited opportunities for consumption may have induced households to keep additional savings in the form of cash and deposits. Yet households also bought a substantial amount of listed shares, especially in early 2020 when the value of shares decreased. While such countercyclical purchases at times of declining share prices also occurred in 2016 and 2018, they were more pronounced in 2020. Still, this increased investment in shares, as well as in funds, life insurance and pension funds, was not sufficient to counterbalance the rising amount of money held in currency and deposits, meaning that the three indicators on households' holdings of financial securities as a percentage of their total financial assets all declined further in 2020.

Differences from one Member State to another in how households allocate their financial wealth reflect to a large degree differences in income levels. While this suggests a significant influence of income levels on the distribution of financial wealth across asset types, the Member States with lower shares of direct or intermediated financial asset holdings by households caught up with the EU average in 2015-2019, when those starting with higher shares declined. Outstandingly high ratios can be observed in the Netherlands, Denmark and Sweden, given the very high level of pension entitlements and life insurance in these countries[71]. The lowest levels of household holdings of financial securities as a percentage of their total financial assets are in Greece and Cyprus. This was due to low claims against pension funds in the former and high deposit holdings in the latter.

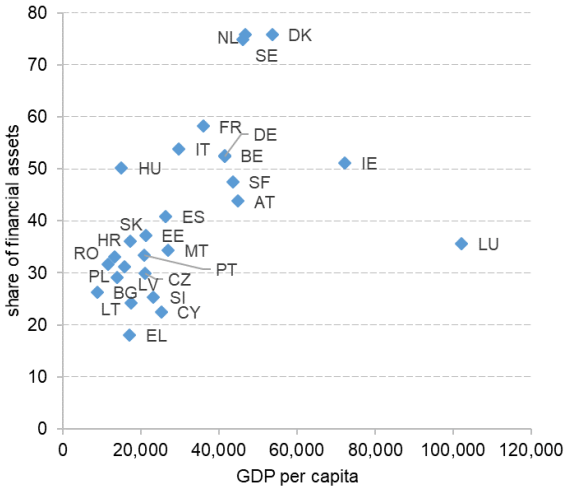
[71] They also increased by the most between 2015 and 2019 in these Member States, followed by France and Italy.

Chart 29: Breakdown of households' holdings of financial assets across the EU Member States



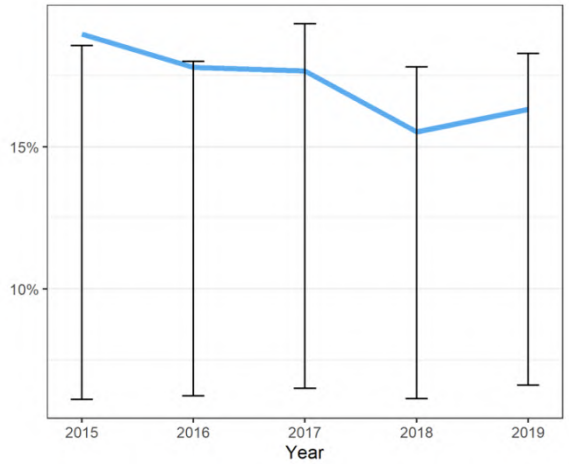
Source: European Commission, DG FISMA based on Eurostat, National accounts and annual sector accounts

Chart 30: Share of direct and intermediated financial assets in the EU Member States, 2019



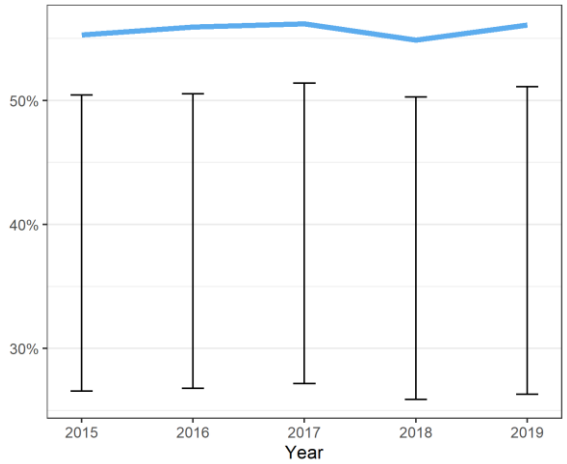
Note: Sum of bonds, listed shares, investment funds, claims against insurance and pension funds relative to the sum of these items and currency and deposits.
Source: European Commission, DG FISMA based on Eurostat, National accounts and annual sector accounts.

Chart 31: Share of direct holdings of financial securities in the EU-27 and range across Member States (lowest and highest 25%)



Note: Sum of bonds, listed shares relative to the sum of these items and cash and deposits.
Source: European Commission, DG FISMA based on Eurostat, National accounts and annual sector accounts.

Chart 32: Share of households' intermediated financial assets in the EU-27 and range across Member States (lowest and highest 25%)



Note: Claims against investment funds, insurance and pension funds relative to the sum of these items and cash and deposits.
Source: European Commission, DG FISMA based on Eurostat, National accounts and annual sector accounts.

Indicator 23: Share of households that hold bonds or listed shares (average of both)

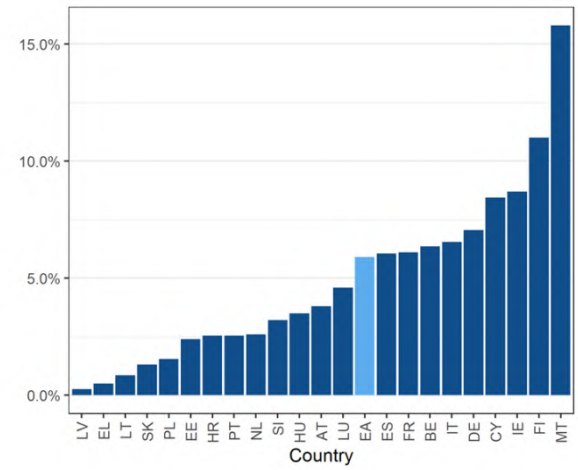
Indicator 24: Share of households that hold claims against investment funds, life insurance or pension funds (average)

A complementary yardstick giving an indication of how widely investment products are distributed among the population is the share of households holding financial assets. This indicator is based on the Household Finance and Consumption Survey (HFCS), which collects data on households' finances and consumption every 3 years. The survey reveals that most (97.6% in 2017) of households in the euro area have wealth in bank deposits[72]. Less than 5% owned bonds, less than 10% shares and slightly above 10% investment funds. Investment in voluntary pensions and (whole) life insurance is more widespread, since almost 30% of households held these financial products in 2017. For all financial assets except investment funds, the share of households holding them decreased between 2014 and 2017. This confirms the finding from sectoral accounts numbers (see indicators 20-22) that retail investors' participation in capital markets has been declining.

Similar to the indicators 21 and 22, there are wide differences across the Member States in the share of households' holdings of pension and life insurance products, from about or less than 5% in Greece, Hungary and Croatia to above 40% in Belgium and Germany. The share of households holding financial assets quite strongly correlates with GDP per capita[73]. If the impact of GDP per capita is considered, households' holdings of financial assets are relatively high in Poland and Latvia and low in Italy and Austria. This might be due to the coverage of the public pension systems in those Member States, thus more reflecting the structure of the national pension systems than households' preferences as regards their holdings of financial assets. The larger the share of households owning real estate in a Member State, the lower the share of those holding financial assets[74], although such a simple inverse relationship is not significant in statistical terms (see chart in the annex).

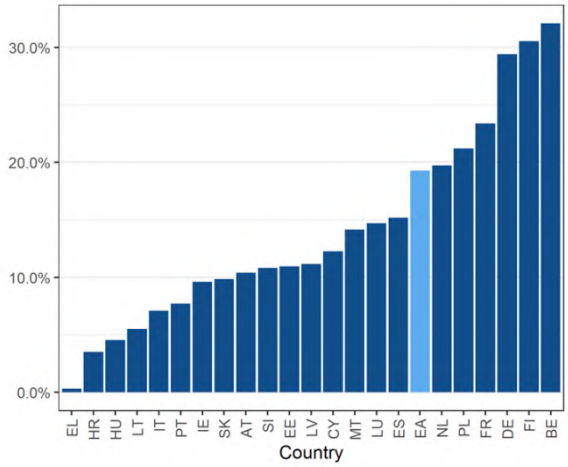
[72] The 2017 survey covered the euro area Member States, Croatia, Hungary and Poland.
[73] Ireland and Luxembourg are outliers from the trend line.
[74] Excluding bank deposits. The share of households' financial assets was defined for this analysis as weighted sum of investment funds, bonds, listed shares and voluntary pension/life insurance.

Chart 33: Household financial participation rate in the EU Member States 2017, Share of households holding financial securities directly



Note: Average of households that hold listed shares or bonds
Source: Source: European Commission, DG FISMA based on ECB, HFCS.

Chart 34: Household financial participation rate in the EU Member States 2017, Share of households holding investment funds, life insurance or claims against pension funds



Note: Average of households that hold investment funds or life insurance/pension claims
Source: Source: European Commission, DG FISMA based on ECB, HFCS.

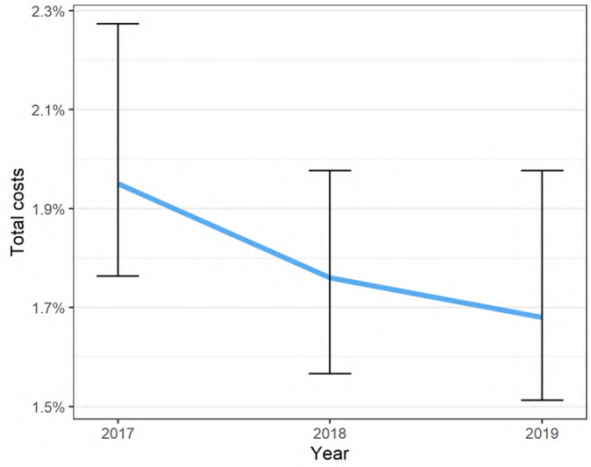
Indicator 25: Total expense ratio of equity UCITS funds

The costs of buying and selling investment products have an impact on returns. Lower costs and fees should encourage retail investors' participation in capital markets. However, comparing the costs of very different investment products is a difficult exercise. Since investment funds offer broadly similar products, calculating their cost is a more straightforward starting point and could provide a suitable gauge of retail investors' incentive to enter capital markets. LEE (2020) tested empirically the expense ratio of UCITS funds, finding that the higher the ratio, the lower the claims of households against investment funds, insurers and pension funds, i.e. the lower households' participation in capital markets. Since UCITS are investment funds designed for marketing specifically to retail investors, their costs and performance can be an important indicator of retail investor participation.

ESMA has produced such cost indicators annually since 2019, with a 2-year reporting lag[75]. The 2021 report revealed that costs for UCITS declined by about 10 basis points from 2017 to 2019 for equity and bond funds over most investment horizons[76]. Costs are somewhat higher the longer the investment horizon. They are also considerably higher for actively than for passively managed funds or exchange-traded funds (ETFs). ESMA's report includes the UCITS domiciled in 13 Member States and the UK, and does not cover any CEE Member States. ESMA also stressed in its report that numbers are not fully comparable between Member States. When taken at face value, the data suggest relatively low costs for investment in UCITS in Sweden and the Netherlands and the highest costs in Austria, Italy and Portugal. The costs fell the strongest between 2017 and 2019 in Spain, Denmark and Ireland.

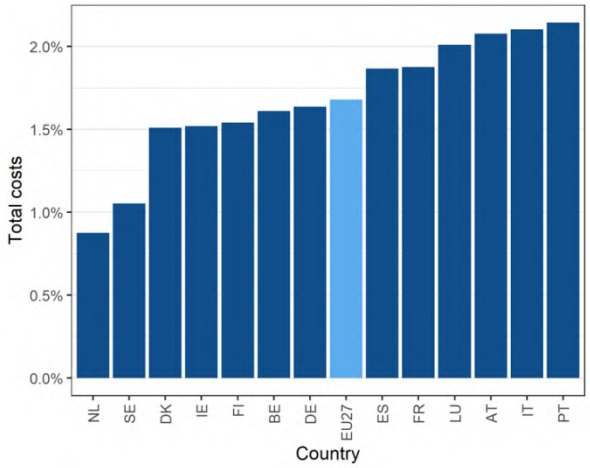
[75] ESMA (2021), 'Performance and Costs of EU retail investment products', *ESMA Annual Statistical Report*, https://www.esma.europa.eu/sites/default/files/library/esma_50-165-1710_asr_performance_and_costs_of_eu_retail_investment_products.pdf.
[76] With an expense ratio of 1.6 to 1.8%, equity and mixed UCITS are more expensive than bond UCITS (1.2% to 1.3%).

Chart 35: UCITS total expense ratio in the EU-27 and range across Member States (highest and lowest 25%) 2017-2019



Source: Source: European Commission, DG FISMA based on ESMA performance and costs.

Chart 36: UCITS total expense ratio 2019 across EU Member States (and UK)



Source: Source: European Commission, DG FISMA based on ESMA performance and costs.

3.2.2.2 Green and digital investments

Indicator 26: Issuance of green bonds as a percentage of total bond issuance

The rising interest of households for green financial products and the priority the EU attaches to greening of the economy justify the inclusion of indicators related to sustainable and green finance. The sole established and widely used – by now – gauge to measure the magnitude of sustainable investment in the EU is the issuance of green bonds. Green bonds are fixed income securities providing financing to investment projects deemed sustainable. The Climate Bonds Initiative developed a standard, which is widely used to classify bonds as green[77]. The Commission is working on an EU green bond standard, which, when adopted, will be useful to determine how many green bonds are compliant with the EU standards.

