

Capital Markets Union

Key Performance Indicators

Second Edition

October 2019



In conjunction with:



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Executive Summary and Overview of Indicators

The Capital Markets Union (CMU) is the European Commission's flagship initiative which seeks to develop and integrate capital markets in Europe. Deeper and more integrated capital markets will offer new opportunities for savers and investors, are an indispensable mechanism to finance the investments that climate change adaptation and mitigation will require, and will make the financial system more resilient.

The “**Capital Markets Union-Key Performance Indicators**” report is the second edition in a series of annual reports which measures the level of capital markets integration in the EU and tracks the development of an EU financial ecosystem. The report assesses the EU's progress against 8 key performance indicators, as well as providing an industry perspective on some of the challenges and barriers that might impede its development.

2018-2019 marked the final year of implementation of the initial CMU Action Plan, launched by the European Commission in September 2015. As the next EU legislative cycle begins, this second edition of the report provides an opportunity for policymakers, market participants and other stakeholders to review the CMU's progress and to assess what remains to be done.

In addition to the original 7 Key Performance Indicators (KPI) produced in 2018, we have added a new financial technology (FinTech) Indicator in this year's edition. These 8 KPIs assess progress across the political priorities of the CMU programme. A summary of each indicator and what they measure is shown below:

“**These 8 KPIs assess progress across the political priorities of the CMU programme**”

Key Performance Indicators measuring the progress of the Capital Markets Union

- 1. Market Finance Indicator:** measures how easy it is for companies in the EU to enter and raise capital on public markets (initial public offerings, bonds, secondary equity offerings);
- 2. Household Market Investment Indicator:** measures the amount of savings from retail investors deployed in capital market products and instruments like bonds, equity shares, and pension funds;
- 3. Loan Transfer Indicator:** measures the capacity to transform bank loans into capital markets instruments such as securitisations, covered bonds and loan transactions;
- 4. FinTech Indicator:** assesses to what extent national countries are able to host an adequate FinTech ecosystem;
- 5. Sustainable Finance Indicator:** quantifies the labelling of sustainable new bond issuance;
- 6. Pre-IPO Risk Capital Indicator:** assesses how well start-ups, small and medium enterprises (SMEs) and non-listed companies can access risk capital finance;
- 7. Cross-border Finance Indicator:** measures capital markets integration within the EU and with the rest of the world;
- 8. Market Depth Indicator:** measures the depth of EU capital markets and their development from a holistic perspective to create an adequate ecosystem.

The EU and country-by-country indicators (details on Tables 1 and 2) provide information and benchmarks intended to allow officials, stakeholders and other interested parties to monitor and evaluate progress being made towards building a CMU.

Main findings

Compared to last year's report, the findings show mixed results with some indicators showing a positive trajectory while others have deteriorated or remained neutral.

In 2018, Europe saw a striking contrast in the evolution of activity on public and private capital markets.

The trend of “de-equitisation” continued in 2018, with new lows in the number of listed companies on EU exchanges and the lowest amount of equity issuance on EU exchanges since 2012. Reasons for this trend include the low cost of debt (c2%) compared to the cost of equity (c8%), the temporary market volatility episode, and robust private equity and private debt markets offering alternative forms of funding for EU companies.

The picture on the private markets was much more positive. Private markets consolidated their presence in capital markets activities. The banking sector continued to transform unpaid loans (or “non-performing loans”) into market instruments through private transactions in the form of loan portfolio sales. SMEs benefited from an increase of direct lending from private debt funds as well as from the continued robust investment from venture capital and private equity growth funds, on the back of a subdued IPO market.

“Private markets consolidated their presence in capital markets activities”

From a retail saver's perspective, the decline in asset prices of publicly traded instruments generated a drop in the total market value of retail investors' financial assets.

In 2018, the EU strengthened its global leadership in the labelling of sustainable bonds.

By contrast, the position of the EU in other fast-growing areas such as financial technology (FinTech) is much weaker compared to the United States or China.

“The EU strengthened its global leadership in the labelling of sustainable bonds”

Key detailed findings

- Decline in public markets and continued growth in private markets.** Market volatility and the availability of bank lending in an enduring context of low interest rates generated a decline in the amount of finance raised by corporates through public markets. The EU's non-financial corporations (NFCs) raised a total of €450bn in finance from capital markets instruments in 2018—this represents 12% of total NFC funding in 2018 compared to 14% on average in 2013-17. The decline in 2018 was driven by an annual fall in both bond (-16%) and equity issuance (-5%). Against this, NFCs have recently increased funding from private markets (both private equity and private debt).
- NFCs raised a total of **€450bn** in finance from capital markets instruments in 2018
- Decline in the value of household savings held through market-based instruments:** A deterioration in asset prices, mainly in equity shares and investment vehicles like pension funds and life insurance reserves, generated a decline in the total value of household savings held through market instruments. In 2018, EU households held the equivalent of 113% of GDP through market instruments compared with 118% on average in 2013-17. Households in all EU countries except for Cyprus and Greece increased the amount of savings held in the form of cash and deposits in 2018.
- In 2018, EU households held the equivalent of **113%** of GDP
- + Increase in transformation of non-performing loans (NPLs):** According to Debtwire, loan portfolio disposals by EU banks increased 32% during 2018 to €182bn— the largest annual amount traded on record. This was driven by another year of considerable growth in the non-performing segment of the market as banks in EU countries accelerated their disposal of unpaid loans (or NPLs) encouraged by regulatory developments.
- Loan portfolio disposals by EU banks increased **32%** during 2018 to €182bn
- + Europe consolidated its global lead in sustainable finance:** Issuance of green, social and dual-purpose bonds (i.e. bonds that meet the definition of both green and social) increased 16% in the EU during 2018 to €69bn, an increase of €9bn compared to 2017. The US-EU issuance gap increased significantly during 2018, due to a reduction in the issuance of sustainable bonds in the US. As such, Europe remains the global leader in volumes issued in sustainable finance markets.
- €69bn** volume of sustainable bonds issued in 2018
- + Private markets support pre-IPO risk capital and subdued equity capital raising through EU public markets.** SMEs experienced an annual increase of 8% in investment from private equity growth funds, 12% from venture capital, 24% in equity crowdfunding, 8% in business angel financing and 5% in new SME bank lending. Pre-IPO risk capital represented 2.64% of the total annual flow of SME financing (including bank lending) compared to 2.55% in 2017 and 1.4% in 2013. In the absence of a deep EU public equity market, SMEs often seek funding from outside the EU. For example, in 2018, EU companies raised €4.6bn through IPOs on US exchanges - 1.2x the amount raised on EU Jr exchanges in 2018.
- Pre-IPO risk capital represented **2.64%** of the total annual flow of SME financing
- In the EU, the UK leads by a large margin on the capacity to facilitate FinTech innovation.** The UK lead is driven by a suitable regulatory environment and a deep local funding environment for new companies. EU27 FinTech companies have benefited from only \$7.2bn in investments (venture capital, seed, angel and private equity) since 2009, compared with \$120bn in the US, \$20.3bn in the UK and \$23.8bn in China.
- EU27 FinTech companies have benefited from only **\$7.2bn** in investments



Capital markets integration within the EU only slightly improved in 2018.

Euro area countries have led progress towards intra-EU integration compared to that of the CEE region and the EU average. The proportion of M&A transactions with other EU companies (excluding domestic deals) to total M&A increased from 13% to 15% during 2018; the share of private equity investments within the EU increased from 37% to 39% of the total; and the proportion of equity shares and funds issued by EU entities and held by EU investors increased from 21% to 22%. Capital markets integration with the rest of the world also slightly improved in 2018.

M&A between EU companies increased from
13% to 15%
of total M&A during 2018



EU capital markets ecosystem deteriorated in 2018 predominantly due to the decline in issuance of market instruments and the deterioration in the total amount of household financial savings following the decline in asset prices at the end of 2018 (as earlier noted). However, the CEE region saw an encouraging increase in primary issuance. The largest improvements in the capital markets ecosystem were observed in Estonia, Bulgaria, and Lithuania— all driven by higher origination of equity and bond instruments in the primary market.

CEE region saw an encouraging increase in primary issuance in
2018

Table 1 compares the progress made year-on-year at EU level against each of the key performance indicators.

It is important to note that there may be many different factors which give rise to the changes shown by the key indicators, including variations in asset prices and exchange rate fluctuations. Not all of these may be directly related to the specific CMU initiatives. Particularly, the household market investments indicator and the market depth indicator are strongly correlated with asset valuations which makes it difficult to interpret the recent variations in these indicators. Nevertheless, despite the difficulty in proving direct causality we believe that it is helpful to track progress towards CMU in a consistent fashion both at the EU and Member State Level and analyse short- and long-term trends in capital markets development.

“It is helpful to track progress towards CMU in a consistent fashion”

Table 1: Progress of EU Capital Markets Against Key Performance Indicators

	Indicator	What this indicator measures	2013-17	2018	National Findings
	Market Finance NFC equity and bond issuance as % of total NFC annual financing	Capacity for companies to raise finance on public markets	14%	12%	UK, Netherlands and France lead the EU countries together providing 49% of total NFC new funding raised from markets. Croatia, Cyprus and Slovenia had no NFC bond or equity issuance in 2018
	Household Market Investment Household financial assets saved in financial instruments (excluding cash, deposits and unlisted equity) as % GDP	Availability of savings from retail investors to support capital market financing	117%	113%	Netherlands, the UK and Denmark lead among EU countries in the amount of household savings invested in market instruments, due to greater private pension coverage
	Loan Transfer Securitisation, covered bond issuance and loan portfolio transactions as % of outstanding bank loans	Capacity to transform bank loans into capital markets instruments (securitisation, covered bonds and loan transactions)	5.4%	6.6%	Ireland, Italy, Portugal, Cyprus and Spain (high-NPL countries) are in the top ten EU nations in the loan transfer index in 2018, disposing of distressed assets through markets
	FinTech Composite indicator of funding for FinTech companies, talent pool, regulatory environment and innovation. Range 0-1 (0=low to 1=high)	Ability of EU countries to enable an adequate FinTech ecosystem	0.2 EU vs 0.6 US vs 0.3 China (2018 first year measured)		The UK leads by a large margin in the EU in the capacity to facilitate FinTech innovation due to the regulatory environment and deep funding pool Sweden, Luxembourg and Lithuania follow the UK among the countries with the most suitable fintech ecosystems
	Sustainable Finance Bond issuance labelled as sustainable as % of total bond issuance	Labelling of sustainable bond markets	0.9%	3.0%	Lithuania had the highest indicator value in 2017 and 2018 (but this reflects only three bonds). Netherlands, France, and Germany collectively represent 51% of the total amount of EU sustainable bonds issued in 2018.

1 For purposes of estimating trends, this table compares average of the respective indicators for the period 2013-17 (as baseline of pre-CMU initiatives) against the most recent performance in 2018.

	Indicator	What this indicator measures	2013-17	2018	National Findings
  	Pre-IPO Risk Capital Annual investment through equity crowdfunding, business angels, and private equity growth funds and venture capital funds as % of loan and risk capital investment to SMEs	How well start-ups and non-listed companies are able to access finance for innovation	2.27%	2.6%	Ireland leads by availability of risk capital for SMEs, with a prominent participation of venture capital investment and private equity growth funds
	Cross-border Finance Composite indicator of cross-border M&A transactions, equity & bond issuance, Private Equity, and portfolio holdings. Range 0-1 (0=low integration to 1=high integration)	Capital markets integration within the EU	0.20	0.22	Luxembourg, UK and Estonia rank as the most interconnected capital markets with the rest of the EU. Luxembourg's lead is due to its fund and bond issues held within the EU
		Capital markets integration with the rest of the world	0.25	0.27	UK, Luxembourg and Cyprus are the most globally interconnected European capital markets. The UK has a prominent participation at intermediating market liquidity. Cyprus global interconnectedness is driven by the large portion of Cypriot equity and fund shares held outside the EU
	Market Depth Composite indicator of primary markets issuance, institutional capacity and availability of pools of capital. Range 0-1 (0=low capacity to 1=high capacity)	Holistic development of EU capital markets	0.43	0.40	Estonia and the Czech Republic are the deepest markets in the CEE region. In 2018, Estonia issued 10% of the CEE's high yield bonds and 6% of CEE's investment grade bonds notwithstanding it represents 2% of the region's GDP

Table 2: EU28 Country rankings by indicator

The table below shows country rankings for member states across the indicators included in this report.

The country rankings continue to show the prevalence of Northern European countries (UK, IE, SE, DK, NL) across most of the indicators. Eastern European countries continue to occupy the lower tier of the rankings, although Bulgaria, the Czech Republic and Lithuania are the EU countries that have most significantly improved their market depth rankings compared to the 2018 publication.

	Market Finance Indicator	Households Market Investment Indicator	Loan Transfer Indicator	FinTech Indicator	Sustainable Finance Indicator	Risk Capital Indicator	Intra-EU Integration (EU)	Global Integration Indicator	Market Depth Indicator
Austria	21	11	12	14	13	18	8	17	12
Belgium	14	5	10	10	3	26	5	5	7
Bulgaria	12	24	22	25	28	13	13	21	20
Croatia	28	16	23	24	28	24	28	23	26
Cyprus	28	18	4	17	28	11	6	3	19
Czech Republic	5	20	16	26	28	17	21	25	11
Denmark	17	3	1	6	10	4	14	7	4
Estonia	11	23	28	13	28	2	3	26	16
Finland	4	15	14	7	17	6	11	14	6
France	3	6	17	12	8	10	20	10	5
Germany	10	8	15	11	14	16	23	4	8
Greece	19	26	11	21	28	3	25	16	28
Hungary	24	17	9	20	28	23	24	22	22
Ireland	6	12	2	5	4	1	7	9	10
Italy	15	7	3	23	15	27	19	15	15
Latvia	25	25	20	15	28	12	4	28	25
Lithuania	7	27	28	4	1	7	9	11	18
Luxembourg	20	13	21	3	2	22	1	2	9
Malta	8	9	28	27	28	21	16	18	13
Netherlands	2	1	7	8	5	8	10	6	2
Poland	22	22	24	9	9	na	27	20	23
Portugal	13	14	6	16	11	14	18	24	17
Romania	16	28	19	22	28	9	22	13	27
Slovakia	23	19	18	28	28	20	12	27	24
Slovenia	28	21	28	19	12	15	26	19	21
Spain	18	10	8	18	7	25	17	12	14
Sweden	9	4	5	2	6	19	15	8	3
UK	1	2	13	1	16	5	2	1	1

Ranked 1

Ranked 28

Higher rankings



Lower rankings

NA: data not available to produce the indicator
 Countries with no capital markets activity in a given indicator are ranked 28th

Summary of policy recommendations

We have identified the following key policy recommendations which will support the development of strong EU capital market ecosystems. Section 9 of the report further elaborates on how to accomplish these policy recommendations. The broad policy recommendations summarise the views supported by the 11 associations co-branding this publication. A more detailed set of recommendations put forward by AFME and the other associations for the next phase of CMU are available in their dedicated publications and respective websites.

1. **Continue developing an ambitious Capital Markets Union (CMU):** The work of the Next CMU High Level Group and the European Commission's High Level Group on Pensions are a welcome development to try to identify ways to improve European capital markets competitiveness and deeper pensions systems.
2. **Unleashing the potential of sustainable finance:** The EU should continue to build on its global leadership on sustainable finance through the completion of its existing initiatives followed by an effort to encourage international convergence in this field.
3. **Building a competitive digital single market:** FinTech provides opportunities for more efficient customer servicing at lower costs, expanding access to finance to a wider range of consumers. Regulation and supervision should be tailored to its fast-evolving challenges and needs to enable a level playing field between market participants. The recent efforts towards harmonising the European crowdfunding market are encouraging as part of the European Crowdfunding Service Provider regulation.
4. **Expand size, capacity and liquidity of EU capital markets:** The EU should continue to deliver initiatives aimed at expanding the size and capacity of EU capital markets. EU public markets should be strengthened allowing companies to raise capital by listing on public markets. Liquid markets should be promoted by ensuring market makers can provide liquidity without unnecessary regulatory burdens and costs in order to ensure efficient price formation, including of SME shares.
5. **Expand retail investor participation in public markets:** The EU should adopt a comprehensive strategy to promote retail investment in EU capital markets. It is important to support the recently adopted pan-European personal pension product (PEPP) with well-designed Level 2 measures and an appropriate tax treatment to make this product attractive to savers and providers. Auto-enrolment of employees in pension funds can be studied and replicated across Member States.
6. **Deepen reflections towards a solution for a European safe asset:** A safe asset instrument could provide a liquid source of high-quality collateral to support cross-border transactions and offer a risk benchmark to achieve a more efficient allocation of risk in the financial system. A Euro-denominated safe asset could also serve the objective of deepening integration and advancing the economic and monetary union. Possible approaches to such an instrument should be extensively studied in consultation with market participants to assess demand and avoid any unintended consequences on the market.

7. Fostering better conditions to access to finance for SMEs: The EU should facilitate investment in venture capital and private equity and debt funds. It should also pursue efforts towards creating a single market for business angel investing and reinforce the existing network of the main angel groups across the EU as they represent the backbone of the visible market. The recent initiative aimed at stimulating a pan-European community of early stage investors and creating a single market for crowdfunding platforms is a step in the right direction. The EU should also continue its efforts to support “junior exchanges” for SMEs. The EU should also seek to promote and develop cross-border non-bank lending as a key alternative source of SME funding.

8. Working towards improving and further converging legal frameworks and supervisory practices and addressing instances of harmful fragmentation: the EU should continue to take incremental steps to improve legal frameworks and address harmful national divergences in securities and markets supervision, corporate insolvency regimes (including collateral enforcement) and securities laws.

9. Facilitate global regulatory convergence: the EU should continue to champion international standards, regulatory dialogue, openness with other countries and supervisory cooperation.

We hope that these recommendations provide a useful contribution to the ongoing debate on the further work needed to continue building a Capital Markets Union. Some of these recommendations formed part of the 2018 publication and continue to feature in this year’s edition. While there has been some progress made on certain policy areas over the last year (e.g. crowdfunding and PEPP) work still remains to complete these fundamental areas of the project.

The rest of the report is organised as follows. Chapters 1-8 present the recent evolution of each of the eight Key Performance Indicators at the EU and Member State level. Chapter 9 sets out the key policy recommendations for each indicator. Appendix 1 summarises in a scorecard table recent progress for EU Members States in each of the KPIs, and Appendix 2 describes the data sources and methodology to produce the indicators.

“While there has been some progress made on certain policy areas over the last year, work still remains”

1. Market Finance Indicator

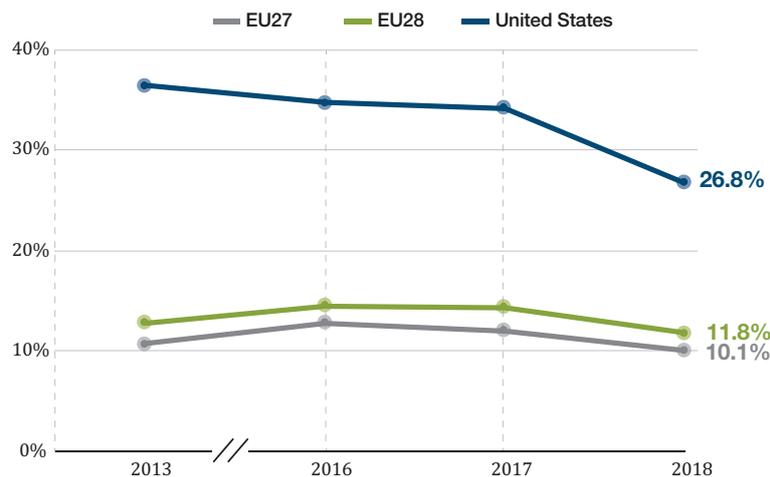
European companies have traditionally received a significant share of their funding from bank loans rather than capital market finance (public equity and bonds). This indicator quantifies this trend, tracks changes over time and compares with the US, where companies receive a much higher proportion of funding from market finance.

The Market Finance indicator seeks to quantify the proportion of total finance for Non-Financial Corporates (NFCs)², which is provided by capital markets instruments (equity and bonds). The indicator is calculated as annual gross NFC equity and bond issuance as a percentage of the sum of annual gross lending (new loans) to NFCs and equity and bond issuance³.



Flow measures⁴ (annual new issuance), rather than stock measures (outstanding amounts) are used in this indicator to allow a better comparison between equity markets and bonds and loans, and to more accurately analyse changes in activity in a given year.

1.1: Market Finance Indicator: NFC equity and bond issuance as a % of total NFC annual financing⁵



Source: Dealogic, US FED, ECB, BoE and other European central banks

- 2 Non-financial corporations produce goods and services for the market and do not, as a primary activity, deal in financial assets and liabilities.
- 3 The indicator does not consider NFC finance provided by unlisted equity and trade credit.
- 4 It should be noted that there is not a publicly available data source for US lending to NFCs which is directly comparable to the statistic for EU countries. For the EU, bank lending has been used as a proxy for total lending, due to the comparatively small amount of non-bank lending. This is not the case in the US, so we have estimated bank and non-bank lending to NFCs in the US using the methodology in Appendix 2.
- 5 For the US, this indicator aggregates lending provided by banks and non-banks.

1. Market Finance Indicator

A break from capital markets financing

Whilst there has been gradual recovery in the amount of financing for NFCs provided by capital markets in the previous decade, both in the EU and the US, 2018 marked a break from this trend, with the Market Finance indicator falling in both jurisdictions.

16%
Fall in bond
issuance in 2018

In Europe, the decline in 2018 was driven by an annual fall in both bond and equity issuance, of -16% and -5% respectively. In the US, the fall in bond issuance was of a greater magnitude, with a modest decline of -1.3% within the equity space and a 30% drop in issuance of debt securities driven by a significant outflow particularly from US high yield bonds. However, the total amount of funding for NFCs still increased year on year in both jurisdictions as the fall in market-based financing was offset by an increase in the total volume of bank loan issuance of 7% in the EU and 5% in the US over 2018.

5%
Fall in equity
issuance in 2018

The annual change in the value of the indicator is the most significant annual drop since 2009-2010 for the EU27, and since 2008-2009 in the US. It is also the largest annual decrease on record for the EU28 (with records beginning 2012). Market volatility, concerns about economic growth and rising risk aversion towards the high yield market generated a decline in the amount of finance raised by corporates through public markets.

Negative changes to the indicator of this magnitude have taken place in periods associated with economic crisis and instability. Equity capital raising is strongly correlated with one-year-ahead GDP growth as companies postpone capital raising in anticipation of business cycle downturns⁶. In 2018, the decline in equity capital raising also coincided with expectations about a deceleration in global economic growth in 2019.

The bond market also experienced a significant downturn, with high yield bond credit default swaps (CDS) spreads rising from 166 bps to 380 bps (Moody's) during the year and European high yield spreads rising from 260bps in January 2018 to 480 at the end of 2018.

It is difficult to conclude if the effects stemming from market volatility are temporary or permanent as geopolitical risks such as the threat of declining global trade continue in 2019 and expectations of a new round of monetary stimulus have intensified amid a possible global economic deceleration.

Country heterogeneity in market-based finance

Indicator values for 2018 at the country level reveal the top three countries in the EU: the UK, the Netherlands and France, have all shown a deterioration in the provision of finance by market-based instruments compared to 2013.

