

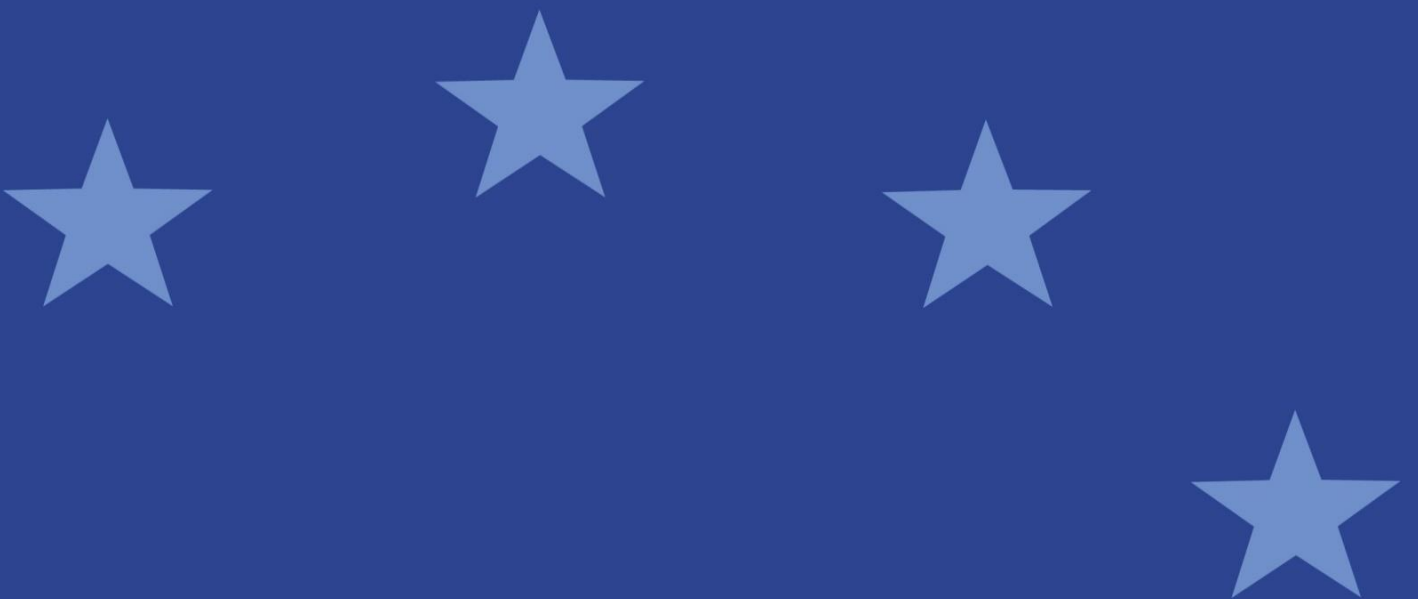


European Securities and
Markets Authority

TRV

ESMA Report on Trends, Risks and Vulnerabilities

No. 1, 2020



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Executive summary

Market monitoring

ESMA risk assessment

Risk summary

Risks in markets under ESMA's remit remained high, particularly in securities markets and for consumers. Market risk stays at very high levels, with asset valuations exceeding fundamentals, amid weakening economic growth prospects and continuing geopolitical uncertainty. Market sentiment continues to be event-driven, as seen in the recent USD-secured markets funding squeeze and the oil price spike in 3Q19. Credit risk also remains elevated, with deteriorating corporate debt quality and concerns around 'fallen angels' as the share of BBB-rated debt grows. Consumer risks persist across key investment products as market risks build up. Looking ahead, a weakening economic outlook and continuing uncertainty over global trade negotiations and Brexit remain key risk drivers.

ESMA remit	Level Outlook	Risk categories	Level Outlook	Key risk drivers	Outlook
Overall ESMA remit		Liquidity		Macroeconomic environment	
Securities markets		Market		Interest-rate environment	
Infrastructures and services		Contagion		Sovereign and private debt markets	
Asset management		Credit		Infrastructure disruptions	
Consumers		Operational		Political and event risks	

NB: Assessment of the main risks by risk segments for markets under ESMA's remit since the last assessment, and outlook for the forthcoming quarter. Assessment of the main risks by risk categories and sources for markets under ESMA's remit since the last assessment, and outlook for the forthcoming quarter. Risk assessment based on categorisation of the European Supervisory Authorities (ESA) Joint Committee. Colours indicate current risk intensity. Coding: green = potential risk, yellow = elevated risk, orange = high risk, red = very high risk. Upward arrows indicate an increase in risk intensities, downward arrows a decrease and horizontal arrows no change. Change is measured with respect to the previous quarter; the outlook refers to the forthcoming quarter. ESMA risk assessment based on quantitative indicators and analyst judgement.

Market environment: Macroeconomic conditions deteriorated in the second half of 2019, with EU and global growth forecasts being cut. Central banks responded with looser monetary policy and the ECB restarted its asset purchase programme in November. There were calls for fiscal interventions to help stimulate growth. Continuing uncertainty over ongoing trade tensions, Brexit and wider political uncertainty weighed on the outlook. More recently, the coronavirus outbreak has also increased uncertainty and could dampen short-run economic activity. With continued and heightened uncertainty, market confidence fell and exchange rates and markets remained volatile. Lagged capital flow indicators showed net outflows from the euro area in 3Q19, driven by outflows from equity.

Securities markets: In 2H19 EU equity markets were characterised by recurrent episodes of volatility in reaction to continued trade tensions between the United States and China against the backdrop of a global economic slowdown. Corporate bond spreads remained tight in a worrying sign of continued search for yield, while the share of euro area bond market trading with negative yields increased until 4Q19. US dollar secured money markets experienced a funding squeeze, forcing the Federal Reserve to step in, in a sign of simmering market tensions highlighting the scope for abrupt changes in investor sentiment.

Infrastructures and services: Equity-trading volumes decreased in 3Q19, reflecting a sharp drop in OTC trading. The share of trading on systematic internalisers remains significant, at almost 20% of total volumes in 2019. Central clearing was broadly stable, with clearing very concentrated in a few CCPs. Overcollateralisation by CCPs beyond that required for margins reached 20% in 2Q19. For CSDs, settlement fails remained below average, although with an increase at the end of September. For CRAs, there were signs of more positive rating changes in 2019, with the notable exception of non-financials. Finally, for benchmarks, €STR was first published in October 2019. The transition to this and to other new risk-free benchmarks is progressing with no sign of market disruption.

Asset management: The shift from equity to bond funds continued for most of 2H19 with overall flows still positive. Investments into money market funds (EUR 58bn) and bond funds (EUR 109bn) exceeded equity fund inflows (EUR 13bn). Equity fund outflows in 3Q19 reflected concerns about economic growth, global trade tensions and moves to reduce portfolio equity weights after the 4Q18 downturn. Bond and money market fund investments mostly reflected flight to safety, but also some search for

yield, as shown by corporate bond fund inflows (EUR 24bn). Bond fund risks were stable, with liquidity and credit risks concentrated in HY funds. ETF growth was driven by both bond and equity ETFs for the first time. AIFMD data for 2018 show high leverage in hedge funds but limited liquidity mismatches.

Consumers: Sentiment among retail investors fell to a five-year low in 3Q19 against a backdrop of geopolitical uncertainty and a deteriorating economic outlook, before recovering somewhat in late 2019. Overall, retail investors remained cautious, predominantly allocating savings into bank deposits. As market risks increasingly deter retail investors, capital market participation – an important long-term objective – is weakened. Gross performance for UCITS in the EU improved significantly in late 2019. On average, net performance was higher for passive funds and ETFs than for active funds, with gross returns similar for active and passive funds, but costs much higher for active funds than for passive funds and ETFs. Complaints in relation to financial instruments remained steady.

Market-based finance: The proportion of capital markets in non-financial corporate financing continued to grow, albeit at a slower pace than the last few years. Equity issuance declined, but non-financial corporate debt issuance proved more resilient and securitisation markets began to show some signs of revival. Private-equity financing increased in 2018 driven mainly by an increase in buyouts. SMEs rely almost entirely on banks as a source of external financing, reflecting in part low liquidity in the secondary market for SME shares. Market-based credit intermediation increased further in 2019. This was especially the case for non-bank wholesale funding, where OFI deposits and securitised assets grew substantially, with both contributing to banking sector funding.

Sustainable finance: Incorporating sustainability considerations into investment strategies and business decisions has accelerated in the past few years. This is reflected in the steady increase in green bond issuance (reaching EUR 270bn outstanding in December 2019) and in the growing integration of ESG assets into investors' portfolios. Green bonds from private-sector issuers are still a small proportion of the broader corporate bond market in the EU (2%), though. In equities, there is evidence that ESG-oriented assets have outperformed conventional shares in the last two years. Barriers to ESG investment remain, however, with a lack of standardised information and risks of greenwashing.

Financial innovation: Developments in relation to cryptoassets, including stablecoins, continue to draw ESMA's attention due to the challenges and risks they pose. BigTech is another key area of focus, due to its potential to disrupt existing players and business models. Against the fast-moving backdrop and given the global nature of the market, cooperation among regulators is key to provide for a timely and relevant response. ESMA actively supports a convergent approach to innovation across regulators in the EU, including through the European Forum for Innovation Facilitators.

Risk analysis

EU fund risk exposures to potential bond downgrades: This case study focuses on the impact of a potential credit shock on the EU fund industry. We simulate the effects of a wave of downgrades of BBB-rated corporate bonds (fallen angels) on bond funds, amid a rise in risk aversion. Overall, the direct impact would moderately affect fund performance with no significant performance-driven outflows. Similarly, asset sales from bond funds in response to the shock would only have a limited and non-systemic impact on asset prices. However, it also shows that in this scenario EU bond funds could amplify shocks coming from passive funds, especially non-EU ETFs.

BigTech implications for the financial sector: Several large technology firms (BigTechs) now offer financial services, taking advantage of their vast customer networks, data analytics and brand recognition. However, the growth of BigTech financial services varies by region, reflecting differences in existing financial services provision and regulatory frameworks. Prospective benefits include greater household participation in capital markets, greater transparency and increased financial inclusion (although some individuals may be excluded). On the risk side, the high level of market concentration typically observed in BigTech may get carried into financial services, with potentially adverse impacts on consumer prices and financial stability. The cross-sectoral and global nature of the business strengthens the case for comprehensive cooperation among relevant regulators.

Short-termism pressure from financial markets: Short-termism in finance refers to the focus placed by market participants on short-run profitability at the expense of long-term investments, a tendency that political initiatives such as the EU's action plan on financing sustainable growth seek to limit. The recent empirical evidence collected by ESMA sheds some light on commonly discussed drivers of short-termism. In particular, our findings suggest that the misalignment of investment horizons in financial markets and the remuneration of fund managers and executives that rewards short-term profit seeking could be potential sources of short-termism. Improvements in the availability and quality of ESG disclosure could serve to promote more long-term investment decisions by investors.

Market monitoring

Market environment

Summary

Macroeconomic conditions deteriorated in the second half of 2019, with EU and global growth forecasts being cut. Central banks responded with looser monetary policy and the ECB restarted its asset purchase programme in November. There were calls for fiscal interventions to help stimulate growth. Continuing uncertainty over ongoing trade tensions, Brexit and wider political uncertainty weighed on the outlook. More recently, the coronavirus outbreak has also increased uncertainty and could dampen economic activity in the short run. With continued and heightened uncertainty, market confidence fell and exchange rates and markets remained volatile. Lagged capital flow indicators showed net outflows from the euro area in 3Q19, driven by outflows from equity.

Macroeconomic conditions deteriorated in 2H19. The European Commission cut its EU GDP growth forecast to 1.1% for 2019, and to 1.2% for 2020 and 2021. Global growth forecasts fell. The IMF forecast 3% for 2019 and 3.4% for 2020. The EU aggregate fiscal deficit began to grow from low levels and is expected to reach 0.9% of GDP in 2019.¹

Central banks took steps to **loosen monetary policy**. In September, the ECB dropped its deposit rate 10bps to -0.5%, expecting key rates to remain unchanged or to fall in the short to medium term.² On 1 November the ECB restarted its asset purchase programme at EUR 20bn per month. The Federal Reserve cut its key rate by 25bps in September and October. There were also calls for fiscal action where governments have capacity (e.g. from the IMF and the ECB).

A weaker outlook and lower rates affected **banks and insurers**. Squeezed net interest margins and more FinTech competition mean bank profitability is expected to remain low despite falls in non-performing loans.³ Lower-for-longer yields also put a strain on insurer and pension fund profitability.⁴ These could fuel search for yield.

With high uncertainty, securities markets remained volatile (T.1-T.3). In **commodity markets**, the September attacks on Saudi oil facilities led to a short-lived 20% oil price spike, but with more muted reaction in derivative

markets suggesting unchanged expectations.⁵ Prices later fell as US-China trade concerns re-emerged, reducing global energy demand forecasts. Oil prices also jumped again in January 2020 on renewed US-Iran tensions.

Political uncertainty on global trading relations persisted in 2H19, with the ongoing US-China trade dispute and lack of clarity on Brexit. Confidence fell (T.4) and markets remained sensitive to sudden events. Other sources of uncertainty included the unrest in Hong Kong and tensions in the Middle East. More recently, the January 2020 US-China preliminary agreement may help to reduce uncertainty. However, the coronavirus outbreak has increased uncertainty and could dampen short-run economic activity.

There were net **investment flows** into the EA in 3Q19, driven by EA equities purchases by non-EA investors, followed by net outflows in October due to larger long-term debt outflows (T.5). Residential investment flows, after 1Q19 growth, fell in 2Q19 in all investment categories (T.6).

Cyberattacks, a major threat, continued to grow, with thousands reported globally on an hourly basis across industries. Major incidents in 2019 included a data breach in an Italian bank, an attempt to steal EUR 13mn from a Maltese bank, malware attacks on Japanese banks and phishing attacks on US credit unions.⁶

¹ European Commission, [European Economic Forecast, Autumn 2019](#), and IMF, [World Economic Outlook, October 2019](#).

² See the ECB, [Governing Council Decision, 12 September 2019](#) and [Financial Stability Review November 2019](#).

³ EBA, [Risk Assessment of the European Banking System, November 2019](#).

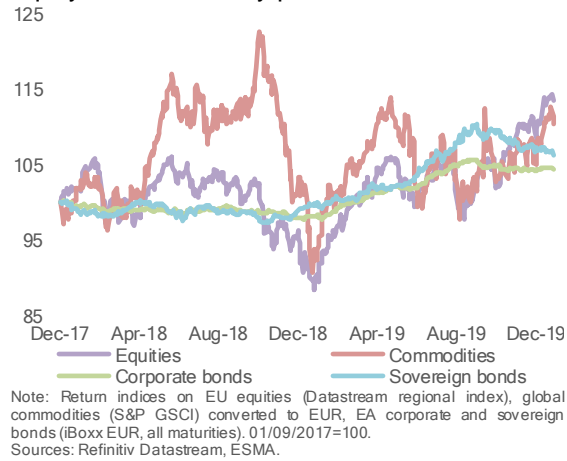
⁴ EIOPA, [Financial Stability Report, December 2019](#).

⁵ Net long and short positions on benchmark contracts reported to the US CFTC and ESMA barely moved suggesting unchanged expectations. See the [Commodities Derivatives Position Reporting System](#).

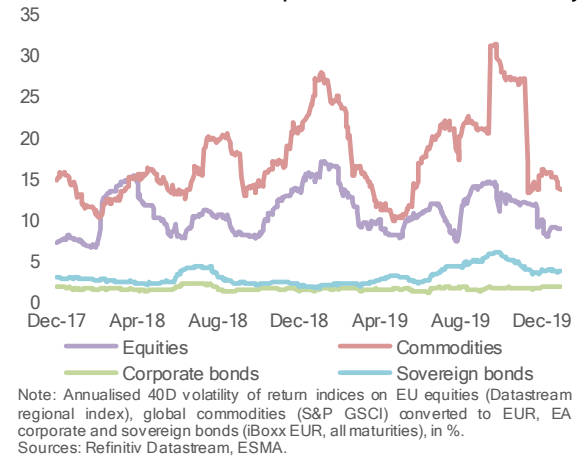
⁶ See [Unicredit's 28 October press release](#), and the Carnegie Endowment for International Peace, [Timeline of Cyber Incidents Involving Financial Institutions](#).