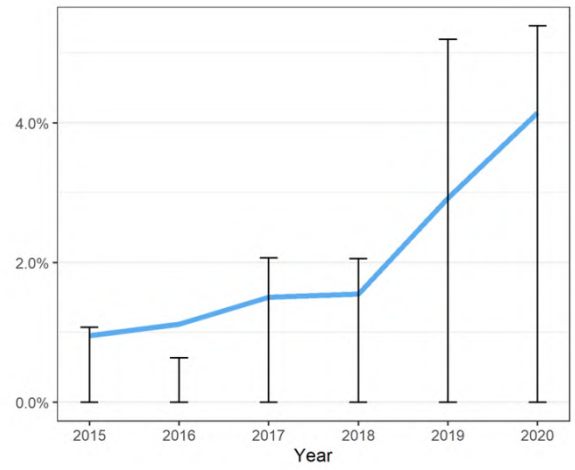
Issuance of green bonds by European issuers has been increasing strongly in recent years, from EUR 25 billion, or 0.5% of the total amount raised through bond issuances in 2015, to about EUR 140 billion or 2.6% of the amount raised in 2020. More than 5% of private bond issuances and 1.3% of government bond issuances in the EU had a green label in 2020. More than half of global green bond issuances took place in the EU. Issuers from 20 Member States have tapped this market since 2015, though not all in each year[78]. The 2021 Commission economic financial stability and integration report provides a comprehensive stocktake of green bond markets, with information about non-EU issuers, types of issuances and data about sustainable investment funds[79].

[77] See https://www.climatebonds.net/standard.

[78] Among the EU Member States, Germany, France and the Netherlands issued the most. Most Member States increased their share in 2019 and 2020 over the previous year, but some suspended issuing in 2020: the three Baltic countries and Slovenia in 2019 and 2020. Hungary and Portugal entered this market in 2019 and 2020 respectively.

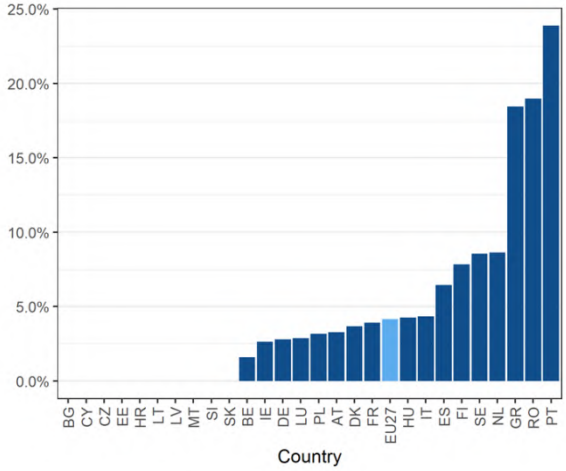
[79] See Chapter 3 in the *European Financial Stability and Integration Review*, SWD(2021) 113.

Chart 37: Issuance of green bonds by private issuers in % of total private sector bonds issued in the EU-27 and range across Member States (highest and lowest 25%)



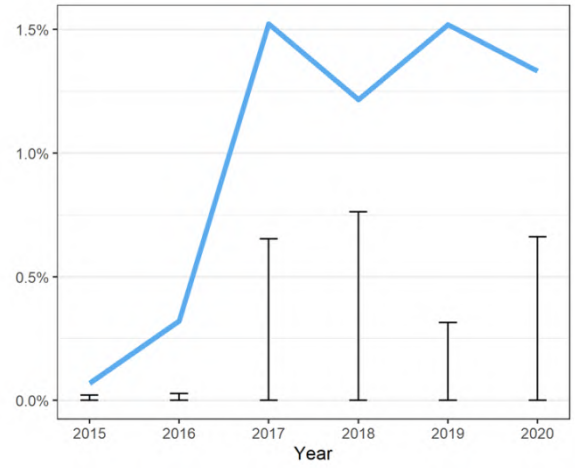
Source: EC, DG FISMA based on Bloomberg Finance L.P.

Chart 38: Issuance of green bonds by private issuers in % of total private sector bonds issued across EU Member States, 2020



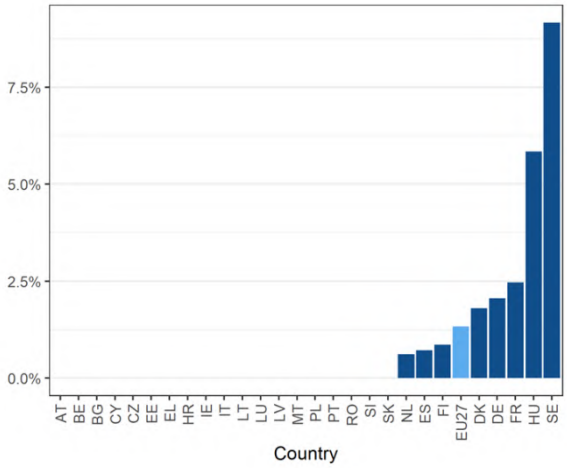
Source: EC, DG FISMA based on Bloomberg Finance L.P.

Chart 39: Issuance of green bonds by public issuers in % of total public sector bonds issued in the EU-27 and range across Member States (highest and lowest 25%)



Source: European Commission, DG FISMA based on Bloomberg Finance L.P.

Chart 40: Issuance of green bonds by public issuers in % of total public sector bonds issued across EU Member States, 2020



Source: European Commission, DG FISMA based on Bloomberg Finance L.P.

Going forward, considering the particular retail interest, the high political priority of the green transition, the development of sustainable finance and the European Green Deal[80], the further assessment of sustainable finance and in particular green finance indicators will be conducted with a view to developing new indicators and complementing the tool kit in the future.

Indicator 27: Credit and equity allocated through crowdfunding relative to nominal GDP

Among the financial innovations enabled by digital technology, online crowdfunding seems to be the one with the most comprehensive and reliable data coverage. Crowdfunding platforms are new financial intermediaries that channel savings into investments. Progress in information and communication technologies have allowed online platforms to develop into

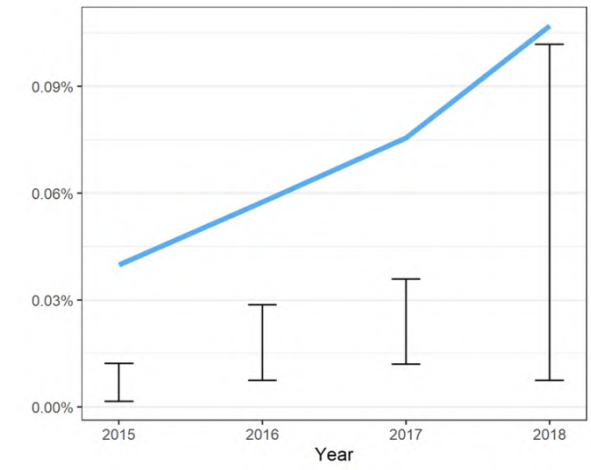
[80] European Green Deal, *Communication from the Commission*, COM/2019/640.

an alternative to banks or exchanges. While crowdfunding is still a small market with a still limited impact on total retail participation, it is growing very fast, meaning it could become a relevant driver of both retail participation in, and corporate funding on, capital markets. The EU legislation to support the development of crowdfunding as part of the CMU will enter into force in November 2021[81].

The Cambridge Centre for Alternative Finance (CCAF) has collected data on business volumes of crowdfunding platforms since 2014 through annual surveys[82]. These surveys are considered the most comprehensive source of data on crowdfunding activity and are used in the economic literature[83]. The database contains information sourced from more than 2 000 crowdfunding platforms in 191 countries since 2015. At the time of finalisation of this report, data for 2019 and 2020 were still not available. More recent data on crowdfunding will be added to the list of indicators on the Commission's website as soon as available.

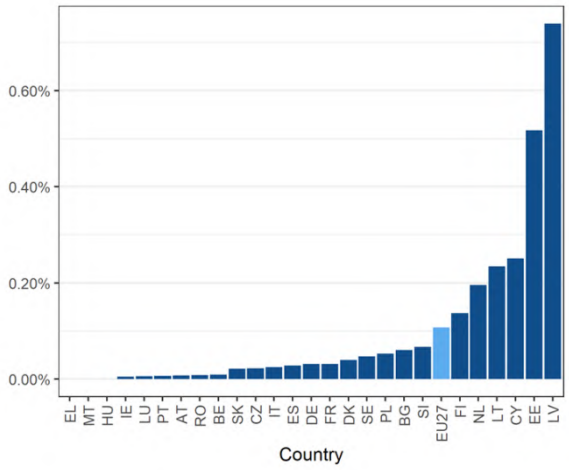
Since this market segment has been very dynamic, information based on historic data up to 2018 is no longer informative about market size. Data for 2019 and 2020 should become available in summer 2021. By 2018, market volumes in the EU were small compared to those in China and the US and were smaller than in the UK. The largest markets within the EU-27 were the Netherlands, Germany and France. In per capita terms, Latvia, Estonia, Cyprus and the Netherlands were making the most use of crowdfunding platforms.

Chart 41: Crowdfunding business volume in % of GDP in the EU-27 and range of Member States (highest and lowest 25%)



Source: European Commission, DG FISMA based on CCAF Global alternative benchmarking report.

Chart 42: Crowdfunding business volume in the EU Member States in % of GDP 2018



Source: European Commission, DG FISMA based on CCAF Global alternative benchmarking report.

[81] https://ec.europa.eu/info/business-economy-euro/growth-and-investment/financing-investment/crowdfunding_en.

[82] Data published in the Global Alternative Finance Market Benchmarking Report, see https://www.jbs.cam.ac.uk/faculty-research/centres/alternative-finance/publications/the-global-alternative-finance-market-benchmarking-report/. For a description of the methodology, see Rau Raghavendra P., *Sometimes, Always, Never: Regulatory Clarity and the Development of Crowdfunding*, 2021, https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3797886.

[83] See Cornelli, G. et al. (2020), 'Fintech and big tech credit: a new database', *BIS Working Paper* No 887.

3.2.3 Conclusions on retail investment

Although households in the EU have on average a high saving rate, they barely invest directly in equity and bond markets. Households' direct holdings of listed shares and bonds even declined between 2015 and 2019. In contrast, households' participation in capital markets via intermediaries increased to some extent, in particular in the Member States where insurance corporations and pension funds have traditionally played an important role.

At aggregate level, the COVID-19 crisis resulted in a significant increase in households' deposits and to a more moderate increase in share holdings. However, there are large variations across the Member States. Households were net acquirers of listed shares when stock prices tumbled at the onset of the COVID-19 crisis, although it is impossible to say whether this heralds a structural shift in retail investors' interest in investing on the stock markets.

Other encouraging signs are the fact that costs for retail investors to invest via UCITS funds have somewhat declined and that new opportunities for individuals to invest opened up with the emergence of green investment vehicles and digital platforms. In fact, the global trend of young savers being increasingly open to the use of new technologies and investing in assets that support the green and digital transition is clearly visible also in the EU. While this is overall a welcome development, it requires careful monitoring with respect to a possible risk of green washing, as well as risks related to highly volatile prices of certain crypto instruments, which consumers may not be fully aware of and which may discourage market participation in the longer term.

3.3 Objective 3: integrate national markets into a genuine single market

3.3.1 Overview of indicators on capital markets' integration

The creation of a single market for financial services has been a key objective of the CMU from the beginning of the project. The CMU vision is that capital markets in the EU develop and become larger, with a network of closely interconnected local capital markets forming the union of capital markets or CMU. The single market perspective underlying the CMU implies that a small local capital market is not limited to domestic savers and investors as long as they are able to use the investment opportunities, intermediaries or markets of other Member States on an equal footing. Under these conditions, firms can also seek funding anywhere in the EU and savers can easily invest in cross-border assets.

The need for better integration of local capital markets has become more pressing, as the UK's withdrawal from the EU means that there is no longer a single dominant financial centre in the EU. In addition to serving as the entry point for global finance into the EU, the centralisation of wholesale financial activity and specialised financial services in London created indirect links between regional financial centres that acted as the hub for local financial activity. While several EU financial centres are now determining their new role in the EU's capital markets, the emerging multi-hub structure increases the need to improve interconnection between local capital markets and ensure they form an efficient network.

Price dispersion and home bias are the standard tools to measure the degree of financial integration. In perfectly integrated capital markets, prices or yields of identical financial assets should in theory be identical across countries. This also means that the more integrated

financial markets are, the lower the difference between the prices or yields of comparable financial assets. In addition, in fully integrated capital markets, the share of domestic assets in an investor's portfolio should be equal to the proportion of assets from this investor's home country in the total outstanding assets – meaning that the investor has no preference to invest in domestic assets over foreign assets. Both concepts underlie the ECB's price-based and quantity-based indicators of financial integration in the euro area. However, using the ECB methodology to calculate a price-based indicator of financial integration in the EU-27 (and not only the euro area) is cumbersome, because differences in prices of financial assets in and outside the euro area would also reflect the exchange rate risk[84].

To measure EU-27 financial market integration, the CMU indicators use gauges that provide insight into: (i) the reluctance to invest cross-border, similar to the ECB's quantity-based indicator of financial integration; (ii) the availability of vehicles for retail investment in other Member States; and (iii) differences in legal and business conditions that shape the information costs that investors need to shoulder if they want to understand the risk of foreign exposures.