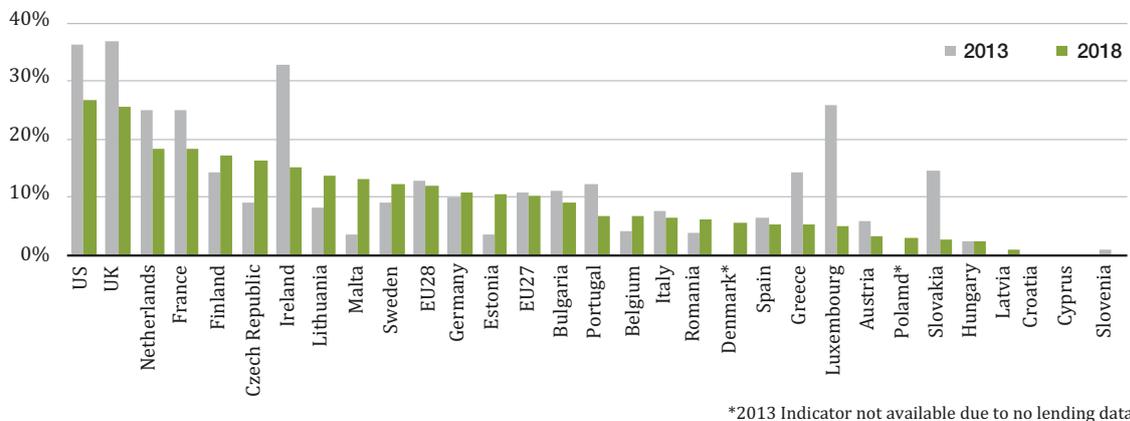
The drop is most marked in the UK, which in 2018 had 26% of financing for NFCs derived from market-based instruments, a decline from 34% reported in 2017 and 37% in 2013. The indicator for Ireland halved over 2018 to 15%, the lowest value since 2013 as bond issuance in the nation fell to the lowest volume since 2007.

Political uncertainty regarding the future relationship between the UK and the EU may have also adversely impacted the European equity primary market as companies delayed capital raising on UK and EU27 exchanges to gather more information on potential implications of Brexit on capital markets.

In the EU, only three countries, Croatia, Cyprus and Slovenia, did not tap the market for funding at all, which is one less than last year and equal to 2013.

⁶ Internal analysis estimates a correlation of 22% for 2005-18 and 58% isolating for periods with strong market volatility. A 1% decline in equity capital raising is associated with a decline of 0.04% in GDP growth a year ahead.

1.2: 2018 Market Finance Indicator by country and comparison with 2013: NFC equity and bond issuance as a % of total NFC annual financing



Source: Dealogic, US FED, ECB, BoE and other European central banks

In some of the smaller European economies, year on year fluctuations in market finance issuance have large effects on the indicator. For instance, in Lithuania, Malta and Estonia, a combination of multi-year highs in volumes of bond and equity issuance have meant the indicators for 2018 have jumped significantly from 2013. However, there were only 7 bonds issued in these countries throughout 2018, totalling €1.21bn, which made up a significant portion of funding for NFCs, (equity issuance was €0.2bn), when compared to bank loan issuance. Nevertheless, the expansion in size of financial markets in some CEE countries is an important development which, if sustained, can be utilised to promote job creation and economic growth.

Funding mix between public equity and public debt

Chart 1.3 maps EU countries and the US against the proportion of total finance that is derived from either equity products, along the vertical axis, or from issuance of debt securities, along the horizontal axis, with the EU28 average for 2018 where the axis cross.

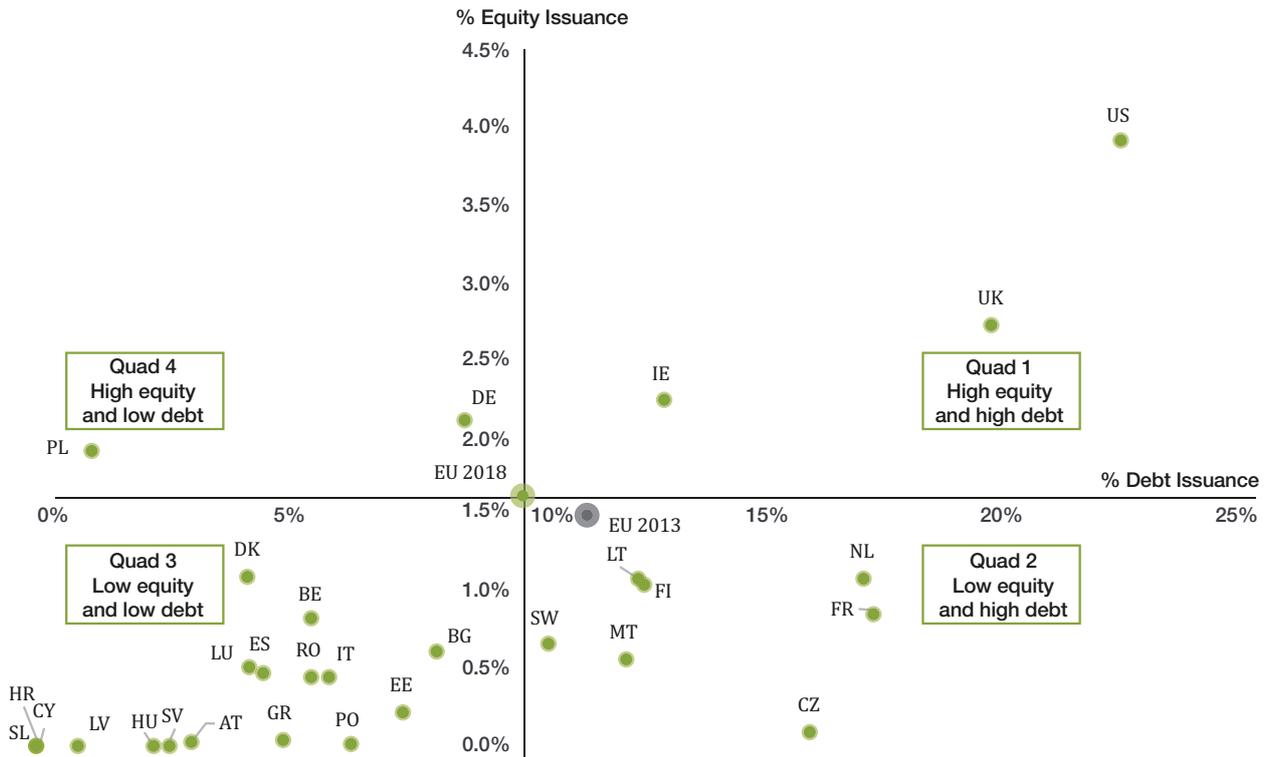
Generally, countries that have high equity market capitalisation or significant market depth have positions on the chart towards Quad 1, indicating higher levels of equity and debt financing for NFC's relative to the amount of bank loans within each country. A relationship exists in equity and debt issuance as both may be raised by the same entity for different purposes, this is evidenced by the positive correlation within the data.

The UK and Ireland are the only EU countries to occupy quadrant 1, along with the US, indicating a high proportion of equity and debt funding channels in financing for NFCs. Poland and Germany are shown to have relatively high equity issuance but low debt issuance in NFC funding, when compared to the EU28 average.

“The expansion in size of financial markets in some CEE countries is an important development which can be utilised to promote job creation and economic growth”

1. Market Finance Indicator

1.3: 2018 debt and equity issuance as a % of total finance provision for NFCs in Europe and the US



Source: Dealogic, US FED, ECB, BoE and other European central banks

Whilst the Netherlands, France and the Czech Republic have relatively high levels of debt funding for NFCs they, along with the 20 other EU member states below the horizontal axis, have equity issuance volumes that are below the EU average.

17 EU countries, including Italy, Spain, Belgium, Portugal and Denmark, have relatively low issuance volumes of both equity and debt products when compared to the EU28 average. This means that most EU countries have considerable room to grow their capital markets and to better diversify their funding channels for NFCs from predominantly bank lending.

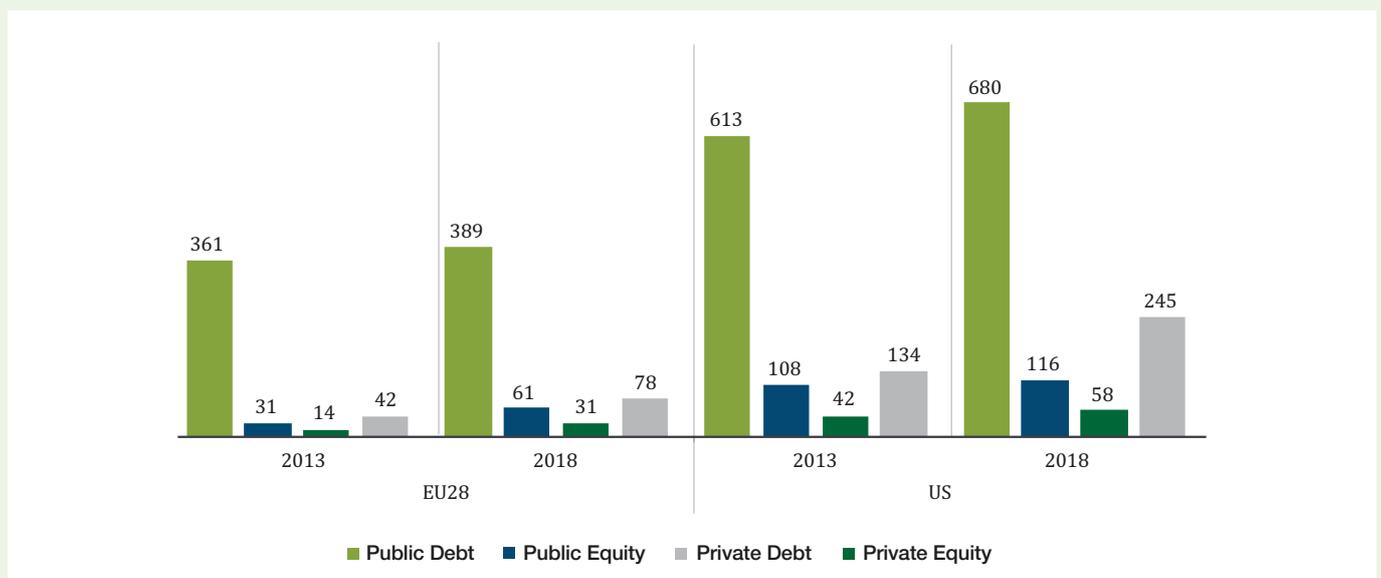
“Most EU countries have considerable room to grow their capital markets”

The rise of private markets

In the context of search for yield, ultra-low interest rates, and investor appetite for diversifying portfolios, NFCs have recently benefited from increasing funding from private markets.

The dashboard in chart 1.4 shows the volumes of various public and private funding sources for NFCs⁷ in Europe and the US in 2013 and 2018. During this period, the biggest increase was in private equity markets, which increased by €36bn in the EU28 and €111bn in the US between 2013 and 2018. In relative terms, the largest percentage was in private debt markets in the EU28, which doubled over the last five years. However, this also represented the smallest nominal change of only €17bn.

1.4: New gross issuance of NFC debt and equity through public markets, private equity investments and private debt fundraising 2013-2018 (EUR bn)⁸



Source: Dealogic, Preqin, US FED, ECB, BoE and other European central banks.

In the United States, between 2000 and 2018 the number of private equity-backed companies rose from around 2,000 to c8,000⁹. At the same time the number of publicly listed companies fell from 7,000 to c4,000 in the same period. As observed in chart 6.5 of section 6, the number of listed companies in the EU has declined from 8,400 in 2012 to c7,800 in 2018 while private equity-backed companies rose from c5,900 in 2012 to c7,900 in 2018.

The 34% increase in number of private equity-backed companies in the EU between 2012 and 2018 has coincided with an increase of 85% in private equity investment from 2013 to 2018. Although it is difficult to establish the exact relationship between growth in private equity-backed companies and growth in private equity investment, the respective increases indicate a greater number of companies are raising more on average via private equity investors in 2018 than in 2013.

The number of private debt deals taking place throughout the EU increased 9% YoY over 2018¹⁰ (187% from 2013 to 2018) and while the UK remains the country with the largest number of deals, the EU is increasingly comprising a larger share of the total over time. The main beneficiaries of this growth have been SMEs and mid-market companies, which account for 41% of private debt managers' market allocation in Europe¹¹.

⁷ Private equity volumes for Europe include financials and insurance activities. In 2018 7.6% of the total private equity volume in Europe was invested in this sector.

⁸ Private Debt includes direct lending, distressed debt, mezzanine, special situations, venture debt and fund of funds.

⁹ Source; <https://moneyweek.com/508609/beware-the-rise-of-private-markets/>

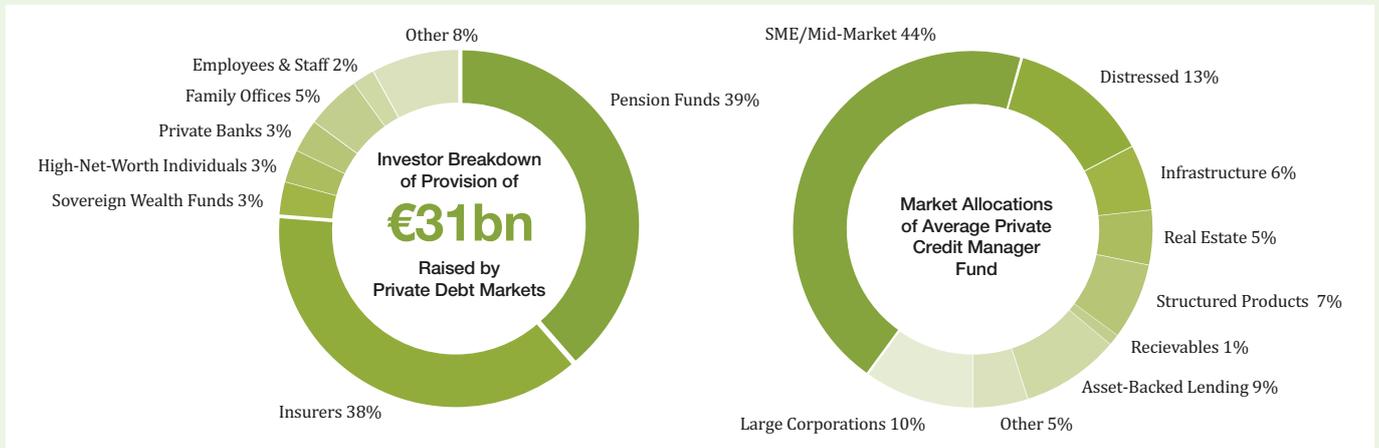
¹⁰ See Deloitte Alternative LenderDeal Tracker Spring 2019

¹¹ ESRB, EU Non-Bank Financial Intermediation Risk Monitor, 2019

1. Market Finance Indicator

Private debt funds invest in debt or debt-like instruments that are not traded and have no quoted price. Out of the €31bn raised by private fund managers from European based investors, pension funds and insurers account for 77% of the total¹², as private credit provides these investors with opportunities to invest in assets whose maturity has a strong correlation to their own liabilities as well as portfolio diversification benefits. See chart 1.5.

1.5: EU private debt investor breakdown and market allocations of average private credit manager fund (%)

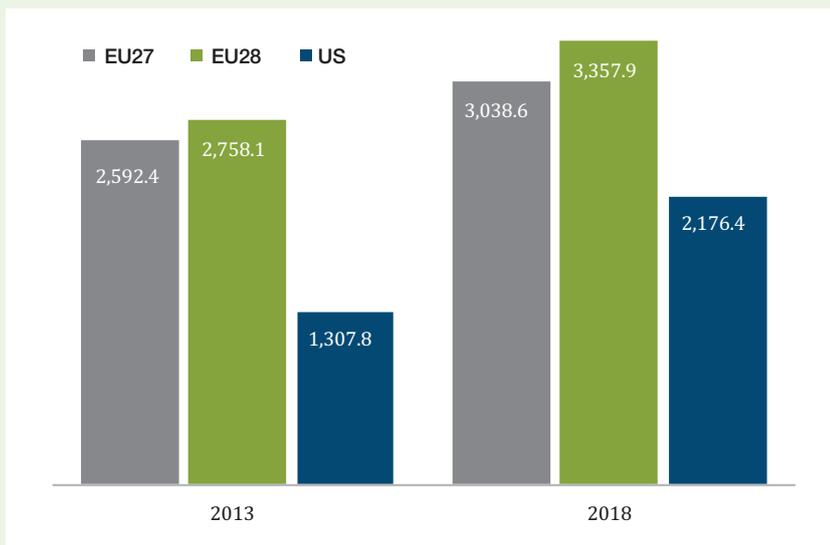


Source: Preqin, ACC, Financing the economy

Public debt markets, made up of listed debt securities such as bonds, remain the dominant market-based financing channel for NFCs. However, due to the reduction in issuance of debt securities over 2018 the public debt market increased by only 8% for the EU28 and 11% for the US when compared to 2013. Volumes for the US in all forms of market financing for NFCs still considerably outweigh European amounts.

In the EU, a significant majority of financing for NFCs continues to be from bank loans. Since 2013 new issuance of bank loans have increased 22% for the EU28 and 17% for the EU27, whilst in the US origination of new bank loans expanded 66% with a robust economic recovery.

1.6: New bank loan issuance to NFCs in the EU and US in 2013-2018 (EUR bn)



Source: Dealogic, US FED, ECB, BoE and other European central banks

Changes in the funding mix between public and private markets with fresh capital deployment from non-traditional sources can contribute to increasing the total amount of finance for corporates and support company growth. It will also pose challenges in how companies engage with investors given the differences in long-term incentives between private and public investors during the economic cycle (in times of growth and in economic distress).

12 Preqin

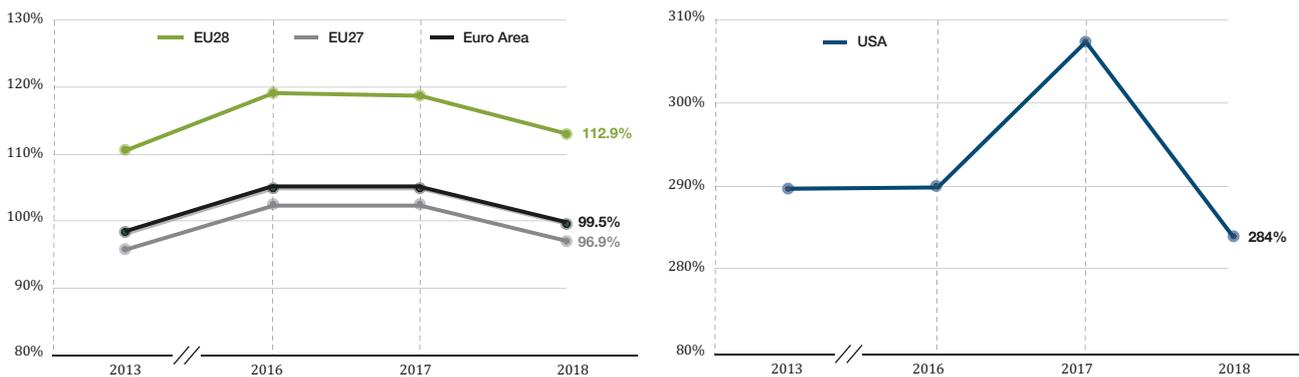
2. Household Market Investment Indicator

Deep pools of capital are vital for well-functioning capital markets. The accumulation of savings through market instruments like bonds and shares, either directly or more likely indirectly through different savings structures such as pension and investment funds, are among the main sources of long-term funding for private businesses. Robust pools of capital also facilitate the allocation of long-term investments for retail investors, supporting the diversification of savings in addition to traditional conservative instruments like bank deposits.

The household market investment indicator measures the availability of savings from retail investors to support capital markets financing. This ratio is estimated as household financial assets (excluding cash, deposits and unlisted equity) as a percentage of GDP. The asset classes aggregated as “Household financial assets” in this indicator include listed equity shares¹³, mutual fund shares, bonds, life insurance reserves and pension fund holdings.



2.1: Household Market Investment Indicator: Household market financial assets (excluding cash, deposits and unlisted equity) as a % of GDP



Source: Eurostat and OECD

¹³ Unlisted shares, which are not necessarily a capital markets instrument, are not included in the indicator.

2. Household Market Investment Indicator

During the last year, the household market investment indicator declined in Europe and in the United States.

As shown on chart 2.2 the decline in the indicator value was driven by a deterioration in asset valuations, most prominently in instruments traded on public markets and investment vehicles like pension funds and life insurance reserves that invest on a wide variety of market instruments.

20 of 25
OECD countries
pension fund assets
declined in 2018

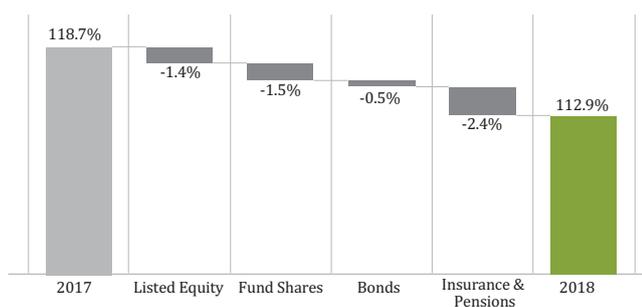
According to the OECD¹⁴, in 2018 pension fund assets declined in 20 of 25 selected OECD countries by an average of 3.9% and by 4.1% in other non-OECD countries. Specifically, equity assets exhibited negative annual returns in 2018 of c12% (Russell 2000), while bond instruments exhibited discreet returns which did not fully offset the decline in other asset classes (US Treasuries +0.8% YoY)

Most recently, equity share prices have increased in 2019 (Russell 2000 +14.2% in 1Q19) while fixed income instruments have also exhibited positive returns (+5% in 1Q19) as market conditions have stabilised, expectations on continued global monetary stimulus have resumed and investor appetite has normalised after a volatile 2018. The increase in asset prices during 2019 (as of June) should also contribute to improving the indicator values in 2019.

All countries except for Cyprus and Greece increased the amount of savings in the form of cash and deposits, as households start accumulating their new savings in their banking account and tend to be slow at shifting their new savings towards investment products, especially in times of market stress. See chart 2.3.

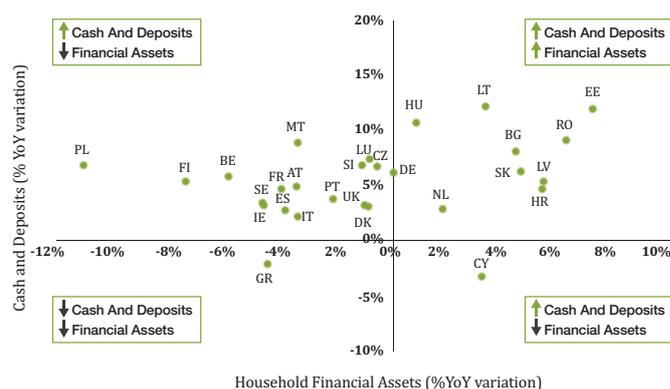
The large majority of EU countries exhibited a decline in the indicator value in 2018, with annual variations of between -11% (Belgium) to 0.1% (Croatia). In Belgium, households reduced the amount of savings in financial assets in all instruments but increased the amount invested on cash and deposits (+6%). Croatian households increased significantly their investments in fund shares (+11% YoY) and in retirement products (+6% YoY). Baltic (EE, LV, LT) and Balkan (BG, HR, RO, SI) countries exhibited an increase in the amount of household financial assets driven by an increase in bonds and savings in retirement funds but offset by an increase of larger magnitude in nominal GDP.