Key indicators

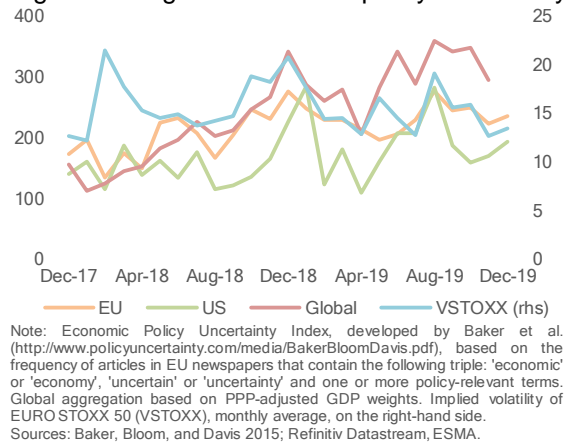
T.1
Market performance
Equity and commodity prices fluctuated



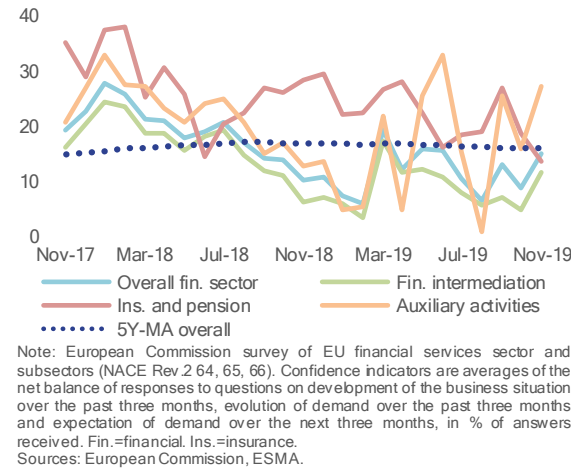
T.2
Market volatilities
Trade tensions and oil price shock drive volatility



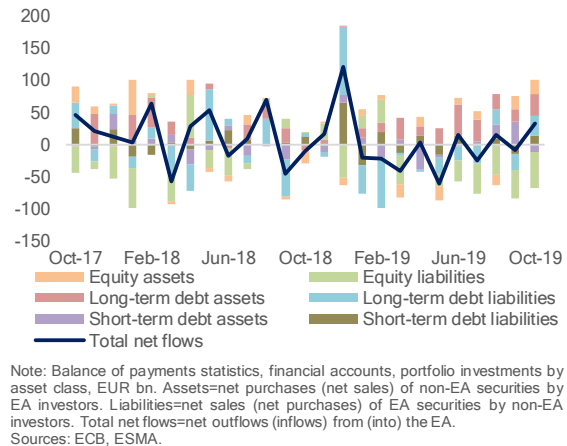
T.3
Economic policy uncertainty
High level of global economic policy uncertainty



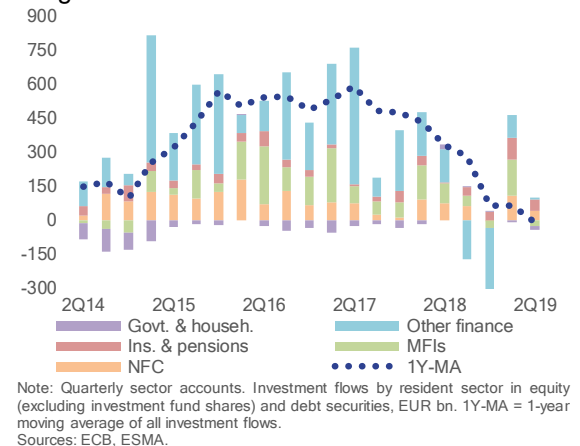
T.4
Market confidence
Confidence weakens



T.5
Portfolio investment flows to and from the EA
Net inflows in Q3 become outflows in October



T.6
Investment flows by resident sector
Large decline in financial sector investments



Market trends and risks

Securities markets

Trends

In 2H19 EU equity markets were characterised by recurrent episodes of volatility in reaction to continued trade tensions between the United States and China against the backdrop of a global economic slowdown. Corporate bond spreads remained tight in a worrying sign of continued search for yield, while the share of euro area bond market trading with negative yields increased until 4Q19. US dollar secured money markets experienced a funding squeeze, forcing the Federal Reserve to step in, in a sign of simmering market tensions highlighting the scope for abrupt changes in investor sentiment.

Risk status

Risk level ■

Outlook ➔

Risk drivers

- Asset revaluation and risk re-assessment
- Geopolitical risk, especially trade tensions
- Low interest rate environment and excessive risk taking
- Corporate sector indebtedness and deteriorating credit quality

Equities: global spillovers

Global equity market **performance** improved in 2H19. EU prices increased by 8% from the end of June, but their cumulative underperformance relative to US shares since mid-2017 remains in excess of 20pp (T.8). One underlying reason for this is the significant slowdown in economic activity in parts of the EU in 2019. External factors have led to lower GDP growth, while domestic consumption and corporate investment have held up. As a result, the threat of recession is highest in export-oriented Member States. The relatively strong performance of EU shares in the context of a weaker economic outlook suggests equity values remain high relative to fundamentals.

US-China trade tensions continued to dominate the news. However, market reactions to trade-related announcements – including new tariffs and the US Treasury declaring China to be a ‘currency manipulator’ – were tame compared with previously observed movements. In spite of some short-lived event-driven spikes, option-based measures of equity **volatility** such as the VIX (in the United States) and the VSTOXX (in the EA) dropped below long-term averages, to 15% in 2H19, down significantly from respective peaks of 35% and 25% in December 2018 (T.9).

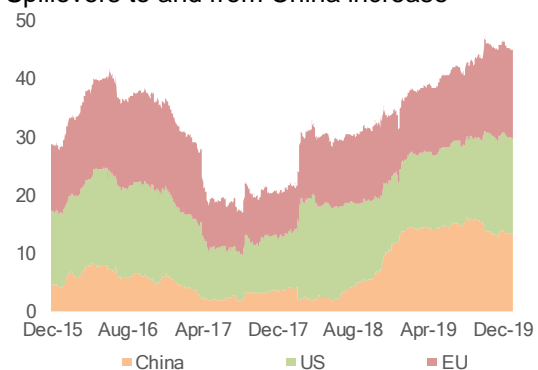
EU **bank shares** were up 9%, paring the losses experienced during the summer (T.10). However, their overall performance for the year remains lacklustre compared with other sectors, as slower economic activity and lower yields are expected

to weigh on bank profitability in the short term. Meanwhile, the positive net financial effects of bank-restructuring announcements are unlikely to materialise for some time.

Equity market volatility drivers in Europe appear to have shifted in recent years. Trade tensions have displaced monetary policy as a major concern, while internal politics and debt-sustainability concerns have lessened. Reflecting this, interconnectedness between regional equity markets has increased significantly since the start of 2018, with growing **volatility spillovers** between Chinese, US and EU markets (T.7).

T.7

Equity volatility dynamic connectedness Spillovers to and from China increase



Note: Directional volatility spillovers to Chinese, US and EU equity markets, in %, based on 200-day rolling averages of log returns using Datastream total market capitalisation total return indices in USD. Method follows Diebold and Yilmaz, 2012, 'Better to give than to receive: Predictive directional measures of volatility spillovers', International Journal of Forecasting, 28, 1. Sources: Diebold and Yilmaz (2012), Refinitiv EIKON, ESMA.

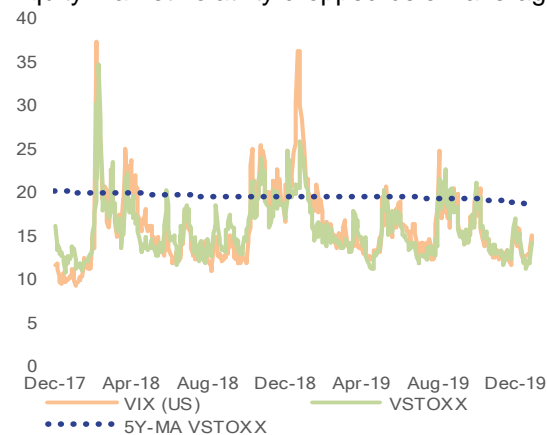
Key indicators

T.8
Regional equity market performance
Global equity markets rallied



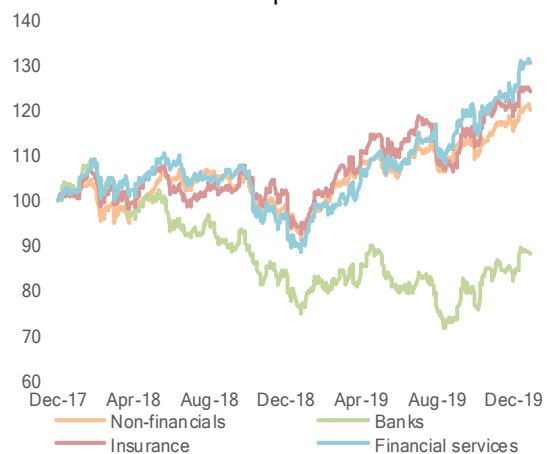
Note: Datastream regional equity indices for the EU (in EUR), the US (in USD) and Japan (in JPY). 01/07/2017=100.
Sources: Refinitiv Datastream, ESMA.

T.9
Equity market volatility indices
Equity market volatility dropped below average



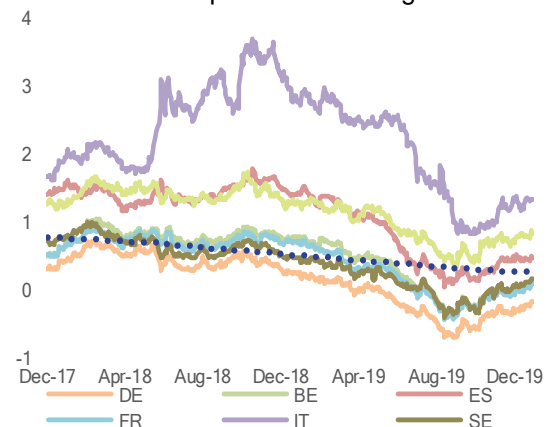
Note: Implied volatility of EURO STOXX 50 (VSTOXX) and S&P 500 (VIX), in %.
Sources: Refinitiv Datastream, ESMA.

T.10
EU equity performance by sector
EU bank shares underperformed



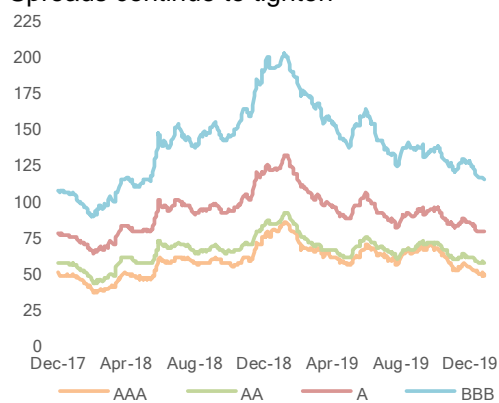
Note: STOXX Europe 600 sectoral return indices. 01/12/2017=100.
Sources: Refinitiv Datastream, ESMA.

T.11
EU sovereign bond yields
Fluctuated with spreads narrowing



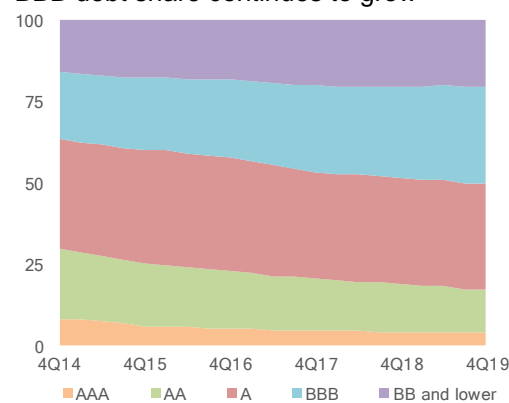
Note: Yields on 10-year sovereign bonds, selected EU members, in %. 5Y-MA=five-year moving average of EA 10-year bond indices computed by Datastream.
Sources: Refinitiv Datastream, ESMA.

T.12
EA corporate bond spreads
Spreads continue to tighten



Note: EA corporate bond option-adjusted spreads by rating, in bps.
Sources: Refinitiv Datastream, ESMA.

T.13
Corporate bond ratings distribution
BBB debt share continues to grow



Note: Outstanding amount of corporate bonds in the EU as of issuance date by rating category, in % of the total.
Sources: Refinitiv EIKON, ESMA.

After the US-China trade row started in March 2018, there were fears that it might also harm third countries with close economic relationships with either or both countries. The average exports of EU Member States to the United States and China currently stand at 4% of GDP, with Ireland most exposed (14%). Since March 2018, the equity benchmark indices of the EU countries most exposed to the United States and China have underperformed those from the least exposed countries (T.14). The underperformance reached 5ppt in 1H19 but fell back after trade tensions appeared to ease. While other factors are undoubtedly relevant, the underperformance is evidence that geopolitical tensions may be affecting asset performance.

T.14

Equity performance by trade exposure to United States and China

Highly exposed countries underperformed



Note: Weighted-average equity index of countries with high (BE, DE, IE, NL) and low (ES, FR, PO, RO) exposure to US and China through exports, based on a representative sample of EU countries. National benchmarks rebased with 01/03/2018=100, weighted by exports.
Sources: Refinitiv Datastream, Eurostat, ESMA.

The outbreak and spread of a new coronavirus in January 2020 has increased uncertainty in financial markets, reflected in price drops and heightened volatility especially in Asian markets. The situation, especially if deteriorating, is expected to have a negative impact on trade and growth, and may weigh on prices and portfolios with relevant exposures. Investors should assess their specific risks carefully.

Fixed income: negative yields

Corporate and sovereign **bond yields** continued their overall decline until the ECB's

announcement in September that the Eurosystem central banks would restart asset purchases. This was accompanied by a significant convergence of spreads: BBB-rated corporate bond spreads declined 85bps from January, to 115bps. The spread between Greek and German ten-year government bonds also narrowed to around 210bps, down from almost 500bps in January 2018 (T.11 and T.12). After their falls over the summer, corporate and sovereign yields started rising again in 4Q19, and through the beginning of 2020 (A.38).

Demand in the European **corporate bond market** remains characterised by search-for-yield behaviours, leading to increased investments in riskier debt instruments, as reflected in the current degree of spread compression. The net issuance and supply of corporate bonds has been similarly concentrated within the lower-rated segments for several quarters. The composition of outstanding bonds by rating category shows that BBB and lower-rated bonds now account for around 50% of outstanding bonds, while AAA securities only account for 5% (T.13). In contrast, the gross issuance of hybrid capital instruments continued to decline, with outstanding instruments stable at around EUR 950bn.

In November 2019 the Eurosystem central banks restarted **asset purchases** with a monthly volume of around EUR 20bn. The purchases have so far targeted asset-backed securities (4% of the total), covered bonds (8%), corporate bonds (20%) and public sector bonds (68%).

Corporate bond purchases aim to ease private-sector financing conditions on capital markets, thereby inducing lower corporate reliance on bank lending. Although the purchases are concentrated in segments with ample available supply, to minimise market distortions, the extent to which additional purchases can be carried out without crowding out private investors is unclear. In August, J. P. Morgan estimated that the total amount of EA corporate bonds already trading at a negative yield stood at around EUR 1.5tn. Tradeweb further estimated that almost half of the euro-denominated investment-grade corporate debt has negative yields.⁷

The potential implications are also made more complex by changes in the composition of the

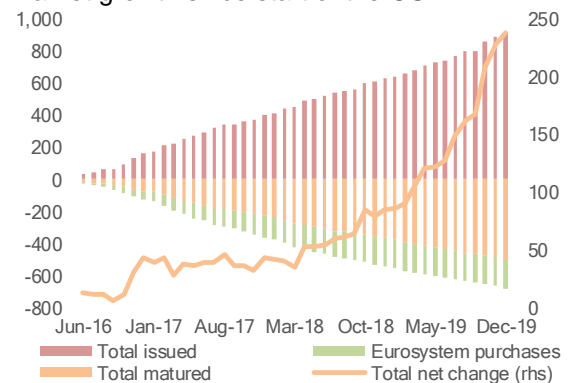
⁷ See '[Negative-yielding bond supply hits all-time high - J.P. Morgan](#)', Reuters, 7 August 2019, and '[UPDATE 1-Almost](#)

[half of top quality euro corp bonds have sub-zero yields - Tradeweb](#)', Reuters, 2 September 2019.

outstanding corporate bond market since the beginning of the ECB's corporate sector purchase programme (CSPP) in June 2016. The **net issuance** of euro-denominated corporate bonds has been dominated by securities rated BBB or below. In contrast, the share of higher-rated debt instruments in outstanding volumes has been shrinking. From June 2016 to December 2019, the overall market size of debt instruments eligible for central bank purchases (i.e. non-bank EA corporate issuer rated BBB or higher) has increased by EUR 422bn, while the central bank currently holds around EUR 185bn (T.15). A possible implication is that, to remain market-neutral, central bank purchases may need to be concentrated more in lower-rated assets.

T.15

Corporate bond volumes and Eurosystem purchases
Market growth since start of the CSPP



Note: Cumulative volumes of euro-denominated non-banking corporate bonds that have been issued and have matured since June 2016, Eurosystem central banks purchases of corporate bonds, and total net change (right axis), EUR billion.
Sources: Refinitiv EIKON, ECB, ESMA.

On the **government bond** side, the Eurosystem central banks have accumulated EUR 2.1tn in EA sovereign debt since the start of quantitative easing in 1Q15, corresponding to 18% of the EA GDP as of 3Q19. During this time, the aggregate amount of EA government debt securities outstanding increased from EUR 7.5tn to EUR 8.2tn. In contrast, the EA debt-to-GDP ratio declined by 7ppt to 86%, with changes in countries ranging from a 32ppt fall to an 11ppt increase. The continuation of the ECB asset purchases thus raises questions about the relative market impact of future operations on the liquidity of some bond market segments.

Activity in euro **money markets** appeared resilient, with rates broadly stable and repo trading turnover steadily growing, despite the recent jitters in US dollar money markets (Box T.16).