#	Indicator	Description	Data source
28	Holdings of equity from other Member States	Home bias in equity holdings (difference between the actual share of domestic equity holdings and the theoretically optimal EU country weights in investors' portfolios)	JRC based on Finflow
29	Holdings of debt from other Member States	Home bias in debt holdings (difference between the actual share of domestic equity holdings and the theoretically optimal EU country weights in investors' portfolios)	JRC based on Finflow
30	Cross-border UCITS	Number of EU-domiciled UCITS available for sale to retail investors in at least two Member States	ESMA with Morningstar and Refinitiv/ LSEG
31	Cross-country differences in in legal conditions – insolvency outcomes	Result of surveys among legal experts, who are asked to assess a specific business case – in this case insolvency proceedings, under prescribed assumptions	World Bank Doing Business
32	Cross-country differences in legal conditions – shareholder minority protection	Result of surveys among legal experts, who are asked to assess a specific business case – in this case shareholder minority protection, under prescribed assumptions	World Bank Doing Business
33	Cross-country differences in legal conditions – contract enforcement	Result of surveys among legal experts, who are asked to assess a specific business case – in this case contract enforcement, under prescribed assumptions	World Bank Doing Business
34	Cross-country differences in legal indicators – auditing & reporting	Ranking of the strength of financial auditing and reporting standards on a scale of 1 to 7	World Economic Forum World Competitiveness Index

Figure 4: Integration of national markets into a single market: Dimensions covered by the CMU indicators

[84] The ECB price indicator of financial integration makes use of price differences for money, bond bank and equity markets in the euro area. Within the indicator range of 0 and 1, it improved slightly from 2015 to 2020, peaking at 0.7 and moving to around 0.6 since.

3.3.2 Information about the individual indicators and what they show

3.3.2.1 Holdings of foreign financial assets

Indicator 28: Holdings of equity from other Member States – Home bias measured as the difference between the actual and the optimal share of foreign equity in EU investors' portfolios in % (i.e. under assumption of perfect integration)

Indicator 29: Holdings of debt from other Member States – Home bias measured as the difference between the actual and the optimal share of foreign debt in EU investors' portfolios in % (i.e. under assumption of perfect integration)

Data on cross-border holdings of financial assets are covered by the international investment position, which gives insight into the value of foreign financial assets held by domestic residents[85]. For the purpose of the CMU indicators, the holdings of debt securities and of equity as portfolio investments are relevant. The Commission's Joint Research Centre (JRC) constructed the Finflow database that covers bilateral holdings of equity and debt securities across 80 countries over the period 2000-2019[86]. This makes it possible to track how foreign asset holdings have developed over time. Given that the purpose of Finflow is to establish bilateral data, such information is at an aggregated level i.e. it neither indicates who holds the securities nor distinguishes between debt originated from governments, financial corporations or NFCs, nor differentiates between listed shares or other equity.

Home bias is a yardstick to assess the magnitude of foreign asset holdings. It compares the actual holdings of foreign and domestic assets against a benchmark derived as the optimal theoretical portfolio composition. In this theoretically optimal portfolio, assets are held according to the share of each country in the outstanding assets in the global economy (which would be the allocation under the assumption of perfect integration). The share of domestic assets would be the proportion of domestic assets in the global pool of financial assets. The

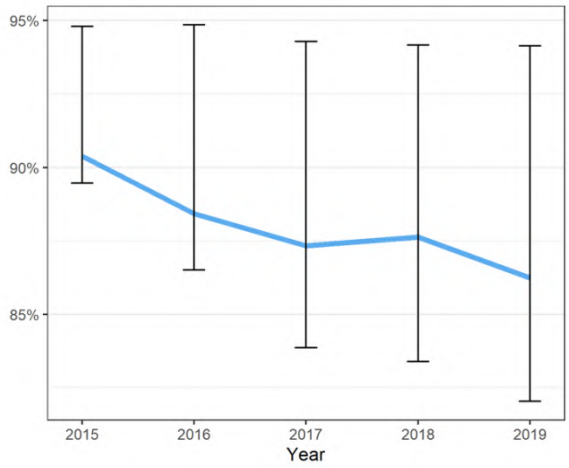
[85] The annex gives a more detailed description of the data source.

[86] See Pagano, A. et al., *FINFLOWS: a database for bilateral investment stocks and flows*, European Commission, Joint Research Centre, 2017, https://op.europa.eu/en/publication-detail/-/publication/10713f91-d8a5-11e7-a506-01aa75ed71a1/language-en. The ECB indicator covers interbank, bond and equity markets. See Hoffmann, P., Kremer, M. and Zaharia, S., 'Financial integration in Europe through the lens of composite indicators', *ECB Working Paper* No. 2319, 2019.

higher the home bias, the lower the international investment – and thus the lower the risk sharing through capital markets. The EU-27 home bias indicator included in the CMU indicator tool kit covers the share of domestic investment relative to the EU investment because the intention is to measure financial integration in the EU. The JRC calculates a second home bias indicator that relates domestic investment to a global portfolio, which indicates how well a Member State is integrated into global capital markets[87].

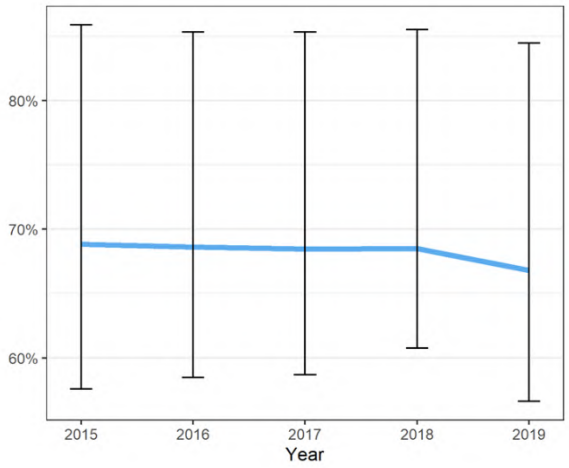
The average bias in holding domestic equity relative to EU equity and domestic bonds relative to EU bonds declined from 80% in 2015 to 76% in 2019. This implies a slight improvement in market integration in the EU, but still far above the theoretical optimum of zero in a fully integrated financial area. The home bias in equity holdings fell somewhat more over that period (from 90% in 2015 to 86% in 2019) than the home bias in debt holdings (from 69% to 67%), but remained at a much higher level. The decline in the home biases did not accelerate over time, apart from in the last year of observation, i.e. 2019. The bias is higher in larger CEE Member States and the Nordic Member States that are not using the euro as domestic currency. It improved in almost all Member States between 2015 and 2019, with a few exceptions[88].

Chart 43: Cross-border equity holdings in the EU-27 – home bias



Decline means improvement
Source: European Commission, DG FISMA based on JRC Finflow.

Chart 44: Cross-border debt security holdings in the EU-27 – home bias



Decline means improvement, EU excluding IE
Source: European Commission, DG FISMA based on JRC Finflow.

3.3.2.2 Cross-border UCITS

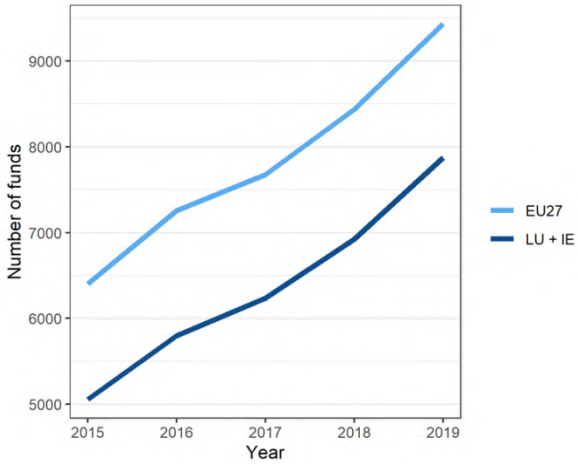
Indicator 30: Number of EU-domiciled UCITS available for sale to retail investors in at least two Member States

The appetite to invest in domestic assets versus foreign assets varies significantly depending on the type of investor. Typically, investment funds or other institutional investors are more active across borders than retail investors. Therefore, households using investment funds or

[87] The EU home bias indicator was constructed by the JRC, using a methodology comparable to the one underlying the ECB quantity-based indicator of financial integration.
[88] Czechia, Greeee, France, Croatia, Poland and Finland.

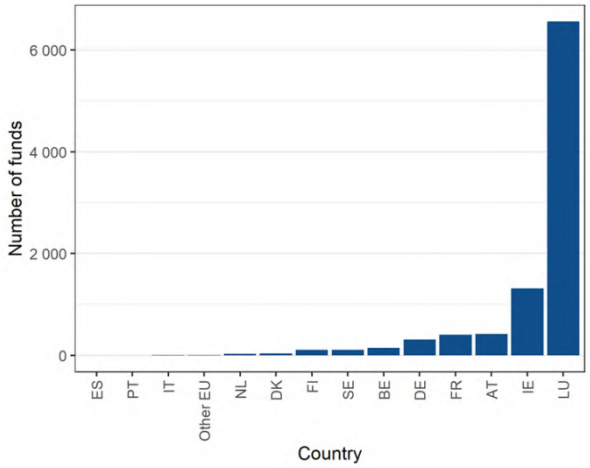
other intermediated vehicles often invest a larger share of their assets across borders than they would if they were investing directly[89]. The share of households' savings channelled through insurance corporations, investment and pension funds (see above) is therefore an important determinant of home bias. Rather than exploring the home bias of institutional investors[90], a meaningful complementary indicator is a measure of the extent to which households use non-domestic intermediaries. A useful statistic is thus the number of cross-border funds available to retail investors, and more specifically the number of UCITS distributed to retail investors in at least two Member States, including their domicile – a statistic collected by ESMA. The actual number of cross-border UCITS increased considerably from less than 7 000 in 2015 to more than 9 000 in 2019. They are largely domiciled in Luxembourg and Ireland, which act as hubs in the EU-27's investment funds industry.

Chart 45: Number of cross-border funds in the EU-27



Note: UCITS available for sale in at least 2 Member States.
Source: European Commission, DG FISMA based on ESMA, performance and costs.

Chart 46: Number of cross-border funds in EU Member States



Note: UCITS available for sale in at least 2 Member States.
Source: European Commission, DG FISMA based on ESMA, performance and costs.

3.3.2.3 Indicators on legal and business conditions

Indicator 31: Cross-country differences in resolving insolvency (World Bank index)

Indicator 32: Cross-country differences in shareholder minority protection (World Bank index)

Indicator 33: Cross-country differences in contract enforcement (World Bank index)

Indicator 34: Cross-country differences in financial auditing and reporting standards (WEF index)

[89] See Darvas, Z., and Schoenmaker, D., 'Institutional investors and home bias in Europe's Capital Market Union', *Brueghel Working Paper*, issue 02, 2017, https://www.bruegel.org/wp-content/uploads/2017/03/WP-2017_02-1.pdf.

[90] In addition to asset holdings, some think tanks also use the share of international or cross-border issuances. However, according to Oxera (2020), since investors can buy securities on foreign markets and as firms use cross-listings largely as a means of increasing brand recognition, the information on cross-border issuance activity is not really informative.

The economic literature provides strong evidence that financial activities are shaped not only by the rules regulating financial entities and their activities (e.g. rules on authorisation, conduct and transparency), but also by the broader legal framework applying to the economy at large[91]. Effective property law, insolvency law, company law, law enforcement and sufficient judiciary capacity are considered the most important legal framework conditions for capital markets to be able to develop[92].

A number of indicators have thus been developed over time to quantify the characteristics of these legal conditions, with the World Bank and the World Economic Forum (WEF) spearheading this work. In the preparatory study on the CMU indicators, LEE (2020) found empirical evidence of a relationship between several indicators on these legal and business conditions and the indicators on CMU objectives, in particular[93]. Details of these indicators are set out below.

Indicators on legal and business conditions	Definition	Relevant for which CMU objective?
Resolving insolvency	Studies time, cost and outcome of insolvency proceedings involving domestic entities as well as the strength of the legal framework applicable to judicial liquidation and reorganisation proceedings	Use of market funding and bank lending to SMEs
Minority investor protection	Measures the protection of minority investors from conflicts of interest through one set of indicators (extent of disclosure, extent of director liability, ease of shareholder suits)	Use of market funding
Enforcing contracts	Measures the time and cost for resolving a commercial dispute through a local first instance court and the quality of judicial processes index, evaluating whether each economy has adopted a series of good practices that promote quality and efficiency in the court system	Bank lending to SMEs
Auditing and reporting standards	Ranking of the strength of financial auditing and reporting standards on a scale of 1 to 7	Use of market funding and SME funding

The first three of these indicators stem from the World Bank *Doing Business* report[94]. They are the result of surveys among legal experts, who are asked to assess a specific business case under prescribed assumptions. While the representativeness of the business case is limited, these indicators give the best possible cross-country comparison of legal and business conditions. In addition, since the World Bank's *Doing Business* exercise covers many countries worldwide, these indicators also allow for comparison with non-EU OECD countries[95]. The fourth indicator on auditing and reporting standards is compiled by the WEF

[91] The empirical work in this area started with LaPorta, R., Lopez-de-Silanes F., Shleifer A., and Vishny R., 'Law and Finance', *Journal of Political Economy*, Vol. 106, No. 6, 1998, pp. 1113–1155.
[92] See Bossu, W., Hillier C., and Bergthaler W., 'Local currency bond markets reform: A methodology for emerging markets and developing economies', *IMF Working Paper 20/257*, 2020, https://www.imf.org/en/Publications/WP/Issues/2020/11/20/Local-Currency-Bond-Markets-Law-Reform-A-Methodology-for-Emerging-Markets-and-Developing-49905.
[93] Indicators from the European Commission's JUST scoreboard are similar in spirit but were not subject to a quantitative study and have not yet undergone in-depth empirical testing vis-à-vis financial performance indicators.
[94] https://www.doingbusiness.org/en/methodology.
[95] The methodology is currently under review and new data will not be released in 2021.

as part of its executive opinion survey, to which about 15 000 participants contributed in 2020[96]. Whereas the World Bank indicators have existed since at least 2015, the WEF series covers at present only three annual observations, from 2017 to 2019.