2.2: Variation in Household Market Investment Indicator by components



Source: OECD and Eurostat

2.3: Annual variation in household financial assets and amount invested in cash and deposits



Source: OECD and Eurostat

14 See OECD Pension Funds in Figures <https://www.oecd.org/daf/fin/private-pensions/Pension-Funds-in-Figures-2019.pdf>

Indicator ranking by countries

Pools of capital are usually deeper in large countries with well-developed private pensions and insurance systems, or in countries that provide tax incentives that encourage the allocation of savings by retail investors or the registration of private funds.

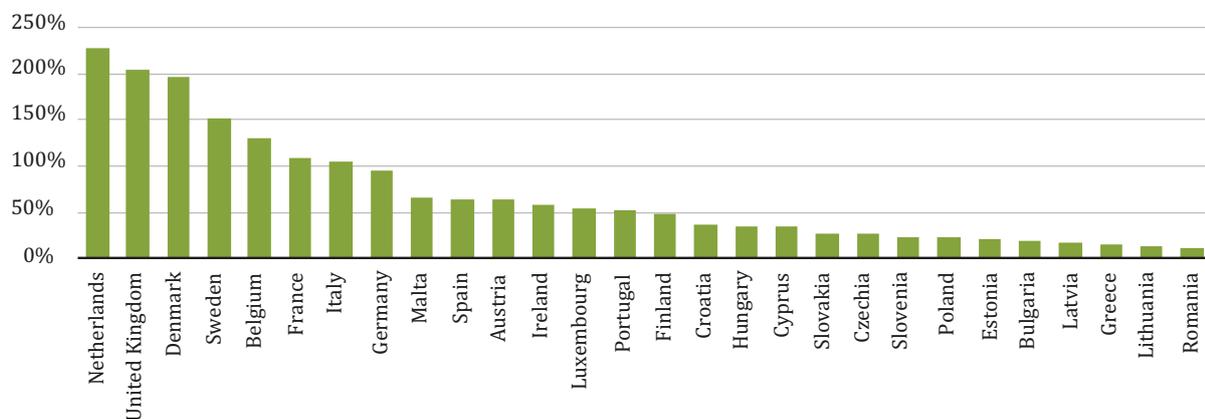
The Netherlands, the UK and some of the Nordic countries continued to lead the indicator ranking in 2018. These countries are characterised by having deep private pension systems that encourage citizens to save for retirement and invest savings in suitable long-term market vehicles.

However, a substantial gap between EU countries prevails— from global leaders in asset management with private pension and retirement systems to countries with state-based defined-benefit systems and limited private sector participation.

“The Netherlands, the UK and some of the Nordic countries continued to lead the indicator ranking in 2018”

2.4: Household Market Investment Indicator by country:

Household market financial assets (Excluding cash, deposits and unlisted equity) as a % of GDP



The large heterogeneity in the indicator value between EU countries highlights the importance of interconnecting the different European pension system providers and leveraging the comparative advantages that some countries may offer for the allocation of long-term retirement savings across the EU.

Single market integration and economies of scale

Many studies have demonstrated that the financial system typically benefits from economies of scale (banking, asset management, exchanges, clearing). As companies grow in size, average costs are reduced which can often result in lower prices to end consumers or improving the quality of products offered. For example, in the asset management industry, placing an order for €1m shares is not significantly costlier from an operations perspective than placing an order for €2m shares; due diligence processes or preparation of regulatory filings and annual reports are likely to be no more costly for a fund that manages €100 million in assets or €500 million.

Economies of scale should also benefit consumers and end users. If a financial intermediary can offer the same service at a lower cost (as it grows in scale) it should also be able to provide the same service at a lower price (or improve the product at the same price).

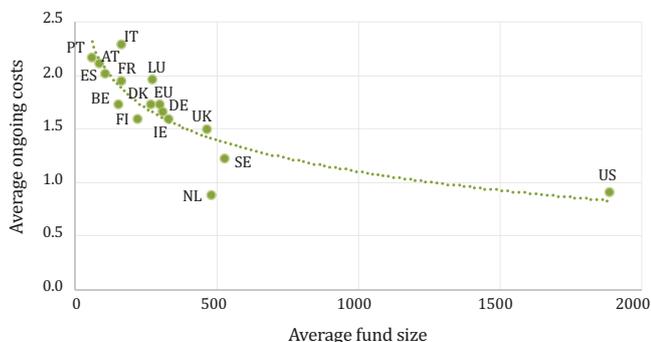
Correlating data from EFAMA and ESMA and ECMI, we can observe on chart 2.5 that countries with larger economies of scale (as measured by average fund size) also offer lower expense ratios to investors¹⁵. Fund managers located in countries with an average fund size of less than €100m have higher expense ratios than funds located in countries with deeper and more consolidated asset management industries like the US where average fund sizes are larger.

¹⁵ This is an estimate of average industry costs. There is, however, a wide variation by management strategy and asset class. For example, passive funds like Exchange Traded Funds (ETFs) offer lower TERs than actively managed funds.

2. Household Market Investment Indicator

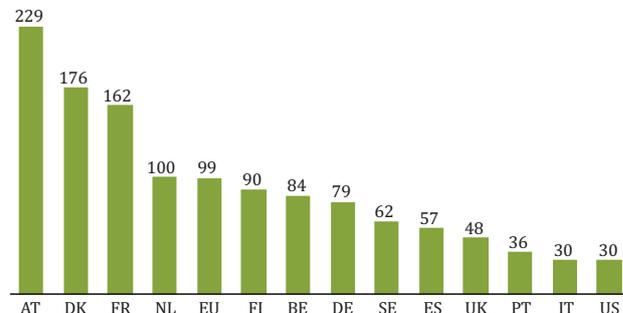
Economies of scale should translate in consolidation of asset management activities in fewer market players of larger size. The degree of consolidation, however, varies significantly in the EU. While in countries like Sweden and the UK there are 50 funds per one million inhabitants, in Austria and Denmark there are around 200 funds per 1 million inhabitants. See chart 2.6.

2.5: Average fund size and ongoing costs (total expense ratio), (EUR mm and %)



Source: ESM, ECMI and EFAMA. TER costs based on equity UCITS with 3Y investment horizon

2.6: Number of UCITS and AIF funds (per 1 million population)



Source: ESMA, ECMI and EFAMA

Additionally, anecdotal evidence indicates that fees have continued to decline, not only in the US but also in Europe amid growing competition with passively managed products and consolidation in the asset management industry. In Europe, the new disclosure measures introduced by the PRIIPs Regulation and MiFID 2 will strengthen this trend.

“Anecdotal evidence indicates that fees have continued to decline, not only in the US but also in Europe amid growing competition”

The potential of the PEPP

The EU recently approved the legal framework for a pan-European personal pension product (PEPP)— a voluntary personal pension scheme that will offer consumers a new pan-European option to save for retirement that can be marketed by providers on a pan-European scale.

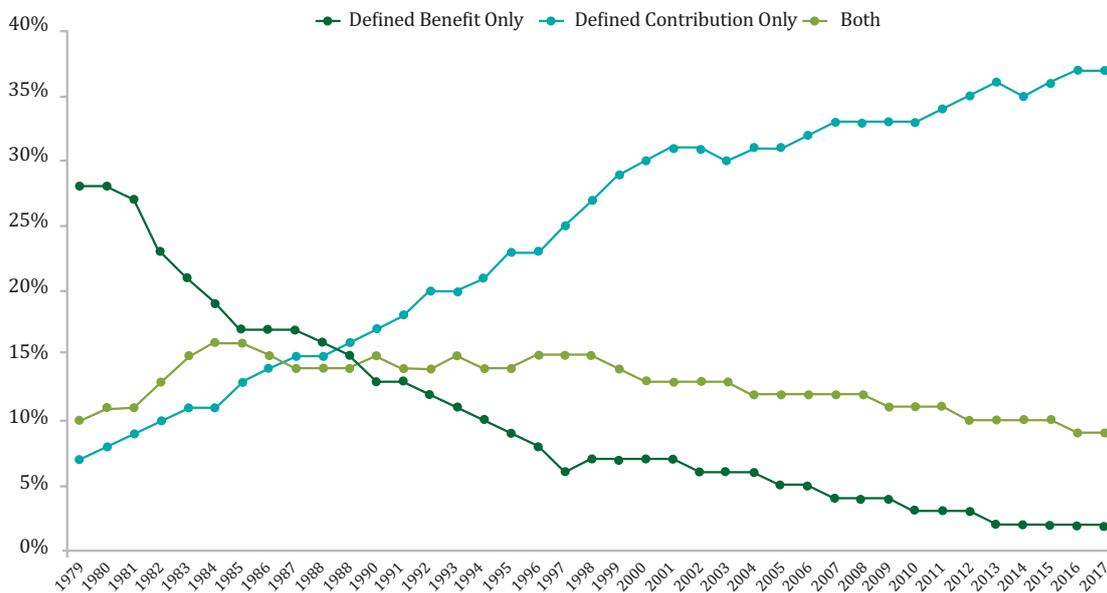
Given the current fragmentation in Europe’s retirement savings markets, this initiative is important to provide a pan-European framework that could boost pools of capital and channel more savings towards long-term investments in the EU. However, much will depend on the accompanying level 2 measures and support from Member States in the tax treatment and other factors if the PEPP is to become an attractive option for savers and providers.

According to Gordon and Judge (2018), in the United States one of the key drivers behind the fast-growing pools of capital was the approval of the framework that set the minimum standards for voluntarily retirement plans (Employee Retirement Security Act of 1974, “ERISA”). ERISA facilitated pension fund investors to make equity capital a viable source of financing for corporates, start-ups and firms unable to fund their long-term projects through traditional banking systems.

Subsequently, the US Revenue Act of 1978 facilitated the widespread adoption of the so-called defined contribution 401K plans providing tax benefits for the accumulation of retirement savings. Thereby, building a sound pool of long-term capital ready to invest in private sector initiatives.

Figure 2.7 shows the rapid trend in the number of workers opting for a defined contribution retirement plan only, following the adoption of these market-based initiatives.

2.7: US: Percentage of Private-Sector Wage and Salary Workers Participating in an Employment-Based Retirement Plan, by Plan Type, 1979–2017



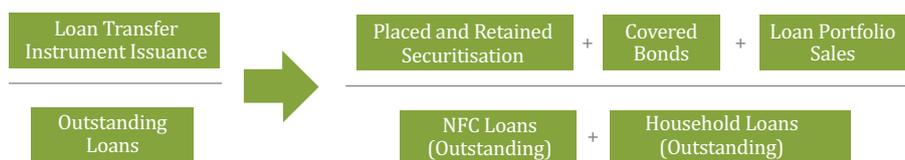
The US experience offers an encouraging prospect for the PEPP product in the EU. The PEPP framework has the potential to contribute towards removing cross-border barriers and help consolidate the asset management industry in the EU.

3. Loan Transfer Indicator

3. Loan Transfer Indicator

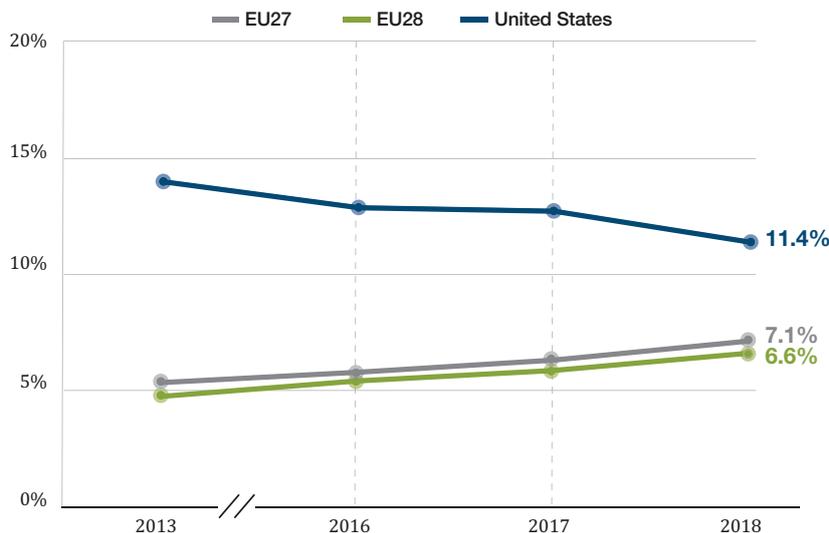
The Loan Transfer indicator seeks to measure the extent to which corporate and household loans are converted into capital markets instruments such as covered bonds, securitisations¹⁶ or loan portfolio sales¹⁷. Such actions create tradeable instruments for investors, and in the case of securitisation and loan portfolio sales, enables the transfer of risk from the original owner of the loans to investors, thus freeing up capital originally held by banks against these loans to support further lending to the economy.

The Loan Transfer indicator is estimated as a simple ratio of annual placed and retained securitisation issuance, covered bond issuance and loan portfolio sales relative to outstanding loans to NFCs and households. The indicator is calculated by dividing flow measures by stock measures which reflects the intent of the indicator, to show what proportion of outstanding loans have been converted into capital markets instruments in a given year.



3.1: Loan Transfer Indicator:

Covered bond issuance, securitisation issuance and loan portfolio sales as a % of outstanding loans



Source: AFME, SIFMA, ECBC, FDIC, ECB, US Fed, Debtwire

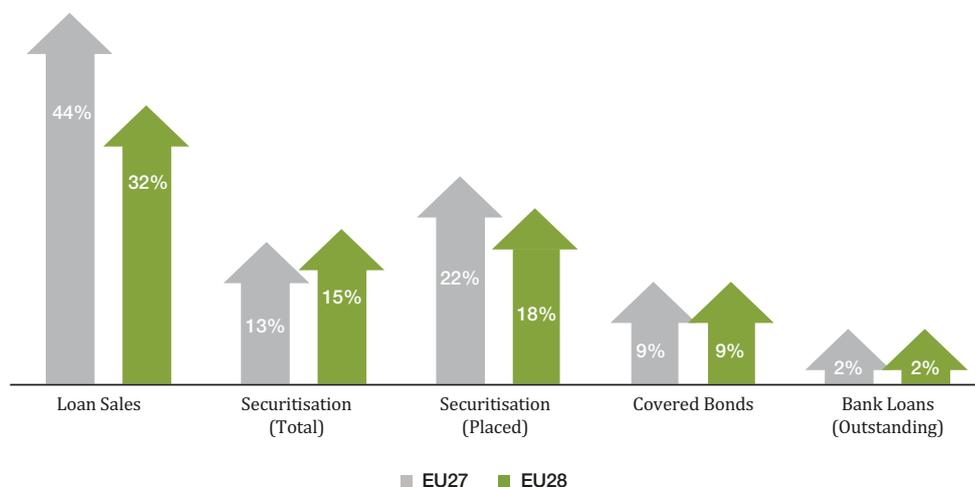
¹⁶ Both placed and retained issuance have been used for the calculation of this index, as even though retained securitisations are not bought by investors, they are still a tradeable capital markets instrument that could be sold to investors if needed.

¹⁷ These include private debt sales of mostly problem loans and non-performing loans packaged in portfolio instruments. In some countries like Italy it is common that a SPV is used, but these are most frequently private deals and not included as “securitisations” for purposes of this report.

The Loan Transfer Indicator increased modestly for the EU28 during 2018, in line with near term trends, as the growth in European loan sales and securitisation markets outpaced the increase in outstanding loans. Contrastingly, in the US there was a small decline in the value of the indicator; this was driven by a 9% increase in outstanding bank loans whilst securitisation issuance volumes largely stagnated over 2018.

The gap between the two jurisdictions has closed somewhat as a result, particularly compared to the respective indicator values in 2013 when the US was converting outstanding loans into capital market instruments at almost triple the rate of the EU28.

3.2: Loan Transfer Indicator - Growth of capital market instruments and outstanding bank loans, 2018 vs 2017, (% change YoY)



Source: AFME, SIFMA, ECBC, FDIC, ECB, US Fed, Debtwire

Loan sales including both performing and non-performing and both total and placed securitisation experienced significant growth in issuance volumes during 2018 in the EU, driving up the value of the Loan Transfer Indicator. **Loan portfolio sales in the EU increased 32% during 2018, with the total volume of €182bn being the largest annual amount traded on record¹⁸.** This was driven by another year of considerable growth in the non-performing segment of the market as EU banks accelerated their NPL disposal regimes.

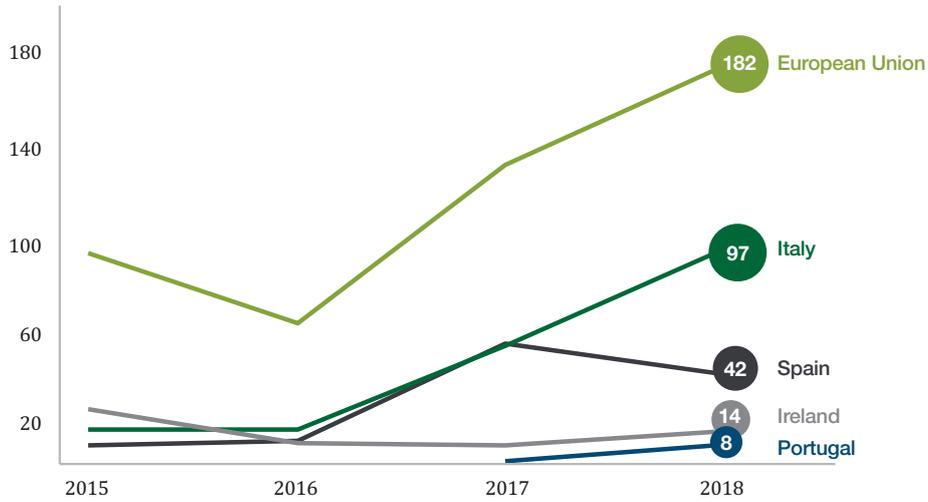
Securitisation activity also picked up significantly during 2018, with total securitisation volume of €321bn being the highest annual amount since 2011 and placed issuance, totalling €184bn, a post-crisis peak. However, some of this activity may have been driven by an unusually large Q4 2018 issuance, in an effort for issuers to finalise deals before the imminent STS regime which came into force on 1st January 2019. With the first STS notified deals entering the market in Q1 2019, it remains to be seen whether this represents a broader and sustained upsurge in European securitisation markets.

32%
Increase in loan
portfolio sales in
EU in 2018

¹⁸ Records began in 2015, with data sourced from Debtwire.

3. Loan Transfer Indicator

3.3: Loan portfolio sales over time, EU and top 5 countries in 2018 (EUR bn)

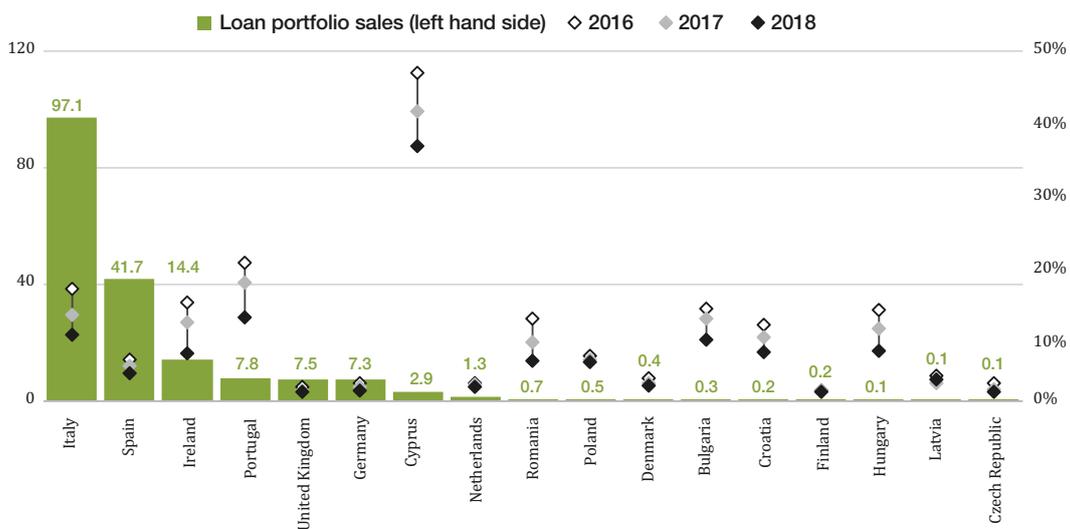


Source: Debtwire

Loan portfolio sales of NPLs, loans that are unlikely to pay and other non performing assets free up bank funding which can otherwise be used to finance loans to SMEs, consumers and the real economy.

Loan portfolio sales have been rising steadily in the EU since 2016, with an average annual growth rate of 73% during 2016-2018. A driving force of this is large NPL sales taking place across the EU in markets that historically suffered heavy losses in the financial crisis and following eurozone crisis. Italian banks, which are currently at the height of their NPL disposal regime had loan portfolio sales of more than half the EU total in 2018, and has reduced NPL holdings by approximately 47% to €180bn since the high of €341bn observed in 2015¹⁹.

3.4: Loan portfolio sales in 2018 and NPL ratio 2016-2018 (EUR bn, %)



Source: ECB, Debtwire

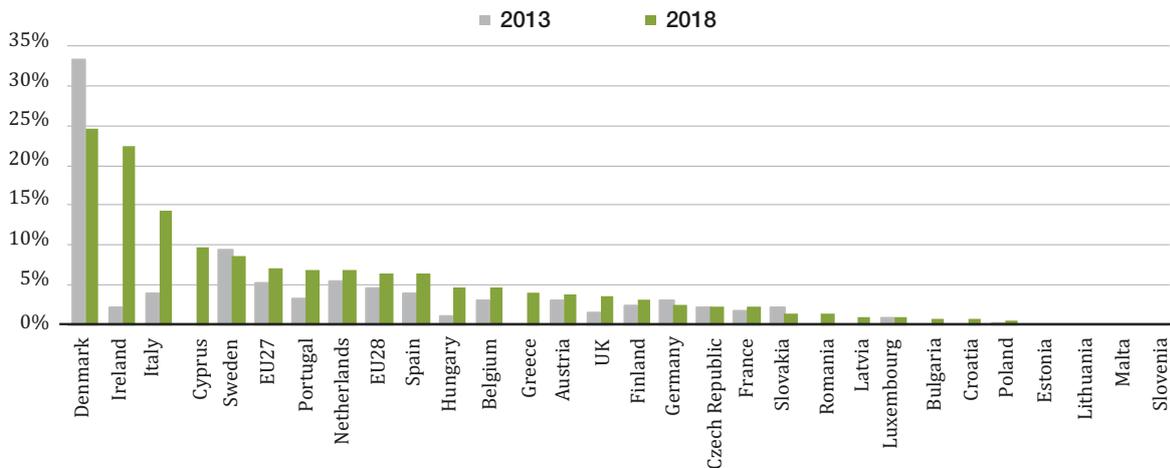
¹⁹ According to PWC (<https://www.pwc.com/it/it/publications/npl/doc/the-italian-npl-market-lug19.pdf>)

Whilst 17 Member States saw loan portfolio sales in 2018, volumes were principally driven by banks in Italy, Spain and Ireland which together made up 84% of annual activity in the market. Therefore, the use of loan portfolio sales is not a widely adopted means of converting all such assets into capital markets instruments but rather an important tool for the disposal of distressed assets in countries with large amounts of NPLs. That said, all EU countries have reduced their NPL ratios to varying extents in 2018 compared to 2016 (probably encouraged by supervisory and regulatory actions), suggesting that loan portfolio sales are one of multiple channels through which banks can improve their balance sheet quality.