T.16

US dollar short-term money markets

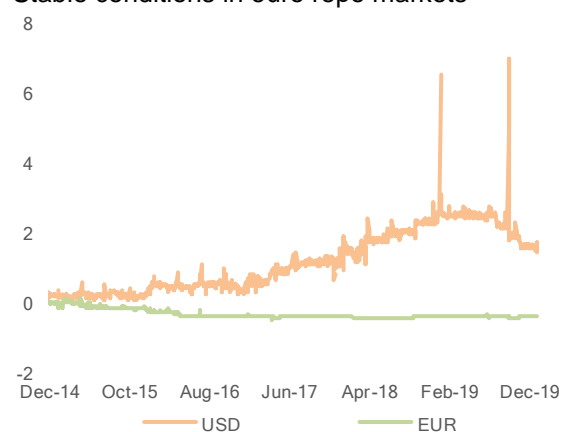
Federal Reserve injection soothes repo market squeeze

On 16 September, overnight repo rates in the United States spiked to 10% intraday from around 2% the previous week, while the effective federal funds rate – the average overnight rate at which banks lend their reserve balances to each other – rose to the top of the US Federal Reserve's target range (2.25%), leading the central bank to step in the next day.

The Federal Reserve injected USD 75bn in overnight repos and has repeated the operation daily since then, subsequently increasing the limit to USD 120bn. In addition, it conducted a series of 1- or 2-week term repo operations ranging from USD 35bn to USD 60bn, up to twice a week. Together with a 30bps cut in the interest rate it pays on excess bank reserves, the Federal Reserve interventions appear to have soothed markets. Overnight repo rates came down almost instantly, while the Federal Reserve funds rate returned within the target range and has stayed there since.

US dollar and euro overnight repo rates

Stable conditions in euro repo markets



Note: USD and EUR overnight repo rates, in %.
Sources: Refinitiv EIKON, ESMA.

These developments appear to have been caused by a combination of short-term factors, including corporate tax deadlines, larger-than-usual issuance of Treasury debt securities, and gradually shrinking excess bank reserves. The USD 1.3tn decline in reserves since August 2014 stemmed mainly from the Federal Reserve's objective of reducing its balance sheet, while EA banks increased excess reserves at the ECB by EUR 800bn over the same time frame, helping to insulate the euro repo market. The Federal Reserve has since changed tack and announced that it would purchase around USD 60bn per month in Treasury bills into 2Q20, in effect resuming its balance-sheet expansion.

The Federal Reserve interventions helped to contain money market volatility and, crucially, prevented a temporary funding squeeze from snowballing into a

system-wide liquidity problem. However, they also brought into focus a monetary policy transmission issue, whereby the largest US banks hoard liquidity for intraday liquidity management purposes, restricting the ability of other actors to obtain funding from repo markets at short notice.

Market trends and risks

Infrastructures and services

Trends

Equity-trading volumes decreased in 3Q19, reflecting a sharp drop in OTC trading. The share of trading on systematic internalisers remains significant, at almost 20% of total volumes in 2019. Central clearing was broadly stable, with clearing very concentrated in a few CCPs. Overcollateralisation by CCPs beyond that required for margins reached 20% in 2Q19. For CSDs, settlement fails remained below average, although with an increase at the end of September. For CRAs, there were signs of more positive rating changes in 2019, with the notable exception of non-financials. Finally, for benchmarks, €STR was first published in October 2019. The transition to this and to other new risk-free benchmarks is progressing with no sign of market disruption.

Risk status

Risk level ■

Outlook ➔

Risk drivers

- Share of non-lit markets in equity trading
- Risk of infrastructure disruptions
- Geopolitical and event risks, especially trade tensions and Brexit

Trading landscape: OTC trading decreases

In 2H19 EU **trading volumes** in equity instruments declined by 6% from 1H19, to EUR 2.1tn per month. This mainly reflected a 10% decrease in over the counter (OTC) trading and a 6% decrease in lit trading. Dark pool trading still accounted for 8% of total volumes (T.18). The number of circuit breakers triggered in share trading in 2H19 remained historically low, at 59 per week (T.19).

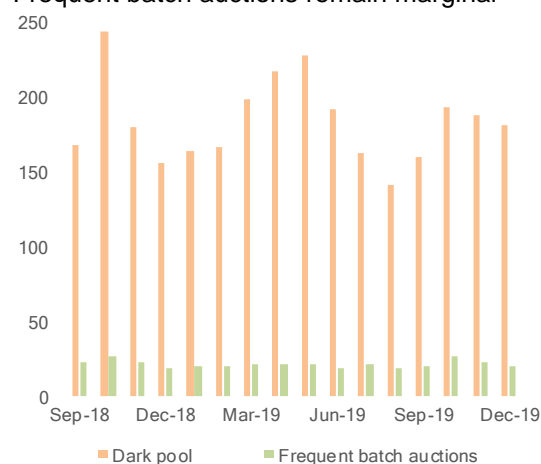
The growth of **frequent batch auctions**, which followed the entry into force of MiFID II/MiFIR in January 2018, as a possible consequence of dark-pool trading suspensions under the Double-Volume Cap mechanism, remains a cause for concern.⁸ Conventional periodic auctions have long been used by trading venues to set the price for the start or close of the trading day. Frequent batch auctions differ in two main ways: they are typically of very short duration (between 25 and 150 milliseconds) and are triggered by market participants. These might allow trading firms to circumvent pre-trade transparency requirements

and could hamper price formation.⁹ After a sharp increase in early 2018, volumes of equity instruments traded in such auctions have remained broadly stable, with a limited market share, at around EUR 20bn per month (T.17).

T.17

Trading on dark pools and frequent batch auctions

Frequent batch auctions remain marginal



Note: Monthly equity trading volumes in the EU by trading type, excluding lit and over the counter trading, EUR billion.

Sources: FITRS, ESMA.

⁸ See [ESMA, 'Final Report – Call for evidence on periodic auctions', June 2019](#)

⁹ In its [opinion on frequent batch auctions and the double volume cap mechanism, published on 4 October 2019](#),

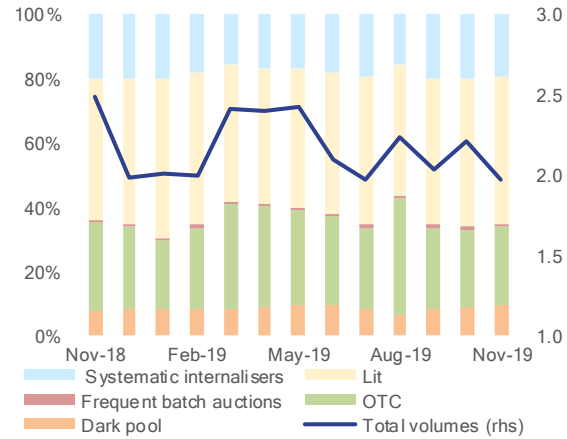
ESMA sought to address these issues by specifying the application of pre-trade transparency requirements by frequent-batch auction systems.

Key indicators

T.18

Equity-trading volumes

OTC equity-trading volumes decline

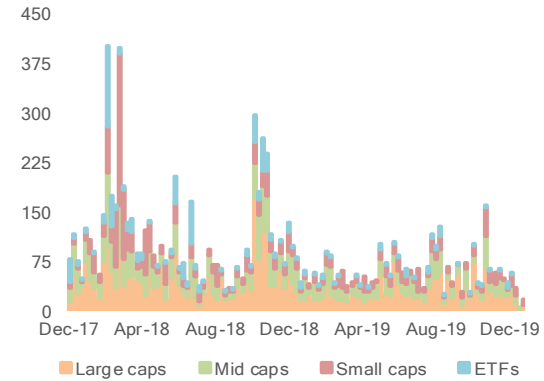


Note: Type of equity trading in the EU as a percentage of total volumes. Total equity trading volumes in EUR trillion (right axis)
Sources: FITRS, ESMA

T.19

Circuit breakers

Few circuit breakers triggered in 2H19

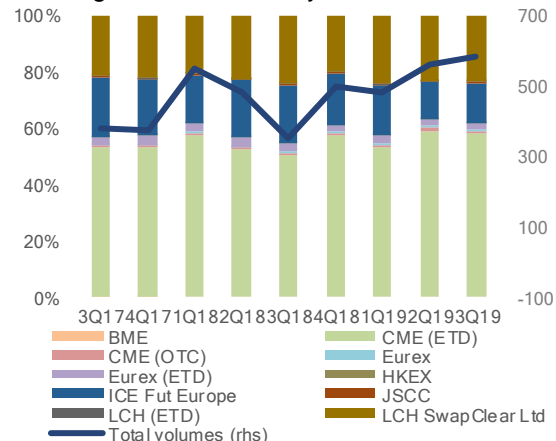


Note: Number of daily circuit-breaker trigger events by type of financial instrument and by market cap registered on 34 EEA trading venues for all constituents of the STOXX Europe Large/Mid/Small 200 and a large sample of ETFs tracking these indices or some of their subindices. Results displayed as weekly aggregates.
Sources: Morningstar Real-Time Data, ESMA.

T.20

Global cleared interest rate derivative volumes

Clearing still dominated by ETD

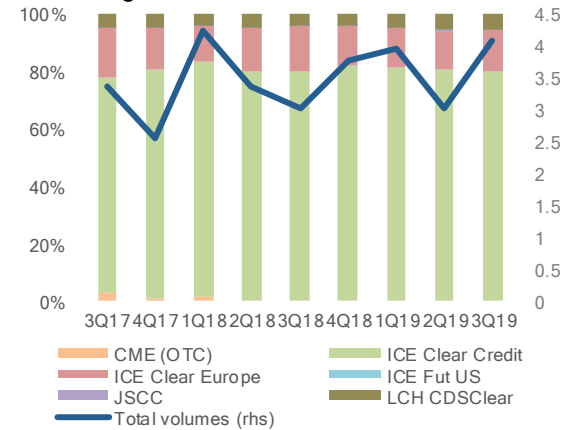


Note: Quarterly notional volumes cleared for IRDs in EUR, USD, JPY or GBP, in %. Total volumes in EUR tn.
Sources: Clarus Financial Technology, ESMA.

T.21

Global credit default swap clearing volumes

Increasing in 3Q19, at EUR 4tn

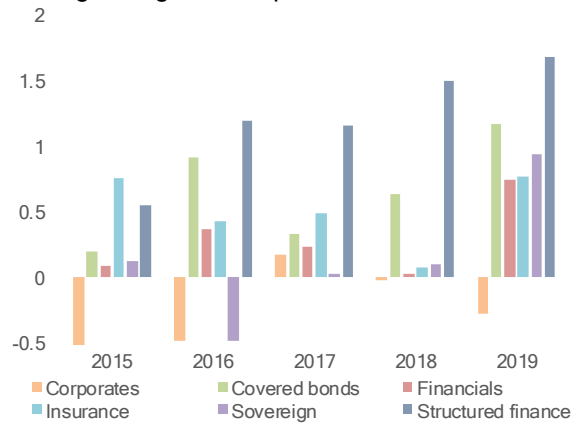


Note: Quarterly notional volumes cleared for CDS, CDX and CDX futures in EUR, USD, JPY or GBP, in %. Total volumes in EUR tn.
Sources: Clarus Financial Technology, ESMA.

T.22

Average change for credit ratings that changed

Rating changes more positive in 2019

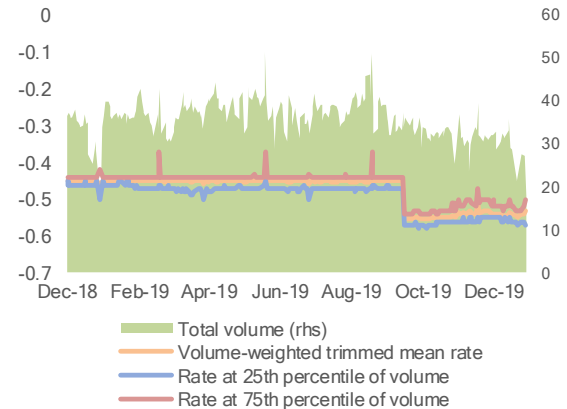


Note: Average change in notches for long-term ratings that changed for issuer types, covered bond instruments and structured finance. 2019 is year to date.
Sources: RADAR, ESMA.

T.23

Pre-€STR and €STR rates and volumes

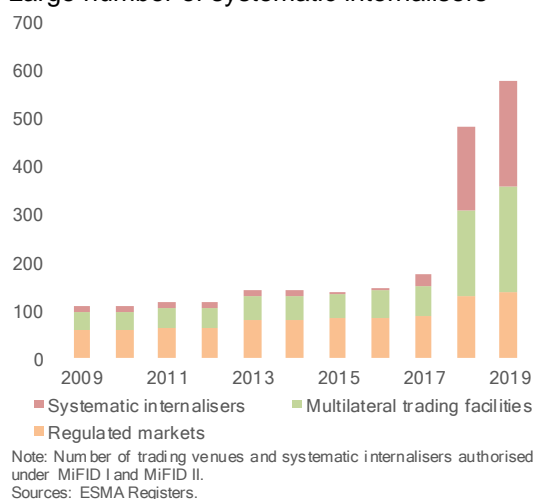
€STR rate down, volumes stable



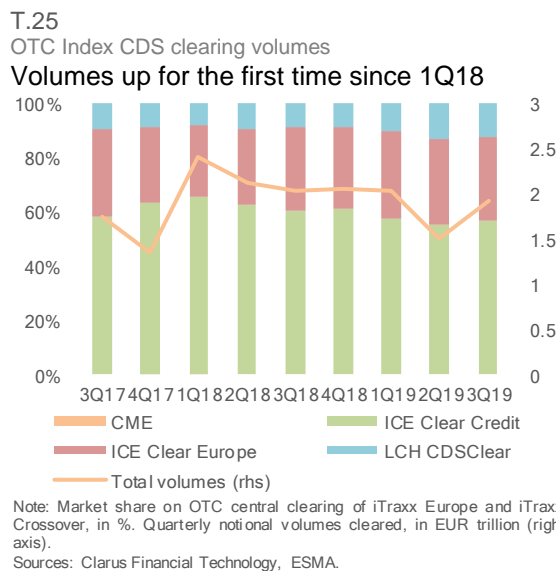
Note: €STR rate at 50th, 75th and 25th percentile of the volume (in % lhs) and volumes (in EUR tn).
Sources: Refinitiv Datastream, ECB, ESMA.

Systematic internalisers (SIs) offer a third avenue for trading equities outside a lit market but without the liquidity disadvantage of pure bilateral OTC transactions. MiFID II/MiFIR introduced an obligation for investment firms to trade (most) shares on a trading venue (TV) or an SI, and extended the regime to non-equity instruments.¹⁰ As a result of this and a revised methodology for the determination of SI status, the number of SIs authorised since January 2018 has grown significantly, to 220 (T.24).¹¹ SIs tend to be operated either by investment banks or by electronic liquidity providers such as high-frequency market makers. Equity instrument volumes traded on SIs averaged EUR 394bn per month in 2019, or 18% of total trading, underlining their importance in the new trading landscape.

T.24
Number of TVs and SIs authorised in the EU
Large number of systematic internalisers



2Q19 to EUR 1.9tn in 3Q19 (T.25). This is the first such significant increase in clearing volumes since 1Q18, but probably reflects a recovery from a similarly large drop (EUR 0.5tn) from 1Q19 to 2Q19. Central clearing in these products remains limited to three central counterparties (CCPs), two of which are in the same group, accounting together for 87% of clearing in 3Q19.



Interest rate derivatives (IRDs) subject to mandatory clearing include basis swaps, fixed-to-float swaps, forward rate agreements (FRAs) and overnight interest rate swaps in EUR, GBP, JPY and USD, FRAs and fixed-to-float swaps denominated in NOK, PLN and SEK. Total volumes cleared in 3Q19 were EUR 175tn, down from EUR 184tn in 2Q19, with 93% cleared by one CCP in 3Q19 (T.26).

CCPs: Central clearing stabilises

The central clearing obligation has now been phased in for most market segments. Centrally cleared volumes for the two credit default swap (CDS) indices subject to **clearing among credit derivatives** (Itraxx Europe Main and Itraxx Europe Crossover) increased from EUR 1.5tn in

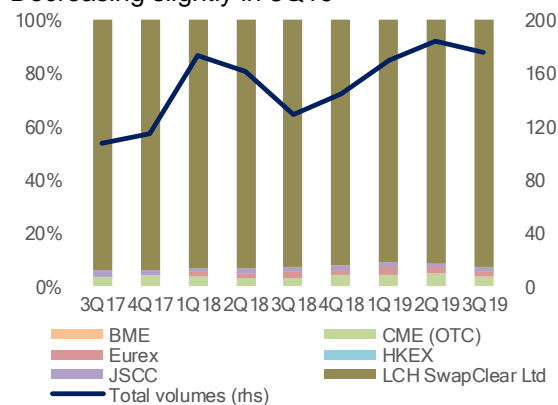
¹⁰ Systematic internalisers are defined in Article 4(1)(20) of MiFID II as ‘investment firms which, on an organised, frequent, systematic and substantial basis, deal on own account by executing client orders outside a regulated market, multilateral trading facility or organised trading facility without operating a multilateral system’.

¹¹ In October 2019, 72 SIs were authorised to trade shares, 157 authorised to trade bonds and 91 authorised to trade derivatives. Other types of financial instruments traded by SIs include structured finance products, equity-like instruments (e.g. ETFs), commodities and emission allowances.