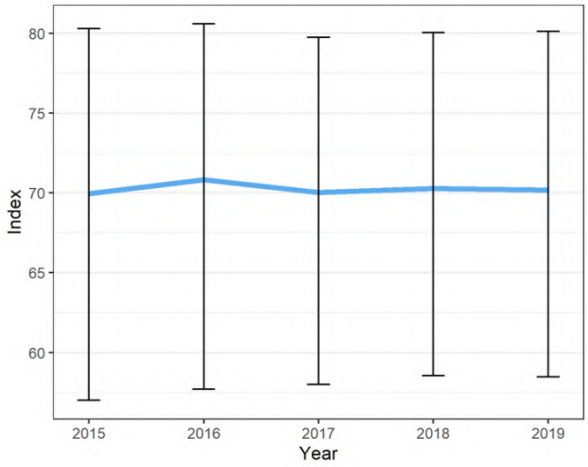
The four World Bank and WEF indicators on legal and business conditions show the distance to the best performance. Cross-country differences in these measures and their development over time should thus provide insight into Member States' integration as regards their legal and business conditions relevant to the development of capital markets. The lower the distance to the best performance, the more conducive the legal system to capital markets activity. The justification for the use of differences in indicators on legal and business conditions does not build on the assumption that they constitute formal legal constraints to cross-border capital flows. Instead, as geographic distance creates difficulties in obtaining and processing information, the crossing of borders further increases the costs of information[97]. Suitable indicators directly measuring information frictions on financial markets are, however, not available. While the indicators on legal and business conditions put forward in this exercise do not represent the actual differences in legal and business conditions between the Member States, they reflect the perception of market participants and legal experts' understanding of the risks of an investment in a different Member State and anticipation of legal possibilities if the investment turns sour.

When looking at the EU-27 average, three of the four indicators on legal and business conditions have improved since 2015, with the exception of the indicator on the efficiency of insolvency, which has remained stable. For all four indicators, the EU average is about 5% below the average of non-EU OECD countries, meaning that the EU's legal and business conditions are overall less conducive to the development of capital markets than those of other OECD countries. The dispersion within the EU is large, with some Member States among the top global performers for some of the indicators. There is, however, hardly any discernible change in the intra-EU cross-country dispersion. The indicator on auditing and reporting standards allows for the most favourable reading among the four legal indicators. It performed best with regard to the three dimensions: the smallest gap with respect to global leaders, the highest speed of catch-up to the global best performers and the greatest convergence within the EU. This may, however, be due to the methodology used by the World Economic Forum. The WEF methodology is different from the one used by the World Bank (which produces the other three indicators) and could be sensitive to events making the headlines (in particular corporate turmoil linked to auditing and reporting) and as a result produce a more variable time series.

[96] See Appendix C in http://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2020.pdf

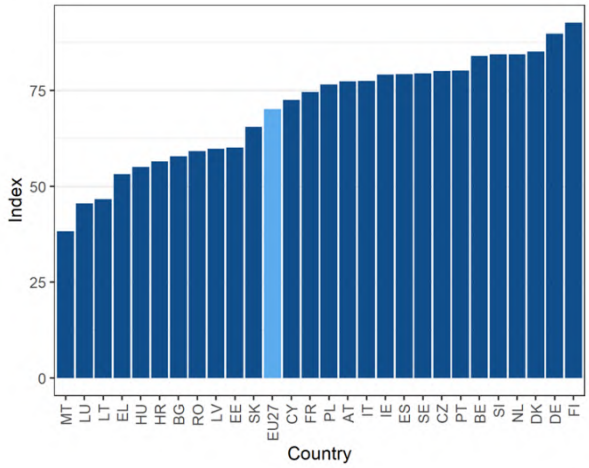
[97] The seminal source is Portes, R., and Rey H., 'The determinants of cross-border equity flows', *Journal of International Economics*, Vol. 65, 2005, pp. 269-296.

Chart 47: Strength of insolvency framework indicator EU-27 and range of Member States (highest and lowest 25%)



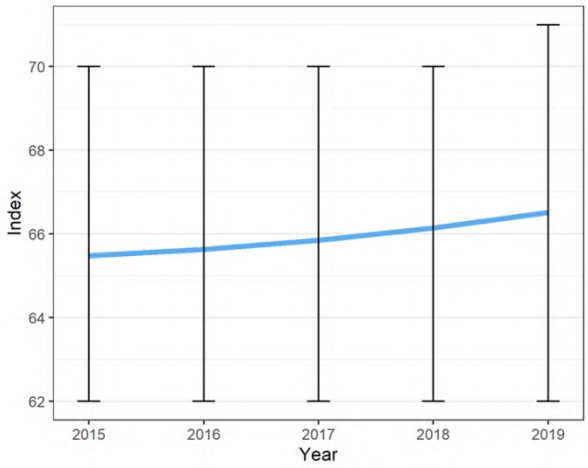
Source: European Commission, DG FISMA based on World Bank Doing Business.

Chart 48: Strength of insolvency framework indicator in the EU Member States 2019



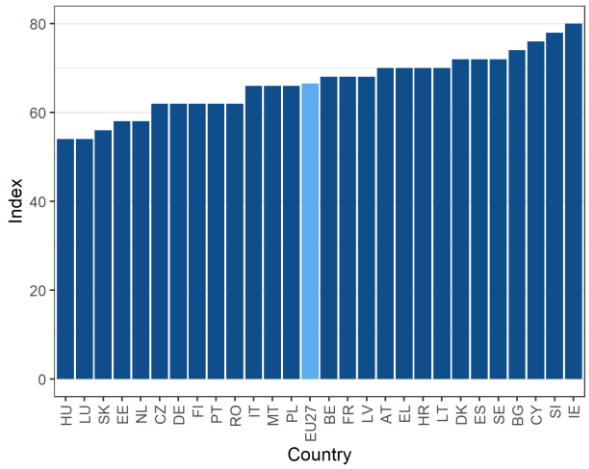
Source: European Commission, DG FISMA based on World Bank Doing Business.

Chart 49: Minority investment protection indicator in the EU-27 and range of Member States (highest and lowest 25%)



Source: European Commission, DG FISMA based on World Bank Doing Business.

Chart 50: Minority investment protection indicator in the EU Member States 2019



Source: European Commission, DG FISMA based on World Bank Doing Business.

3.3.3 Conclusions on capital markets' integration

Home bias in EU investors' portfolios has been gradually declining since 2015 – even though it has remained at a rather high level. However, differences continue to prevail in the conduciveness of national legal frameworks to investment, and to cross-border investment in particular. This is consistent with findings in the economic literature that insolvency regimes, investment protection frameworks and conditions for enforcing contracts, as well as different auditing and reporting standards, are important determinants of cross-border investment. Differences in broader legal and business conditions have remained a significant practical impediment to the EU capital markets' integration. The measures in the 2020 CMU action plan, among others, to support the convergence of insolvency regimes and support shareholder engagement all aim to contribute to remedying some of these issues.

4 CONCLUSION

The CMU indicators tool kit aims to track progress towards the three broad objectives of the CMU: (i) facilitation of access to funding by corporations; (ii) increased retail investment participation; and (iii) better integration of national capital markets into a genuine single market. The time since the enactment of the legislative measures announced in the first CMU action plan in 2015 has been too short to leave a clear trace in the evolution of the CMU indicators. Despite the late implementation of the specific legislative measures and the structural rupture caused by the UK's departure from the EU, the EU capital markets have developed favourably since the inception of the first CMU action plan in 2015. Further progress towards the CMU objectives should become visible in future iterations of the CMU indicators tool kit, although disentangling the impact of the CMU measures from the impact of other factors will remain a challenge. Hence, the CMU indicators can complement, but not substitute, a comprehensive and analytical legislative review process conducted in the case of individual legislative measures.

Given the time lags between the adoption of a legislative proposal, agreement by the co-legislators, its implementation and the visibility of its impact in statistics, the CMU indicators do not provide real-time or forward-looking information. However, by providing a framework for the analysis of capital markets developments, the indicators can help identify the areas where further policy intervention is needed. The CMU indicators can be a useful starting point for more detailed quantitative structural analysis. Moreover, they can help identify best performers and best practices among the Member States, though national authorities will always need to analyse which insights can be drawn from favourable experiences made elsewhere for their own reform programme. This staff working document lists a number of caveats and limitations, requiring future readers of the CMU indicators to apply caution when interpreting them and to complement the information these indicators are providing with adequate further qualitative and quantitative analysis.

Among visible improvements, market funding plays a more important role in NFCs' funding, although the indicator measuring this shows only a small improvement. Corporate bonds have become an established funding tool for larger firms, i.e. they were used not only when bank lending was weak, but also when the latter was freely available. This insight does not emerge from a simple look at the development of the indicator, but from further analysis of structural relationships. The more intense use of corporate bonds has helped – in the first instance – larger firms to diversify their funding sources. Beyond this direct positive effect, it freed up lending capacity in banks for SMEs. In the meantime, banks have remained the main providers of external finance to SMEs. The favourable economic developments between 2015 and 2019 boosted SMEs' internal funding (via retained earnings), which somewhat lessened their demand for alternative sources of external financing. These alternatives to bank lending improved during that period, but from low levels, i.e. SME equity growth markets have become established and the provision of venture capital improved. Despite this, an asymmetric development between debt and equity markets is noticeable. While debt markets benefited from central bank purchases, firms made little use of high valuations on equity markets. Rather than issuing listed shares, delistings and share buy backs continued.

The COVID-19 crisis led to – what appears to be – short-lived turmoil on capital markets in 2020. Market funding recovered when market valuations rebounded. Firms in those Member States where corporate bond issuance played an important role prior to the crisis were able to tap this funding source quickly via follow-on issuances. Since the decline in economic

activity induced by the COVID-19 crisis is leading to higher corporate debt levels, equity markets are supposed to take up a larger part of the future funding mix. Private equity markets may partly fill the gap in Member States where they are already well developed, but are unlikely to absorb all the additional needs for equity. Over the period under analysis, insurance corporations and pension funds continued to have a rather stable equity ratio, despite increasing equity valuations.

Households' direct holdings of shares and bonds remain low in most Member States, while indirect participation in capital markets via intermediaries increased to some extent. The latter improved in particular in the Member States where insurance corporations and pension funds had a significant market share prior to the crisis. Households increased their deposit and share holdings at aggregate level during the COVID-19 crisis, albeit with large variations across the population. Households were net acquirers of listed shares when stock prices tumbled during the COVID-19 crisis, although it is impossible to say whether this implies a structural shift in retail investors interest in investing on stock markets. Anecdotal evidence suggests young savers are increasingly open to the use of new technologies and to investing in assets that facilitate the green and digital transition of the economy. While this is overall a welcome development, it may carry risks of green washing and risks related to the highly volatile prices of certain crypto instruments, which consumers may not be fully aware of and which may discourage market participation in the longer term.

As regards market integration, the home bias in the EU investors' portfolios has been gradually and slowly declining since 2015, even though it remained at a rather high level. However, differences in broader legal framework and business conditions have remained a significant practical impediment to the EU capital markets' integration.

The CMU indicators allow for a comparison between the Member States. For most indicators, over the examined period, the Member States with less developed markets have also been the ones where the situation has improved the most, demonstrating the well-established 'catching-up' effect. There are, however, some exceptions. Venture capital markets have been becoming much stronger in the Member States where they were already dynamic before. In addition, the role of insurance corporations and pension funds in channelling households' long-term savings into capital markets has improved more in the Member States where these intermediaries were already well established when the CMU initiative was launched in 2015.

To conclude, the CMU indicators cannot offer a complete picture of all relevant developments. They are designed to be stable, yet sufficiently open to integrate new indicators or replace existing indicators with more suitable ones, once more or better data become available, making the toolkit 'dynamic'. For example, IPO costs, costs of market data, sales of non-performing loans (NPLs) and the presence of financial advisers are relevant concepts for which statistics currently do not exist. Reporting on relevant sustainability data will be gradually introduced to track progress towards sustainable finance and more broadly towards the green objectives, notably the reporting under the Taxonomy Regulation[98], the Sustainable Finance Disclosure Regulation[99] and the recently tabled proposal for a Corporate Sustainability Reporting Directive[100] (revising the Non-Financial Reporting Directive). These could be useful to develop new sustainable finance indicators. Other areas where new

[98] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32020R0852
[99] https://eur-lex.europa.eu/eli/reg/2019/2088/oj
[100] https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021PC0189

indicators may become available in the future relate to financial literacy (where relevant questions may be included in future Eurobarometer surveys), the state of insolvency frameworks (when the ongoing feasibility assessment on value recovery data is completed) and pensions (when the work on an EU pension dashboard is finished). Future iterations of the CMU indicators toolkit, which is planned to be updated annually, may thus include new or adapted indicators.

ANNEX: Details on the statistical properties of the indicators

Indicator 1: Sum of listed shares and corporate bonds issued by NFCs relative to the sum of those two and bank loans to NFCs in %

There is a rich empirical literature that analyses the link between finance and economic growth through cross-country growth regressions. It has established as a stylised fact that a growing financial system does not lead to higher economic growth, but that a larger share of market funding does. The economic literature uses variables that are available for a large set of countries around the globe. Researchers collaborating with the World Bank set up a data panel with these variables spanning a large set of countries from 1960 to 2017[101]. The narrower focus of the CMU indicators on corporates' choice between market funding or bank lending, as well as specific EU developments such as the high share of non-listed equity and the rising share of non-bank lending, warrant a more targeted specification, which is detailed in this annex.

With the selection of listed shares and corporate bonds, the CMU indicator of market funding presents a narrow and targeted perspective of corporate funding choices. Table A1 shows the relative importance of these and other items on the liability side of the balance sheet of the non-financial corporate sector in the financial accounts assembled by statistical offices. It reveals a high share of not tradable equity on corporates' balance sheets. Outside the financial accounts data, surveys reveal that a substantial share of non-financial investment is funded through leasing, factoring or grants[102]. Over the last few years, the share of intra-firm loans[103], inter-firm loans and credit by other financial intermediaries (often holding companies) has risen. These appear to be largely determined by industry choices rather than by financial parameters.