84%
of EU loan portfolio sales by banks in Italy, Spain and Ireland

3.5: 2018 Loan Transfer Indicator by country and comparison with 2013:

Covered bond issuance, securitisation issuance and loan portfolio sales as a % of outstanding loans



Source: AFME, SIFMA, ECBC, FDIC, ECB, US Fed, Debtwire

Comparing the value of the indicator between 2018 and 2013 on a country level, Member States considered in the NPL analysis above have also experienced substantial improvements as measured by the value of the indicator.

Denmark remains the leader of EU countries in converting loans into financial instruments, though this is due exclusively to the nature of Denmark’s mortgage market²⁰ and large domestic covered bond market. During 2018, €119bn of covered bonds were issued in Denmark which represented 28% of the total annual EU28 issuance, however this is significantly less than the €150bn issued in Denmark during 2013 which explains the decline in the indicator value over this time period. The Netherlands experienced a surge in covered bond issuance during 2018 with the total volume of €28.7bn representing an increase of 141% from 2017 and 640% from 2013, increasing the value of the indicator in 2018.

Sweden and Germany have recorded small declines in the value of the indicator in 2018 compared to 2013. A principal cause of this has been the reduction in securitisation issuance of 42% in Germany compared to 2013, and no securitisation issuance taking place at all in Sweden during 2018. In contrast, the increase in indicator values for France and the UK have been driven by securitisation issuance increasing in each country by 87% and 75% respectively.

“Only 4 countries did not convert any outstanding loans into capital market instruments – 3 less than last year”

Only 4 countries did not convert any outstanding loans into capital market instruments: Estonia, Lithuania, Malta and Slovenia which is 3 less than last year.

²⁰ Covered bond issuance in Denmark made up 99.7% of the Loan Transfer Indicator value in 2018, with 0.3% coming from loan portfolio sales.

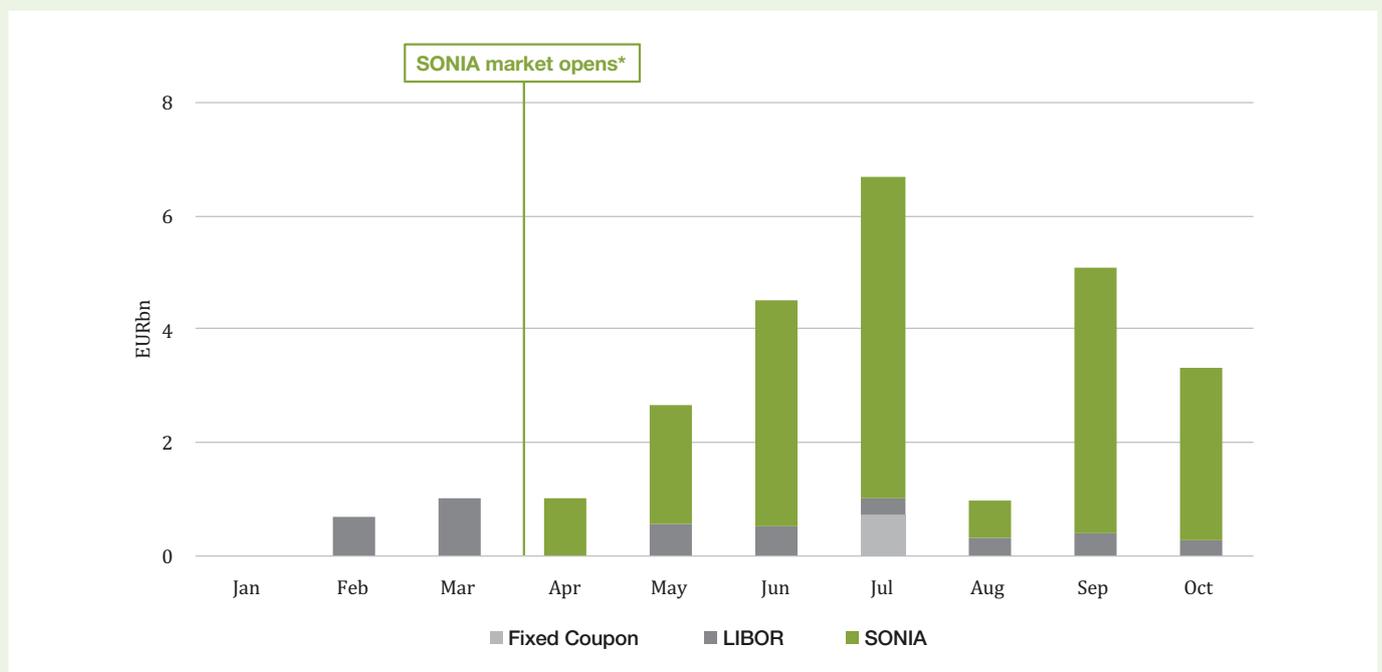
3. Loan Transfer Indicator

SONIA securitisation issuance in the UK and the transition to risk free rates in Europe

Following the announcement by the FCA in July 2017 that they will no longer compel banks to make submissions to Libor after the end of 2021, good progress has been made in the transition from Libor to SONIA, the new risk-free rate in the Sterling market. SONIA-referenced issuance totals €71.6bn to date, including €37.9bn in SONIA-linked floating rate notes (unsecured and covered bonds) as well as €33.7bn in securitisation new issues. As can be seen from the chart below, the securitisation market in the UK has largely transitioned from LIBOR to SONIA with 87% of securitisation issuance volume in the UK referencing SONIA since April 2019 (when the SONIA market opened). Indeed across the FRN sector SONIA is now the chosen benchmark for issuance beyond end-2021 if not shorter. Challenges remain in dealing with “legacy” deals; however, a number of major issuers have already announced plans to solicit consent from investors to switch existing transactions to SONIA.

In the EU, the Benchmark Regulation (BMR) transition period for critical benchmarks ends on 1 January 2022 and benchmarks which do not comply with the regulation cannot be used in the EU after that date. In the European markets, €STR, the chosen RFR rate to replace EONIA, was published for the first time on 2nd October 2019. EURIBOR, by contrast, is going through a period of reform. In the US, SOFR is the chosen rate to replace USD LIBOR.

UK Securitisation issuance 2019 year to date (EURbn)



Source: Natwest Markets, *First priced / placed SONIA-referenced securitisation deal, 2 retained deals took place in Dec 2018 and Mar 2019

However, as the transition to risk free rates is across asset class, it remains important for example in the loan market to switch from IBOR rates to RFR to better facilitate loan sales past the end of 2021.

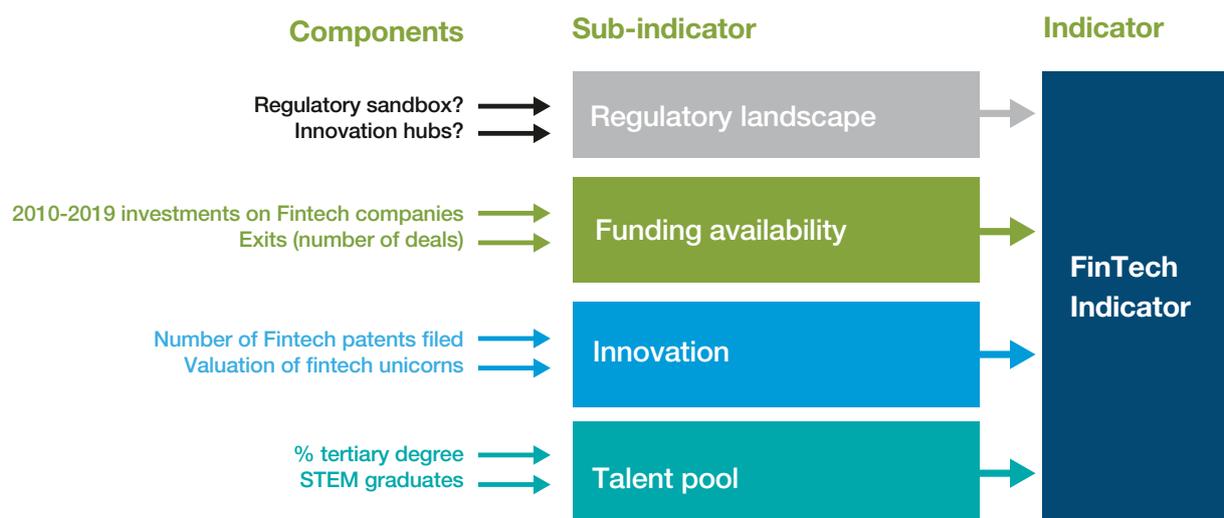
With the potential end date of LIBOR and the application date of the EU Benchmark Regulation for critical benchmarks fast approaching, it is more important than ever to switch to RFRs. With infrastructure providers having already updated their systems to be able to handle the new computation of RFRs expectantly other jurisdictions can replicate the progress made in the Sterling securitisation markets.

4. FinTech Indicator

The continued rapid growth of FinTech is driving increased innovation, the use of new technologies, and creating new business models and services. This is enabling enhanced benefits for risk management, driving cost savings and improving user experiences.

Over the last five years, FinTech innovations have started to transform a wide range of financial markets activities such as banking, asset management and payments. FinTech can deliver a more competitive and innovative financial sector and provide opportunities for more efficient customer servicing at lower costs.

We have constructed a FinTech composite indicator which seeks to rank countries by their capacity to host a vibrant FinTech ecosystem. The indicator is constructed based on four sub-indicators: (i) regulatory landscape²¹; (ii) availability of finance for companies; (iii) degree of innovation; and (iv) talent pool. Each of the four sub-indicators is composed of individual metrics as illustrated in the figure below²²:



This composite indicator can help policymakers and market participants to identify strengths and weaknesses of EU national FinTech ecosystems. The indicator also includes the US and China as two of the most prominent international centres of FinTech innovation.

21 Some countries have multiple innovation hubs facilitating innovations in Banking, Insurance and Securities markets industries. The Belgian FSMA and NBB have two separate innovation hubs. For purposes of calculating the indicator, Belgium was assigned a score of 6 as the three financial services industries are covered by the two existing innovation hubs.

22 Regulatory landscape: presence of regulatory sandboxes and innovation hubs in banking, insurance, and securities markets activities. Funding availability includes the amount of investments into FinTech companies from 2010 to 2019 and the number of investor exits in 2010-2019. Innovation measures the number of Fintech patents registered in the local patents office and market valuation of fintech companies. Talent pool measures the percentage of 25-64 habitants with at least tertiary degree and the percentage of Science, Technology, Engineering and Mathematics graduates. See Annex for further details on how this indicator was constructed.

4. FinTech Indicator

78%
of funding provided
to FinTech companies
in the EU comes
from the UK

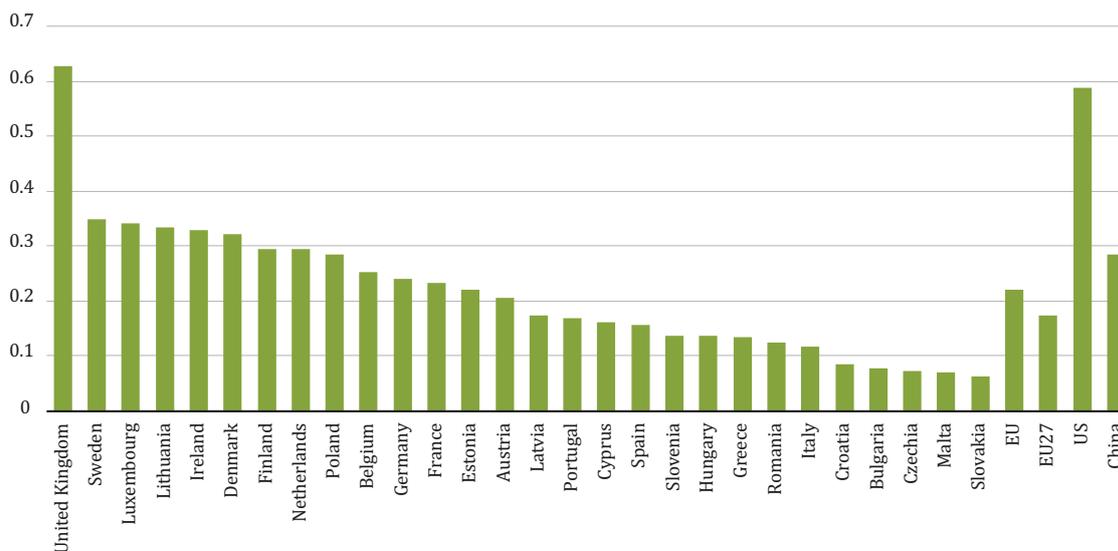
Chart 4.1 shows the ranking of the FinTech composite indicator. In the EU, the UK leads by a large margin in the capacity to facilitate FinTech innovation. The UK lead is driven by: a supportive regulatory environment, with local sandboxes and innovation hubs across banking, insurance and the securities markets activities; a deep local funding environment for new companies accounting for 78% of the funding provided to FinTech companies in the EU; and the emergence of multiple FinTech Unicorns²³. Talent pools and the number of registered FinTech patents are of similar magnitude in the EU27 and in the UK.

The UK's global lead also illustrates the network effects across the financial services industry— overall size and capacity of capital markets matters, also for developing the FinTech sector, as technology and innovation is adopted across several interrelated financial markets industries.

Sweden, Luxembourg and Lithuania follow the UK among the countries with the most suitable FinTech ecosystems. The indicator values are not statistically different between Sweden, Luxembourg and Lithuania, however, there are some relative strengths to highlight: Lithuania (unlike Sweden and Luxembourg) has developed a robust regulatory environment for FinTech companies by establishing regulatory sandboxes for banking, insurance and securities markets; Sweden is among the EU countries with the most suitable talent pool and the largest proportion of graduates with tertiary degrees; Luxembourg has an oversized value of FinTech financing compared to the size of its economy.

4.1: 2018 FinTech Indicator by countries [0: Min, 1: Max]:

Composite indicator based on regulatory landscape, funding availability, innovation and talent pool



Source: AFME from multiple sources

4.2: FinTech Indicator by components. Top 5 countries (ranking 1: top; 28: bottom)

	Fintech ranking	Funding	Talent pool	Regulation	Innovation
United Kingdom	1	2	4	1	1
Sweden	2	10	3	9	2
Luxembourg	3	1	10	9	20
Lithuania	4	24	7	1	22
Ireland	5	3	2	9	25

Source: AFME from multiple sources

23 Unicorns are privately held startup companies valued at over \$1 billion

The global FinTech marathon

Figure 4.3 compares the component scores (normalised between 0-1) for the US, China, UK and the EU27 which shows side by side the relative strengths and weaknesses of these FinTech ecosystems.

4.3: FinTech Indicator by components



The main strength of the EU27 FinTech ecosystem lies in its talent pool. Approximately 31% of the EU27's working age population has at least a tertiary degree, compared with 18% in China. Likewise, as shown in Figure 4.4 below, 26% of the EU27's university graduates have a Science, Technology, Engineering or Mathematics (STEM) degree. This is compared with 18% in the US, but significantly behind China with 41%.

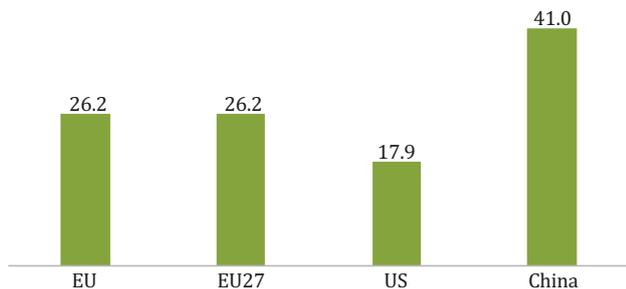
However, the EU27 has a number of limitations. Firstly, it lags behind in the production and registration of new FinTech patents. According to AFME estimates of FinTech patents registrations²⁴, EU27 countries registered a total of 219,108 between 2010 and 2019 (June) compared with 608,346 in the US and 600,172 in China. There are only two EU27 FinTech Unicorns with a cumulative valuation of \$7bn, compared with \$74bn in the US and \$21bn in the UK, which may illustrate a limited production of financial technology innovation in the EU27.

“The main strength of the EU27 FinTech ecosystem lies in its talent pool”

²⁴ Based on searches in goggle patents website. Cumulative number of patents registered with at least one of the following terms or registration codes: G06Q, G07F, G07G, finance, banking, fintech, crypto, insurance, asset management.

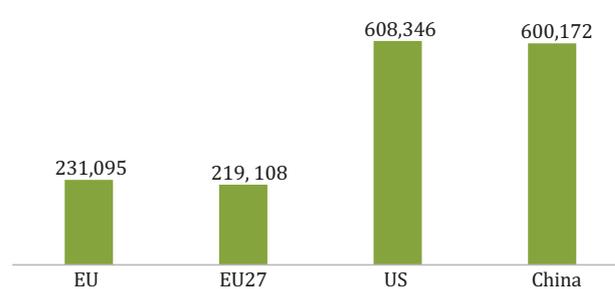
4. FinTech Indicator

4.4: % STEM graduates



Source: Eurostat, OECD, Accenture, World Bank

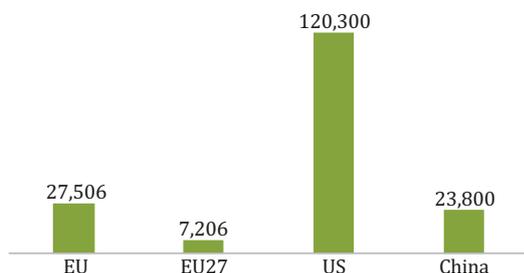
4.5: Number of FinTech patents registered: 2009-19



Source: Google patents

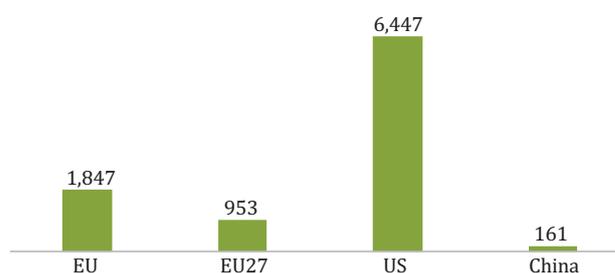
Secondly, the EU27 FinTech ecosystem has less available funding for entrepreneurs. According to CB insights data, EU FinTech companies have benefited from only \$7.2bn in investments (venture capital, seed, angel and private equity) since 2009, compared with \$120bn in the US, \$20.3bn in the UK and \$23.8bn in China. This illustrates the importance of equity risk capital as it is particularly suitable for riskier investments in frontier technologies and early-stage enterprises with a limited or no track record but above average growth prospects. Likewise (as shown in Figures 4.6 and 4.7), investors have exited EU FinTech positions on approximately 950 occasions since 2009, compared to 6,447 in the US and 894 in the UK only, which illustrates a significant gap in the availability of funding and liquidity for FinTech companies.

4.6: Investment activity in FinTech: cumulative amount 2009-19 (USD mm)



Source: CB insights

4.7: Exits in FinTech: cumulative number 2009-19



Source: CB insights

Role of regulation, regulatory sandboxes and innovation hubs

One of the most important aspects for a successful FinTech ecosystem is the quality of the local regulatory environment and its suitability to facilitate innovation while safeguarding consumer protection and financial stability.

“The EU27 FinTech ecosystem has less available funding for entrepreneurs”

Financial supervisors in some EU countries have adapted their local supervisory practices by establishing regulatory sandboxes and innovation hubs. Regulatory sandboxes are schemes that enable firms to test new business models or financial products against the local regulatory environment. Innovation hubs are a dedicated point of contact for firms to raise enquiries with competent authorities on FinTech-related issues and to seek non-binding guidance on regulatory and supervisory expectations.

As of January 2019, there were 21 innovation hubs and five regulatory sandboxes in the EU (with other Member States like Austria, Estonia, Bulgaria and Spain in the process of establishing local regulatory sandboxes). Whilst the EU Commission launched a *European Forum for Innovation Facilitators* in April 2019²⁵ (focused on allowing supervisors to share best practices), there remains no formal regulatory sandbox or innovation hub at EU level. Greater coordination between Member States innovation hubs and sandboxes could help to facilitate increased FinTech innovation at the EU level.

21
Number of
innovation hubs
in EU

Collaboration should be encouraged between market participants and other actors of the financial ecosystem to apply lessons learned and best practices; both cross border and cross sector. It is therefore encouraging that enhancing coordination between Member States' innovation hubs and regulatory sandboxes is among the objectives of the recently launched *European Forum for Innovation Facilitators*²⁶.

5
Number of
regulatory
sandboxes in EU

4.8: EU countries with regulatory sandboxes and innovation hubs



“Fragmented regulation could pose additional barriers to innovation”

Source: EBA, EIOPA and ESMA

There are several challenges posed by new technologies and the role of regulators in facilitating increased FinTech. As the FinTech ecosystem evolves, regulators should monitor for emerging risks (such as those posed by artificial intelligence and data protection) and act when warranted, while ensuring there are no constraints on collaboration within the ecosystem or innovation with new technologies.

Fragmented regulation could pose additional barriers to innovation and limit the EU’s capacity to encourage FinTech innovation. The European Commission, for example, can continue to work closely with innovation hubs, industry actors, consumers, vendors, other regulators and industry bodies to work on reducing uncertainty for the FinTech landscape.

25 https://ec.europa.eu/commission/commissioners/2014-2019/dombrovskis/announcements/vp-dombrovskis-speech-opening-3rd-annual-afore-fintech-conference_en

26 <https://esas-joint-committee.europa.eu/Pages/Activities/EFIF/European-Forum-for-Innovation-Facilitators.aspx>

5. Sustainable Finance Indicator

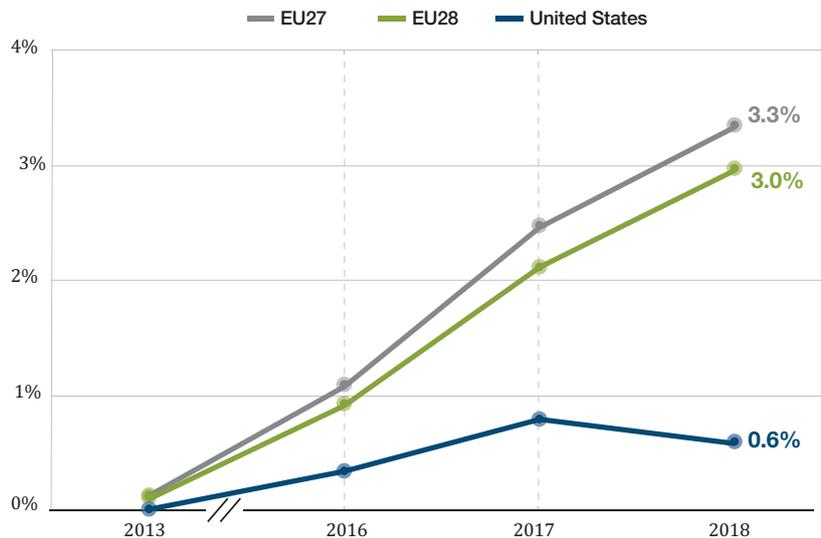
5. Sustainable Finance Indicator

Sustainable finance remains a key priority of the European Commission since the adoption of the Sustainable Finance Action Plan in March 2018. Since then, there has been significant progress made on the primary legislative proposals while, issuance of “sustainable” assets²⁷ continues to experience growth and increased global attention.