T.26

OTC interest rate swaps clearing

Decreasing slightly in 3Q19



Note: Market share on OTC central clearing of basis swaps, fixed-to-float swaps, Forward rate agreements and overnight indexed swaps in EUR, USD, JPY or GBP, in %. Quarterly notional volumes cleared, in EUR tn (rh axis). Sources: Clarus Financial Technology, ESMA.

Looking at **overall clearing volumes**, EUR 4tn of CDS was cleared globally for the main currencies (EUR, USD, JPY and GBP), including single name, index CDS and index CDS futures. Clearing was done mainly by the CCPs clearing European CDS indices (T.21). For IRDs in the G4 currencies, total volumes cleared continue to be dominated by exchange-traded derivatives (ETDs). Notably, one big CCP present on EU OTC markets is also present globally (T.20, T.26). In 3Q19 total quarterly volumes cleared in notional amounted to EUR 584tn. On foreign exchange markets, cleared notional amounts have been consistently increasing since 3Q18, reaching EUR 2.2tn by 3Q19. This was almost all (97%) cleared by one large CCP also present on IRD markets. Overall, central clearing has continued to grow globally, highly concentrated among CCPs.

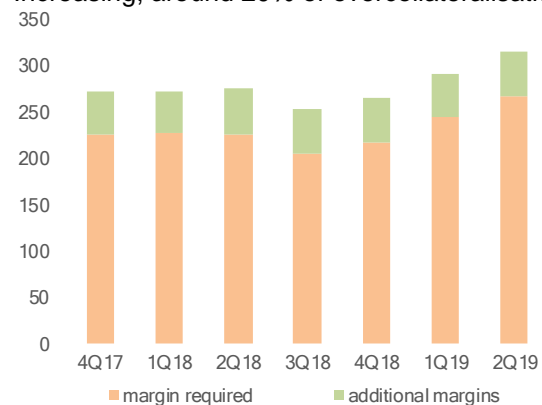
The CPMI-IOSCO Public Quantitative Disclosures provide information on different **risk management practices of EU CCPs**. For example, CCPs now publish the margins they hold as well as the margins they require their members to post. In the EU, CCPs hold 20% more initial margins than they require clearing members to post. Overall, the total amount of collateral (post-margin) held by EU CCPs amounted to EUR 314bn at the end of 3Q19 (T.27), showing **overcollateralisation**. There are different reasons for overcollateralisation. When the risk linked to a contract or a position changes and exceeds the margin held to cover it, CCPs will call for additional margins. Clearing members tend to post more margins than required by the CCP in order to avoid having to respond to

margin calls too often or within very short deadlines. Overcollateralisation can also serve as a safety cushion of additional collateral coming on top of what is required by the CCP.

T.27

Initial margins held at EU CCPs

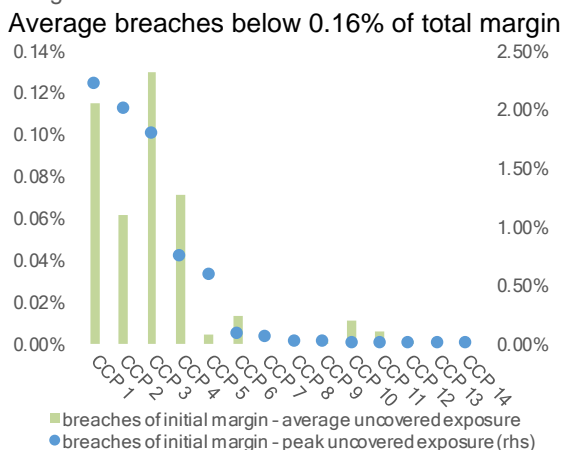
Increasing, around 20% of overcollateralisation.



Note: Initial margin required as well as additional margin posted by EU CCP, in EUR bn. Sources: Clarus Financial Technology, CPMI-IOSCO PQD, ESMA.

Margin breaches occur each time the actual margin coverage held against an account falls below the mark-to-market value of the position of the account owner, based on results of daily back-testing. As of 29 March 2019, for most CCPs, the **average margin breach size** over the previous 12 months remained below 0.14% of the total margin held by the CCP where breaches occurred (T.28). Nonetheless, peak uncovered exposures in case of margin breaches can reach significant levels, for example 2.5% of the total margins held by the CCP in one case. The biggest uncovered exposure following a breach of margin over the past 12 months (as of 3Q19) was EUR 1bn.

T.28
Margin breaches

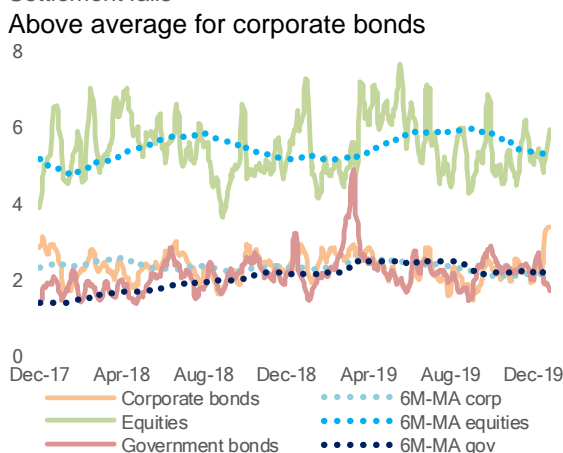


Note: Average and maximum margin breach size over the past 12 month, as a percentage of the total margin held, as of 29 March 2019.
 Sources: Clarus Financial Technology, PQD, ESMA.

CSDs: settlement fails rise in late September

Over 2H19 the level of settlement fails for sovereign bonds, corporate bonds and equities was mostly below average. However, settlement fails did increase across the board towards the end of September, associated with market movements that were likely to be related to developments in Brexit and in US-China trade negotiations (T.29). For corporate bonds, a second rise occurred in December amid a seasonal drop in liquidity.

T.29
Settlement fails

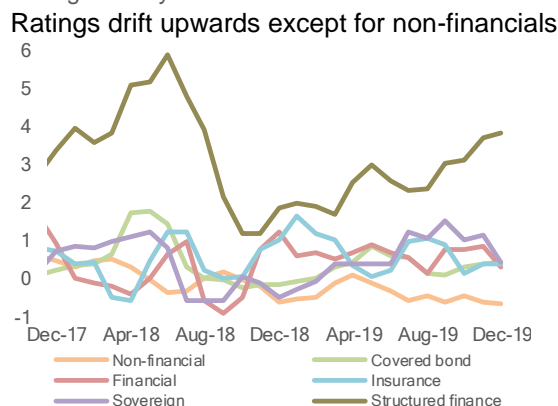


Note: Share of failed settlement instructions in the EU, in % of value, one-week moving averages. 6M-MA = six month moving average.
 Sources: National Competent Authorities, ESMA.

CRAs: upgrades larger in 2019

Over the first three quarters of 2019 **upgrades were generally more prevalent** than downgrades for both issuers and instruments, except for non-financials, where the drift was slightly downwards. Structured finance ratings continued to have the strongest drift upwards. At the end of 3Q19, there were early signs of a change, with drift across many asset classes beginning to fall (T.30).

T.30
Ratings drift by asset class



Note: 3-month moving average of net rating changes in outstanding ratings from all credit rating agencies, excluding CERVED and ICAP, by asset class, computed as the percentage of upgrades minus the percentage of downgrades.
 Sources: RADAR, ESMA.

During 2019 **ratings volatility was relatively low** compared with late 2018, except for structured finance and non-financials, for which volatilities remained broadly similar to 2018 levels (A.55).

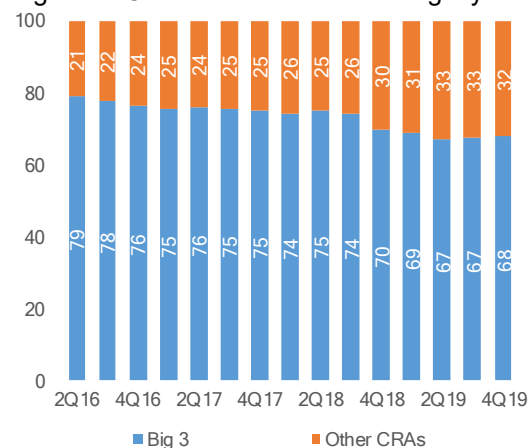
Where ratings changed in 2019, **upgrades were significantly more positive** on average than in previous years (except for non-financials, for which changes were more negative). This marks a shift from previous years particularly for financials, covered bonds, insurance and sovereigns (T.22). The upward drift and the growth in the average rating changes suggests that on average CRAs were more positive in their credit risk outlook for financial firms and instruments in 2019. While this may appear surprising given the deterioration of macroeconomic conditions in late 2019, the patterns of rating changes observed may reflect the more positive economic environment seen earlier in 2019.

In 4Q19 we saw the first (albeit small) increase since 2018 in the **market share** of outstanding

ratings issued by the big three CRAs.¹² As of 4Q19, 68% of all outstanding ratings were issued by the big three CRAs, up 1ppt from the previous quarter (T.31).

T.31

Share of outstanding ratings: big versus small CRAs
Big three CRAs' share increases slightly



Note: Share of outstanding ratings from S&P, Moody's and Fitch, and ratings from all other CRAs, in %.
Sources: RADAR, ESMA.

Benchmarks: transition toward risk-free rates

The new overnight **reference risk-free rate** €STR (previously ESTER) was first published on 2 October 2019. The transition to €STR is ongoing and so far has been without market disruption. The €STR (and pre-€STR before October) has been stable overall, albeit reacting to changes in the policy rate, as mirrored in its 10bps decline on 24 September 2019.¹³ The daily volumes of unsecured borrowing in instruments eligible for €STR remain at around EUR 32tn. EONIA volumes continued to decrease, with average daily volumes of EUR 2.2tn in 2H19, compared with EUR 2.7tn for 1H19 (T.23).¹⁴

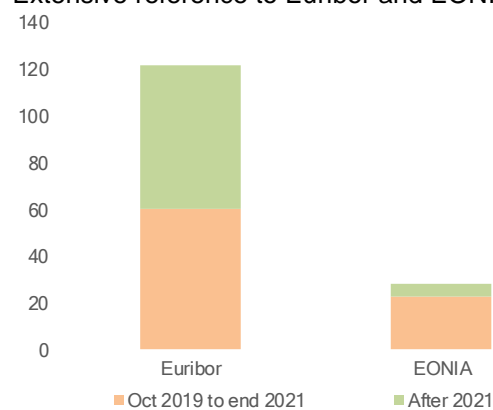
The main risk in transitioning from EONIA to €STR relates to the **change in methodology** from the former rate. From 2 October until the end of 2021, EONIA is indexed to €STR (plus a fixed

spread of 8.5bps).¹⁵ It is to be discontinued after this period.

As of 25 October 2019, out of the EUR 28tn in notional amounts of IRDs referencing EONIA, only EUR 5.4tn (19% of the total) will mature after its discontinuation. EONIA is also commonly used as a discounting curve for collateralised euro cash flows, including those referenced to Euribor. As of 25 October 2019, the notional amounts of IRDs referencing Euribor stood at EUR 121tn, which includes EUR 61tn (about 50% of the total) that is due to mature after the end of 2021 (T.34).

T.34

IRDs linked to EONIA and Euribor by maturity
Extensive reference to Euribor and EONIA



Note: Gross notional amount of IRDs outstanding referencing EONIA and Euribor by maturities as of 25 October 2019
Sources: TRs, ESMA

Non-EU benchmark rates are also within the scope of the current interest rate reforms. The notional amounts of contracts referring to these are also extensive (T.35).

¹² Moody's Investor Service, S&P Global ratings and Fitch Ratings.

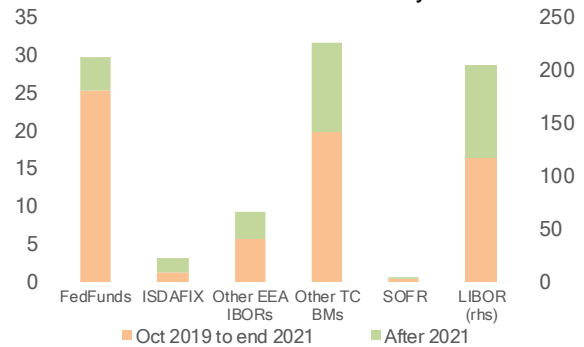
¹³ On that day, the ECB took the monetary policy decision to decrease the rate on deposit facilities by 10bps.

¹⁴ As of 1 October 2019 the information related to the daily underlying notional volumes of EONIA is not applicable any more.

¹⁵ From a legal perspective, for new contracts that still reference EONIA and mature after December 2021 or fall under the EU BMR, robust fallback provisions should be included. Legacy contracts, with EONIA as the underlying/reference rate, that mature before December 2021 will be covered by the continuing publication of EONIA until the end of 2021.

T.35
 IRDs linked to reference rates

Extensive reference to third country benchmarks



Note: Gross notional amount of IRD outstanding referencing benchmarks, by maturities. Other EEA includes NIBOR, Pribor, Stibor, WIBOR and BUBOR, other Third country benchmarks include BBSW, CDOR, JIBAR, TIBOR, Telbor and Mosprim. As of 25 October 2019, EUR tn
 Sources: TRs, ESMA

The total notional amount of contracts referring to LIBOR is EUR 205tn. Other EEA IBORs, such as NIBOR, Pribor, Stibor, WIBOR and BUBOR, together account for EUR 9tn of gross IRD notional amount, while other third country reference rates account for EUR 31tn. The Secured Overnight Financing Rate (SOFR) – the new US risk-free reference rate – was already referred to by contracts held by EU counterparties with total notional amounts of up to EUR 343bn as of 25 October 2019.

Market trends and risks

Asset management

Trends

The shift from equity to bond funds continued for most of 2H19 with overall flows still positive. Investments into money market funds (EUR 58bn) and bond funds (EUR 109bn) exceeded equity fund inflows (EUR 13bn). Equity fund outflows in 3Q19 reflected concerns about economic growth, global trade tensions and moves to reduce portfolio equity weights after the 4Q18 downturn. Bond and money market fund investments mostly reflected flight to safety, but also some search for yield, as shown by corporate bond fund inflows (EUR 24bn). Bond fund risks were stable, with liquidity and credit risks concentrated in HY funds. ETF growth was driven by both bond and equity ETFs for the first time. AIFMD data for 2018 show high leverage in hedge funds but limited liquidity mismatches.

Risk status

Risk level ■

Outlook ➔

Risk drivers

- Asset revaluation and risk re-assessment
- Low interest rate environment and excessing risk taking
- Geopolitical and event risks, especially trade tensions

Fund flows: rotation from equity to bond funds

The rotation from equity to fixed income funds continued during most of 2H19, as evidenced by **fund flows**, until equity funds returned to positive inflows at the end of 2019 (EUR 13bn in total). However, flows into fixed income funds became much larger during 2H19 (T.36): bond funds (EUR 109bn), money market funds (EUR 58bn) and mixed asset funds (EUR 24bn). In relative terms, the accumulated bond fund flows represent more than 3% of their NAV (T.38). The preference for fixed income funds contrasts with performance of equity funds (26%) in 2019, which outperformed bond funds (8%). The performance of equity funds year on year is driven by the recovery of equity markets after the fall in 4Q18. Bond fund performance is driven by valuation effects, while yields remain low.

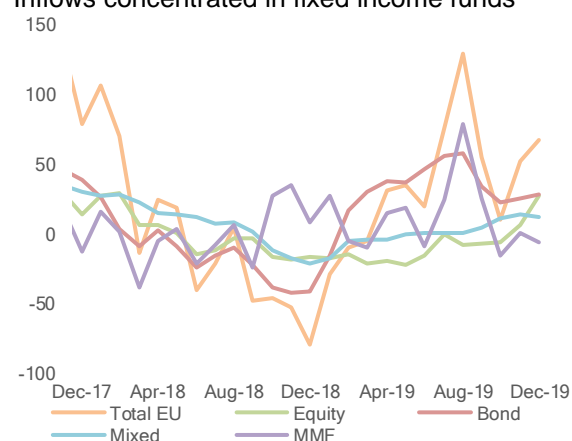
There are multiple reasons behind the rotation from equity to fixed income funds. Some investors withdrew their money from equity funds in a context of ongoing concerns about economic growth and global trade tensions. But for other investors it also reflected the willingness to rebalance portfolios, because they had become overweighted in equity or because they reached their limit in terms of 'risk budget' (i.e. the overall amount of risk an investor is willing to take)

following the 4Q18 downturn in equity markets. Similarly, investors moved into bond funds for a range of reasons. In most cases it was flight to safety, but some investors were also searching for yield, as illustrated by the positive flows into corporate (EUR 24bn), emerging (EUR 10bn) and high-yield (EUR 2bn) bond funds.

T.36

Fund flows

Inflows concentrated in fixed income funds



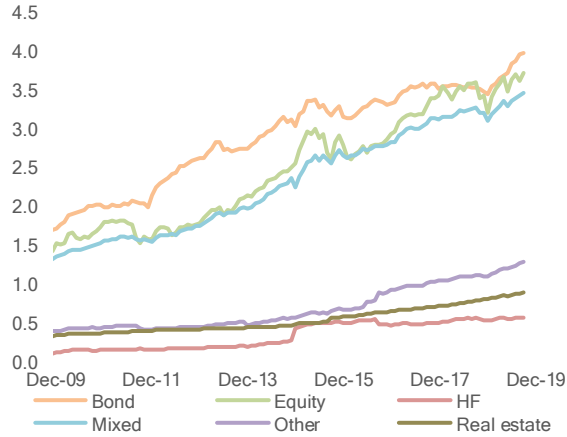
Note: EU-domiciled funds' 2M cumulative netflows, EUR bn.
Sources: Refinitiv Lipper, ESMA.