The underlying data on listed shares and bonds (debt securities with a maturity longer than 1 year) stem from the annual sector accounts collected by official statistical offices. These statistics also cover loans given by banks (monetary financial institutions) and loans as liabilities of the non-financial sector, but do not provide the combination of both, i.e. loans by banks to corporates. This item is sourced through banks' balance sheet data collected by central banks. Consistency between both datasets requires that bank lending is to domestic non-financial corporations since listed shares and bonds are national too. It also requires that consolidated data are used for listed shares and debt securities because shares and bonds would include inter-sectoral holdings if non-consolidated, whereas the lending data are a consolidated stream from the banking sector to the corporate sector. The use of consolidated data comes at the expense of a loss in time series/frequency. Consolidated data are annual and currently available until 2019. Eurostat will release 2020 data in autumn 2021; non-consolidated data are quarterly and more recent, already providing a perspective on developments in 2020.

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[101] https://www.worldbank.org/en/publication/gfdr/data/global-financial-development-database, see Cihák, M., Demirgüç-Kunt A., Feyen E., and Levine R., 'Benchmarking Financial Systems around the World', *Policy Research Working Paper* 6175, World Bank, Washington DC, 2012.

[102] The EIB Investment survey (2020) revealed that internal funding accounted for 62% of corporates' funding of investment in 2019, and intra-group funding for 3%. Breaking down the remainder of external funding demonstrates the dominance of bank funding (68%), followed by leasing and hiring (21%) and grants (6%).

[103] This item shows up when non-consolidated data are used. Consolidated data are only available with a longer delay and at annual frequency.

The financial data are available for stocks (balance sheets at the end of the period) and flows (transactions during the period). Transactions show the net issuance of financial instruments, which are volatile even at annual frequency and therefore difficult to compare over time[104]. Changes in outstanding amounts are more straightforward to interpret. However, they suffer from valuation effects, which have been significant in past years because equity prices have increased considerably, implying that changes of the market funding ratio would be driven to a greater extent by higher share prices than by firms actually receiving new funding through issuing listed shares. The impact of valuation effects is significant for listed shares; it hardly plays a role for debt securities and bank loans.

The solution taken for adjusting this CMU indicator for valuation effects is that outstanding amounts are taken for the year 2011, to which annual transactions are added, i.e. the change from 2011 to 2019 covers the cumulative transactions from 2012 to 2019. The resulting measure is a price-adjusted stock market capitalisation, i.e. numbers in share prices of 2011[105]. Chart A1 shows the difference between a market funding ratio calculated on the basis of balance sheet data, i.e. incorporating valuation effects, a ratio with adjustment for valuation effects and one ratio that uses total loans on the NFC sector's balance sheet instead of bank loans. The year 2011 was selected as the starting point for the adjustment due to data availability because all Member States report data from 2011 onwards. It is also a useful starting point because share prices were relatively low in that year after correction from previous peaks, implying they were the least inflated among all possible base years. Using 2003 or 2009 as starting point would lead to broadly similar results.

Table A1: Financial liabilities of NFCs in % of total, EU-27, 2019

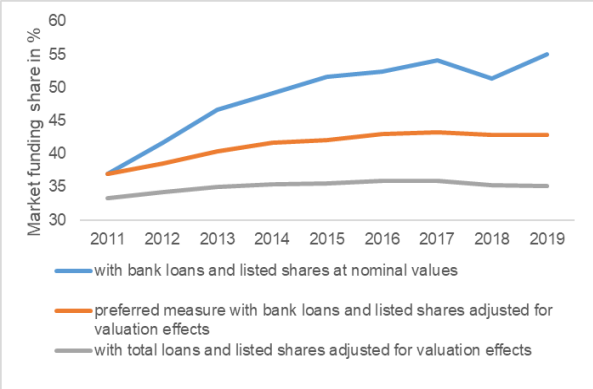
	Total (non-consolidated)	Against other sectors (consolidated)	Against other NFCs
Currency and deposits	0.1	0.1	0.0
Short-term debt securities	0.2	0.2	0.0
Long-term debt securities (bonds)	3.4	3.4	0.0
Loans	26.5	19.8	6.7
Listed shares	16.6	14.2	2.4
Unlisted shares	28.2	16.4	11.8
Other equity	11.7	9.4	2.3
Investment fund shares/units	0.0	0.0	0.0
Insurance, pensions and standardised guarantees	0.9	0.9	0.0
Financial derivatives and employee stock options	0.3	0.3	0.0
Trade credits and advances	8.5	2.6	5.9
Other accounts payable	3.5	2.7	0.8
	100.0	70.0	30.0

Source: European Commission, DG FISMA based on Eurostat, Annual sector accounts.

[104] It is also possible to use statistics of gross issuances of the financial sector. However, this metric would not cover the redemption of debt securities and share buy-backs. It also implies a sensitivity of the metric to changes in interest rates. In fact, interest rate fluctuations could influence the maturity chosen by companies seeking financing and concomitantly the amount of funding that needs to be refinanced at any given point in time.

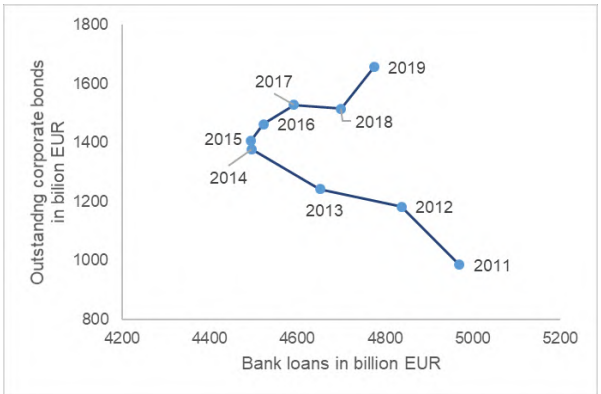
[105] The academic literature uses the nominal stock market capitalisation, which is defined in % of GDP. This yields adjustment for consumer price inflation, but not for asset price inflation. If share prices correctly anticipate growth prospects, this will mechanically improve the fit between stock market capitalisation and economic growth.

Chart A1: EU-27 funding ratio – three different specifications



Source: European Commission, DG FISMA based on Eurostat, Annual sector accounts and ECB, Balance sheet items.

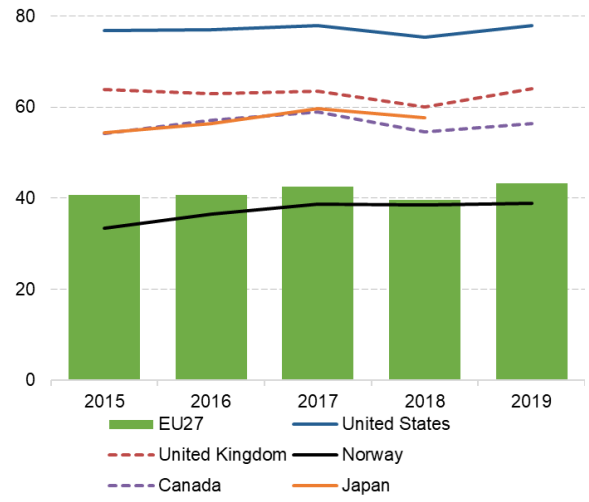
Chart A2: corporate bonds and bank loans to NFCs, EU-27 2011-2019



Source: European Commission, DG FISMA based on Eurostat, Annual sector accounts and ECB, Balance sheet items.

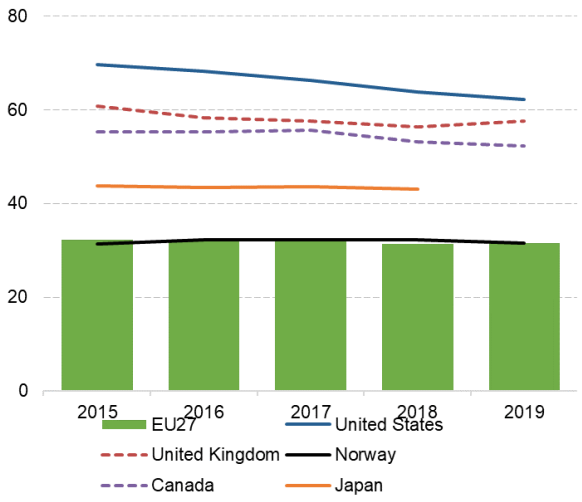
Differences in methodologies complicate the comparison of the CMU indicator with developments in non-EU countries. Most challenging is the identification of comparable data on bank loans to NFCs. A second challenge stems from the absence of consolidated data in the sectoral accounts. The charts below are based on non-consolidated sectoral accounts data, i.e. they include intra-firm loans and intra-firm lending. Instead of bank loans, listed shares and corporate bonds are related to their sum and NFCs' total loan liabilities. Since these loans are larger than bank loans, the use of NFCs' total loan liabilities yields a lower market funding ratio for the EU than in the metric used for the CMU indicators. The increasing share of non-bank lending in the EU dampens the increase in the market funding ratio over time. The left-hand chart shows calculations with nominal balance sheet data, while the right-hand chart applies the adjustment for rising valuations of share prices used for the CMU indicator.

Chart A3: Market funding ratio in the EU and other countries. With nominal values, in %



Source: European Commission, DG FISMA based on Eurostat, Annual sector accounts and OECD Financial accounts.

Chart A4: Market funding ratio in the EU and other countries. With valuation-adjusted share prices, in %



Source: European Commission, DG FISMA based on Eurostat, Annual sector accounts and OECD Financial accounts.

Indicators 2 to 10: Strength of public secondary markets for listed shares, SME equity and corporate bonds

The information on market size, market breadth and bid-ask spreads of stock markets is derived from various data sources. The primary objective was to have data for each indicator that are comparable over time and across the Member States, rather than aiming for comparability across indicators. The data on stock market size stems from the IPO database of the Federation of European Stock Exchanges (FESE); the size of the corporate bond market - from the ECB's statistical data warehouse; the number of outstanding shares and bonds - from ESMA data. ISIN codes are used to allocate financial instruments to the Member States. The indicators on market breadth inform about the number of financial instruments, but do not inform about diversification opportunities across issuers. This is so because issuers can have several outstanding financial instruments, i.e. bonds of different maturities, or shares with different ownership rights. A share is classified as SME equity if the share-issuing firm has a market capitalisation below EUR 200 million (in line with the SME concept in MiFID). Data on stock market liquidity is derived from data provided by commercial data provider Refinitiv, which is part of the London Stock Exchange Group.

The size of stock markets is measured through the amount of capital raised through initial public offerings, i.e. the first time a corporate lists shares for trading. The data from FESE currently do not include data for domestic issuances of Italian corporations. These are sourced from Borsa Italiana.[106] At the moment secondary issuances, which are stock offerings by the already listed firms are not covered in the IPO database. The volumes of secondary issuances tend to be higher than those of IPOs. The analysis of existing data on secondary issuances

[106] Borsa Italiana provided IPO data for Italy for the years 2015 to 2020 comparable to FESE's. They are expected to be incorporated into the FESE data in the future, following the acquisition of Borsa Italiana by Euronext.

however revealed wide differences across the data sources, which cast doubt on the reliability of the underlying data. Secondary issuances might be included in future releases of the CMU indicator tool kit, once methodological and data quality issues are resolved. Stock market capitalisation as an alternative metric is not used because it is sensitive to the valuation effect described in the explanation of the market funding ratio (indicator 1).

The bid-ask spread is calculated as the relative price difference between the bid and the ask prices for each listed firm in the Refinitiv data set, which provides information about price development from a panel of almost 7 500 firms with a quoted share price. The size of the panel makes it possible to cover even smaller Member States with a reasonable number of observations, i.e. no Member State has less than 20 observations. Such representativeness and full coverage of all Member States is not possible with the sample constituted from any of the Eurostoxx stock price indices. Country observations are the median of companies headquartered in the Member States[107], while the EU-27 observation is the median of all firms in the panel. Annual observations are monthly averages of the average mid-price of each month.

ESMA published two alternative liquidity indicators for the EU aggregate based on the shares that are included in the Eurostoxx 200. The first is based on bid-ask spreads, the second is the result of a principal-component analysis of six different liquidity measures[108]. ESMA's bid-ask spread differs from the EU-27 because it is based on a smaller population, which means the median firm in the Eurostoxx 200 is larger than in the panel used for the CMU indicator.

For bond markets, the market size is measured by gross issuance using data on long-term bonds from the ECB. While gross issuance represents new investment opportunities, net issuance would be a more precise metric of changes in market size. Some bonds are issued to replace redeemed bonds and so do not expand the market size. The ECB, however, shows net issuance data only for the euro area Member States, whereas its gross issuance data covers all Member States. The breadth of the bond market is sourced from ESMA's MiFID data. It covers bond instruments issued by all companies, including financial companies. On bond markets, issuances by sovereigns and financial issuers largely dominate, while issuances by NFCs account for only 10% of market value. On equity markets, financial corporations account for about 25% of market value in the EU-27, meaning than NFCs represent 75% of the market.

The bid-ask spread on the corporate bond market is measured through the spreads of the components in the Markit iBoxx EUR corporate bond index, replicating the methodology used by ESMA and applied on the average of annual observations. The annual frequency hides the underlying volatility of bid-ask spreads on corporate bonds and their sensitivity to market turmoil. For example, they increased from 0.35 to 0.65% within one month in 2020 during the COVID-19 crisis[109]. A breakdown of the bid-ask spread by the Member States is currently not meaningful because for most Member States there are only few bonds in the underlying index. This means that developments over time are strongly determined by

[107] The median measures the value of the observation in the centre (50%) of the population. It is less sensitive to outliers than the average.
[108] See the statistical annex to the *ESMA Report on Trends, Risks and Vulnerabilities*, Figure A.19 in the 2021 No 1 edition. https://www.esma.europa.eu/market-analysis/financial-stability.
[109] ESMA monitors liquidity on corporate bond markets through a second indicator, the Amihud coefficient, which measures the return on a financial instrument relative to its trading volume. It is more volatile than the bid-ask spread.

changes in the underlying pool of bonds, i.e. entry and exit of some issuers will have a marked impact on the bid-ask spread.