This indicator seeks to quantify the sustainable labelling of new bond issuance and is estimated as simple ratio of issuance of sustainable securitisation, sustainable corporate bonds (financial and non-financial corporates), sustainable government, municipal and agency bonds and sustainable covered bonds relative to total issuance of placed securitisations, corporate bonds, government, municipal and agency bonds and covered bonds. The indicator does not consider sustainable equity issuance due to the difficulty in assessing and classifying organisations as sustainable or not but could evolve over time reflecting changes in the sustainable finance sector and data availability.



5.1: Sustainable Finance Indicator:
Sustainable bond issuance as a % of total bond issuance by volume



Source: CBI, Dealogic, ECB, SIFMA, ECBC and AFME

27 “Sustainable” assets include bonds that have been labelled as “Green” by the issuer and are included in the Climate Bonds Initiative database, or bonds labelled “Social” or “Sustainable” (proceeds designated to both green and social projects, and which for clarity are also called Dual Purpose Bonds in this report) by the issuer and included in the Dealogic database.

Issuance of green, social and dual purpose bonds (i.e. bonds that meet the definition of both green and social) increased 16% annually in the EU during 2018 to €69bn, an increase of €9bn compared with total volumes issued in 2017. The pace of growth has eased somewhat compared to 2017, in which issuance rose 133% annually, however this is against a backdrop of a moderate decline in total bond issuance in 2018 more generally in EU markets of -14% year on year as noted in section 1.

€55.9bn
Green bonds issued in EU

EU27 consolidates global leadership in sustainable finance

The US-EU issuance gap has increased significantly during 2018, due to a reduction in issuance of sustainable bonds in the US, marking the first decline in the indicator for the US to date. As such, Europe remains the global leader in volumes issued in sustainable finance markets.

€6.3bn
Social bonds issued in EU

Within the EU28, the green bond sector dominates issuance volumes, with €55.9bn of green bonds being issued in 2018, compared with €6.3bn of social bonds and €6.9bn of dual purpose bonds being brought to the market.

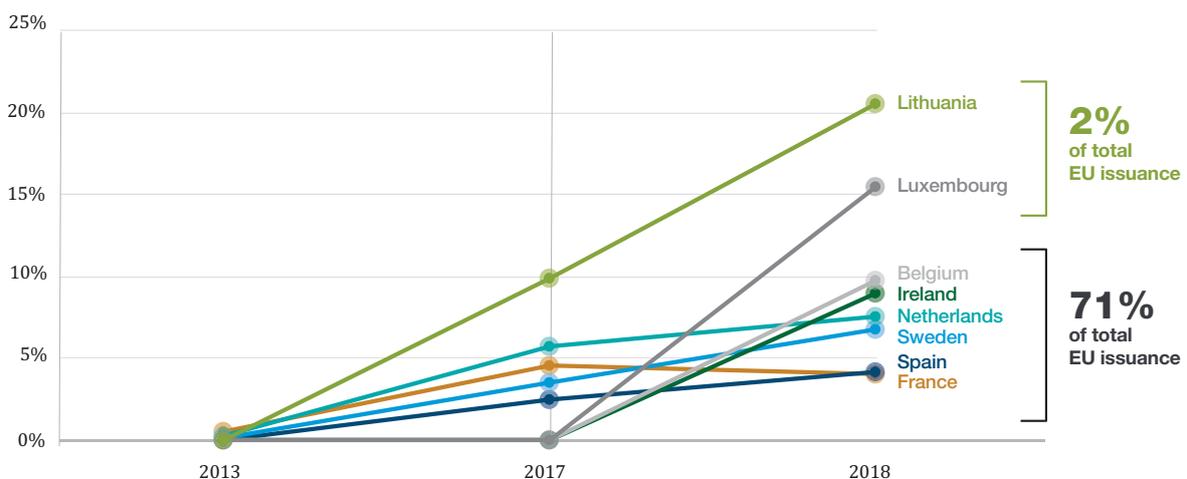
€6.9bn
Dual purpose bonds issued in EU

There is mixed evidence of any pricing benefits achieved via sustainable labelling of bonds, which could be a significant driver of future growth in the market. Nevertheless, there is some indication that green, social and dual / purpose labelling offers greater diversification of investor interest, which may be due to the increasing “green-focused” segment of the investor base that is actively looking to invest sustainably.

New market participants

Lithuania has the highest indicator value in 2018, after also being in the lead in 2017. However, only three sustainable bonds were issued in 2018, following one in 2017. Therefore, the indicator value for Lithuania is reflective of the relatively small size of the domestic bond market. Furthermore, the year on year increase in sustainable issuance was amplified by a reduction in the size of the overall bond market in Lithuania, producing an indicator value in 2018 that is just over double the value in 2017. See chart 5.2

5.2: Sustainable Finance Indicator: Top 8 countries in 2018
Sustainable bond issuance as a % of total bond issuance by volume



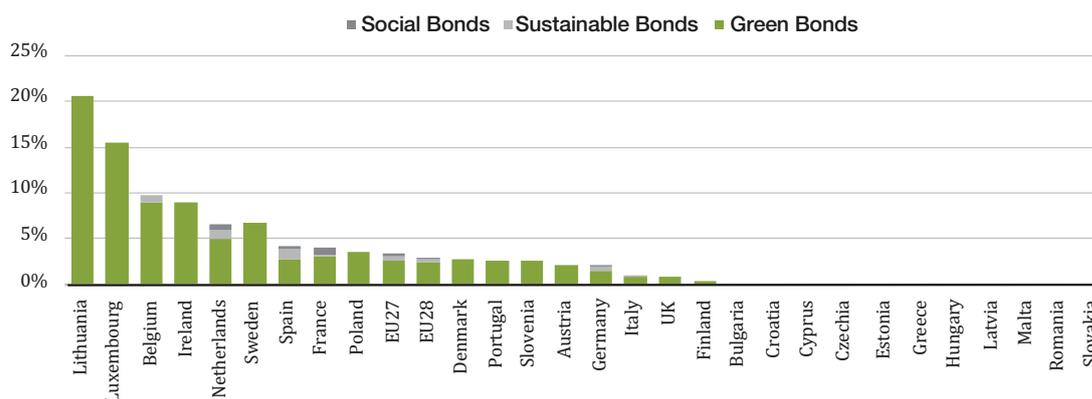
Source: CBI, Dealogic, ECB, SIFMA, ECBC and AFME

5. Sustainable Finance Indicator

Similarly, only three sustainable bonds were issued in Luxembourg, however the relatively small volume of bonds issued overall in Luxembourg in 2018 has increased the indicator value substantially.

Belgium and Ireland both entered the top 8 indicator values in 2018 having the third and fourth highest indicator values in the EU and together with the Netherlands, Sweden, Spain and France made up €48.7 bn, or 71% of total EU sustainable issuance. France was the largest issuer, in nominal terms, of sustainable bonds with volumes totalling €16.5bn over 2018, comprising 24% of the EU28 total.

5.3: 2018 Sustainable finance indicator by EU country (Sustainable bond issuance as % of total bond issuance)



Source: CBI, Dealogic, ECB, SIFMA, ECBC and AFME

17

Number of countries issuing green, social & dual purpose bonds in 2018

VS.

13

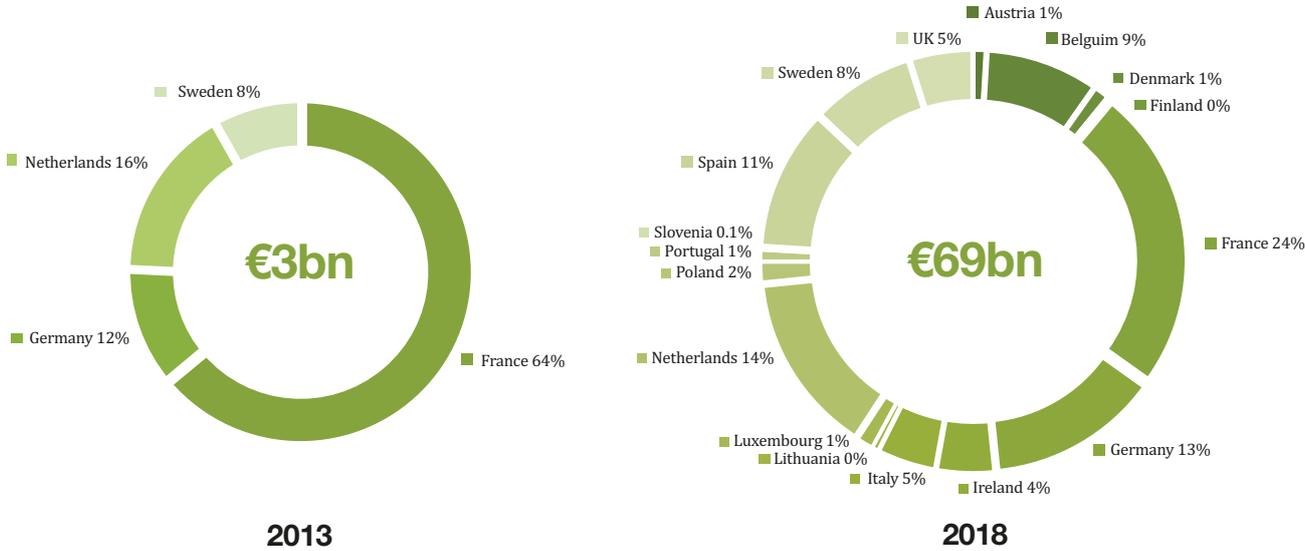
Countries issuing green, social & dual purpose bonds in 2013

Only 3 countries experienced a reduction in the value of the indicator in 2018. Furthermore, only 11 EU member states did not issue any sustainable securities at all, the lowest number to date.

Overall, there has been rapid growth in the sustainable finance market from 2013 to 2018 with the total volume of green, social and dual-purpose bond issuance increasing 2300%. **There has also been considerable diversification in country of issuance with 17 EU countries issuing green, social or dual-purpose bonds in 2018, an increase of 13 compared to 2013.** France, Germany and the Netherlands remain the top three issuers when measured by absolute value of sustainable bond issuance, with Spain overtaking Sweden during this period to become the fourth largest country of sustainable issuance within the EU.

“There has been rapid growth in the sustainable finance market”

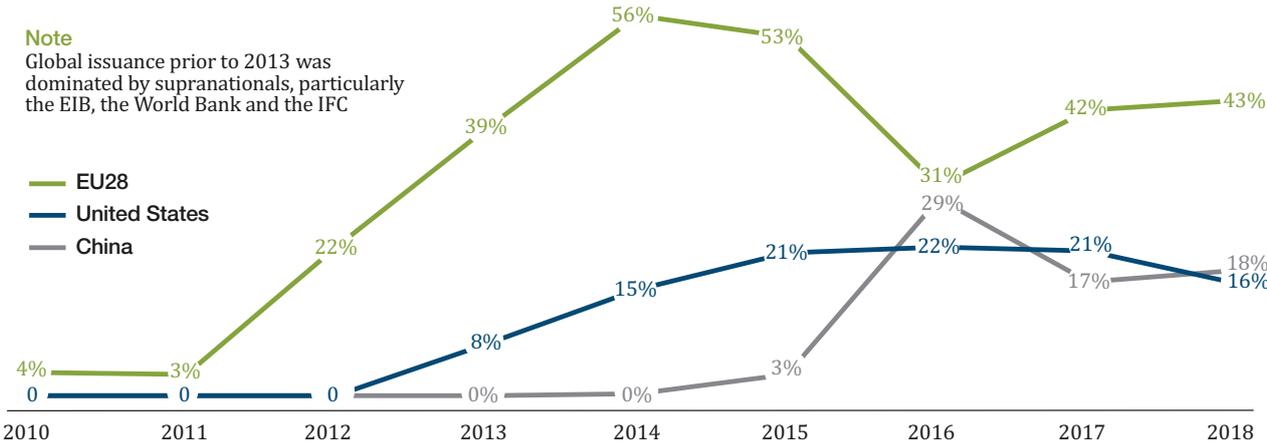
5.4: Diversification of country of issuance in sustainable bond issuance



Source: Climate Bonds Initiative, Dealogic

As a percentage of global issuance, the EU28 remains ahead of the US and China by a significant margin, due to the rate of growth of issuance of sustainable bonds since 2016 being unmatched either by the US or China (see Chart 5.5). Furthermore, the Euro was the most popular denomination of choice in 2018, accounting for 40% of annual green bond issuance volume. In contrast, the US dollar was leading in 2017 representing 46% of the issuance volume, with the decline in 2018 to 31% attributed partially to a drop in US municipal issuance.

5.5: Sustainable bond issuance as a % of global issuance (EU28, US, China)



Source: Climate Bonds Initiative, Dealogic

5. Sustainable Finance Indicator

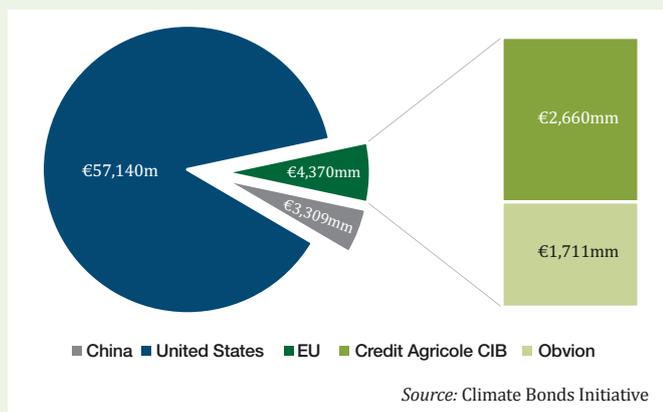
Developments in Green Securitisation

The area of green securitisation is in its infancy, with annual issuance globally being €20.8bn during 2018 and the first European issuer entering the market in 2017. The vast potential of this market has been highlighted by the European Commission in the Sustainable Finance Action Plan 2018, in which development of green securitisation is considered to play a key role in helping to close the yearly investment gap of almost €180bn to achieve EU climate and energy targets by 2030²⁸.

As this market is expected to grow considerably in the near term, it is important for policymakers and the industry to pursue development of a detailed framework for green securitisation, including²⁹:

- A consistent and simple definition for labelling of green securitisation
- Regulatory or financial incentives for green securitisation transactions
- Processes for disclosure, ongoing reporting and tracking of underlying data
- Eligibility criteria and trigger events

Outstanding global green securitisation volumes



The first European green securitisation deal came to the market in 2016, by Dutch issuer Obvion. Since then, Obvion has brought two further green securitisations of similar sizes to the market in 2017 and 2018. Credit Agricole CIB brought their first green securitisation to the market in 2017. The total EU issuance to date is €4,730mm which constitutes 7.2% of the global total. The US, with €57,140mm issued to date has incorporated green and sustainable principles into the framework of its government backed agency RMBS market (Fannie May and Freddie Mac).

Issues with classification of green, social and dual-purpose bonds

Green bonds issuance data is sourced from the Climate Bonds Initiative (CBI) database and fulfils the CBI transparency and use of proceeds requirements.

Due to differences in classification frameworks between labelling agencies, there could be differences in aggregate sizes with other sources. A taxonomy for sustainable bonds, which can be used as a benchmark for market participants, remains an important goal.

Sustainable assets under management

In addition to fixed income assets, Europe remains the leader in overall sustainable assets under management, measured by absolute amounts and percentage of total managed assets. See chart 5.6.

The majority of global sustainable assets under management are allocated in public equity securities, which together with fixed income products make up 86% of allocation strategies (see Chart 5.7).

“A taxonomy for sustainable bonds, which can be used as a benchmark for market participants, remains an important goal”

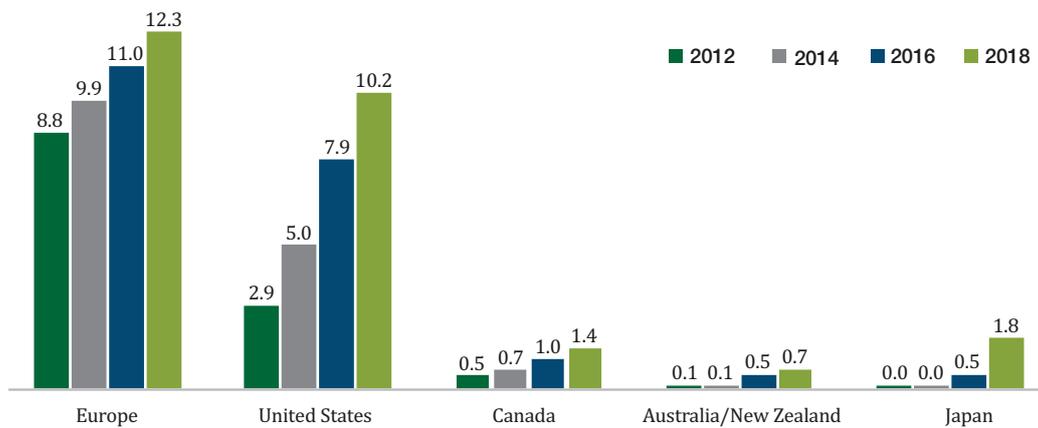
28 European Commission Sustainable Finance Action Plan, 2018

29 AFME Position paper: Principles for Developing A Green Securitisation Market in Europe

It must be noted that the values in chart 5.6 reflect total assets managed under sustainable investment strategies which have varying degrees of “sustainability”³⁰, rather than total amount of all assets which are sustainable. Therefore, when considering the narrower definitions of sustainable finance as defined by the ICMA Green, Social and Sustainable Bond Principles, or the “green” criteria of the Climate Bonds Initiative, the values in chart 5.6 may somewhat overstate the market.

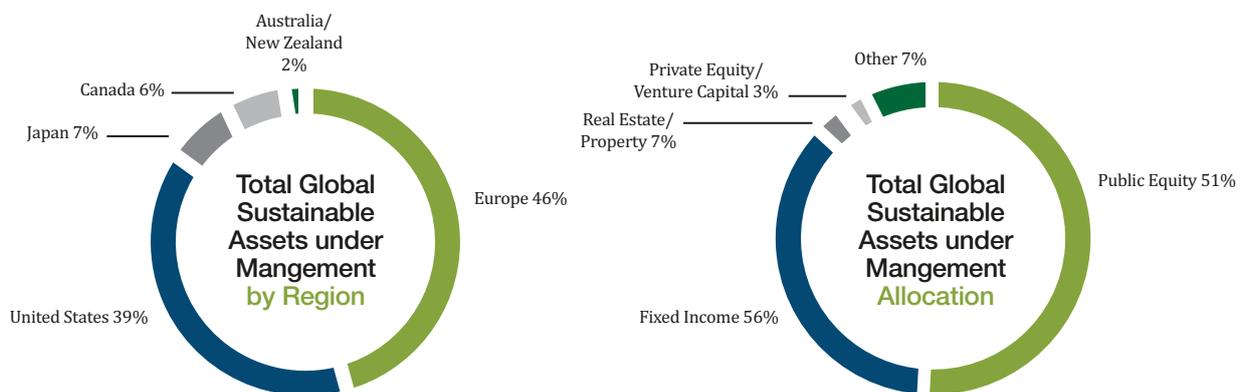
Industry research has analysed the asset allocation strategy of sustainable ETF vehicles. According to European Investors research³¹, sustainable ETFs invest on a wide range of asset classes, sectors and companies. The sustainable finance agenda should provide the clarity needed regarding assets that can be considered sustainable. Having clear labels and standards for sustainable products would allow investors to make informed choices which are instrumental in the transition towards a climate-neutral economy.

5.6: Global sustainable assets under management (EUR tn)³²



Source: Global Sustainable Investment Alliance

5.7: Total global sustainable assets under management by region and allocation (EUR tn)



Source: Global Sustainable Investment Alliance

30 In Europe, the most utilised sustainable investment strategy is exclusionary screening (the exclusion from a fund or portfolio of certain sectors, companies or practices based on specific ESG criteria) and norms-based screening (screening of investments against minimum standards of business practice based on international norms), representing 44% and 22% of sustainable assets under management.

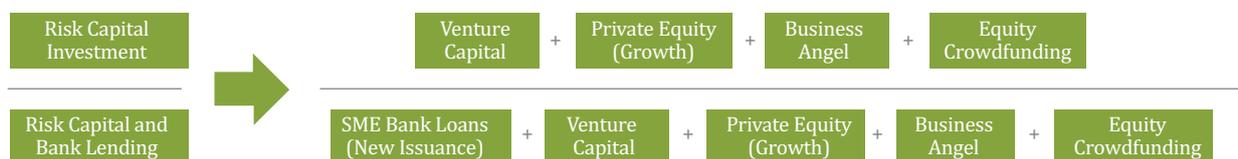
31 European Investors (2019)

32 Sustainable investing is an investment approach that considers environmental, social and governance (ESG) factors in portfolio selection and management, and in this definition include socially responsible investing (SRI). Approaches include 1. Negative/exclusionary screening 2. Positive/best-in-class screening 3. Norms-based screening 4. ESG integration 5. Sustainability themed investing 6. Impact/community investing; and 7. Corporate engagement and shareholder action.

6. Pre-IPO Risk Capital Indicator

The availability of risk capital is of the utmost importance to finance the start and growth of young and innovative companies. Although bank lending and debt financing are the traditional sources of finance for SMEs, as companies grow, they are in search of more stable equity funding sources that can contribute to financing new ideas and job creation.

The Risk Capital indicator quantifies the availability of pre-IPO risk capital financing for SMEs. The ratio is estimated as the aggregate amount of annual risk capital investments (i.e. venture capital, private equity investment for companies at growth stage, business angel investment³³ and equity crowdfunding) relative to total annual new issuance of SME bank loans and risk capital finance. SME lending is measured as the flow of new gross bank loans of size below €1m to non-financial corporates.

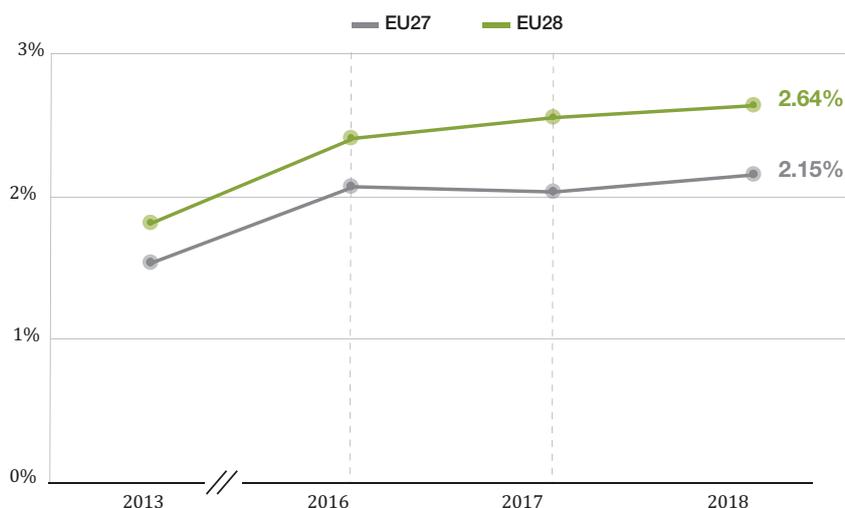


Although over the last 5 years, SMEs benefited from robust growth in the availability of pre-IPO risk capital for SMEs, the indicator only slightly increased compared to 2017. At the end of 2018 risk capital represented 2.64% of the total annual flow of SME financing, compared to 2.55% in 2017 and 1.4% in 2013.