Key indicators

T.37

Asset by market segment

Growth driven by valuation effects

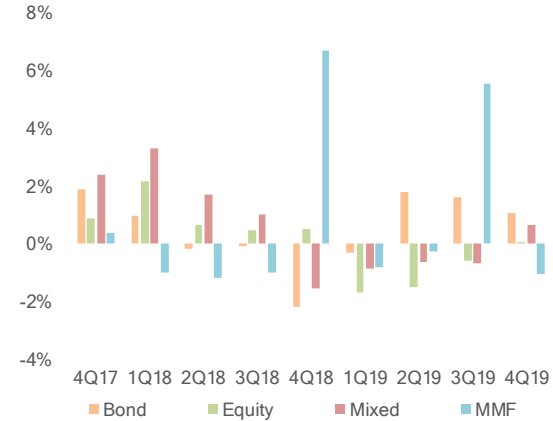


Note: AuM of EA funds by fund type, EUR tn. HF=Hedge funds.
Sources: ECB, ESMA.

T.38

Fund flows by fund type

Flows relatively stronger in fixed income funds

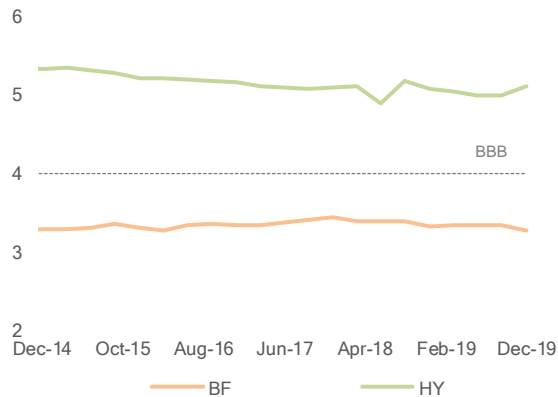


Note: EU-domiciled funds' quarterly flows, in % of NAV.
Sources: Refinitiv Lipper, ESMA.

T.39

Credit risk

Risk stable for IG and HY bond funds

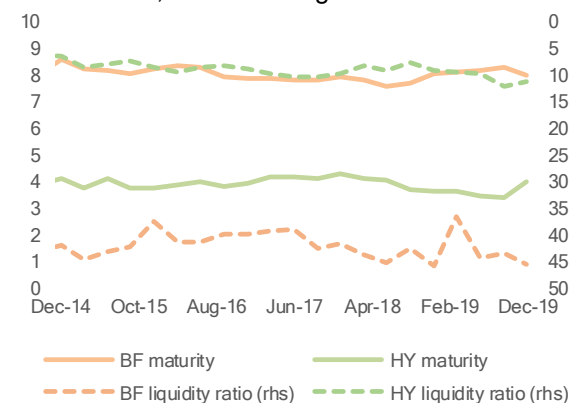


Note: Average credit quality (S&P ratings; 1=AAA; 4=BBB; 10=D).
Sources: Refinitiv Lipper, ESMA.

T.40

Maturity and liquidity risk profile

Risks stable, albeit at a high level for HY

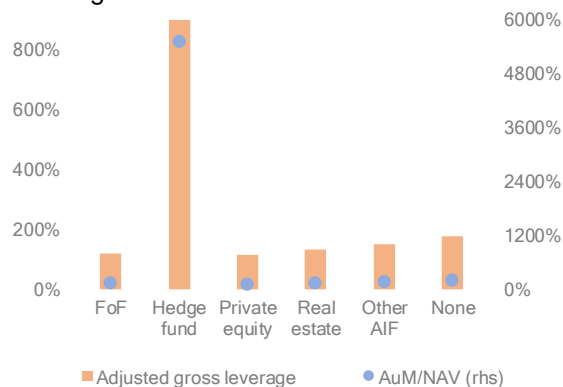


Note: Effective average maturity of fund assets in years; ESMA liquidity ratio (rhs, in reverse order); BF = bond funds excluding high-yield funds.
Sources: Refinitiv Lipper, ESMA.

T.41

AIF leverage

Leverage concentrated in HF

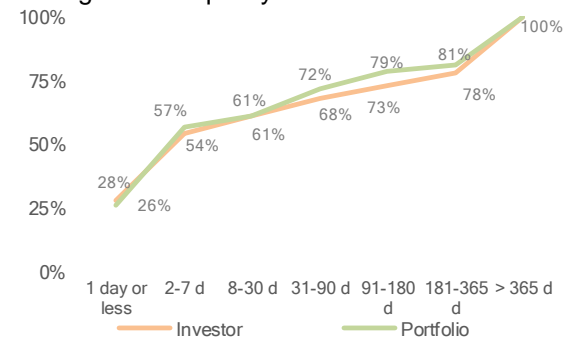


Note: Adjusted gross leverage of AIFs managed and/or marketed by authorised EU AIFMs, end of 2018, in % of NAV. Adjusted gross leverage does not include IRDs. FoF= Fund of funds, None=No predominant type. Data for 25 EEA countries.
Sources: AIFMD database, National competent authorities, ESMA.

T.42

AIF liquidity profile

No significant liquidity mismatches



Note: Portfolio and investor liquidity profiles of AIFs managed and/or marketed by authorised EU AIFMs, end of 2018. Portfolio profile determined by percentage of the funds' portfolios capable of being liquidated within each specified period, investor liquidity profile depends on shortest period within each fund could be withdrawn or investors could receive redemption payments. EU and non-EU AIFs by authorised EU AIFMs marketed, respectively, with and without passport. d=Days. Data for 25 EEA countries.
Sources: AIFMD database, National Competent Authorities, ESMA.

In terms of **geographical focus**, the bulk of bond flows was invested globally, i.e. geographically diversified (EUR 64bn), with EU-focused (EUR 17bn) and US-focused funds (EUR 12bn) also attracting significant flows. In a Brexit context, UK-focused funds attracted positive flows (EUR 5bn). Within the equity fund sector, most funds focusing on a specific country or geographical area faced outflows, up to EUR -21bn for EU-focused funds. In contrast, equity funds allocated globally recorded significant inflows (EUR 42bn), indicating a preference for geographical diversification.

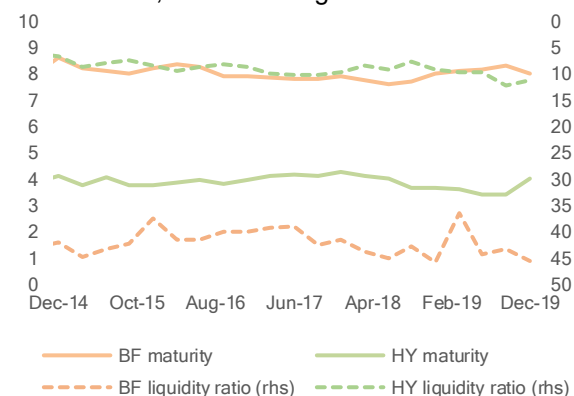
The total **assets under management** of investment funds continued to increase in the EA, up to EUR 15.2tn in 3Q19, driven by positive valuation effects related to the performance of the underlying markets (T.37). Equity, bond and mixed funds represent 74% of the sector, ahead of MMFs (8%) real estate (6%) and hedge funds (4%).

High-yield bond funds: high-risk exposures

The diverse investment strategies of bond funds expose them differently to **liquidity, credit and interest rate risks**. Investment grade bond funds invest in assets bearing low interest and having a long duration, thus exposing them to interest rate risk. However, the stability of the effective maturity of their assets in 2H19, at 8.0 years, and the expectation of a low-for-long interest rate environment currently limit this risk. In terms of liquidity, bond funds mostly invest in highly rated liquid assets are thus only moderately exposed to liquidity risk, as reflected in ESMA's bond fund liquidity indicator (T.43). Finally, ESMA assessed the potential impact of a rating downgrade of their assets, forcing them to rebalance their portfolios. The direct impact would moderately affect fund performance with no significant performance-driven outflows. Similarly, asset sales from bond funds in response to the shock would only have a limited and non-systemic impact on asset prices. However, it also shows that in this scenario EU bond funds could amplify shocks coming from non-European passive funds such as ETFs.¹⁶

T.43

Bond and HY fund liquidity and maturity profile
Risks stable, albeit at a high level for HY



Note: Effective average maturity of fund assets in years; ESMA liquidity ratio (rhs, in reverse order); BF: bond funds excluding high yield funds.
Sources: Thomson Reuters Lipper, ESMA

High yield (HY) bond funds display a higher risk profile because they are more exposed to credit and liquidity risk. This was evidenced in the stress simulation exercise published by ESMA,¹⁷ which showed that, under severe but plausible assumptions, up to 40% of HY bond funds could experience a liquidity shortfall, i.e. a situation in which their holdings of liquid assets alone would not suffice to cover the redemptions assumed in the shock scenario, so recourse to less liquid assets would be needed. However, this simulation exercise assesses fund resilience before the potential use of liquidity management tools, which should mitigate the impact of such a scenario. Also, over the reporting period liquidity risk was stable, albeit at a high level, as reflected in ESMA's liquidity indicator. Similarly, the average credit quality of their portfolios was stable.

Money market funds: surge in LVNAV

While **money market funds** recorded significant inflows in 2H19, investors showed a preference for low-volatility net asset value (LVNAV) funds which attracted nearly EUR 51bn in 2H19, ahead of flows into constant net asset value (CNAV) MMFs (EUR 16bn). In contrast, variable net asset value (VNAV) funds experienced outflows (EUR 8bn). LVNAV funds offer more price

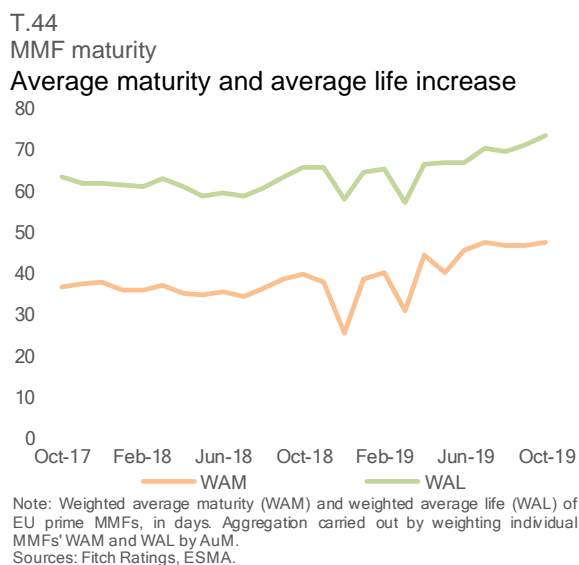
¹⁶ See the risk analysis article, 'EU funds risk exposure to potential bond downgrades', below.

¹⁷ [ESMA, Stress simulation for investment funds, 2019.](#)

stability than VNAV funds and are less constrained than CNAV funds in their investment policy, which explains their popularity. They represent 46% of EU MMFs before VNAV (41%) and CNAV funds (8%).¹⁸ MMF flows are generally relatively strong compared with other fund categories (5% of MMF NAV in 2H19) because corporate investors use them not only for investment purposes, but also to manage liquidity. Looking at the allocation by currency, no Brexit impact could be observed yet as investors increased their position in sterling MMFs (EUR 18bn) and US dollar MMFs (EUR 52bn). In contrast, euro MMFs had net outflows over the reporting period (EUR -14bn).

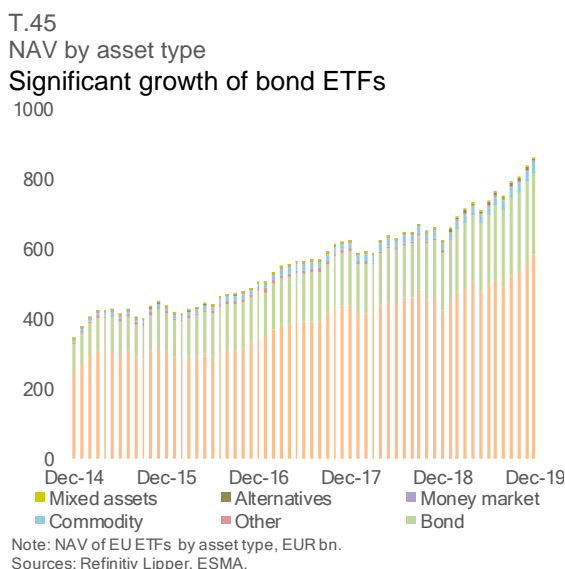
The low interest rate environment remains challenging for euro-denominated MMFs, which recorded a slightly negative performance (-0.2% in 2019). CNAV funds are particularly affected, as they can only invest in short-term sovereign debt. However, most CNAV funds are now denominated in US dollars. They benefit from higher yields, especially in a context of a flattening yield curve. They are also exposed to foreign exchange movements of the US dollar against the EUR. Overall, dollar-denominated MMFs displayed a significantly higher performance than euro-denominated MMFs (3.6%).

MMFs' **liquidity** was stable but their weighted average **maturity** increased noticeably, from 67 to 73 days (T.44).



ETFs: growth in bond ETFs

The substantial growth of EU ETFs in 2H19 (EUR 860bn; +17%) was driven by **inflows** into bond (EUR 24bn) and equity ETFs (EUR 28bn) and valuation effects (T.45). The contribution of bond ETFs to the growth of the sector is a relatively recent development, because ETF growth to date has been largely driven by equity ETFs. In addition, equity ETFs experienced a large sell-off in August (EUR -12bn) before recovering. ETFs of one asset manager faced particularly strong outflows during the equity ETF sell-off episode. This raised concerns about potential information spillover between the asset manager and its funds, amid speculation that the asset manager might be sold by its parent company. Equity ETFs represent 68% of all ETFs in terms of NAV, while bond ETFs represent 28%.



Alternative funds: leverage mainly in hedge funds

Based on data from AIFMD reporting requirements, the **AIF** industry NAV was EUR 5.9tn at the end of 2018, up from EUR 5.3tn in 2017. This increase reflects flows and valuation effects, but also better data coverage. While funds of funds accounted for 14% of the NAV of EU AIFs, and real estate accounted for 12%, most AIFs (62% in terms of NAV) belonged to a range of diverse strategies, with fixed income

¹⁸ This category is unknown for 6% of MMFs.

and equity strategies accounting for more than 40% of NAV.

AIFs following a **hedge fund** strategy represent only EUR 333bn in terms of NAV (T.37). In addition, some UCITS follow strategies aiming at achieving absolute returns under all market conditions (classified by the ECB ¹⁹ as hedge funds; EUR 183bn in the EA), and are subject to leverage or value-at-risk limits.

The use of **leverage** by AIFs appears to be limited, with the notable exception of hedge funds (T.41). While the gross leverage of hedge funds is very high but stable, adjusted gross leverage (adjusted for interest rate derivatives) significantly increased, up to 10.5 times their NAV (+43%). This also reflects better coverage of the industry, with newly added funds reporting particularly high leverage values.

Overall, **liquidity risks** in AIFs appear to be contained, despite signs of potential liquidity risks in the short term (T.42). However, some real estate funds pose significant liquidity risks for their investors, as the liquidity offered to investors is greater than the liquidity of their assets. This was illustrated by a decision of a large UK property fund to suspend redemptions in 4Q19 after receiving large redemption requests amid poor performance and ongoing Brexit concerns. As with the suspension of several UK property funds after the Brexit vote in 2016, this highlighted the liquidity mismatch of an open-ended real estate fund offering daily liquidity to investors, including retail. However, the general level of liquidity mismatch reduced overall in 2018, with 22% of investors able to reclaim their holdings within 7 days (compared with 31% in 2017) and 6% of real estate assets capable of being liquidated within this period (compared with 5% in 2017).

Market trends and risk

Consumers

Trends

Sentiment among retail investors fell to a five-year low in 3Q19 against a backdrop of geopolitical uncertainty and a deteriorating economic outlook, before recovering somewhat in late 2019. Overall, retail investors remained cautious, predominantly allocating savings into bank deposits. As market risks increasingly deter retail investors, capital market participation – an important long-term objective – is weakened. Gross performance for UCITS in the EU improved significantly in late 2019. On average, net performance was higher for passive funds and ETFs than for active funds, with gross returns similar for active and passive funds, but costs much higher for active funds than for passive funds and ETFs. Complaints in relation to financial instruments remained steady.

Risk status

Risk level 

Outlook 

Risk drivers

- Shorter term: market risk driven by geopolitical and event risks, especially trade tensions and subdued economic outlook
- Longer term: low participation in long-term investments, linked to a lack of financial literacy and limited transparency around some products

Consumers adopt cautious stance

EU households held around EUR 37tn of financial assets in 2Q19, up from 4Q18 and in line with a recovery in asset values (T.46). **Household financial liabilities** remained at around EUR 10.8tn, implying an increase in the household asset-to-liability ratio from 4Q18 to 2Q19 (A.153).

The weakening economic outlook combined with political uncertainty led **retail investors to adopt a cautious stance**. In a context of lower disposable income growth (2.3% in 2Q19), (A.149), the household savings ratio increased to 13% in 2Q19, 1ppt higher than a year earlier and above its 5-year average of at around 12% (A.150). Sentiment among retail investors regarding current and future market conditions fell to a 5-year low in 3Q19, before picking up at the end of 2019 in line with a broader increase in market values (T.47).