Indicators that cover prices, costs and volatility of public markets are difficult to include. They have either no clear link to market performance and are strongly driven by cyclical factors such as example volatility, or they are not available in statistics, and would instead need to be derived through models and be based on assumptions. Share and bond prices are strongly determined by firm-specific characteristics, i.e. profit and default probabilities and their indices from their constituencies. Hence, cross-country differences in share or corporate bond prices seem to be more informative of the industry structure and cyclical outlook in a country than the funding capacity of capital markets.

Table A2: Trading venues in the EU Member States

	Regulated markets	Multilateral trading facility	Other trading facility	Systematic internalisers	Investment firm	
					Total	Head office
Belgium	2	8	0	5	54	41
Bulgaria	3	3	0	2	60	58
Czechia	2	3	1	4	45	41
Denmark	3	4	0	11	211	202
Germany	20	23	3	43	2 627	2 525
Estonia	1	1	0	0	16	13
Ireland	1	11	1	12	204	157
Greece	5	1	0	3	80	70
Spain	12	6	4	7	460	441
France	3	12	11	18	562	508
Croatia	1	1	0	1	22	22
Italy	6	12	0	11	655	648
Cyprus	1	1	0	4	323	287
Latvia	1	1	0	1	19	19
Lithuania	1	1	0	0	13	12
Luxembourg	1	1	0	2	193	117
Hungary	2	3	0	6	39	38
Malta	2	1	0	0	146	136
Netherlands	11	24	6	10	373	329
Austria	1	1	0	9	667	648
Poland	10	4	1	11	75	66
Portugal	3	2	0	0	82	79
Romania	1	1	0	1	57	57
Slovenia	1	1	0	1	18	17
Slovakia	1	0	0	1	32	24
Finland	3	4	0	2	285	281
Sweden	16	10	0	4	184	168

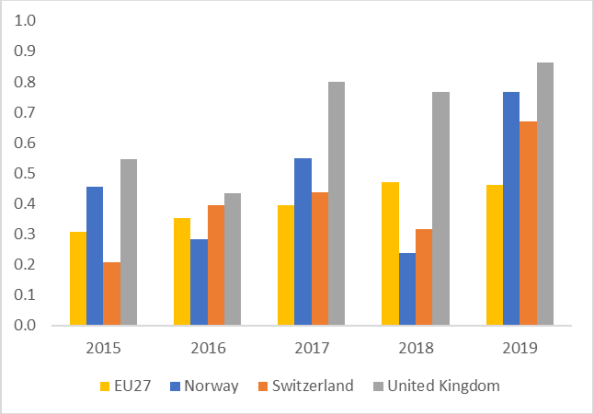
Source: European Commission, DG FISMA based on ESMA registers.

Indicator 11: Value of annual private equity investment relative to nominal GDP

Invest Europe collects data through a survey of the private equity industry and publishes data once per year. It provides numbers on funding, funding sources, investment and

disinvestment, broken down by country, by year and by purposes and target companies. For the purposes of the indicator, the investment of private equity funds in EUR from Invest Europe is divided by Eurostat's GDP in current prices to obtain comparable cross-country data. To account for possible cross-border investments, investment numbers by location of the portfolio company are used. This is the closest to where the investment occurs and therefore the best method to identify in which Member State the investment occurred. Some Member States are not included because data are either not available (CY and MT) or clustered with other countries in the region of 'other CEE' (SI, SK, HR). The Baltic countries are also clustered, but country-specific investment data are available as a regional breakdown in the Invest Europe database.

Chart A5: Private equity in % of GDP in the EU and non-EU countries



Source: European Commission, DG FISMA based on Invest Europe/EDC and Eurostat, national accounts.

Indicator 12: Sum of equity investment and investment into equity funds and private equity funds relative to the total assets of insurance corporations

Statistical offices and central banks collect balance sheet data about insurance corporations and pension funds. Since a large part of the insurance sector's investment is indirect via investment funds and since especially the larger share of equity investment occurs through dedicated funds, the balance sheet data understates insurers' investment into equity. The supervisory data compiled by EIOPA provide a look-through for equity investment. The data also cover investments that are part of other insurance products, known as 'unit linked contracts'. The equity ratio applied for insurers is: the sum of equity investment, equity funds and private equity funds to total assets in the exposure statistics, while for pension funds it is the sum of aggregate equity[110] and UCITS in equity securities relative to total assets. The equity ratio used includes neither equity held in diversified funds, i.e. in what are called asset-allocation funds, nor investment in alternative funds. While supervisors also have information about insurers' holdings of corporate bonds and their maturities, it is presently not possible to run a look-through to determine long-term corporate bond holdings via investment funds.

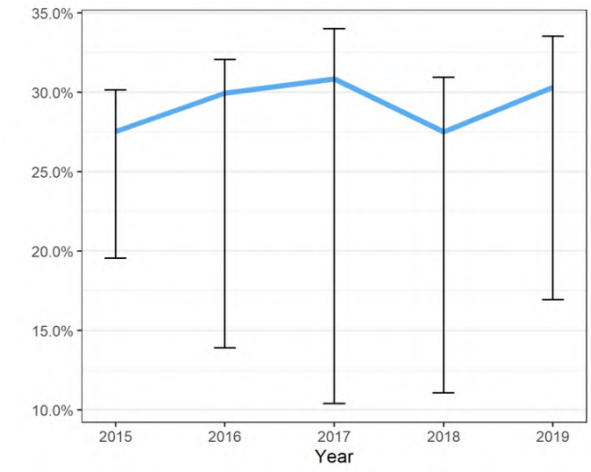
EIOPA provides investment data for insurance corporations in all EU-27 Member States each quarter since Q4-2017. Since EIOPA supervises only the occupational pension sector and occupational pension funds do not exist in a number of Member States, the statistics cover only 19 Member States. The data on pension funds are annual and go back to 2004 for some

[110] This excludes UCITS.

Member States. However, there are numerous gaps in the data on equity holdings, with data coverage becoming more complete since 2012. For some Member States, there is no information about the equity invested via investment funds. Changes in reporting patterns also seem to have introduced a break in several Member States' time series. Comparability of changes over time or the construction of an EU-27 aggregate equity ratio seem therefore currently not possible. As data coverage has improved over the last few years, it might become meaningful to do so in the future, even if occupational pension funds do not exist in several Member States, including France and Poland. In the current supervisory statistics, when data on equity investment via investment funds are available, it is often a multiple of direct equity holdings, suggesting that ignoring this item will severely underestimate the magnitude of equity investment. However, there are several Member States without this information and others where it is only available for the most recent past.

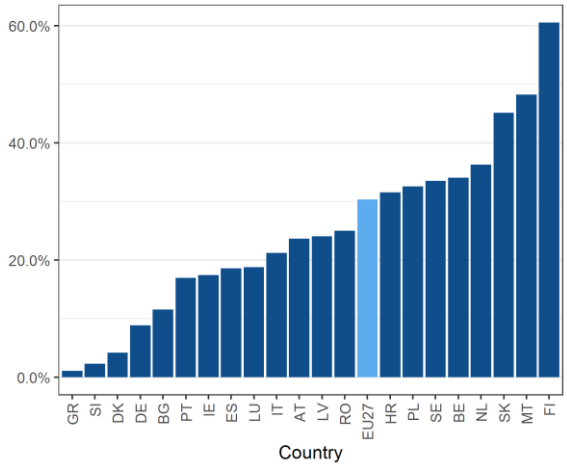
The OECD collects also data for personal pension funds but for 11 Member States only. The OECD data suggests that for personal pension funds where data on indirect holdings via investment funds are available, equity ratios are somewhat different from those for occupational pension funds, but without a clear indication of whether they are systematically higher or lower. Aggregation of data from these different sources seems inappropriate.

Chart A5: Equity holdings of occupational pension funds in % of total investment in the EU-27 and range across Member States (highest and lowest 25%), Member State data suffer from different data coverage over time



Source: European Commission, DG FISMA based on EIOPA, Occupational pension statistics.

Chart A6: Equity holdings of occupational pension funds in % of total investment, 2019, Different data coverage across Member States



Source: European Commission, DG FISMA based on EIOPA, Occupational pension statistics.

Indicators 13 and 14: SME equity use and equity gap

Information on SMEs is scarce in official statistics, and usually limited to data about the number of firms, employment and value added. The Commission and the ECB created the SAFE survey to fill the data gap. This survey has been conducted semi-annually in spring and autumn since 2009, with the spring survey covering the euro area and the autumn survey all Member States. The latter is used for the CMU indicators.

The SAFE survey reports the share of firms that indicate that access to funding improved, remained stable or deteriorated, minus the share of firms indicating that funding needs increased, remained stable or declined respectively. The equity gap indicator measures the

difference between firms' perceptions of their demand for equity financing and the availability of equity financing. Although SAFE does not make a distinction between public and private equity, a small proportion of firms (8%) in SAFE are listed. To calculate the equity financing gap, the perceived availability of financing and the perceived demand for financing is used. The specific questions are 'Equity – For each of the following types of external financing, please indicate if your needs increased, remained unchanged or decreased over the past 6 months?' A similar question is asked for the availability of the different sources of external financing This is coded onto a 100% to -100% scale and averaged across all firms for which equity financing is relevant (firms were asked if equity finance is relevant to their company). The equity financing gap is equal to the average value of the demand for equity financing in the last 6 months minus the average value of the availability of equity financing in the last 6 months, across all firms for which equity financing is relevant. A decrease in the equity gap represents an improvement in financing conditions, and data are only included for respondents for whom equity is a relevant financing source.

Almost 1 600 firms replied to the question on funding needs in the 2020 survey wave and 700 on funding availability. Despite this large sample, numbers for smaller Member States are based on few replies only, which raises questions about their representativeness. Member States with fewer than 20 responses are AT, BG, CY, CZ, EE, HU, IT, LU, MT, PT, RO and SK.

The numbers from SAFE are combined with other assumptions and data to calculate monetary values for the debt and the equity gap, as provided in Mc Cahery et al. (2015) and EC/EIB (2019). The approach used in these papers is not followed here because the assumptions used to determine monetary values become more doubtful when applied to equity funding rather than to total funding, i.e. whether firms in difficulty have and should get the same financing as those firms able to find funding and loans. In addition, there is little confidence that the demand estimates for debt and equity in SMEs are sufficiently robust. Moreover, when replicating the methods used in these papers, the indications from SAFE represent the only time-varying element and hence any derived measure would move together with the equity gap suggested for the CMU tool kit and therefore not provide value added.

A further relevant source of data on SME financing conditions is the annual investment survey conducted by the European Investment Bank. Since 2015, the survey has provided information about the share of internal and external funding, and the composition of funding sources across all Member States. Other information relates to the share of credit-constrained firms, the extent they presumably felt financially constrained and whether they were satisfied with the amount of funding they obtained. Consistent with SAFE, the EIB survey documents that bank lending is the dominant source of external financing for SMEs and that less than 0.5% of SMEs made use of equity or bond issuance in previous years. A host of data on SME financing are also collected by the OECD. The OECD data allow for comparison with other developed non-EU Member States. Since the data series cover 2007-2017, the OECD data cannot provide insight into improvements since the first CMU legislative measures started to be implemented. Finally, the EIF calculates an SME Access to Finance Index.[111] It combines factors related to lending, equity, credit and leasing, as well as macroeconomic factors. The equity components are used in the tool kit as indicators 3, 13 and 16.

[111] See Torf, W., The EIF SME Access to Finance Index- September 2020 update, September 2020, eif_working_paper_2020_68.pdf https://www.eif.org/news_centre/publications/eif_working_paper_2020_68.pdf

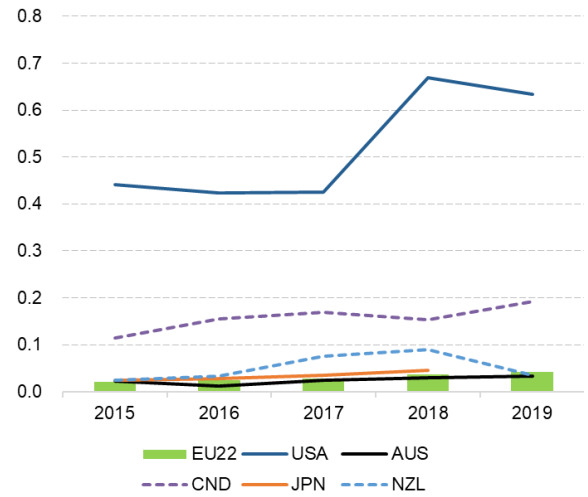
Indicator 16 and 17: Venture capital markets

The investment of venture capital funds depends strongly on the funding they receive, with some disinvestment and difference in allocation by year and country explaining a small difference between funding and investment. Shadowing the approach used for private equity above and using the data from Invest Europe, venture capital investment is allocated to the Member State where the portfolio company is domiciled. Country data are occasionally volatile even for annual observations, especially when they concern smaller Member States.

The charts in this annex are produced using the OECD data, which are collected from different data sources, often from private associations that use the help of commercial data providers. According to the OECD metadata, differences in definitions, methodology and representativeness limit the data's comparability. The EU aggregate is the sum of venture capital in the 22 Member States covered in the OECD database.