2.64%
of total annual flow of
SME finance came from
risk capital in 2018

6.1: Pre- IPO Risk Capital Indicator:

Investment from venture capital, private equity (growth), business angel and equity crowdfunding as a % of risk capital and bank lending

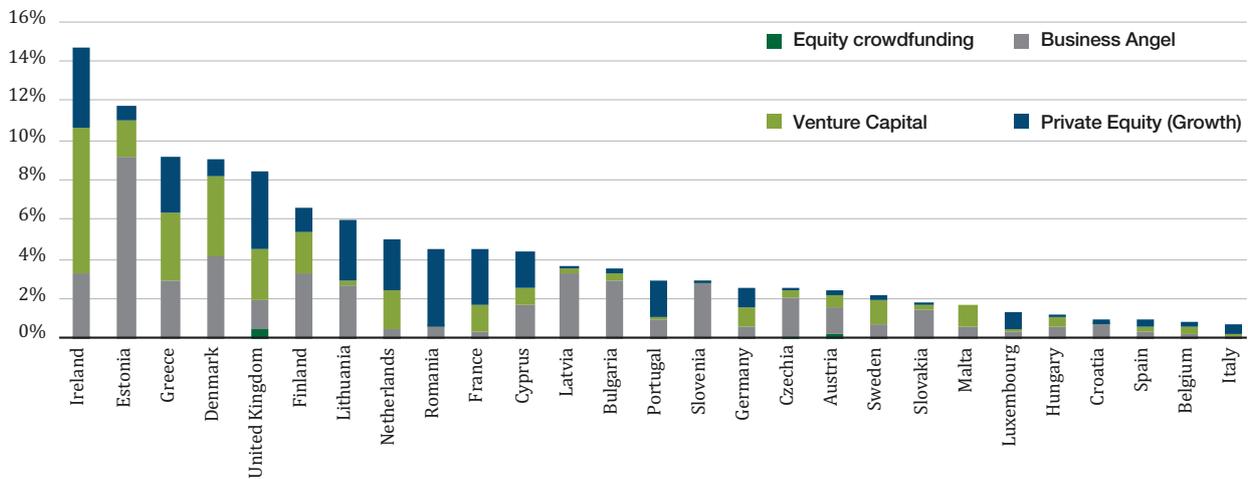


Source: AFME from EBAN, InvestEurope, TAB and National Central Banks

³³ Measuring the size of the Business Angel investment activity is a difficult task due to underreporting of private investments to a business angels network or association, which is the current way of gathering data. In Europe, EBAN uses a multiplier of x10 applied to the “visible” market (the actual investment volume reported to business angel associations) to estimate the overall market.

6.2: Pre- IPO Risk Capital Indicator by country:

Investment from venture capital, private equity (growth), business angel and equity crowdfunding as a % of risk capital and bank lending



Source: AFME from EBAN, InvestEurope, TAB and National Central Banks

In 2018, SMEs experienced an increase in all forms of risk capital investment: 8% in investment from private equity growth funds, 12% from venture capital, 24% in equity crowdfunding and 3% in EU business angel investment according to the European Business Angel Network (EBAN).

Consistency and comparability of business angel market activity remain a crucial challenge that the industry is currently addressing. Data compiled by Business Angels Europe (BAE) indicates a more optimistic market activity in Europe in 2018. BAE surveys conducted by national business angels' clubs associated with BAE and BAE Club members (the most active BA investment clubs around Europe) estimated an annual increase of 36.6% in European business angel investments, largely driven by an increase in Germany and Belgium and a decline in the other seven EU countries surveyed.

SME loan origination increased 5% YoY on the back of continued ultra-low interest rates and flexible conditions to access bank finance, according to the ECB and other national central bank surveys.

By countries, Ireland and Estonia lead in terms of the amount of available risk capital for SMEs, with a prominent participation of business angel investment in Estonia and more diversified sources of risk capital in Ireland (see chart 6.2). Italy continued at the bottom of the indicator value as one of the largest EU economies with the most prominent gap in the provision of risk capital for SMEs and a large amount of SME lending.

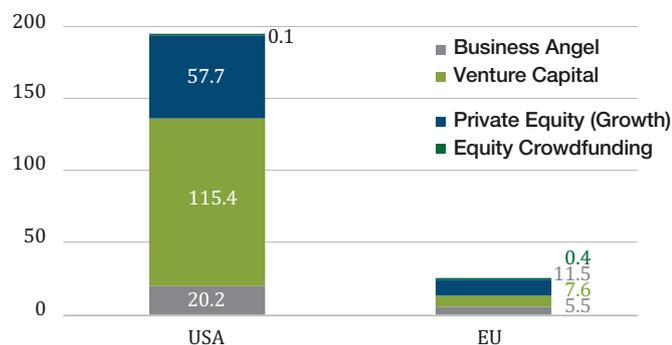
The absolute amount of risk capital investment in Europe continued significantly below that of the US. As shown in graph 6.3, the annual amount in the US totalled €193bn of risk capital, about 7.7 times the amount invested in the EU (€25bn). Compared to the size of the respective economies, US pre-IPO risk capital represents 1% of GDP vs. 0.2% of GDP in the EU.

According to TAB data, the EU, however, leads in the availability of equity crowdfunding for SMEs, with a total of €440m raised in 2018 (excluding rewards-based funding) compared with €70m in the US.

“The annual amount of risk capital investment in the US totalled €193bn, about 7.7 times the amount invested in the EU (€25bn)”

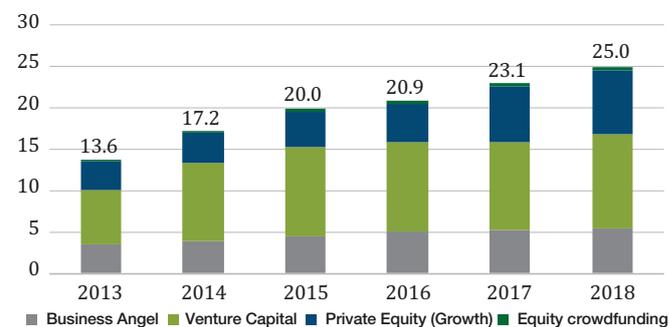
6. Pre-IPO Risk Capital Indicator

6.3: Pre-IPO risk capital investment: EU and USA (EUR bn)



Source: EBAN, InvestEurope, TAB, USVCA, and University of New Hampshire

6.4: Pre-IPO risk capital investment in the EU 2013-2018 (EUR bn)



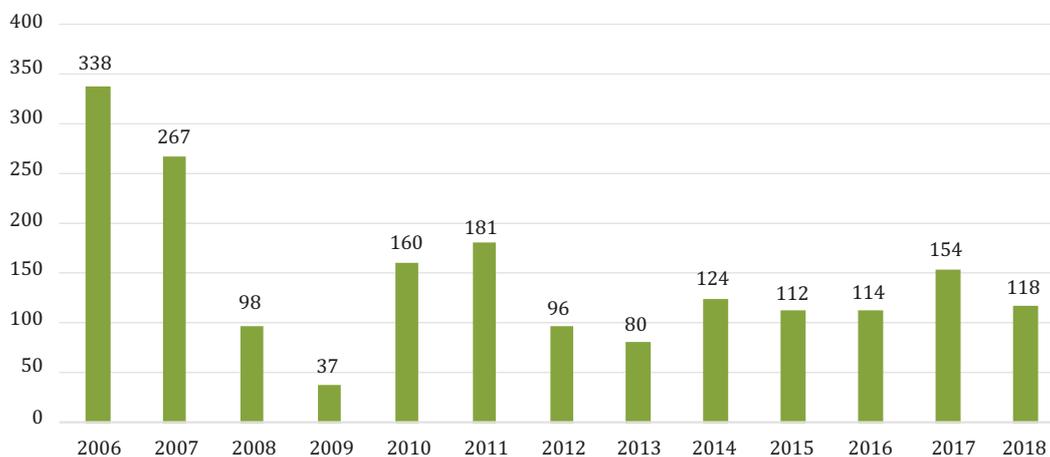
Source: EBAN, InvestEurope, TAB

Transition from risk capital to stable sources of funding

There is a need to tackle the decline in SME IPOs, which play a crucial role in Europe's economy. Equity issuance on "junior exchanges"³⁴ fell 26% compared to 2017, accumulating a total of €9.8bn in proceeds in 2018 of which €3.9bn was raised through IPOs. The number of IPOs on junior markets has hardly returned to pre-crisis levels when above 320 deals were originated, compared to just over 100 in 2018.

The market environment was not particularly supportive for equity capital raising through markets. The 2018 market uncertainty generated a sharp increase in the number of European IPO deals withdrawn or postponed. A total of 51 IPO deals in Europe were withdrawn or delayed in 2018, an increase from 20 in 2017—also the highest number since 2008.

6.5: Number of IPOs on junior markets in the EU 2008-2018



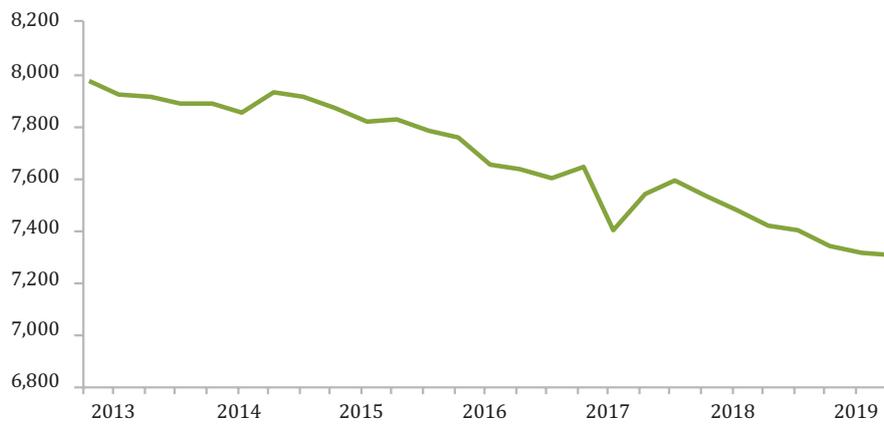
Source: Dealogic

The temporary market uncertainty prolonged the more structural decline in the number of publicly listed companies. The number of companies listed on EU exchanges continued to fall in 2018 on the back of continued company delistings, low cost of debt compared to cost of equity (2% cost of debt compared to 8% cost of equity³⁵), a buoyant private equity and venture capital market as discussed in section 1, company consolidation through M&A transactions (c200 deals between publicly listed companies in 2018 in Europe according to Dealogic) all of which may have continued to prompt companies to go private.

34 Exchanges with less listing requirements and fees, usually tailored for SMEs.

35 Source: ECB https://www.ecb.europa.eu/pub/economic-bulletin/articles/2018/html/ecb.ebart201804_02.en.html#toc3

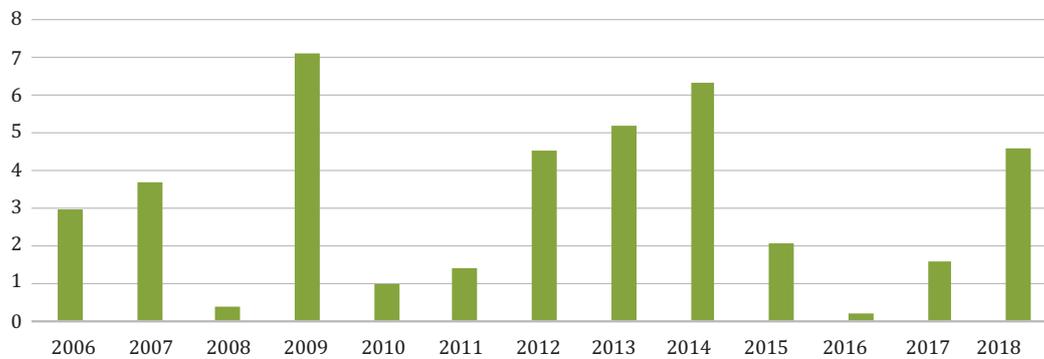
6.6: Number of listed companies in the EU 2013-2019



Source: FESE, WFE and local exchanges

In the absence of a deep EU liquid market for new companies to raise finance, innovative entrepreneurs have sought to access finance cross-borders. In 2018, a total of €4.6bn was raised by 10 EU companies on US exchanges. The amount is 1.2x the total equity capital raised through IPOs on EU Jr markets in 2018, or c13% of the total IPO capital raised on EU exchanges in 2018. See chart 6.7.

6.7: Capital raised by EU companies through IPOs on US exchanges EURbn



Source: Dealogic

“Innovative entrepreneurs have sought to access finance cross-borders”

€4.6bn
 Total raised by 10 EU companies on US exchanges in 2018
 (1.2x total equity raised on EU junior markets in 2018)

6. Pre-IPO Risk Capital Indicator

It is important to identify the factors behind the decision of some EU companies to raise capital outside the EU cross-border, despite the geographic distance and possible regulatory complexities. Anecdotal evidence suggests that in absence of a deep EU pre-IPO capital environment, companies raise finance outside the EU and continue to accumulate other sources of finance in more liquid markets.

Moreover, industry participants have indicated that the appetite of non-EU angel investors to allocate resources into European companies continues to be significantly high. US and Asian investors are frequently keen to understand the nuances and the regulatory barriers of each market prior to investment. However, lack of harmonisation of business angel market activities could impede an adequate matching between suitable non-EU investors and EU companies, generating a domestic bias in business angel investment activity.

CMU should continue to contribute to the development of a true European market for risk capital in conjunction with the removal of barriers for company listing, including of SMEs.

National regulatory regimes should facilitate the cross-border financing of crowdfunding, business angel and other pre-IPO risk capital activities. Currently, the crowdfunding and business angel landscape is fragmented due to diverging national practices and disharmonised regulation, as well as tax treatment, making the cost of raising capital higher in some Member States than in others.

“CMU should continue to contribute to the development of a true European market for risk capital”

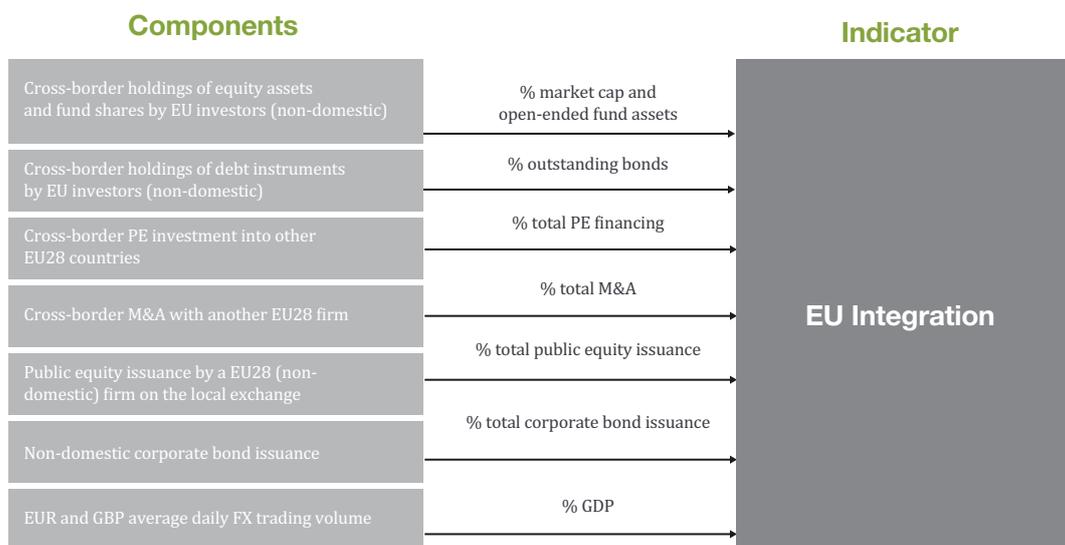
7. Cross-border Finance Indicator

The removal of cross-border barriers is central to providing the conditions needed to maximise the level of competition, choice and economies of scale for the benefit of consumers and market participants. Access to liquidity and investment from EU and non-EU sources is essential to supporting economic growth and delivering value to users of financial services.

We have produced two indicators to quantify EU capital markets integration within Europe (“intra EU”) and integration of European capital markets activities with the rest of the world (RoW).

The indicators consider different capital markets dimensions by estimating two composite indicators aggregating the following features: (i) cross-border holdings of equity assets and fund shares, (ii) cross-border holdings of debt assets; (iii) cross-border private equity (PE) financing; (iv) cross-border M&A transactions; (v) cross-border public equity raising; (vi) non-domestic corporate bond issuance; and (vi) participation in intermediating foreign exchange and derivatives trading. Each of these subcomponents are quantified both for cross-border transactions within the EU28 and with the rest of the world for purposes of producing each of the indicators³⁶. Each component is quantified with the appropriate metrics as shown on Charts 7.1 and 7.2:

7.1: Capital Markets Intra EU Integration Indicator



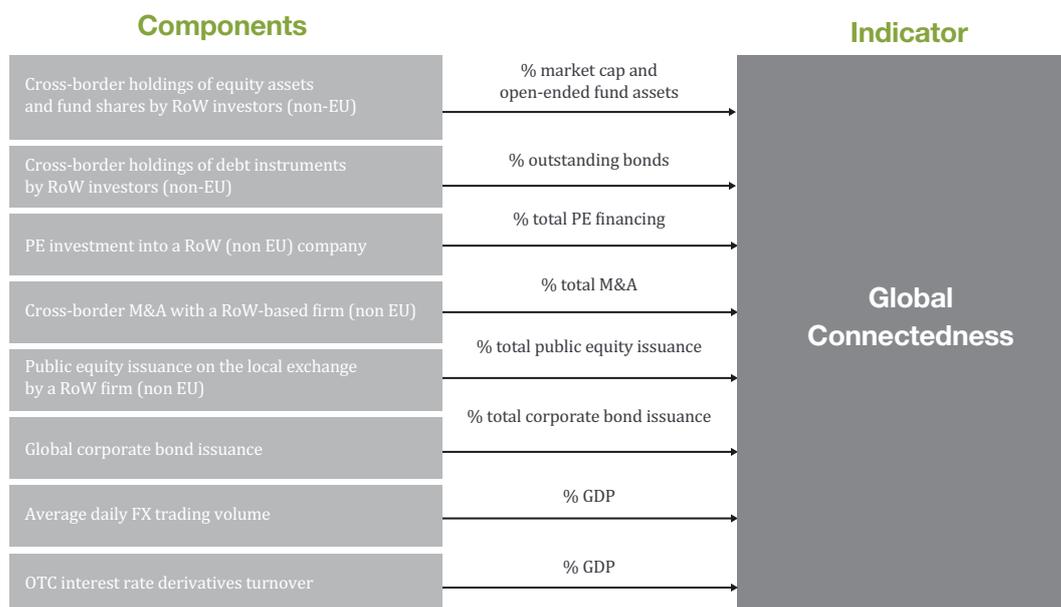
Source: AFME

“Access to liquidity and investment from EU and non-EU sources is essential to supporting economic growth”

³⁶ Each of the components is standardised and aggregated in a single component by a simple average and transformed in [0-1] scale.

7. Cross-border Finance Indicator

7.2: Capital Markets Global Integration Indicator



Source: AFME

Each of the components seek to measure the volume of cross-border flows across jurisdictions through different capital markets activities and asset classes. The components are proxies of cross-border flows and may have limitations of their own. This is discussed in further detail in the methodologies section in Appendix 2.

Capital markets integration within the EU

Capital markets integration within the EU only slightly improved in 2018.

As shown in chart 7.4, in the EU, three of the seven components of this indicator showed a discreet but encouraging integration progress over the last year. Specifically, the proportion of M&A transactions with other EU companies (excluding domestic deals) to total M&A increased from 13% to 15% during 2018; the share of private equity investments within the EU increased from 37% to 39% of the total; and the proportion of equity shares held in the EU increased from 21% to 22%. The other four components of the indicator remained virtually unchanged in 2018.

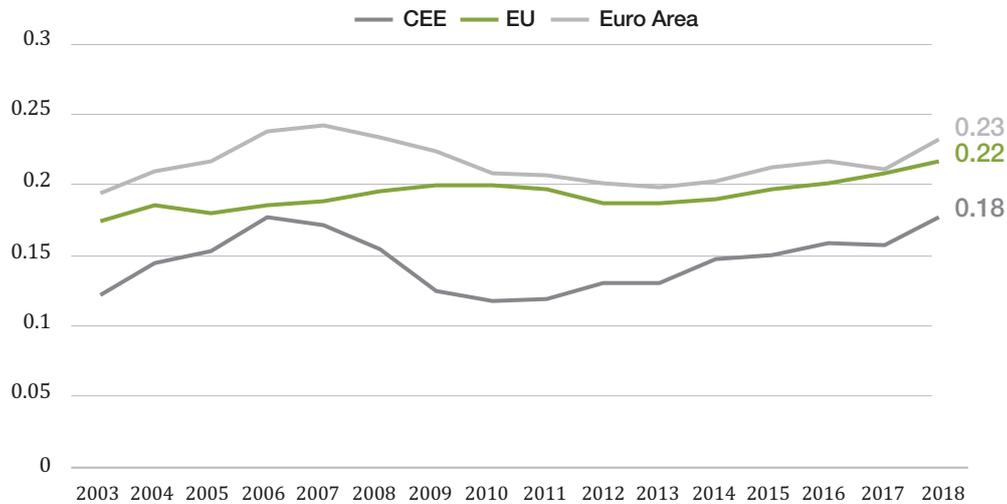
As shown in chart 7.3 eurozone countries have led progress towards intra-EU integration compared to that of the CEE region and the EU average.

Eurozone countries' integration with other EU countries reached a maximum in 2007— just before the financial crisis— which it has struggled to reach again in the post-crisis years. The recent increase in eurozone integration has been driven by continued consolidation through M&A transactions with other EU companies; a large proportion of debt held within the EU (potentially driven by quantitative easing purchases); and a large proportion of equity shares held by EU investors— all these potentially facilitated by the single currency.

The EU CEE countries³⁷ lagged behind in the level of integration with the rest of the EU. Only in 2018, CEE countries managed to achieve the pre-crisis level of integration observed at the end of 2006. The recent increase has been driven by consolidation of M&A transactions with other EU companies and an increase in equity shares originated by CEE companies held by EU investors.

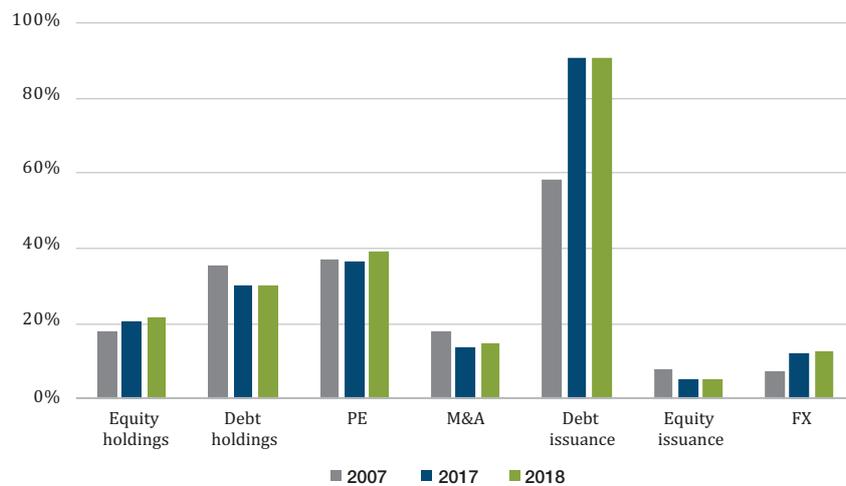
³⁷ EU11: Bulgaria, Croatia, Czech Republic, Latvia, Lithuania, Estonia, Hungary, Slovakia, Slovenia, Poland and Romania.