The distribution of **household financial assets** across classes remained broadly stable (T.46, A.154). Notwithstanding the very low returns on savings, currency and deposits remain the main household investment at around 30% of total

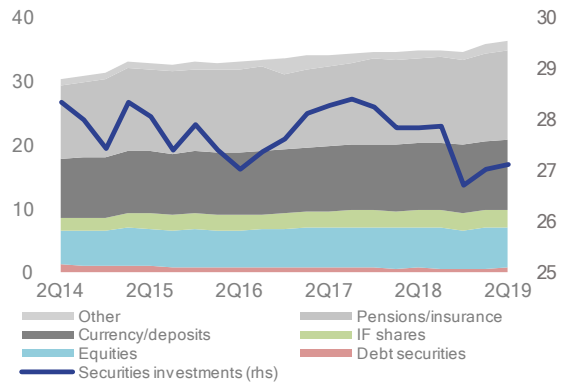
financial assets. Investment fund shares, equity and insurance were respectively 8%, 17% and 18% of total investments. Over 1H19, households continued to channel savings towards bank deposits. Investment in riskier assets, such as equities, remained subdued. This caution reflected weak investor sentiment, which remained low, even with the recovery in late 2019.

Net flows into deposits by households reached their highest share of disposable income in 10 years, while quarterly net flows by households into equities were negative for the first time in 8 years. Net flows into debt securities were also negative, but close to zero as a share of household income (A.156).

The **distribution of products to consumers** varies geographically. In some EU countries, for example, investment distribution is focused on traditional banking channels (e.g. DE, IT) while in others (e.g. NL, SE) distribution is more market-based. Reasons for this heterogeneity between countries may include differences in consumer preferences, industry and regulatory differences, different cost treatments, and variability in investor risk aversion, trust and financial literacy.

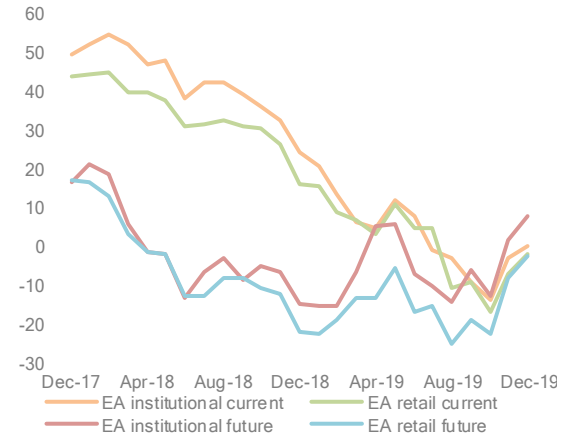
Key indicators

T.46 Household financial assets
Securities holdings picking up, still at low levels



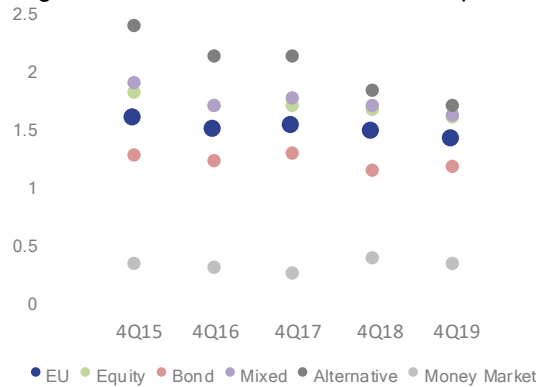
Note: Financial assets of EU households, EUR tn, and growth in debt securities, equity and IF shares held by EU households, right-hand axis, %. IF shares= investment fund shares; Insurance = Non-life insurance reserves, provisions for calls under standardised guarantees, life insurance and annuities. Other = Other accounts receivable/payable and derivatives. Sources: Eurostat, ESMA.

T.47 Market sentiment
Sentiment fell to a 5-year low before picking up



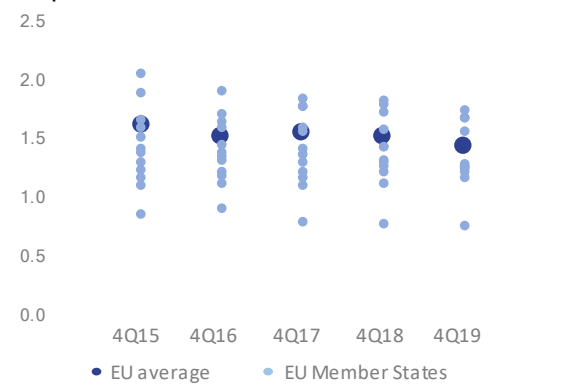
Note: Sentix Sentiment Indicators for the EA retail and institutional investors on a ten-year horizon. The zero benchmark is a risk-neutral position. Sources: Refinitiv Datastream, ESMA.

T.48 UCITS total cost dispersion by asset class
Slight decline in costs and reduced dispersion



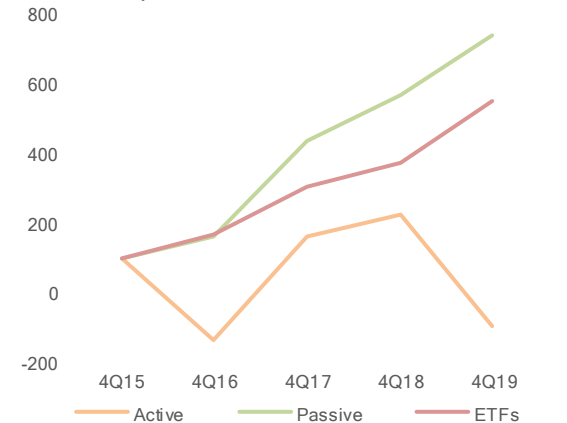
Note: Dispersion of total costs (ongoing costs, subscription and redemption fees) of UCITS funds, computed as the difference between gross and net returns, per asset class, retail investors, %. Sources: Refinitiv Lipper, ESMA.

T.49 UCITS total cost dispersion by country
Dispersion reduced in 2019



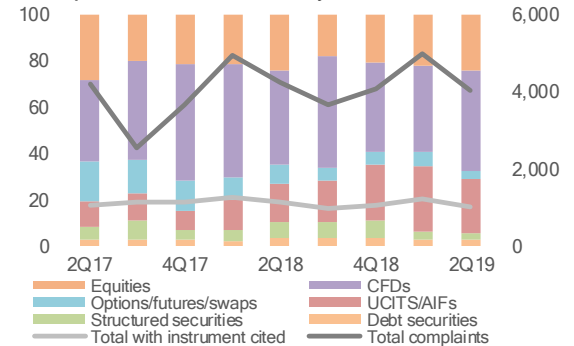
Note: Dispersion of total costs (ongoing costs, subscription and redemption fees) of UCITS funds, computed as the difference between gross and net returns, by country, retail investors, %. Sources: Refinitiv Lipper, ESMA.

T.50 Cumulative net flows equity UCITS
Growth for passive and ETFs



Note: EU-domiciled equity UCITS by management type, active, passive and ETFs. Cumulative net flows. 4Q15=100. Sources: Refinitiv Lipper, ESMA.

T.51 Complaints by financial instrument
Complaint volumes steady



Note: Share of complaints from quarterly-reporting NCAs (n = 17) received direct from consumer and via firms by type of financial instrument, where none of the instruments listed was reported. Total with instrument cited = number of complaints via these reporting channels excluding those with instrument type not reported or reported as other or N/A. Total complaints = number of complaints via these reporting channels whether or not further categorisation possible. CFDs = contracts for differences. Sources: ESMA complaints database

Retail funds: lower cost dispersion

With more than EUR 6tn of NAV, UCITS represent the largest **retail investment fund** segment in the EU (retail AIF investment was around EUR 900bn in 2018). In the UCITS universe, according to our sample based on Refinitiv Lipper, retail investors focused mainly on equity, bond and mixed funds (over 90% of total retail investment in UCITS). Retail investments in UCITS money market funds and in UCITS with alternative strategies remain marginal.

In 4Q19, in a context of increases across asset classes, retail investors benefited from higher annual gross **performance of funds** (around 28%, 9% and 14%, for equity, bond and mixed funds respectively; A.164). Total costs have hovered around 1.7% since 4Q16, and declined slightly in 4Q19 to 1.6% (T.48).

In 4Q19, annual net performance was around 26% for equity, 7% for bonds and 12% for mixed funds. However, there was more dispersion of returns across countries than in 1H19 (A.160). This may reflect recurring episodes of volatility that characterised markets in 2H19. Variability persists between countries, in terms of both performance and total cost levels. However, in the last year the degree of dispersion of total costs reduced (T.49). The countries reporting lower or higher costs remained the same over time.

There is a large difference in **cost by management type** between actively managed equity UCITS on the one hand and passively managed UCITS and ETFs on the other. At the EU level, average total costs for actively managed funds exceeded 1.5%, compared with

around 0.4% and 0.6% for passively managed funds and ETFs respectively (A.167). As a result, for an investment of a one-year horizon, passive equity funds (12%) and ETFs (10%) outperformed active equity funds (9%) after costs.

The shares of passive equity UCITS and ETFs continued to grow, to 11% and 18% respectively at the end of 2019, up from 10% and 15% in 2018. Active equity funds account for 71% of total equity UCITS investment (A.157). This shift is demonstrated by the significant positive **cumulative net flows** for passively managed equity UCITS and ETFs and cumulative outflows for actively managed funds (T.50).

Consumer complaints: overall volumes steady

Among NCAs reporting data quarterly, **complaints** in connection with financial instruments remained steady (T.51). Interpreting trends here requires an understanding not only of recent events but also of data limitations and heterogeneity. Elevated levels of complaints around contracts for differences (CFDs) persisted in 2Q19, although importantly the data are a lagging indicator. The sample also excludes some major retail CFD markets (e.g. NL, PL) and only a limited number of complaints can be categorised by financial instrument. Complaints concerning debt securities rose slightly but remained well below 2Q17 levels, in line with lower household purchases of bonds in recent quarters (A.156). The most common MiFID service associated with complaints in 2Q19 was the execution of orders (21%). Leading causes were poor information (15%) and fees/charges (12%) (A.169-A.173).

Structural developments

Market-based finance

Trends

The proportion of capital markets in non-financial corporate financing continued to grow, albeit at a slower pace than the last few years. Equity issuance declined, but non-financial corporate debt issuance proved more resilient and securitisation markets began to show some signs of revival. Private-equity financing increased in 2018 driven mainly by an increase in buyouts. SMEs rely almost entirely on banks as a source of external financing, reflecting in part low liquidity in the secondary market for SME shares. Market-based credit intermediation increased further in 2019. This was especially the case for non-bank wholesale funding, where OFI deposits and securitised assets grew substantially, with both contributing to banking sector funding.

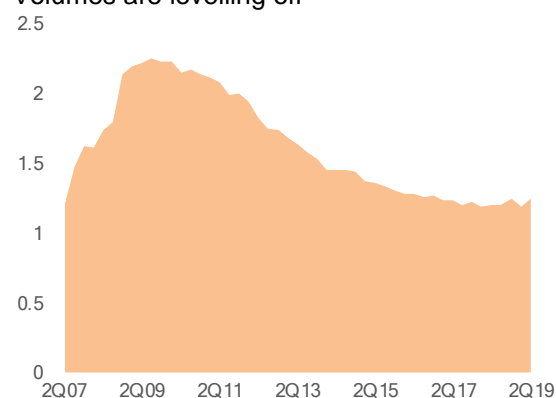
Corporate financing

Following a steep decline in 4Q18, there was a return to growth in **market financing** of EA non-financial corporations (NFCs), at around 1.5% from a year earlier (T.53). This was driven mainly by unlisted shares, with EUR 15.2tn outstanding in 2Q19, equivalent to almost 40% of total NFC financing in 2Q19. Bank lending to corporates remained stable at EUR 10.9tn but continued to fall in total NFC financing terms, down to 28% of the total (from 36% a decade ago).

Overall **securities markets issuance** declined in 2019. Equity issuance was down less than 20% year-to-date, primarily driven by a steep decline in financial sector issuance (T.54). The average number of initial public offerings (IPOs) per quarter also decreased by 10%. Corporate bond issuance was more resilient, with outstanding amounts up 3.5% from a year earlier (T.55), reflecting very robust non-financial sector debt issuance (+42% in 2019).

After years of decline, when **securitisation** markets shrank by over 50%, there were some signs of revival in 2019. According to industry statistics, gross issuance was EUR 61bn in 2Q19 (T.56), while outstanding volumes increased 4% from a year earlier, to EUR 1.25tn (T.52).

T.52
Securitised products outstanding
Volumes are levelling off



Note: Issuance, EUR bn, and outstanding amount, EUR tn, of securitised products in Europe (including ABS, CDO, MBS, SME, WBS), retained and placed.
Sources: AFME, ESMA.

Residential mortgage-backed securities (RMBS) still accounted for two thirds of the gross amounts issued in 2019, and around half of the total outstanding. In contrast, collateralised debt obligations (CDOs) and collateralised loan obligations (CLOs) remained small in share (about 10%) but were the fastest-growing collateral type, with a 16.5% increase to 2Q19 from a year earlier. CLO growth eases NFCs' financing through securitisation, but loose underwriting standards and model uncertainty remain sources of concern.²⁰

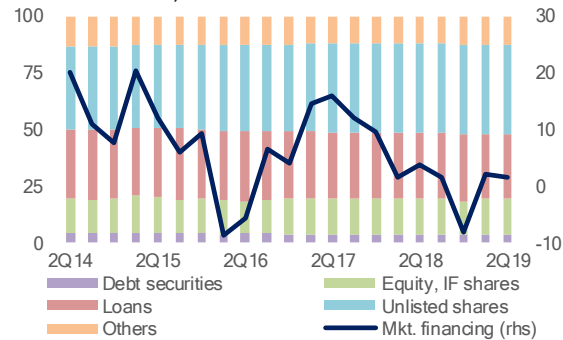
²⁰ See Bouveret, A., S. Canto and E. Colesnic, 'Leverage loans, CLOs – trends and risks', ESMA Report on Trends,

Key indicators

T.53

Market financing

Growth stable, unlisted shares increase

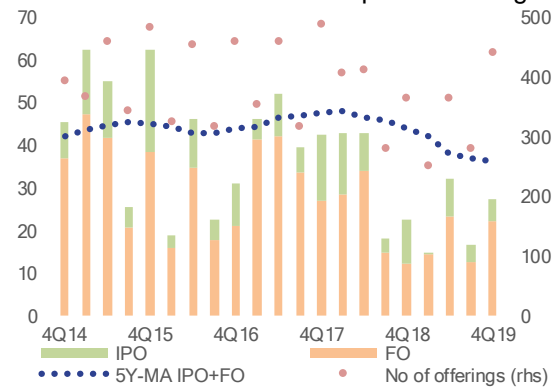


Note: Liabilities of non-financial corporations (NFCs), by debt type as a share of total liabilities. Others include financial derivatives and employee stock options; insurance, pensions and standardised guarantee schemes; trade credits and advances of NFCs; other accounts receivable/payable. Mkt. financing (rhs)= annual growth rate in debt securities, equity and investment fund (IF) shares, in %.
Sources: ECB, ESMA.

T.54

Equity issuance

Decline in volumes and initial public offerings

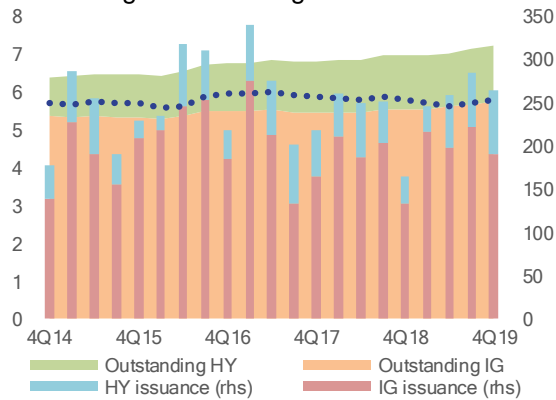


Note: EU equity issuance by type, EUR bn, and number of equity offerings. IPO = initial public offering, FO = follow-on offering. 5Y-MA=five-year moving average of the total value of equity offerings.
Sources: Refinitiv EIKON, ESMA.

T.55

Corporate bond issuance and outstanding

Issuance growth levelling off

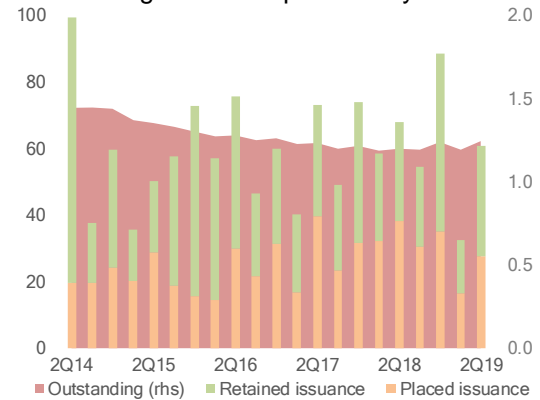


Note: Quarterly investment-grade (rating \geq BBB-) and high-yield (rating < BBB-) corporate bond issuance in the EU (rhs), EUR bn, and outstanding amounts, EUR tn.
Sources: Refinitiv EIKON, ESMA.