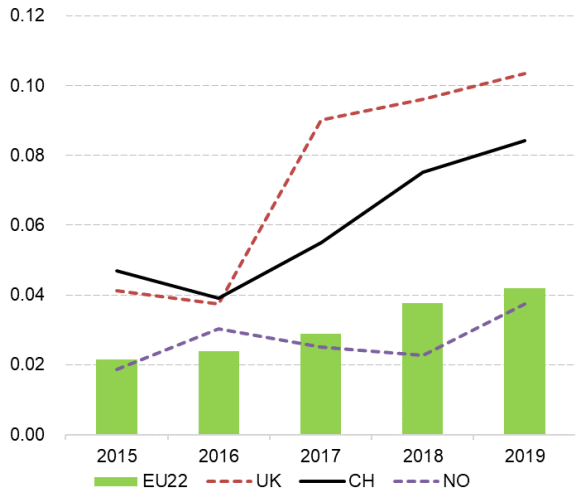
The breadth of funding sources for early stage company investment is calculated as measure of concentration of various venture funding sources. There is no possibility to provide a breakdown by individual investors, but classification of investor groups is possible. These are: academic institutions, banks, capital markets, corporate investors, endowments and foundations, family offices, funds of funds, government agencies, insurance companies, other asset managers, pension funds, private individuals and sovereign wealth funds. The indicator uses the breakdown of institutional investor groups into 13 groups provided in the statistics collected by Invest Europe. The market shares of each group is used to calculate a concentration measure, i.e. the Herfindahl index, calculated as the sum of squared market shares. If there is only one group, the index equals one; the more dispersed the investor base, the closer the index gets to zero. That is, a larger dispersion implies larger market shares held by more investor groups. This measure is available for 25 Member States over 2009-2019. As there are years when some Member States reported no venture capital investment, there is no (continuous) time series for all Member States.

Chart A7: Venture capital investment in non-European OECD countries, in % of GDP



Note: The OECD data do not cover all EU Member States.
Source: European Commission, DG FISMA based on OECD, Enterprise statistics.

Chart A8 52 Venture capital investment in non-EU European OECD countries, in % of GDP



Note: The OECD data do not cover all EU Member States.
Source: European Commission, DG FISMA based on OECD, Enterprise statistics.

Indicators 18 and 19: Covered bonds and securitisation

The Covered Bond Council issues its annual figures from a survey of market participants, supplemented by its own research. This is the most comprehensive data source on covered bonds and, according to the Covered Bond Council, it is of high reliability and representativeness, even though the council does not assume any responsibility for the data. The Covered Bond Council also provides real-time monitoring through a limited panel. As this indicator seeks to measure the impact of covered bond issuances on available bank lending, total issuance of covered bonds is not standardised by GDP but expressed as a ratio to bank loans to domestic non-financial corporations and households taken from the European Central Bank. Some Member States reported volatile annual observations and a few reported zero issuance in some years. There are no observations for several EU Member States (BG, EE, LT, LV, MT, RO, SI). Covered bonds are mostly backed by mortgages (93%, compared to 6% public sector and 0.6% ships) and publicly placed (79%, compared to 21% privately placed). The dominant issuer is Denmark, where covered bonds account for almost three quarters of loans to non-banks, followed by Sweden, where covered bonds account for a third of bank loans to non-banks.

The Association of Financial Markets in Europe (AFME), an industry association representing actors on wholesale financial markets, provides data on securitisation that are considered an authoritative data source. AFME collects the data from market participants, of which many are its members[112]. It also obtains comparable US data through its cooperation with its US counterpart, the Securities Industry and Financial Markets Association (SIFMA),

[112] For the methodology used, see AFME (2020), *Securitisation Data Report*, https://www.afme.eu/Portals/0/AFME%20Securitisation%20Data%20Report%20Summary%20of%20Methodologies%201Q%202020%20(PDF).pdf?ver=2020-06-17-131747-493.

and with a global investment bank. The numbers used are outstanding volumes in billion EUR and the country breakdown is determined by the origin of the collateral. Collateralised loan obligations are, however, excluded. A sizeable share of securitisation instruments are retained by banks, almost 60% in 2020. Hence, the amount of issued instruments overestimates the actual transfer of risks to non-banks. The share of retained issuances is only published for the EU aggregate, but not for individual Member States and was therefore not considered. As the interest is in gauging the impact on banks' lending capacity to the economy, the monetary value is divided by loans issued by monetary financial institutions (MFIs) to domestic non-monetary financial institutions excluding governments. These are predominantly loans to NFCs and households.

An alternative data source is the ECB, which reports data on financial vehicle corporations. This includes data on loans securitised in these financial vehicle corporations. Since reporting entities are financial vehicle corporations established in the euro area Member States, numbers are higher in Ireland and Luxembourg in comparison to the AFME data, which use the location of the collateral.

Both AFME and the ECB have a limited coverage of Member States. AFME covers only Member States from which loans are used as collateral. Some EU Member States with smaller issuance volumes are reported together with non-EU Member States as 'other Europe' [113]. The statistics also show a market share for pan-European securitisation that covers instruments for which the location of the collateral cannot be determined. The ECB reports only on euro area Member States.

Indicators 20-22: Households' holding of financial assets

The allocation of financial wealth to financial asset categories can be extracted from the official data collected by statistical offices and central banks for the sectoral accounts. Such data are available for all EU Member States. For analytical purposes, it has proven favourable to distinguish between direct holdings of financial securities and intermediated holdings[114], with the former covering debt securities and listed shares. Not included are financial derivatives and employee stock options because they are too insignificant, i.e. 0.1% of GDP in the Member States with the highest numbers. The latter are holdings of shares in investment funds and claims against insurers and pension funds. The financial accounts data do not give an indication of wealth held in non-financial assets such as real estate, which is a sizeable store of wealth for the household sector according to the ECB household survey described below. A number of financial asset categories are not considered: other receivables, loans and non-listed equities and non-life insurance benefits are excluded because they are not part of active portfolio choices and not attributable to a 'market instrument'. Among them, non-listed equity is the most substantial one, amounting to about 15% of total financial assets.

Unlike for the corporate sector (see above), households hold few financial claims or debt against other households. The difference between consolidated and non-consolidated data is

[113] Norway, Turkey, Russia.

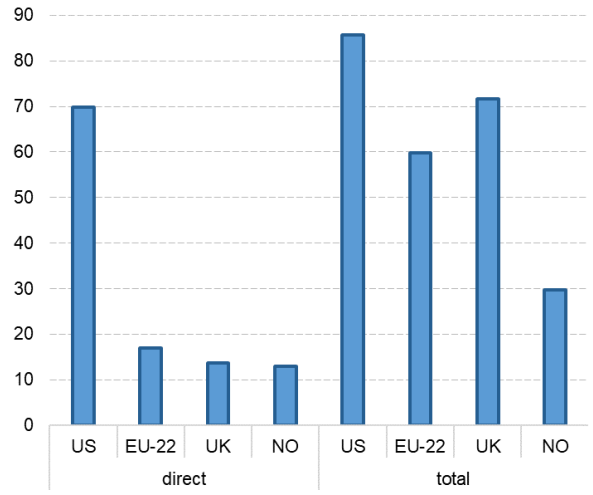
[114] LEE (2020) suggested separate treatment of different types of financial assets, given that their empirical properties are different. For a study on the long-term returns of the various assets that households have at their disposal to store wealth, see Jorda, O. et al., 'The rate of return on everything 1870-2015', *Quarterly Journal of Economics*, Vol. 134, Issue 3, 2019, pp. 1225–1298.

small for the household sector[115]. Since this difference is negligible, the quarterly non-consolidated data can be used, as such data are available with a shorter delay than the consolidated data. As for the corporate sector, adjustment for valuation effects is significant. The adjustment is calculated the same way as for the corporate sector by adding transactions to the 2011 balance sheet data. Doing so for individual asset classes reveals substantial valuation effects for listed shares (+80%) and non-trivial effects for claims against non-bank intermediaries (~15-20%). The same valuation adjustment already used for the market funding indicator above has thus also been applied to this indicator. There is, however, a notable difference regarding the impact of valuation effects on economic decisions: whereas corporates do not obtain additional funding from rising share prices, households may feel wealthier due to the valuation effect.

OECD financial accounts data allow for comparison of households' financial asset holdings across the EU, the USA, the UK and Norway. For this comparison, the asset holdings of households of the 22 EU Member States that are OECD members were aggregated into an EU number. Other non-EU OECD countries could not be added to the comparison because some financial assets were not included in the data. Instead of households, the statistical category is households and non-profit institutions serving households (NPISH). The numbers are taken from unconsolidated balance sheets. Due to the different data source and categorisations, the numbers are not comparable with the indicators used in the main text. The comparison shows that US households hold a much higher share of financial assets, both directly and intermediated. EU households hold a higher share of bonds and listed shares than their counterparts in the UK and Norway, but a smaller one if we add intermediated assets, i.e. claims against investment funds, insurance and pension funds. The share of financial assets relative to cash and deposits declines in all four jurisdictions when valuation effects are taken into account.

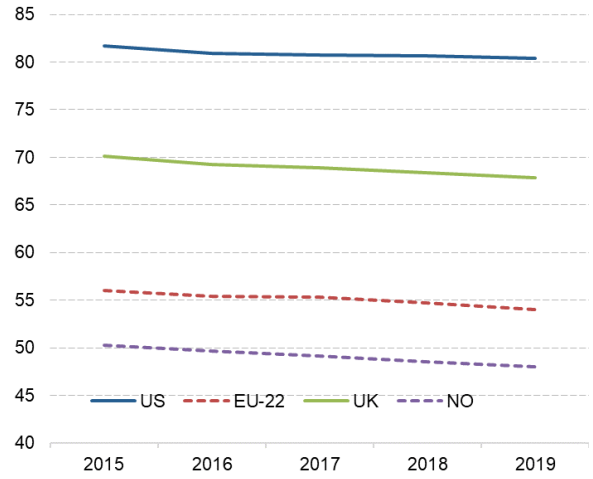
[115] The households category used here is S.14 in the official statistics. A second category, S.14+S.15, includes non-profit institutions that serve households.

Chart A9: Financial asset holdings of households and NPISH, 2019, in current prices



Note: direct := Sum of bonds and listed shares held by households relative to the sum of bonds, listed shares and cash holding and deposits. total := Sum of direct and intermediated (investment funds and claims against insurers and pension funds of households) relative to the sum of these items and cash holding and deposits.
Source: European Commission, DG FISMA based on OECD data.

Chart A10: Financial asset holdings of households and NPISH, total (direct and intermediated) relative to the sum of total and cash and deposits (in constant prices of 2011)



Source: European Commission, DG FISMA based on OECD data.

Table A3: The household sector's holdings of financial assets, EU-27

	2015	2019	
	In billion EUR at nominal values and at 2015 values in brackets		% of GDP
Currency	668.2	809.6	5.5
Deposits	7 249.6	8 559.6	61.3
Bonds	788.1	558.6 (555.6)	4.0
Listed shares	1 063.1	1 267.4 (1 061.2)	9.1
Investment fund shares/units	2 117.7	2 519.8 (2 370.2)	18.0
Life insurance and annuity entitlements	4 269.1	5 226.3 (4 689.5)	37.4
Pension entitlements, claims of pension funds on pension managers and entitlements to non-pension benefits	3 414.0	4 231.8 (3 816.2)	30.3
Balance sheet items not used for the CMU indicator			
Loans	83.7	95.2	0.7
Unlisted shares	1 920.1	2 431.4	17.4
Other equity	2 298.1	2 433.4	17.4
Others (other receivables, insurance technical reserves, short-term debt securities, etc.)	1 871.9	2 123.8	15.6

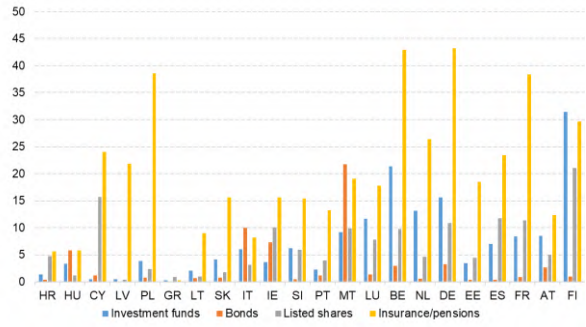
Note: Consolidated data for the household sector. Valuation-adjusted data are derived through cumulated transactions between 2016 and 2019.
Source: European Commission, DG FISMA based on Eurostat, Annual sector accounts.

Indicators 23 and 24: Share of households that hold financial assets

The Household Finance and Consumption Survey provides information on the share of households that hold different types of assets. Central banks and national statistical offices run this survey, which takes place every 3 years. Through the harmonised collection of data, the survey provides a representative picture of financial conditions in the Member States. The 2020 data are expected to be released at the end of 2022. The 2017 data covered 22 EU Member States, up from 20 in the years before, due to the addition of Croatia and Lithuania. Although there is no EU aggregate, there are numbers for the euro area aggregate. Among the Member States that have not yet introduced the euro, Croatia, Hungary and Poland participated.

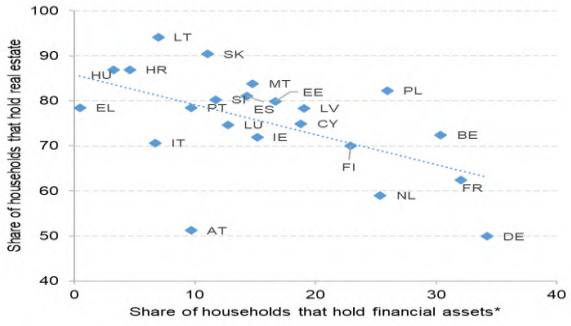
The survey collects data on a wide set of households' balance sheets, supplemented by information on economic and demographic conditions. It is survey-based and, where available, additional register data are used for some financial assets and Member States. The survey provides participation rates in financial assets, defined as the share of households holding different types of financial assets. The financial asset types include deposits, investment funds, bonds, listed shares, personal pension products (voluntary pensions) and whole life insurance. Unlike the financial accounts, the financial assets category does not include ownership of other forms of equity. The survey also provides insight into the ownership of real assets such as real estate wealth, vehicles and the business wealth of the self-employed. To calculate the indicators, the average of the fraction of households that hold bonds and that hold shares is used for indicator 23, whereas for indicator 24 the average of the fraction that hold funds and life insurance/pensions is used.