7.3: Intra EU Integration Indicator [0: Min, 1: Max]



Source: AFME from multiple sources

7.4: Intra EU Integration Indicator by components and evolution³⁸



Source: AFME from multiple sources

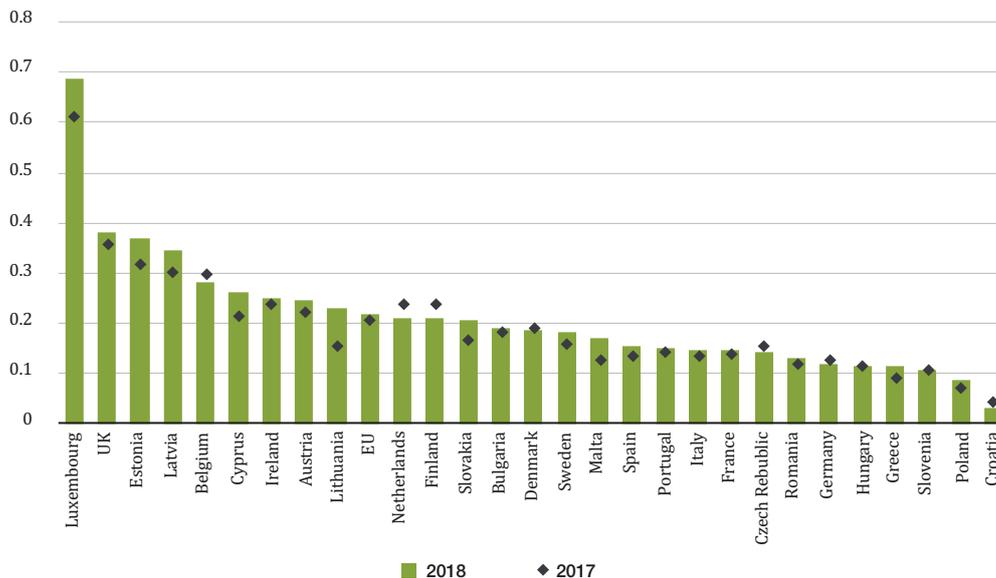
As observed in chart 7.5, Latvia exhibited a significant improvement in the level of integration compared to 2017. This was driven by a substantial increase in the proportion of private equity activity financed by EU-based portfolio managers and for conducting virtually all M&A transactions (reported by Dealogic) exclusively with other EU companies.

³⁸ Equity holdings: cross-border holdings within the EU28 of equity shares and fund shares issued by EU28 companies as percentage of market capitalisation of listed shares and assets of open-end investment funds; Debt holdings: cross-border holdings within the EU28 of bond instruments issued by EU28 companies as a percentage of outstanding public and corporate bonds; PE: cross-border private equity investment by EU28 funds into EU28 companies (non-domestic) as percentage of total PE investment; M&A: cross-border M&A transactions with EU28 companies (excluding domestic transactions) as percentage of total M&A activity; Debt issuance: issuance of corporate Eurobonds as percentage of total issuance of corporate bonds; Equity issuance: issuance of public equity in the national exchange by EU28 companies (excluding domestic companies) as percentage of total public issuance; FX: average daily turnover of EUR and GBP as percentage of GDP.

7. Cross-border Finance Indicator

Germany continued to rank low in the intra EU integration indicator, as a good proportion of its capital markets activity is carried out domestically or globally rather than intra EU. A good proportion of private equity funds are invested domestically (78% compared to 49% in the EU); only 1% of the public equity raised in 2018 on the local exchange was by non-domestic EU corporates; and cross-border holdings of Germany-originated equity and funds is below the EU average (14% compared to 22% in the EU).

7.5: Intra EU Capital Markets Integration by country: 2018 and 2017 [0: Min, 1: Max]



Source: AFME

EU28 capital markets integration with the rest of the world

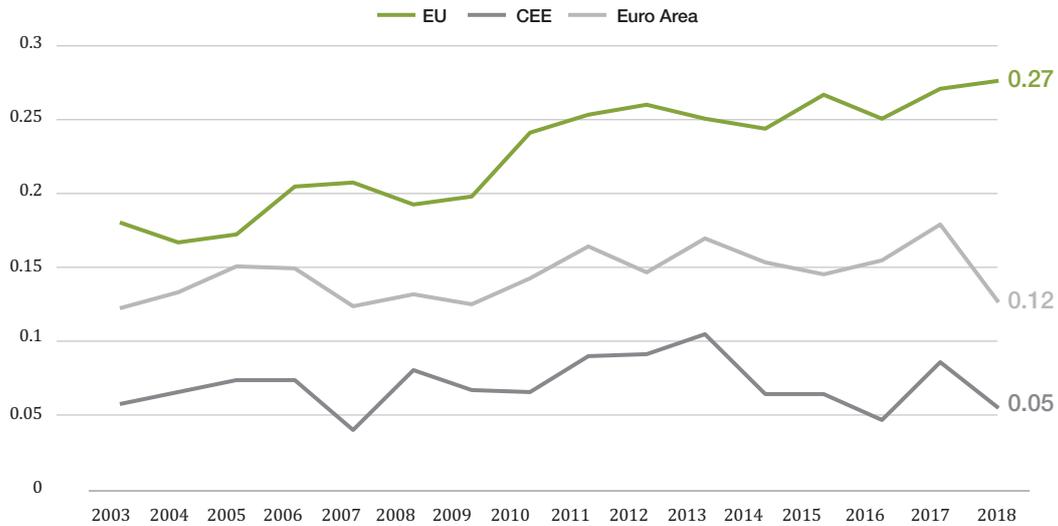
Capital markets integration with the rest of the world slightly improved in 2018, notwithstanding that five of the eight components of the indicator deteriorated in 2018 compared to 2017.

Investors located outside the EU reduced the total portion of EU equity and debt assets in 4% and 2% respectively; private equity investment by managers located outside the EU declined from 13% to 8%; M&A with companies located outside the EU slightly declined from 43% to 40% of the total, in part due to a decline in the inbound deals with companies headquartered in the APAC region (predominantly China, which has recently decelerated the amount of global outbound foreign direct investment). Equity issuance on EU exchanges by non-EU companies also declined from 5% of total equity raised in 2017 to 4% in 2018. Intermediation of interest rate derivatives and FX transactions (predominantly from the UK) helped the indicator value continue the upward trend observed since 2009. See chart 7.7.

CEE capital markets have become less globally interconnected over the last years, with a significant part of their market activities dedicated to service domestic or EU28 clients rather than cross-border transactions with the rest of the world. See chart 7.6.

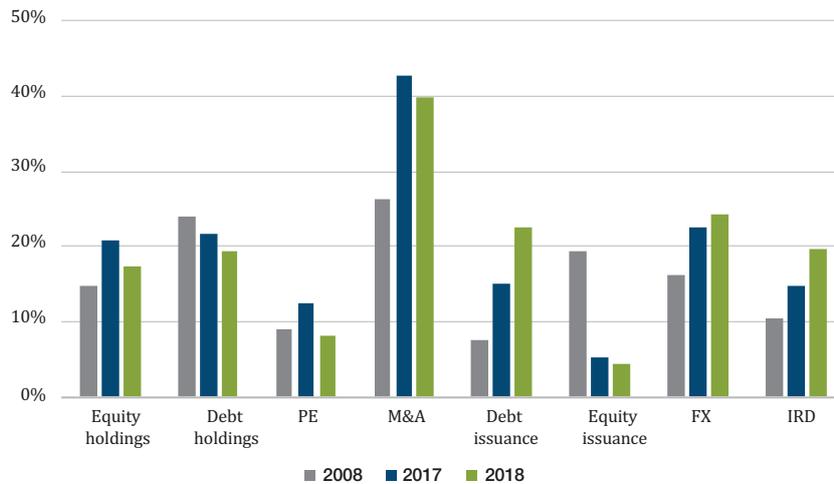
“Capital markets integration with the rest of the world slightly improved in 2018”

7.6: Global Integration Indicator [0: Min, 1:Max]



Source: AFME from multiple sources

7.7: Global Integration Indicator by components³⁹



Source: AFME from multiple sources

The UK continued as the most globally interconnected European capital market, followed by Luxembourg and Cyprus.

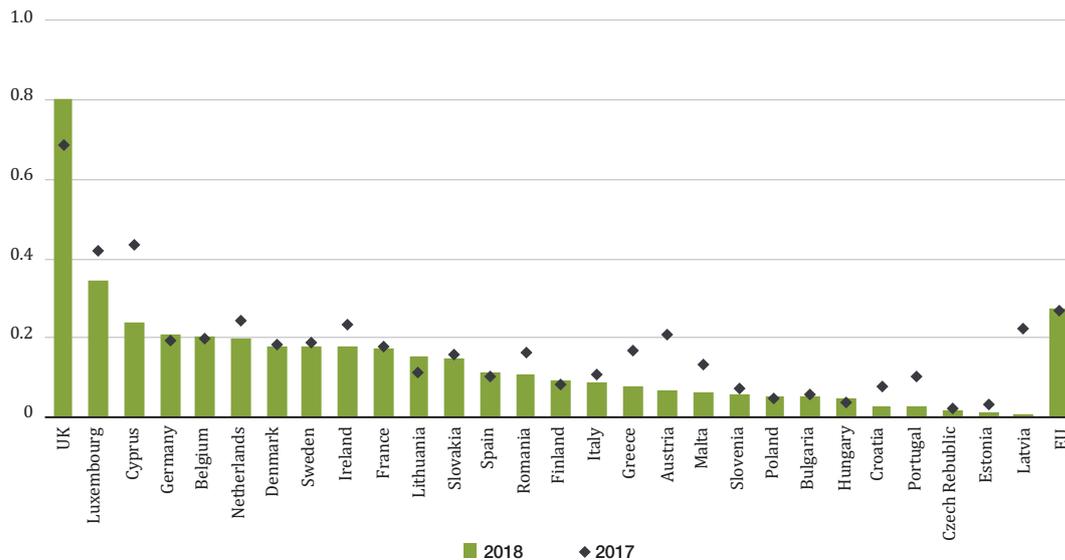
39 Equity holdings: cross-border holdings in the RoW of equity shares and fund shares issued by EU28 companies as a percentage of market capitalisation of listed shares and assets of open-end investment funds; Debt holdings: cross-border holdings in the RoW of bond instruments issued by EU28 companies as a percentage of outstanding bonds (public and private); PE: cross-border private equity investment by EU28 funds into RoW companies as a percentage of total PE investment; M&A: cross-border M&A transactions with RoW companies as percentage of total M&A activity; Debt issuance: issuance of global corporate bonds as percentage of total corporate bond issuance; Equity issuance: issuance of public equity in the national exchange by RoW companies as percentage of total public equity issuance; FX: average daily turnover of FX instruments as percentage of GDP; IRD: average daily interest rate derivatives trading as percentage of GDP.

7. Cross-border Finance Indicator

The UK’s leading position as global capital market centre is driven by the prominent participation in intermediating market liquidity, most specifically global flows of FX and derivatives trading (representing 133% and 118% of its GDP respectively⁴⁰).

Cyprus’ global interconnectedness is driven by the large portion of equity and fund shares originated by Cypriot companies but held outside the EU (c70% of the total), most notably held by funds domiciled in Switzerland and China. Luxembourg’s cross-border predominance is led by facilitating equity issuance and fund shares of companies and funds headquartered outside the EU and for facilitating a large volume of FX trading relative to the size of the economy.

7.8: Cross-border ROW Indicator by country: 2018 and 2017 [0: Min, 1: Max]



Source: AFME from multiple sources

“The UK continued as the most globally interconnected European capital market”

40 Average daily trading volumes relative to GDP. BIS triennial survey.

8. Market Depth Indicator

Deep capital markets require a strong enabling environment characterised by deep pools of savings, robust market institutions, well-functioning primary markets and deep pools of liquidity. The interrelationship between the different features of capital markets enable the build-up of an adequate ecosystem where companies can raise finance and manage risk, investors can allocate savings and economies can continue to grow.

The Market Depth Indicator seeks to measure capital markets development from a holistic perspective, recognising the multiple factors behind effective capital markets development. This indicator is estimated as a composite index that considers the following dimensions: (i) supply of funds, (ii) primary markets activity in a global context, (iii) market liquidity, and (iv) institutional strength. Each of the four dimensions is composed by individual metrics as illustrated in the Figure below:

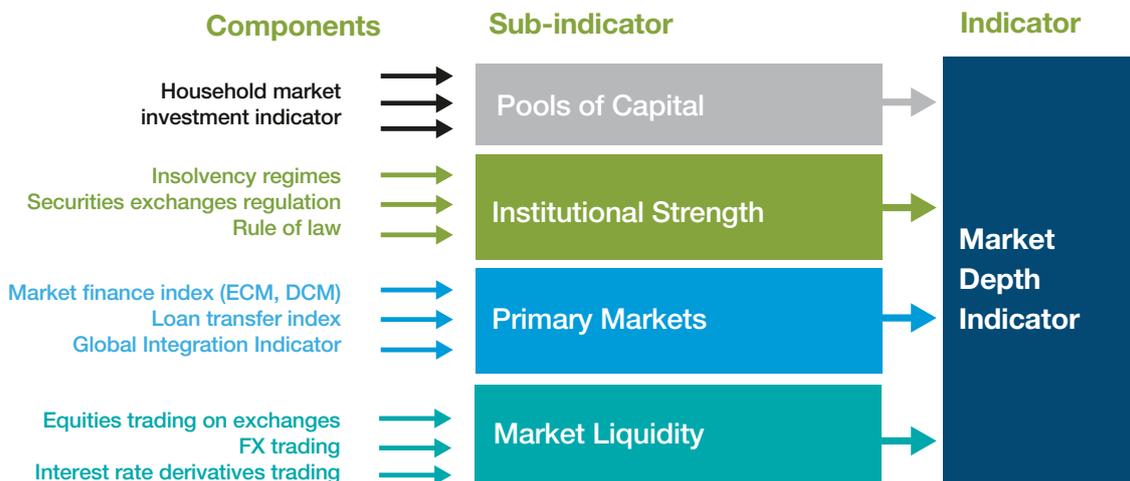


Chart 8.1 shows the evolution of this indicator for the EU, the UK and the CEE region. CEE in this context includes the 11 High Potential Economies⁴¹ of the Visegrad 4, the Baltic States and the EU Balkans.

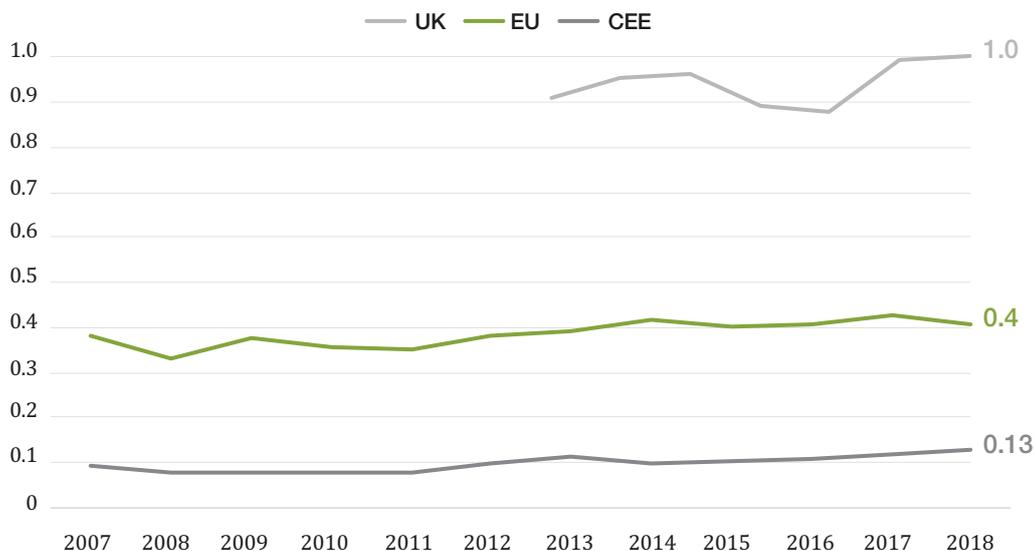
The Market Depth Indicator declined in 2018 across the EU, although the CEE region slightly improved in 2018, predominantly due to the increase in issuance of capital markets instruments in the primary market. See chart 8.2.

In the EU, as noted in sections (1) and (2) of the report, during 2018, retail investors saw a decline in the value of financial assets while NFCs endured a decline in the amount of finance raised through primary markets. Jointly, as observed in chart 8.2 this prompted a drop in two of the four components of the Market Depth Indicator.

41 Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Romania, Slovakia, and Slovenia

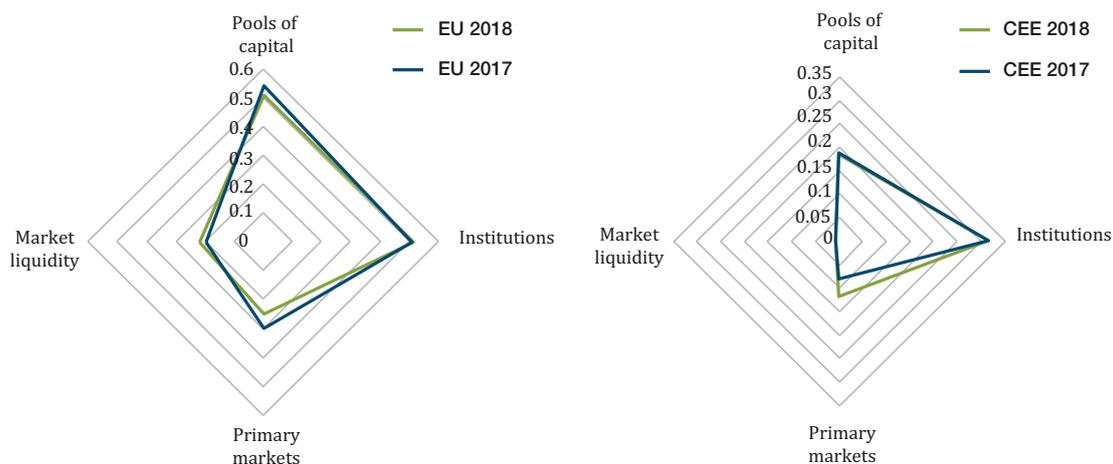
8. Market Depth Indicator

8.1: Evolution of Market Depth Indicator [0: Min, 1: Max]



Source: AFME from multiple sources

8.2: EU and CEE Market Depth Indicator by components: 2018 and 2017 [0:Min, 1:Max]



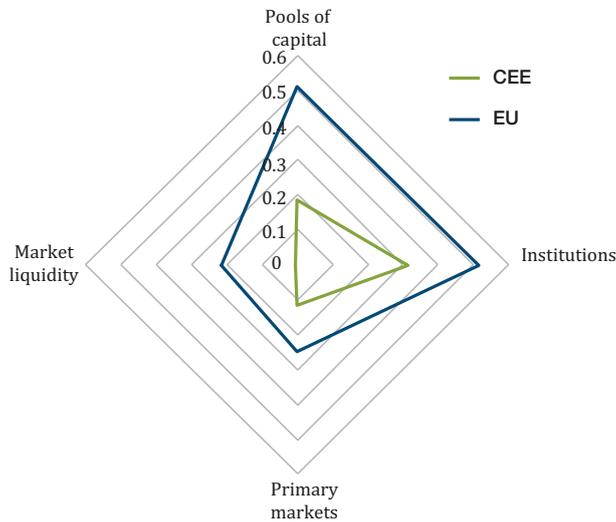
Source: WFE, FESE, World Bank, BIS and local exchanges

The widest gap between CEE and the EU was in the availability of pools of capital, with a difference of 30% between both, which, however, narrowed from 36% in 2017. The quality of institutional frameworks in CEE, although on average below the EU, seem to show a relatively narrow gap compared with the EU at 19%.

“The widest gap between CEE and the EU continues in the availability of pools of capital”

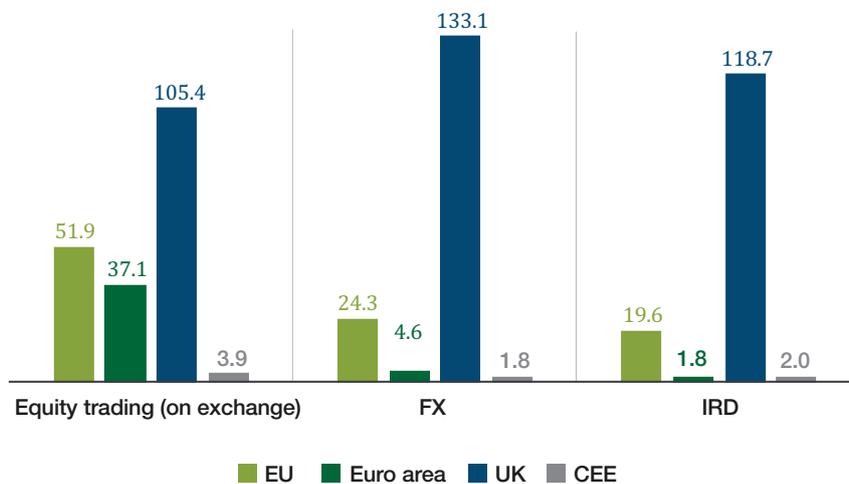
CEE market liquidity exhibits a gap of 10% against the EU, although notably the EU also exhibits a significant gap compared to more liquid markets like the UK (of c80%). Chart 8.4 shows the geographical location of some trading activities in the EU. Notably the UK, for historical and other reasons, is a prominent hub for trading activity in the EU across several instruments (equities, FX and interest rate derivatives).

8.3: Market Depth Indicator by components: 2018 [0: Min, 1: Max]



Source: WFE, FESE, World Bank, BIS and local exchanges

8.4: Equity, FX and interest rate derivatives trading by region in 2018 (% GDP)

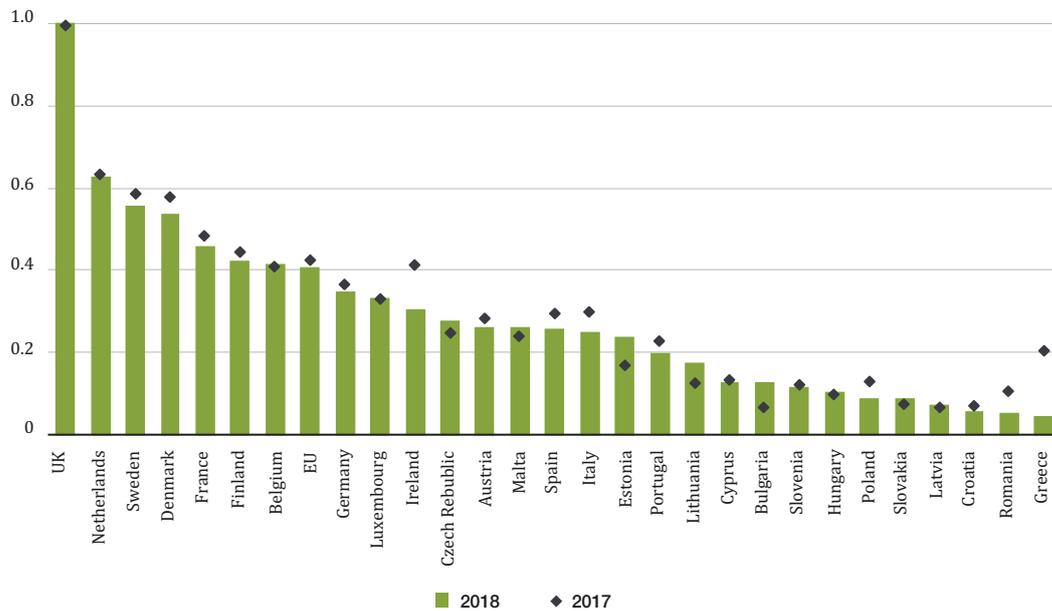


Source: AFME from multiple sources

During 2018, 17 of the 28 EU countries showed a deterioration in their capital markets ecosystems, 4 of which are located in the CEE region. The largest improvements in the indicator value were observed in Estonia, Bulgaria, and Lithuania— all driven by the substantial improvement in the origination of equity and bond instruments in the primary market.