T.56

Securitised products issuance and outstanding

Outstanding volumes up 4% in 1 year

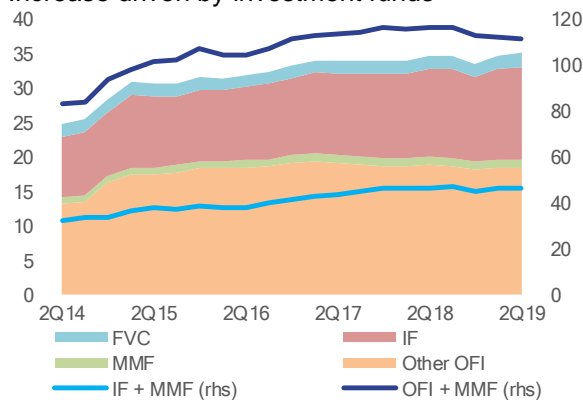


Note: Issuance, EUR bn, and outstanding amount, EUR tn, of securitised products in Europe, retained and placed.
Sources: AFME, ESMA.

T.57

MMFs and other financial institutions

Increase driven by investment funds

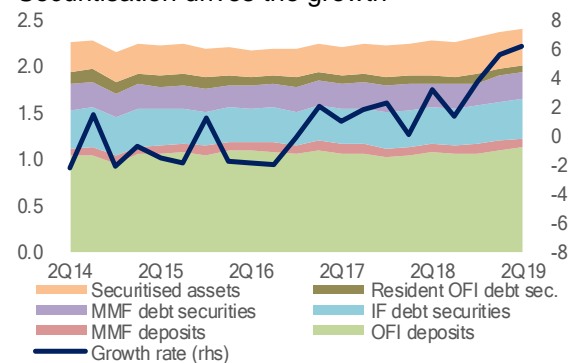


Note: Total assets for EA MMF and other financial institutions (OFI): investment funds (IF), financial vehicle corporations (FVC), Other OFI estimated with ECB quarterly sector accounts, in EUR tn. Expressed in % of bank assets on rhs.
Sources: ECB, ESMA.

T.58

Non-bank wholesale funding

Securitisation drives the growth



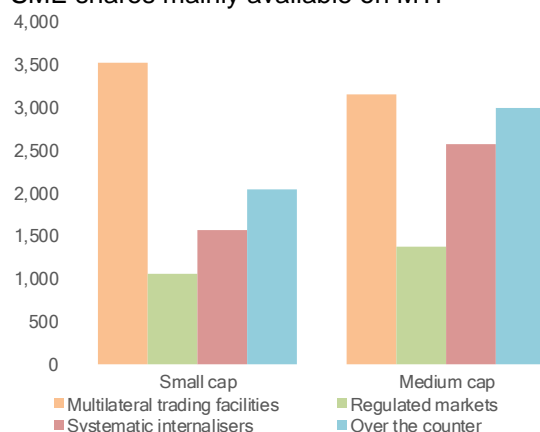
Note: Amount of wholesale funding provided by EA non-banks, EUR tn, and growth rate (rhs), in %. Securitised assets are net of retained securitisations. Resident OFI reflects the difference between the total financial sector and the known sub-sectors within the statistical financial accounts (i.e. assets from banking sector, insurances, pension funds, financial vehicle corporations, investment funds and money market funds).
Sources: ECB, ESMA.

In 2018, total investments by **private equity** firms amounted to EUR 81bn, up 7% from 2017. This was almost entirely driven by buyout investments (up 10% to EUR 59bn), while venture capital investment rose 13% to EUR 8bn with growth exclusively concentrated in European start-ups (EUR 5bn).²¹ Most private equity market activity took place within European borders. EUR 51bn was invested domestically and EUR 25bn invested cross-border within Europe.

SMEs: limited use of capital markets

According to the 2018 EU survey on the access to finance by enterprises, only 12% of EU small and medium enterprises (SMEs) rely on equity markets as a **source of financing**.²² The relevance of debt capital markets is even more limited, with only 4% of firms relying on them. Instead, SMEs rely overwhelmingly on banks as a source of external financing, through, for example, credit lines or bank loans. As part of the CMU agenda, the European Commission introduced in MiFID II/MiFIR the concept of the ‘SME growth market’, which provides for a lighter reporting burden and reduced compliance costs. Operators of MTFs can apply for MTFs or MTF segments to be registered as an SME growth market provided that 50% of the issuers with shares available for trading on the relevant segment have a market capitalisation of less than EUR 200mn.²³ However, there were only 9 MTFs with this status as of December 2019, out of 224 registered MTFs.

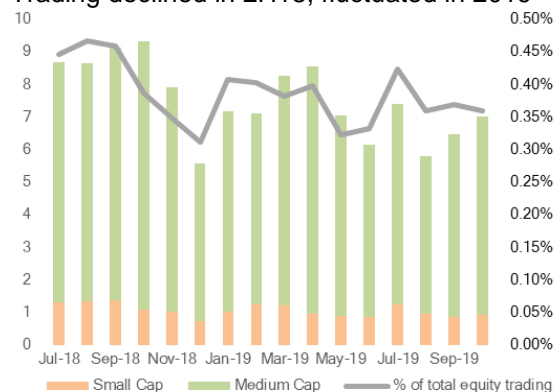
T.59
Number of SME issuers by market type
SME shares mainly available on MTF



Note: Number of SMEs that have issued shares publicly available for trading in the EU, by market type. Shares may be available for trading on more than one market type. SME categories based on market capitalisation. Small cap = less than EUR 20mn; Medium cap = from EUR 20 mn to 200mn.
Sources: FIRDS, FITRS, ESMA.

Transparency data reported by EU trading venues under MiFID II show that as of 2H19 slightly fewer than 8,000 SMEs had issued shares publicly available for trading in the EU.²⁴ SME shares were mainly available for trading on MTFs, with more than half also available on regulated markets or systematic internalisers (T.60).

T.60
Monthly trading volumes of SME shares
Trading declined in 2H18, fluctuated in 2019



Note: Monthly trading volumes of small and medium enterprises that have issued shares publicly available for trading in the EU (lhs in EUR bn). Trading in SME shares as % of total (rhs). SME categories based on market capitalisation: small cap = less than EUR 20mn; medium cap = from EUR 20mn to 200mn.
Sources: FIRDS, FITRS, ESMA.

²¹ Invest Europe, ‘2018 European Private Equity Activity’.

²² See EU Survey on the Access to Finance of Enterprises (SAFE).

²³ Alternatively, for issuers that have no equity traded on any trading venue, the nominal value of debt issuances over the previous calendar year should not exceed EUR 50mn. The full set of conditions to be met is included in Article

33 of MiFID II.

²⁴ In our methodology, the classification of SME issuers here is based on market capitalisation reported in 2018. Only share issuers with a valid LEI for which the market capitalisation meets the relevant MiFID II conditions have been considered SMEs here, so this estimate may understate the actual number of SME issuers.

One major challenge faced by SME issuers is the lack of **secondary market liquidity**. In 2H19, about 72% of SME shares were traded at least once a month, compared with, for example, 95% of companies with a market cap larger than EUR 2bn.

In 2H18, volumes traded by SMEs declined, reflecting market downswings during the same period. The trade pattern recovered during 2H19, keeping a relatively stable development over the rest of the year. Trading volumes in SME shares averaged around EUR 9bn per month. As part of this, the combined trading volumes of the nine SME growth markets that were active before the end of 2019 averaged slightly less than EUR 1.2bn per month. Overall, SME trading volumes correspond to marginally less than 0.5% of total equity trading in the EU (T.60).

Market-based credit intermediation

MMFs, investment funds, financial vehicle corporations (FVC) and other **other financial**

institutions (other OFIs) represent a wide range of institutions that can potentially engage in credit intermediation, liquidity and maturity transformation. In 2Q19 this group accounted for EUR35tn in total assets, which was stable compared with 2018. Other OFIs represent 52% of this group (T.57). These are challenging to monitor, as they have varying levels of engagement in credit intermediation.

Non-bank financial entities are an important source of **wholesale funding** for the banking sector, which increased in 2019 across funding sources (5.7% year on year) (T.58). This was primarily driven by the rise of OFI deposits (5.2%) and the substantial increase in net securitisation (12.8%). While this contributes to the diversification of bank funding, it also highlights, from a financial stability perspective, the importance of the new rules on securitisation in promoting a safe, simple and transparent securitisation market.

Structural developments

Sustainable finance

Trends

Incorporating sustainability considerations into investment strategies and business decisions has accelerated in the past few years. This is reflected in the steady increase in green bond issuance (reaching EUR 270bn outstanding in December 2019) and in the growing integration of ESG assets into investors' portfolios. Green bonds from private-sector issuers are still a small proportion of the broader corporate bond market in the EU (2%), though. In equities, there is evidence that ESG-oriented assets have outperformed conventional shares in the last two years. Barriers to ESG investment remain, however, with a lack of standardised information and risks of greenwashing.

Environmental, social and governance investments

Sustainable finance²⁵ incorporates a large array of environmental, social and governance (ESG) principles that can have a material impact on firms' corporate performance and risk profile, and on the stability of the financial system. **Investor interest** in sustainable finance has continued to rise: investors are increasingly integrating ESG assets into their portfolios and are considering ESG factors alongside traditional financial factors in their investment decision-making processes. Climate change features prominently among ESG issues (Box T.61).

The **drivers of demand** for ESG investment are varied. Some seek to maximise a social outcome while others focus on identifying ESG issues to reduce risks (for example excluding companies or sectors with low ESG ratings from portfolios) or to detect undervalued opportunities. While

T.61

ESG illustrative scope

Broad range of issues, with prominent role for climate change

	Key topics
Environment	Climate change Pollution and waste Scarcity of natural resources
Social	Labour policies and human capital Health and safety Product responsibility Housing
Governance	Corporate governance Business ethics Corruption and rule of law

NB: Indicative scope of ESG factors. This table is not intended to provide a comprehensive list of areas that fall within the scope of ESG.

Source: ESMA

performance remains the main driver for most investments, willingness to invest sustainably increasingly drives investors' considerations.

²⁵ Sustainable finance is the financing of investments that take ESG considerations into account. ESG does not refer to a single asset class but is transversal in that it can be applied to any asset class. See:

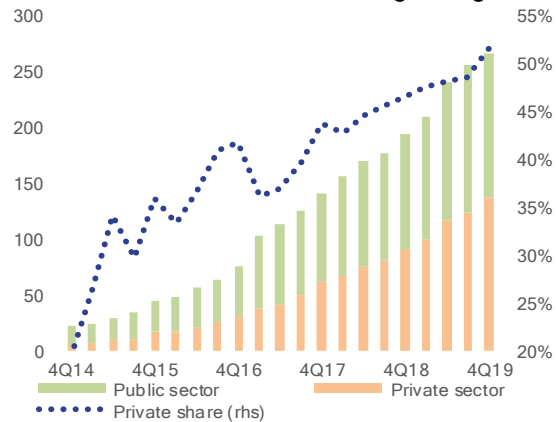
https://ec.europa.eu/info/business-economy-euro/banking-and-finance/green-finance_en

Key indicators

T.62

Green bonds outstanding

Private-sector issuance share is growing



Note: Net cumulative green bond issuance in the EU by issuer type, EUR bn, and private sector share (right axis), in %.
Sources: Climate Bonds Initiative, Refinitiv EIKON, ESMA.

T.63

Credit rating quality by issuer type

75% of green bonds rated A or higher

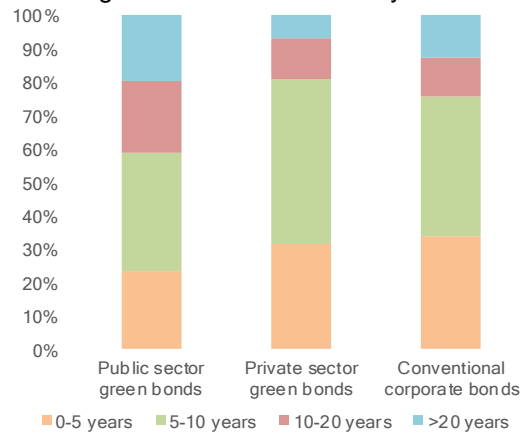


Note: Green bonds outstanding in the EU, by credit rating and issuer sector, EUR bn.
Sources: Climate Bonds Initiative, Refinitiv EIKON, ESMA.

T.64

Green bond maturity buckets

80% of green bonds with maturity under 10 years

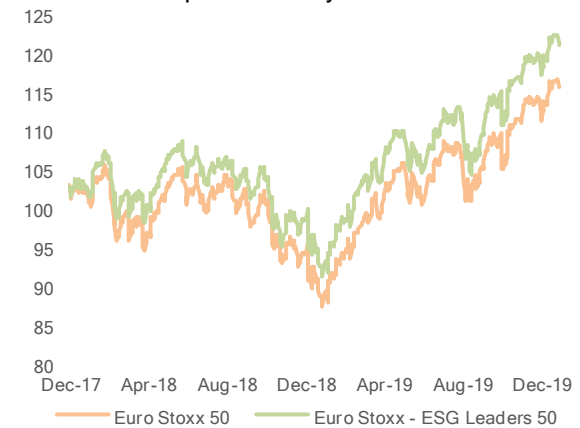


Note: Distribution of green bonds and corporate bonds outstanding in the EU by maturity bucket, in %.
Sources: Climate Bonds Initiative, Refinitiv EIKON, ESMA.

T.65

Euro area ESG stock indices

ESG index outperforms key benchmark

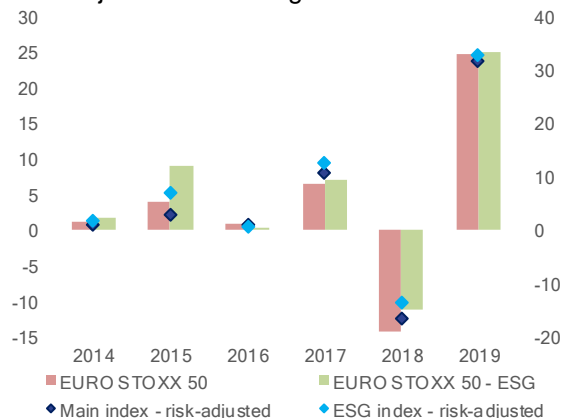


Note: Euro Stoxx 50 ESG leaders and general indices, indexed with 01/12/2017=100.
Sources: Refinitiv Datastream, ESMA.

T.66

ESG index risk-adjusted returns

Risk-adjusted returns higher for ESG index

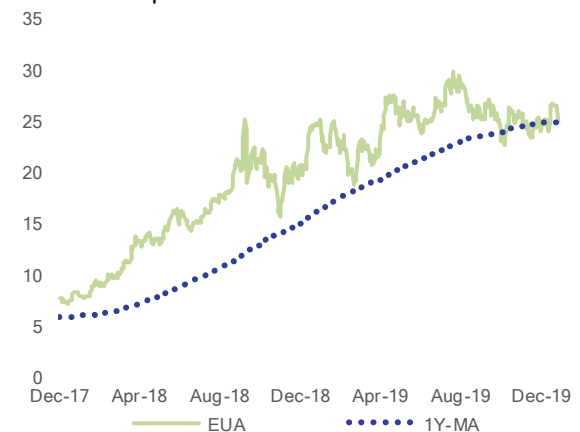


Note: Annual returns of the EURO STOXX 50 and its ESG leaders subindex, in %. Risk-adjusted returns, on rhs, measured as Sharpe ratios. Current year data year-to-date.
Sources: Refinitiv Datastream, ESMA.

T.67

Emission allowance turnover

EU carbon prices fluctuated



Note: Daily settlement price of European Emission Allowances (EUA) on European Energy Exchange spot market, in EUR/tCO2.
Sources: Refinitiv Datastream, ESMA.

Green finance

The **issuance of green bonds** in the EU is quickly rising, with EUR 21bn issued on average in each quarter of 2019, up 46% from 2018. The amount of green bonds outstanding reached EUR 271bn in December 2019. The growth of this market over the last 5 years has been driven by increased issuance from both private and public entities. Whereas issuance was historically led by very large issuances from supranational and sovereign entities, the private-sector share has increased over time and now represents 51% of the total amount of green bonds outstanding in the EU, up from 40% 2 years ago (T.62). This was mainly driven by financial-sector issuance, which has doubled over the same period. As a result, green bonds are an increasingly important segment of the bond market. The share of private-sector green bonds in the corporate bond market has increased from 0.2% in 2015 to 2% in 2019.

As regards **performance**, there is no significant evidence yet that points to outperformance or underperformance of green bonds relative to conventional bonds.²⁶

In terms of **credit quality**, around 75% of the amount of green bonds outstanding has a credit rating of A or higher (T.63). The vast majority of the highest ratings are attached to public-sector issuances. Corporations tend to issue green bonds of lower credit quality (mainly A and BBB), in line with the wider corporate bond market. Ratings are based on the credit quality assessments issued by CRAs (Box T.68).

T.68

Green bond ratings

CRAs assess creditworthiness of green bonds taking ESG factors into consideration

In issuing a credit rating for a green bond the approach of a CRA would be the same as for a non-green bond of similar type (sovereign, agency, corporate, etc.).

ESG factors may play a part in determining the credit rating; however, the requirements of the CRA Regulation mean that they can only be considered in the context of their relevance to creditworthiness. For example, a CRA will assess the creditworthiness of the instrument or issuer in line with the applicable methodology, and if according to that methodology ESG factors are relevant to the creditworthiness of

instruments or issuers in that area then they will be considered. On the other hand, if the applicable methodology does not consider ESG factors relevant to creditworthiness then they will not be considered. Either way, their consideration is always in the context of their relevance to creditworthiness and determined by the underlying methodology.