Chart 53 A11: Share of households that hold different types of financial assets, 2017



Source: European Commission, DG FISMA based on ECB HFCS.

Chart 54 A12: Share of households that hold financial and real estate assets



Note: * weighted sum of the share that hold the financial assets in the left-hand chart.
Source: European Commission, DG FISMA based on ECB HFCS.

Indicator 25: UCITS total expense ratio

ESMA analyses annually costs and performance across the EU funds industry using data from Refinitiv Lipper and Morningstar, two commercial data providers. The annex of the ESMA report sets out data limitations and flags relevant issues to consider, for example the lack of harmonised information and the fact that country information is based on the domicile of the fund and not on the residence of the investor. The data collection focuses on those 12 Member States where investment funds are largely domiciled, meaning that CEE Member States are not covered.

The first ESMA report was published in 2019; the 2021 report is the third one. Given the intense work involved in collecting and analysing the data, the latest issue covers observations from 2017 to 2019. The measure of costs is the difference between gross and net returns for retail investors and covers ongoing costs, subscription and redemption fees for UCITS. Ongoing costs are estimated via the total expense ratio, for which information is available only at the aggregate level. This prevents correcting for different practices of how costs are calculated, for example the treatment of pay for external service providers. The indication for entry and exit fees may be higher than the statistics suggest because the raw data report maximum levels per fund share class. Performance fees are not included. ESMA provides data for investments with 1-, 3-, 7- and 10-year investment horizons. Since there are no data for the 10-year horizon for 2 out of the 13 Member States covered, the indicator is the average of the 1-, 3- and 7-year investment horizons.

ESMA complemented the statistical information with a survey on distribution costs among national supervisory authorities in 2020, to which 18 authorities replied. The survey revealed substantial heterogeneity in the contribution of distribution costs to total costs that funds face.

Indicator 26: Green bonds in % of outstanding bonds

The numbers underlying this indicator are sourced from Bloomberg, which reports all bonds that are issued globally, with detailed information about the issuer and the issuance. Bloomberg includes only those green bonds whose proceeds finance entirely projects that mitigate climate change, adaptation to climate change or other environmentally sustainable purposes.[116]

The same data source shows that the EU's share on global markets has increased since 2016 and passed the 50% mark in 2020. The share of corporate issuances in the EU increased from about 29% in 2015 to 40% in 2019 and 2020, closing the gap on the share of corporates in global issuance, which reached 67% in 2020. Within the EU corporate sector, about 43% was issued by banks or other financial intermediaries, albeit with a steadily declining market share (40% in 2020); energy companies accounted for 45%, real estate companies for 8% and transport companies for 4% over 2015-2020.

Indicator 27: Crowdfunding in % of GDP

The Cambridge Centre for Alternative Finance (CCAF) conducts a survey each year with the help of national and international associations, of which many are specialised in fintech and crowdfunding and the support of private and public institutions. It addresses all online, peer-to-peer or otherwise crowd-determined platforms that are open to retail investors. Some smaller platforms may not be covered; despite a response rate of close to 80% in the EU, they survey may not provide a full picture. Despite these caveats, the CCAF provides the most comprehensive data and the constant response rate suggests that the numbers are representative of the market.

Since the CCAF reports values in USD, they are converted into EUR using the ECB's average annual reference exchange rate. To achieve comparability across the Member States, the crowdfunding volumes are expressed in the CMU indicator set as a percentage of GDP. To

[116] For further details, see Bloomberg, *Guide to green bonds on the Bloomberg terminal: Understanding the Bloomberg green bond universe*, December 2020.

align with the concept of capital market activity, which is profit driven and uses monetary yardsticks, crowdfunding volumes based on donations and non-monetary rewards are excluded. Although the original data provide a breakdown into various business models, there is no distinction made between crowdfunding in the form of credit or equity, and between crowdfunding channelled to corporates, for consumption, real estate or other purposes. Not all investors are retail investors. CCAF (2020) reveals that globally about 50% of investment stems from institutional investors. Some crowdfunding platforms act across borders. The allocation across countries is based on who receives the funds, as this can be more reliably determined than who is providing them. Some crowdfunding platforms use their own balance sheet to lend, making them similar to other non-bank lenders. As the market share is marginal in most EU Member States, this type of lending was also included in the numbers. The share of balance sheet lending in the total finance volume in 2018 was high in the Netherlands, just below 60% in Austria and above 10% in Sweden.

Indicators 29 and 30: Holdings of equity and debt from other EU Member States

Apart from measures of home bias as a quantity-based indicator of financial integration, it is standard to use price indicators, using the assumption that on integrated markets, prices for homogenous assets should be the same. This is difficult for the EU-27 as the euro is not the currency used in all Member States. For financial assets denominated in any other currency than the euro, valuations of financial assets also reflect currency risk vis-a-vis the euro. Hence, any divergences in yields or asset prices may either reflect the extent of disintegration of capital markets or market expectations that the exchange rate may change. Even two perfectly integrated local capital markets may display different prices or yields of otherwise homogenous financial assets if they are denominated in different currencies. While derivative prices, inflation differences or the difference of central bank rates reflect currency risk, there is no consensus whether they do this fully or partially, and which economic indicator would be most suitable and under which assumptions. Another point that complicates the comparability of asset prices across borders and that holds even in the absence of the exchange rate risk is that the most homogeneous financial assets are government bonds. Bank lending rates, indices of equity prices, corporate bonds or other financial securities have a different (and changing) composition between Member States, which impairs their comparability.

The holdings of foreign equity and debt securities are collected for the international investment position, which are official statistics compiled together with the balance of payments. While the latter gives an indication of flows during a particular period, the international investment position contains stocks, i.e. values at the end of the period. Whereas the main interest in the balance of payments is in the flows of goods and services, the international investment position focuses on the result of flows in the financial accounts, which are broken down by foreign direct investments, portfolio investments, other investments and international reserves. The IMF's Coordinated Portfolio Investment Survey (CPIS) collects data on portfolio investments around the globe and calculates bilateral positions. The CPIS covers debt securities, equity and investment funds, but does not break down equity into listed shares and other forms of equity. The JRC uses the IMF's CPIS as

basis for its Finflow database, but adds also foreign direct investment and other investments. Finflow is the data source for the calculation of home bias[117].

Home bias is a measure of the extent to which domestic financial assets are favoured over foreign assets. The measure will be equal to zero if investors have no preference for domestic securities, and 1 if the entire domestic portfolio is invested in domestic assets. The difference between the actual weight of foreign equity/bond and their optimal weight in the investment portfolio is a standard measure of financial integration used in the economic literature. In the optimal portfolio, all countries would be weighted according to their share in the pool of available financial securities. The holdings of domestic assets should then be as high as their share in the investment pool.

Home bias is calculated as the difference of 1 and the actual share of foreign securities in the portfolio of country *i* and the share of foreign securities available to investors in the country. The latter is 1 minus the relative weight of country *i* in the outstanding financial instruments in the EU-27[118]. Foreign portfolios include portfolio foreign investment debt and equity including listed, non-listed and investment funds. Equity includes listed equity, non-listed equity, other participations and investment funds.

The JRC calculates the home biases separately for equity and debt securities and for intra-EU-27 and global extra-EU-27 using bilateral cross-border holdings. The intra-EU-27 home bias is used for the CMU indicator because it provides insight into intra-EU financial integration. The extra-EU home bias shows integration in global markets. It is based on the share of domestic equity and bond holdings in an EU-27 portfolio[119]. The series start in 2005 for some Member States and the data cover all Member States since 2009, with the exception of Ireland, for which only debt data are available since 2015. A country's share in the total portfolio is calculated as domestic market capitalisation plus domestic holdings abroad minus domestic liabilities (domestic assets held by foreigners). The data on domestic positions stem from the Bank for International Settlements (BIS) for debt securities and Eurostat for equity market capitalisation.

The EU aggregates are the averages of Member State observations. For the purpose of measuring the trend in integration at EU level, the Member States are not weighted by size of economy. This seems more appropriate because this indicator measures integration of constituents and not an economic sum, even if it implies a large relative weight to observations of outliers, which tend to be smaller Member States. The home bias is calculated separately for debt and equity instruments, the economy-wide number being the unweighted average of both. The numbers reflect economy-wide observations, not broken down by institutional sector holding them or asset holders.

[117] See Pagano, A., Nardo, M., Ndacyayisenga, N., Zeugner, S., *FINFLOWS: A database for bilateral financial investment stocks and flows*, European Commission, Joint Research Centre (JRC), 2020, [Dataset] PID: http://data.europa.eu/89h/807d5d4f-2d73-4f17-81db-7ba2171bab83.

[118] See Nardo, M. Ndacyayisenga, N., Pericoli, F. and Poncela Blanco, M., *JRC.B1 contribution to the SWD on the Movement of Capital and the Freedom of Payments*, EUR 2919 EN, Publications Office of the European Union, Luxembourg, 2018 https://publications.jrc.ec.europa.eu/repository/handle/JRC110773.

[119] When the benchmark is a global portfolio, it would measure the integration into global capital markets.

Indicators 30 to 34 on legal and business conditions

The legal indicators track the state of convergence across Member States by documenting variation in these indicators and how variation evolves over time. The World Bank indicators are defined as the distance to the best performer, where the best performer is defined as the countries that perform the best in the different sub-components. For example, a country would receive a rank of 100 if it were the best performer in the world on all sub-components of the indicator[120]. No country in the world is, however, the top performer in all sub-components, implying that 100 is a hypothetical ideal. The indicator covers 191 countries around the globe from 2013 to 2019. The legal indicators are comparable across countries to the extent that they take the same description of the business case and the assumptions as a starting point and ask local practitioners how they assess the effectiveness of local legal conditions to deal with the specified case.

The World Bank indicator on the protection of minority rights provides insight into shareholder rights and corporate governance provisions in company law, securities regulations, civil codes and court rulings that address conflicts of interest between shareholders and other stakeholders. It measures liabilities of managers, disclosure rules, ease and extent of shareholder control and rights and seems the most widespread empirical variable on investor protection. A link between investor protection and the value of a firm was already demonstrated in 2002[121]. A survey by the Federation for European Stock Exchanges in 2018 discovered that 20-40% of investment professionals considered investor protection an obstacle to local capital market development[122].

The World Bank insolvency outcome indicator is the average of the recovery rate and an index of the strength of the insolvency framework. The recovery rate is the monetary value of the proceeds that can be recovered in a hypothetical insolvency case. The index measures access, compliance, management, participation in insolvency procedures, where no economy has reached the 100% frontier level. They are the result of the responses of local insolvency practitioners to a questionnaire that presents a business case with standardised assumptions to make the results comparable across countries. The indicator is available for 190 countries and covers the period 2003-2019. Empirical studies found that the weaker the insolvency regime, the weaker is also access to debt financing[123] or the issuance of riskier corporate bonds[124]. As the hypothetical case underlying the World Bank's insolvency indices, efforts have started in the Commission to identify suitable actual numbers on recovery values and time to recovery for non-performing debt[125].

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[120] https://www.doingbusiness.org/content/dam/doingBusiness/media/Annual-Reports/English/DB17-Chapters/DB17-DTF-and-DBRankings.pdf.

[121] La Porta, R., Lopez-de-Silanes, F., Shleifer, A. and Vishny, R., 'Investor Protection and Corporate Valuation', *Journal of Finance*, Vol. 57(3), 2002, pp. 1147–1170.

[122] FESE *European IPO Report 2020*, 2020, https://fese.eu/app/uploads/2020/03/European-IPO-Report-2020.pdf.

[123] Djankov, S., Hart, O., McLiesh, C., and Shleifer, A., 'Debt enforcement around the world (2007-2008)' *Journal of Political Economy*, Vol. 116, No. 6, 2008, pp. 1105–1149, or Giannetti, M., (2003), 'Do better institutions mitigate agency problems? Evidence from corporate finance choices', *Journal of financial and quantitative analysis*, pp. 185–212.

[124] Becker, B., and Josephson, J., 'Insolvency resolution and the missing high yield bond markets', *Review of Financial Studies*, Vol. 29(10), 2016, pp. 2814–2849.

[125] As part of the 2020 CMU Action Plan, a feasibility study is under preparation. It will encompass the experience encountered by the European Banking Authority (EBA) (2020) when preparing the report on

The World Bank contract enforcement indicator combines the time and cost for resolving a commercial dispute and the quality of judicial processes as a simple average of the three variables. Local litigation lawyers and judges fill out the questionnaires, which are complemented by analysis of the codes of civil procedure and other court regulations. Time is measured in days and costs as a percentage of the underlying claim of a standardised commercial sale dispute. The index is computed similarly to the insolvency index, with no country being able to reach the 100% best-performer level. The indicator covers the period from 2015 to 2019 and 190 countries.

The indicator on auditing and reporting standards stems from the World Economic Forum's executive opinion survey. The index varies between 1 to 7 and is transformed into a % difference from the top performers to ensure comparability with the other legal variables. The best-performer value is taken as the average of the top 3 performers. The dataset covers between 132 and 137 countries for 2017, 2018 and 2019. As a direct result of a survey, this index does not reflect actual regulatory reforms, but the perception of market participants, especially their loss in confidence in auditing and accounting practices in some Member States[126]. Representativeness is achieved through detailed sampling guidelines. With better auditing, risk premiums are lower and as a result the costs of capital[127].

benchmarking of national insolvency frameworks across the EU, https://www.eba.europa.eu/eba-publishes-report-benchmarking-national-insolvency-frameworks-across-eu. The EBA report looked at benchmarks from banks' loan recovery rates and time to recovery. Despite weak representativeness of some of the underlying data, the empirical estimates showed a strong and consistent correlation with features of insolvency procedures.

[126] See LEE (2020).

[127] Lambert, R., Leuz, C., and Verrecchia R., 'Accounting information, disclosure and cost of capital', *Journal of Accounting Research* Vol. 45, No 2, 2007, pp. 385–420.