8. Market Depth Indicator

8.5: Market Depth Indicator by countries: 2018 and 2017 [0: Min, 1: Max]



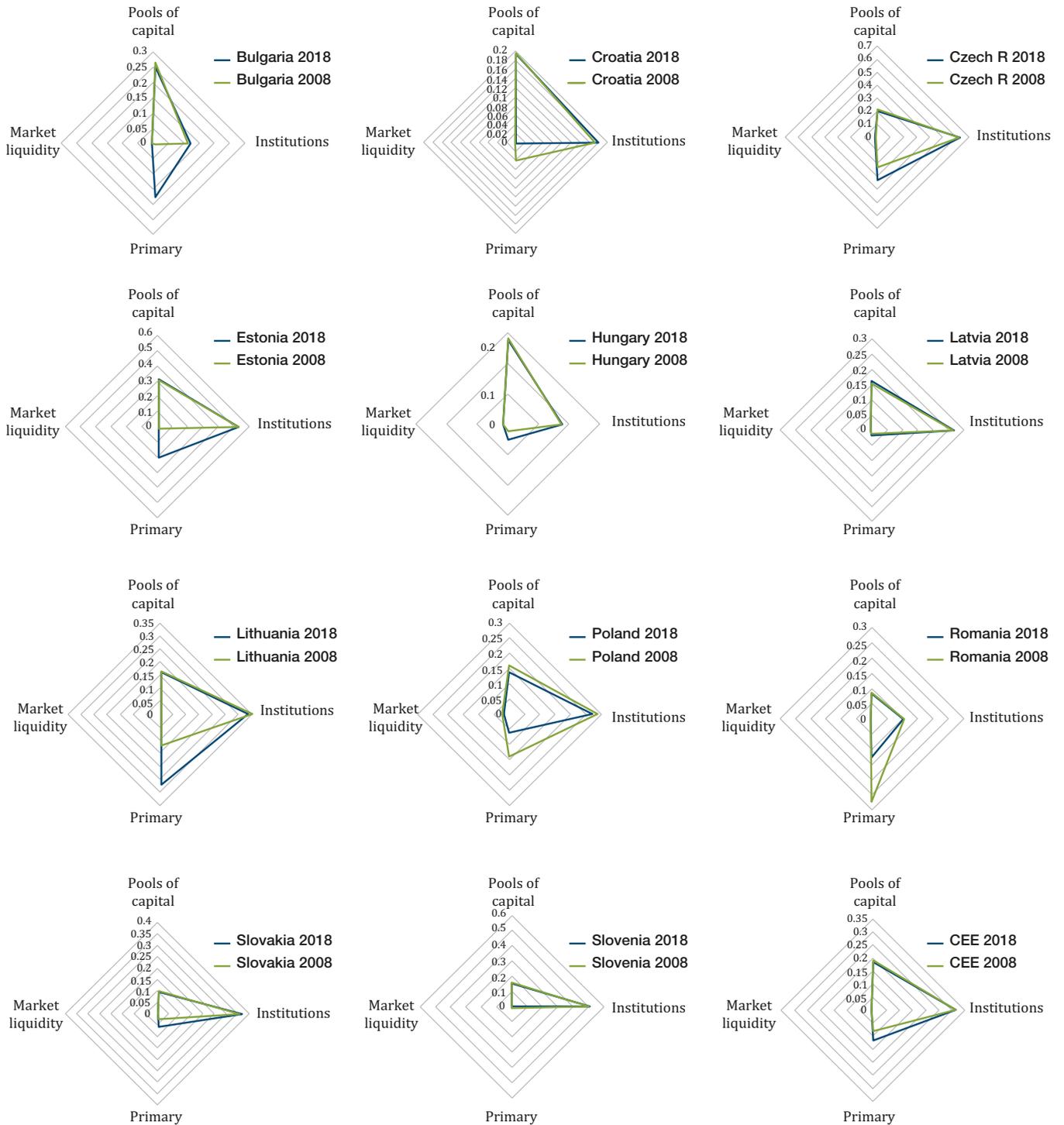
Source: AFME from various sources

Over the last 10 years, CEE countries have made some discreet improvements in the quality of the local capital markets ecosystems. As observed in Figure 8.6 below, the large majority of CEE countries has improved their pools of savings over the last 10 years through capital markets instruments, and in the origination of equity and bond instruments through primary markets.

The region has also observed some recent deterioration in the quality of institutions rule of law and trust in institutions, which may prevent the development of a deeper capital markets ecosystem (PL, HU, LV and LT).

“The large majority of CEE countries has improved their pools of savings over the last 10 years ”

8.6: Market Depth Indicator by countries and components [0: Min, 1: Max]



Policy Recommendations

We have identified the following key principles and policy recommendations which we consider will support the development of a strong EU financial sector agenda. The broad policy recommendations summarise the views supported by the 11 associations co-branding this publication. A more detailed set of recommendations put forward by AFME and the other associations for the next phase of CMU are available in their dedicated publications and respective websites.

Continue developing an ambitious Capital Markets Union (CMU): CMU can increase the diversity of funding sources, reduce the overreliance on banks, and support the European economy with a robust and resilient source of funding.

- The Banking Union and Capital Markets Union projects are intrinsically linked and mutually reinforcing. A fully functional and integrated Banking Union can help achieve a more integrated capital market in the EU, supporting growth and diversifying risk.

Unleashing the potential of sustainable finance: the EU should continue to build on its global leadership on sustainable finance through the completion of its existing initiatives followed by an effort to encourage international convergence in this field

- Enhance corporate reporting and disclosure of climate-related information as well as environmental, social and governance (ESG) information.
- Develop a long-term sustainable finance vision which ensures a level playing field between public and private markets is built on a solid understanding of the role of financial markets and how these can facilitate the transition towards a low- carbon future and does not lead to unintended consequences for market players in terms of risk management.

Building a competitive digital single market: FinTech provides opportunities for more efficient customer servicing at lower costs and can expand access to finance to a wider range of consumers. Regulation and supervision should be tailored to its fast-evolving challenges and needs

- Safeguard a level playing field of activities in the area of new technologies between different types of providers
- Ensure that financial regulation is fit for harnessing the potential of new technologies to facilitate digital access to meaningful financial information and impartial expert advice.
- Facilitate coordination between the existing and future regulatory sandboxes. Coordination between Member States may be a more successful model than establishing a single European level sandbox.

Fostering better conditions to access to finance for SMEs: SMEs are Europe's core engine of growth and require further regulatory support to facilitate job creation and innovation

- Changes to regulation are needed to encourage companies to seek equity risk capital and to incentivise institutional investors, retail investors and high net-worth individuals to invest, in particular, in unlisted SMEs and venture capital funds.
- The EU should continue its efforts to support "junior exchanges" for SMEs. In addition, public capital raising for companies should be facilitated by incentivising investments of institutional and retail investors and further alleviating administrative burdens and costs for the listing of companies.
- Private debt markets facilitate diversification of funding sources for the real economy and especially to SMEs. Policymakers' approach to the sector should focus on (i) establishing better sources of data on the market to develop an evidence base on which to evaluate the sector; (ii) address existing barriers that restrict the flow of finance from the capital markets to European businesses.⁴²
- National regulatory regimes are impacting the development of crowdfunding in Europe. Currently, the crowdfunding landscape is fragmented due to diverging national practices and disharmonised regulation, making the cost of raising capital higher in some Member States than in others.
- Continue to pursue efforts towards creating a single market for business angel investors.

⁴² See ACC white paper – Non-bank lending in the European Union

Expand size, capacity and liquidity of EU capital markets: the EU should continue to deliver initiatives aimed at expanding the size and capacity of EU capital markets

- Increase the size of equity financing in relative terms to GDP. Foster conditions to access public and private equity capital by implementing measures to improve the regulatory environment for IPOs.
- Promote liquid markets with efficient price formation. The EU's financial markets regulatory framework must be continually evaluated as to whether it is sufficiently competitive and at the cutting edge of innovation and connectivity.
- Continue to develop the secondary markets for NPLs with due consideration of not creating cumbersome transaction requirements.

Expand retail investor participation in public markets: the EU should continue to facilitate retail investor participation in capital markets activities

- Help European citizens build up their sources of income in retirement. Support the development of long-term investment through the promotion of harmonised tax incentives, reclaim of dividend taxes, and structural reform of retirement schemes.
- Provided that the regulatory framework remains sufficiently flexible, the Pan European Pension Product (PEPP) has the potential to provide European savers with a high-quality pension product and to encourage them to save more for their retirement. PEPP will act to promote saving and investment by European citizens through capital markets, provided the accompanying Level 2 measures and tax treatment ensure that the PEPP is attractive to both savers and providers.
- Undertake a European approach to encourage complementary retirement savings in occupational as well as personal pensions.
- Auto-enrolment of employees in pension funds can be studied and replicated across Member States.
- Member States should take due consideration of the capital markets implications of de facto nationalising second pillar private pension systems.

Improve legal frameworks and supervisory practices and addressing instances of fragmentation: A more integrated capital market will allow better access to securities markets, with investors facing fewer barriers when investing in other EU countries.

- Strengthen supervisory convergence while preserving the role and value of national competent authorities. Work towards further convergence of national legal frameworks and supervisory practices.
- Continue working on removing barriers and bottlenecks to efficient and resilient cross-border post-trading in the EU as identified in the European Post Trade Forum (EPTF) report, including standardisation of investor identification rules and processes, withholding taxes, ownership and protection of assets, finality of transactions and shareholders transparency practices.
- Continue working towards high quality and more harmonised insolvency frameworks. Proposals for an Accelerated Extrajudicial Collateral Enforcement (AECE) mechanism should be consistent with existing insolvency regimes and other legal requirements.
- Future legislative reviews represent opportunities to address undue national discretions in various regulations that undermine the achievement of a single EU capital market.

Facilitate global regulatory convergence: the EU should continue to champion international standards, regulatory dialogue, openness with other countries and supervisory cooperation

- EU regulation must remain consistent with internationally agreed regulatory standards. The financial services industry is global in nature, and the European regulatory regime needs to be consistent with those in other parts of the world to avoid fragmentation and arbitrage opportunities.
- Strengthen the EU voice in international standard - setting organisations, such as FSB and IOSCO.

Appendix 1: Key Performance Indicators by countries and components:
Comparison of progress between 2018 and 2017⁴³

	Market Finance Indicator	Households Market Investment	Loan Transfer Indicator	Sustainable Finance	Risk Capital indicator	Intra-EU integration (EU)	Integration with the rest of the world	Market depth indicator
Austria	Red	Red	Green	Green	Green	Red	Green	Red
Belgium	Green	Red	Red	Green	Green	Red	Red	Green
Bulgaria	Green	Red	Red	Yellow	Green	Green	Green	Green
Croatia	Red	Green	Red	Yellow	Green	Red	Red	Red
Cyprus	Yellow	Red	Green	Yellow	Green	Red	Green	Red
Czech Republic	Green	Red	Red	Yellow	Green	Red	Red	Green
Denmark	Red	Red	Red	Green	Green	Red	Red	Red
Estonia	Green	Red	Yellow	Yellow	Green	Red	Green	Green
Finland	Red	Red	Green	Red	Green	Red	Red	Red
France	Red	Red	Red	Red	Green	Red	Green	Red
Germany	Red	Red	Green	Green	Green	Red	Red	Red
Greece	Red	Red	Red	Yellow	Green	Red	Green	Red
Hungary	Green	Red	Green	Yellow	Green	Red	Green	Green
Ireland	Red	Red	Green	Green	Green	Red	Red	Red
Italy	Red	Red	Red	Green	Green	Red	Red	Red
Latvia	Green	Red	Green	Red	Red	Red	Green	Green
Lithuania	Green	Red	Yellow	Green	Green	Red	Red	Green
Luxembourg	Green	Red	Green	Green	Green	Red	Red	Green
Malta	Green	Red	Yellow	Yellow	White	Red	Red	Green
Netherlands	Green	Red	Green	Green	Green	Red	Red	Red
Poland	Red	Red	Red	Green	White	Red	Green	Red
Portugal	Red	Red	Green	Green	Green	Red	Green	Red
Romania	Red	Red	Red	Yellow	Green	Red	Red	Red
Slovakia	Green	Red	Red	Yellow	Green	Red	Green	Green
Slovenia	Yellow	Red	Red	Green	Green	Red	Red	Red
Spain	Red	Red	Red	Green	Green	Red	Green	Red
Sweden	Red	Red	Green	Green	Green	Red	Green	Red
UK	Red	Red	Green	Green	Green	Red	Green	Green

Green: Increase in 2018 vs 2017
Red: Decrease in 2018 vs 2017
Yellow: No variation between 2018 and 2017

We have produced the above scorecard chart which seeks to keep track of the evolution of the key performance indicators at the Member State level. Each cell shows in colour coded form if a country has increased, decreased, or shown no change in the indicator value over the last year.

⁴³ Risk capital indicator not available for Malta and Poland for 2018 due to loan data unavailable.

Appendix 2: Key Performance Indicators by countries and components: Comparison of progress between 2018 and 2013⁴⁴

	Market Finance Indicator	Households Market Investment	Loan Transfer Indicator	Sustainable Finance	Risk Capital indicator	Intra-EU integration (EU)	Integration with the rest of the world	Market depth indicator
Austria	Red	Red	Green	Green	Green	Green	Red	Red
Belgium	Green	Green	Green	Green	Green	Green	Red	Green
Bulgaria	Red	Green	Green	Yellow	Green	Green	Red	Green
Croatia	Yellow	Green	Green	Yellow	Green	Red	Red	Green
Cyprus	Yellow	Green	Green	Yellow	Green	Green	Red	Red
Czech Republic	Green	Green	Green	Yellow	Green	Green	Red	Green
Denmark	Green	Green	Red	Green	Green	Green	Red	Green
Estonia	Green	Green	Yellow	Yellow	Green	Green	Red	Green
Finland	Green	Red	Green	Green	Green	Red	Red	Green
France	Red	Green	Green	Green	Red	Green	Green	Green
Germany	Green	Green	Red	Green	Green	Green	Red	Green
Greece	Red	Green	Green	Yellow	Green	Green	Green	Red
Hungary	Green	Green	Green	Yellow	Green	Red	Red	Red
Ireland	Red	Red	Green	Green	Green	Green	Red	Red
Italy	Red	Red	Green	Green	Green	Green	Red	Red
Latvia	Green	Green	Green	Yellow	Green	Green	Red	Green
Lithuania	Green	Green	Yellow	Green	Red	Green	Green	Green
Luxembourg	Red	Green	Green	Green	Green	Green	Red	Red
Malta	Green	Red	Yellow	Yellow	White	Green	Red	Green
Netherlands	Red	Green	Green	Green	Green	Red	Red	Green
Poland	Green	Red	Green	Green	White	Red	Red	Red
Portugal	Red	Red	Green	Green	Green	Green	Red	Red
Romania	Green	Green	Green	Yellow	Green	Green	Green	Green
Slovakia	Red	Green	Red	Yellow	Green	Green	Red	Red
Slovenia	Red	Red	Yellow	Green	Green	Red	Green	Green
Spain	Red	Red	Green	Green	Green	Green	Green	Red
Sweden	Green	Green	Red	Green	Red	Green	Red	Green
UK	Red	Green	Green	Green	Green	Green	Green	Green

Green: Increase in 2018 vs 2013
Red: Decrease in 2018 vs 2013
Yellow: No variation between 2018 and 2013

We have produced the above scorecard chart which keeps track of the evolution of the Key Performance Indicators at the Member State level. Each cell shows in colour coded form if a country has increased, decreased, or shown no change in the indicator value over the last five years.

⁴⁴ Risk capital indicator not available for Malta and Poland for 2018 due to loan data unavailable.

Appendix 3: Methodology and Data Sources

Scope of data collection

We have constructed seven Key Performance Indicators (KPI) in the form of composite indicators and ratios to assess progress across the seven political priorities of the CMU action plan.

The focus of the study is primarily European, although we have tried to compare EU capital markets with other non-EU jurisdictions on a best efforts basis where data is available.

The data is drawn from a wide range of sources, including contributions from trade associations, data platforms, Central Banks, Eurostat, and other international organisations.

All data is expressed in euros (€) and translated using period-end exchange rates as reported by the ECB.

Data collection and methodology

Market Finance Indicator

Data sources - IPOs, Secondary Offerings, Investment Grade and High Yield Bonds (all Dealogic), NFC loans new issuance (ECB, National Central Banks, Federal Reserve, OECD, Mortgage Bankers Association).

For the EU, NFC loans are estimated using bank loans to NFCs due to the relatively low participation of non-bank lenders. For some EU countries in which data provided by the ECB for bank loans to NFCs is incomplete, issuance is estimated using central bank data or longer-term trends. In the US, there is significant participation of non-banks in the loan market and so lending from non-banks needs to be accounted for in the indicator.

A recent [OECD](#) study published the amount of commercial and industrial (C&I) lending originated by banks in the US, using data originally sourced from the US Federal Reserve. The aggregation does not include loans originated by non-banks such as finance companies and insurers, and doesn't include commercial real estate (CRE) or farm lending. Data from the [Kansas City Fed](#) was used to account for bank lending to farms and the [Mortgage Bankers Association](#) to account for bank and non-bank lending for CRE.

After adding the farm and CRE lending with C&I lending, this provides an estimate total US bank lending to NFCs, however the comparison of lending between EU and the US is not complete as non-bank lending to farms and C&I in the US needed to be accounted for (CRE lending data already included non-banks).

The Federal Reserve website states that bank lending represents c30% total [outstanding](#) lending to NFCs. This proportion is stable over the last 3 years and was used to estimate the total amount of C&I and farm lending originated by banks and non-banks. This gives the following breakdown and comparison:

US Bank lending= €2.05bn

CRE: \$500bn [left unchanged as this amount includes banks and non-banks]

C&I: \$459bn / 0.3 = \$1.5tn

Farm: \$85.8bn / 0.3 = \$286bn

US bonds = €952bn

US equity = €117bn

Total financing for US NFCs = €3.1bn

EU bank lending= €3.1tn

EU bonds= €461bn

EU equity = €64bn

Total financing for EU NFCs = €3.6bn

The indicator does not consider NFC finance provided by unlisted equity and trade credit.

Loan Transfer Indicator

Data sources - Securitisation (AFME/SIFMA), Covered Bonds (ECBC), Portfolio sales (KPMG for Europe; FDIC for the US), outstanding loans (ECB, Federal Reserve).

As was the case with the Market Finance indicator, outstanding loans in Europe are estimated using outstanding bank loans, due to the relatively low participation of non-banks in the lending market in Europe. For the US, both bank and non-bank lending is considered when calculating outstanding loan volumes.

Sustainable Finance Indicator

Data sources - Green bonds (Climate Bonds Initiative), social and sustainable/dual purpose bonds (Dealogic), securitisation (AFME/SIFMA), NFC and Financial bonds (Dealogic), government bonds (ECB, SIFMA), municipal and agency bonds (Dealogic), covered bonds (ECBC).

FinTech indicator

Data sources— Regulatory sandbox and innovation hubs (ESMA, EBA and EIOPA), 2009-19 investments on fintech companies (CB insights); exits (CB insights); number of patents filed with the following key terms: “G06Q”, “G07F”, “G07G”, “finance”, “banking”, “fintech”, “crypto”, “insurance”, “asset management” (google patents); valuation of FinTech unicorns (CB insights); percentage of working age population with tertiary degree (US FED, World Bank, Eurostat); STEM graduates (OECD, UNESCO, World Bank and Accenture).

Household market investment indicator

Data sources - Household financial assets for EU countries (Eurostat and OECD), and household financial assets for the US (US Federal Reserve, Balance Sheet of Households and non-profit organisations) and for non-EU countries (OECD), GDP (Eurostat and World Bank). Cash, deposits and unlisted shares are excluded from the aggregation to include only capital markets instruments. Includes equity shares, mutual fund shares, bonds, life insurance reserves and pension fund holdings.

Risk capital indicator

Data sources - SME loans new issuance (ECB, National Central Banks), Business Angel (EBAN and University of New Hampshire), Equity Crowdfunding (TAB), and Private Equity (InvestEurope and NVCA)

SME loans in this context are loans to NFCs with amount below €1m

Invest Europe private equity (PE) statistics do not include infrastructure funds, real estate funds, distressed debt funds, primary funds-of-funds, secondary funds-of-funds and PE/VC-type activities that are not conducted by PE funds. The aggregation basis for these statistics are the location of the private equity firm where the resources are invested.

Business angel statistics are EBAN estimates which assume that survey results (i.e. “visible market”) represent 10% of the total market. This report includes both visible and non-visible market based on EBAN’s methodology.

Cross-border finance indicator

Data sources - cross-border holdings of equity shares and fund shares issued by EU28 companies (IMF) ; cross-border holdings of bond instruments issued by EU28 companies (IMF); cross-border private equity investment based on the location of the fund (InvestEurope); cross-border M&A transactions (Dealogic); issuance of global corporate bonds (Dealogic); issuance of corporate Eurobonds (Dealogic); cross-border issuance of public equity in the national exchange (Dealogic); FX average daily turnover (BIS); average daily interest rate derivatives trading (BIS).

Both the EU28 integration indicator and the global integration indicator are estimated as weighted averages of the standardised value of the different inputs. The results are later normalised into an index that ranges from 0-1 subtracting from each score the minimum score value from the sample divided by the maximum and minimum values: $(X - \min) / (\max - \min)$

The results were validated using principal components analysis, with minor differences in trends and rankings. A sensitivity analysis was also undertaken by removing FX and cross-border equity issuance (using principal components analysis), which resulted in a significantly lower integration level in 2017 compared to that pre-crisis— the country rankings also exhibited variation compared to those presented in the report.

Appendix 3: Methodology and Data Sources

Market Depth indicator

Data sources – HH savings for investment index (see sources in the relevant section), insolvency regimes (recovery rate as estimated by the World Bank), Securities regulation (WEF), Rule of law (World Bank), Market Finance indicator (see sources in the relevant section), loan transfer indicator (see sources in the relevant section), Global integration indicator (see sources in the relevant section), FX trading (BIS), interest rate derivatives (BIS), Equities trading (World Bank, FESE, WFE and national exchanges).

The indicator is estimated as a weighted average of the standardised value of the different inputs. The results were validated using principal components analysis, with minor differences in trends and rankings. The results are later normalised into an index that ranges from 0-1 subtracting from each score the minimum score value from the sample divided by the maximum and minimum values: $(X - \min) / (\max - \min)$

Considerations on the indicators

In the report we have compared average values for 2013 to 2017 with 2018 values to assess how the 2018 values have changed with respect to longer term averages. There can though be significant volatility in the 2018 values especially for countries with relatively small capital markets.

For the construction of the cross-border composite indicators, it is important to consider that each of the components are proxies of the cross-border flow they intend to measure and may have limitations of their own.

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