In July 2019, ESMA published guidelines to ensure that CRAs are more transparent in their press releases in the instances where ESG factors were a key driver of a credit rating.²⁷

CRA ratings should not be confused with ESG ratings (or 'sustainability' ratings) that are now provided by a number of companies (e.g. Sustainalytics and MSCI). These sustainability ratings are currently outside the scope of regulation and there are very few safeguards to ensure quality or consistency.

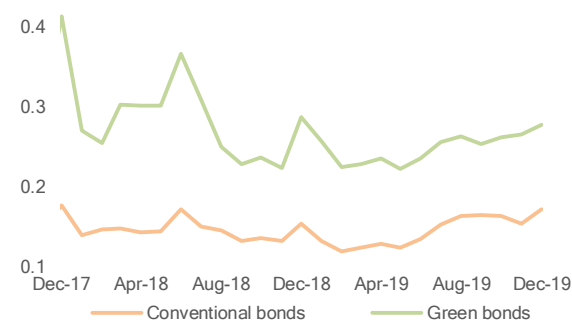
Finally, **liquidity** in secondary markets, measured by bid-ask spreads, is tighter for public sector green bonds than for comparable conventional bonds in the EU (T.69; IMF, 2019).

T.69

Public-sector bond bid-ask spreads

Tighter market liquidity for green bonds

0.5



Note: Average bid-ask spread for green bonds and other bonds issued by the same issuer traded on EuroMTS, in bps.
Sources: MTS, ESMA.

In the EU the **maturity** of private-sector green bonds is similar to that of conventional corporate bonds (T.64). About 80% of the total outstanding in 4Q19 have an original maturity of less than 10 years. Unsurprisingly, public-sector issuances tend to have longer maturities, with those over 10 years accounting for 40% of the total outstanding.

Unlike social impact bonds, whose payout to investors, usually from a government, is contingent on the success of the targeted social programme, **social bonds** are very similar in

²⁶ IMF (2019), 'Sustainable finance: Looking farther', Global Financial Stability Report, October 2019.

²⁷ See ESMA (2019), 'Final report: guidelines on disclosure requirements applicable to credit ratings'.

structure to green bonds. Their proceeds are invested in areas such as education, healthcare, housing and employment. The issuance of social bonds, while still very limited, is starting to grow.

In the **equity markets**, over the past 2 years, the ESG Leaders 50 index has outperformed the corresponding benchmark index (T.65). This supports the view that investing in ESG does not compromise returns for sustainability, but instead enhances returns within a process of better incorporating ESG factors. This also holds when considering volatility: risk-adjusted returns of ESG indices have consistently outperformed the corresponding main index benchmark (the Euro Stoxx 50) in recent years (T.66).

Important impediments to the use of ESG information include the lack of certainty on the definition of sustainable activity, the lack of reporting standards and, as a result, a lack of comparability, reliability and timeliness.²⁸ The EU taxonomy aims to improve the clarity on the criteria an economic activity must meet to qualify as positively contributing to EU sustainability objectives.²⁹

The **quality of the ESG data** and their comparability present major challenges for analysing both market developments related to ESG investment and potential risks to investors (Box T.70). The lack of standardisation can lead to greenwashing,³⁰ reputational risks and uncertainty in measuring ESG impacts.

Emissions trading

The EU emissions trading system (EU ETS) is a cornerstone of the EU's policy to combat climate change, and its key tool for reducing greenhouse gas emissions cost-effectively. MiFID II/MiFIR has established emission allowances as a category of financial instruments. Market developments in this area are directly related to Commission measures to reinforce the market stability reserve, a mechanism established in 2015 to reduce the surplus of emission

allowances in the carbon market and improve the EU ETS's resilience to future shocks.

European carbon prices surged to a peak of EUR 30 per tonne of carbon in July 2019, with emission allowance turnover growing accordingly. However, prices fluctuated in 2H19, ending the year at EUR 25 (T.67). Market observers pointed to a potential Brexit impact – possible significant increases in allowance supply from UK companies – which weighed on prices.

T.70

Financial risks from climate change
Physical risks and transition risks

There are two primary channels through which financial risks from climate change can materialise and affect the financial markets: physical risks and transition risks.

Physical risks from climate change are those arising from climate and weather-related events. Physical risks can potentially result in large financial losses, not limited to the insurance sector. For example, they can reduce the value of assets held by households, banks and investors and reduce the profitability of corporates, with a direct impact on the value of investments made by financial institutions. The size of future physical risks from climate change, at both individual firm and system levels, will be driven by several factors, including the success of actions taken to reduce greenhouse gas emissions.

Transition risks are financial risks that can result from the process of adjustment towards a lower-carbon economy (climate change mitigation and adaptation).³¹ Changes in climate policy, technology, regulation or market sentiment can drive a reassessment of the values of a large range of assets as changing costs and opportunities become evident. The speed at which such re-pricing occurs is uncertain but is important for risk assessment in financial markets.

²⁸ [Amel-Zadeh, A. and Serafeim, G. \(2018\), 'Why and how investors use ESG information: evidence from a global survey'](#).

²⁹ See the [Commission's March 2018 sustainable finance action plan](#) for more on a key action included, to establish a clear and detailed EU classification system.

³⁰ 'Greenwashing' is a practice of marketing financial products as 'green' or more generally 'sustainable', when in fact they do not meet basic environmental standards. Diverging classifications of economic activities with varying scopes and based on different criteria and metrics

leave scope for greenwashing, with a direct negative effect on the functioning of the internal market, as it undermines investor confidence in the market for sustainable investments.

³¹ Mitigation measures are taken to reduce and curb greenhouse gas emissions, while adaptation measures are based on reducing vulnerability to the effects of climate change. Mitigation, therefore, attends to the causes of climate change, while adaptation addresses its impacts.

Structural developments

Financial innovation

Trends

Developments in relation to cryptoassets, including stablecoins, continue to draw ESMA's attention due to the challenges and risks they pose. BigTech is another key area of focus, due to its potential to disrupt existing players and business models. Against the fast-moving backdrop and given the global nature of the market, cooperation among regulators is key to provide for a timely and relevant response. ESMA actively supports a convergent approach to innovation across regulators in the EU, including through the European Forum for Innovation Facilitators.

ESMA's key focus areas

In 2H19, ESMA's focus in relation to financial innovation has continued to be on cryptoassets (CAs), initial coin offerings (ICOs) and distributed ledger technology (DLT), as these are constantly evolving areas (Box T.71). In addition, machine learning (ML), artificial intelligence (AI) and Big Data applied to financial services and the use of innovative technologies for regulatory and supervisory activities (RegTech and SupTech) continue to witness interesting initiatives that deserve monitoring. Developments in the crowdfunding space remain muted but new rules should soon make it easier for platforms to operate across borders in the EU.³²

T.71

Financial innovation scoreboard

Assessment of risks and opportunities

CAs – small in size, concerns around stablecoins

CAs are mostly outside regulation and characterised by extreme price volatility, creating risks to investor protection. Most CA trading platforms are unregulated and prone to market manipulation and operational flaws. Stablecoins could raise financial stability concerns.

ICOs – no recovery in volumes

Similar to CAs above, except that some coins or tokens issued through ICOs have rights attached, e.g. profit rights, meaning that they could be less speculative over time. If properly managed, might provide a useful alternative source of funding.

DLT – some interesting experiments

DLT has the potential to improve consumer outcomes. Applications are still limited, but scalability, interoperability and cyber-resilience challenges will require monitoring as DLT develops. Risks include anonymity as well as potentially significant governance and privacy issues.

Crowdfunding – market remains muted

Crowdfunding improves access to funding for start-ups and other small businesses. The projects funded have an inherently high rate of failure. The relative anonymity of investing through a crowdfunding platform may increase the potential for fraud.

RegTech/SupTech – potential benefits

The widespread adoption of RegTech/SupTech may reduce certain risks. For example, the use of machine learning tools to monitor potential market abuse practices has the potential to promote market integrity.

AI, ML and Big Data – potential longer-term impact

The increasing adoption of AI and Big Data helps financial services companies to be more efficient and therefore may lead to cost reductions for investors. Operational risks are present, as are risks around explicability of AI-based recommendations, strategies and analysis.

Large established technology companies (BigTechs) entering into the financial services space is another focus area, given their potential to disrupt existing business models and firms.³³ A notable related development in recent years was a BigTech-operated MMF in China becoming one of the world's largest MMFs (T.72), prompting regulatory reform by the Chinese authorities.

³² <https://www.consilium.europa.eu/en/press/press-releases/2019/12/19/capital-markets-union-presidency-and-parliament-reach-preliminary-agreement-on-rules->

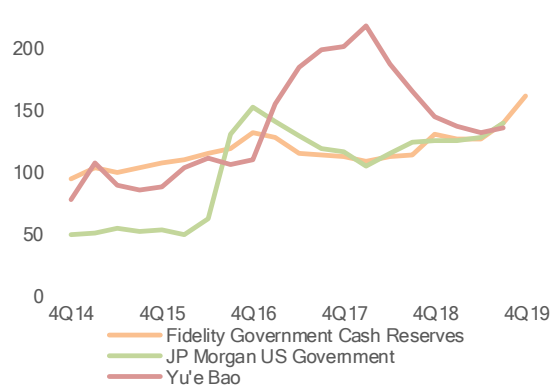
[for-crowdfunding-platforms/](#)

³³ See the section of this report on risk analysis, below, for an extended analysis of BigTech impacts.

Key indicators

T.72

Total net assets in world's largest MMFs
BigTech-provided MMF among world's largest



Note: Fund value of 3 largest MMFs as of 30 June 2019, EUR bn. Yu'e Bao = TianHong Income Box Money Market Fund.
 Sources: Morningstar Direct, ESMA.

T.73

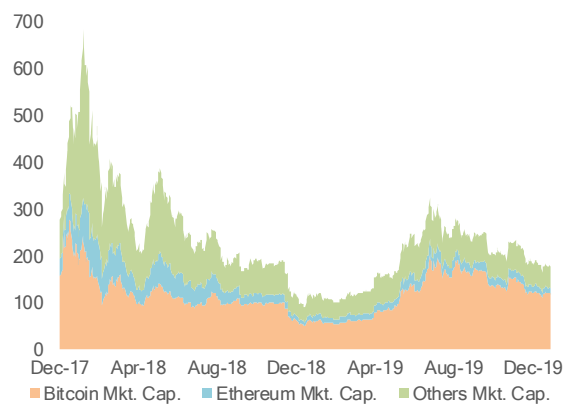
Cryptoasset prices
Valuation well below peak despite recovery



Note: Prices of selected cryptoassets, EUR thousand.
 Sources: Refinitiv Datastream, ESMA.

T.74

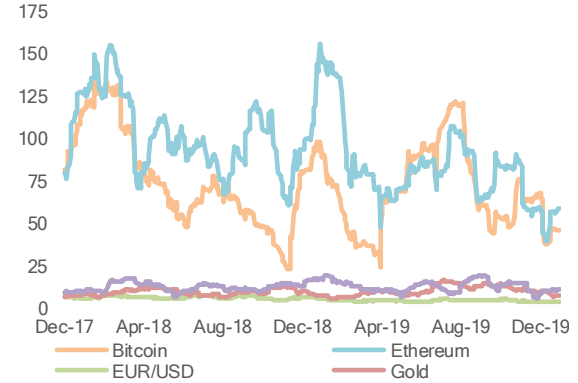
Cryptoasset market capitalisation
Bitcoin has a prominent market share



Note: Bitcoin, Ethereum and other crypto-currencies market capitalisation, in EUR bn.
 Sources: CoinMarketCap, ESMA.

T.75

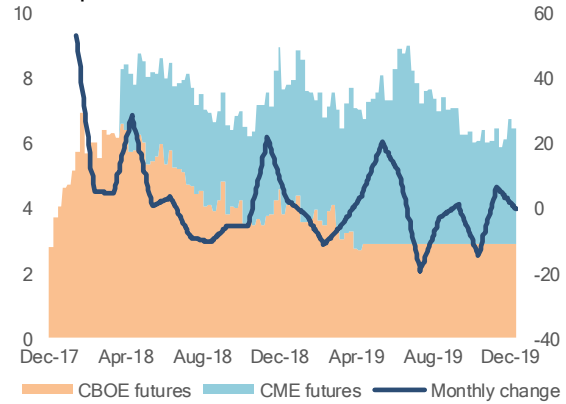
Cryptoasset volatility
Bouts of extreme volatility



Note: Annualised 30-day historical volatility of EURO STOXX 50, EUR/USD spot rate returns and USD-denominated returns for Bitcoin, Ethereum and gold, in %.
 Sources: Refinitiv Datastream, ESMA.

T.76

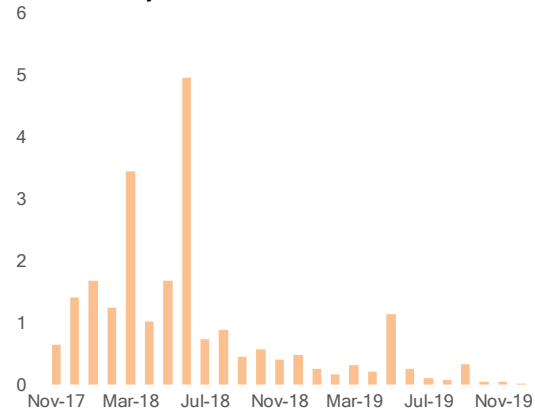
Bitcoin futures market
Low open interest in Bitcoin futures



Note: Total open interest in Bitcoin futures, in thousands of contracts, and change in monthly average total open interest, in %.
 Sources: Refinitiv Datastream, ESMA.

T.77

ICO issuances
No recovery in ICO volumes



Note: Global monthly volumes raised in ICOs in EUR bn.
 Sources: Coinschedule.com, ESMA.

T.78

European Forum for Innovation Facilitators

A framework to support innovation in the EU

In April 2019, the European Commission, together with the NCAs and the three ESAs, launched the European Forum for Innovation Facilitators (EFIF). The objective of EFIF is to promote coordination and cooperation among national innovation facilitators, i.e. innovation hubs and regulatory sandboxes, and thus foster the scaling up of innovation in the financial sector.

In September and December 2019, EFIF met to take stock of new developments in relation to innovation facilitators at national level and share views and experiences on specific topics of interest, namely DLT, CAs and stablecoins, AI and platformisation.

Innovation hubs have become common practice across the EU. Regulatory sandboxes remain less widespread. The list of innovation facilitators in the EU and further information on EFIF are available on the ESA Joint Committee website.³⁴

Cryptoassets: stablecoins raise regulatory concerns

The **market capitalisation of CAs** stood at around EUR 180bn globally at the end of December 2019, down from EUR 290bn at the end of June 2019. Despite a marked rebound since the trough of December 2018, it remains well below its peak at the beginning of 2018 (at around EUR 700bn). Bitcoin's and Ether's prices currently stand at about a third and a tenth of their respective peaks (T.73). There are more than 4,900 CAs outstanding and their number continues to grow, although at a much lower pace considering the declining number of ICOs. Yet only 10 CAs have a market capitalisation that exceeds EUR 1bn. Bitcoin continues to dominate at more than 65% of the total market capitalisation. Ether comes second, with a market share that fluctuates between 5% and 10% (T.74). These figures need to be treated with caution in the absence of extensive and reliable sources on CA data.

The price volatility of Bitcoin and Ether has been relatively stable in 2019, at a lower level than its peak in early 2018. Yet it remains well above the volatility of traditional assets (T.75). Price correlation of Bitcoin with traditional assets shows no clear pattern. There are clear episodes of elevated correlation between Bitcoin and Ether although the relationship is not stable through time, suggesting that, while there tends to be high correlation among CAs, idiosyncratic risks may prevail at times.

Open interest in Bitcoin futures remains very small (T.76). The Chicago Board Options Exchange (CBOE) and the Chicago Mercantile Exchange (CME) launched cash-settled futures contracts on Bitcoin in December 2017. In June 2019, however, the CBOE put an end to its offering, meaning that cash-settled futures are currently on offer at the CME only. Meanwhile, in September 2019, the Intercontinental Exchange (ICE) launched physically settled Bitcoin futures, i.e., settled in Bitcoins and not the US dollar equivalent, on its Bakkt CA trading platform.³⁵ Investment products using CAs as underlying remain small in the EU. In the United States, the SEC is reviewing its decision to reject a Bitcoin ETF filing.³⁶ The UK FCA published a consultation paper to introduce a ban on certain derivatives on CAs.³⁷

There are also market developments in relation to **stablecoins**, including but not limited to Facebook's Libra³⁸ project, that require close monitoring, because of the risks that they could pose not only to investor protection but also to financial stability due to their potential to reach a large scale quickly. ESMA is actively cooperating with other global regulators on those matters, considering the cross-border nature of the phenomenon. There are more than 50 stablecoins outstanding, of which about half are active. Tether, which was the first stablecoin to be issued, in 2014, is the largest in size, with a market capitalisation of more than USD 4bn. Circle's stablecoin (USDC) is the second largest, with a market capitalisation of around USD 0.5bn.

³⁴ <https://esas-joint-committee.europa.eu/Pages/Activities/EFIF/European-Forum-for-Innovation-Facilitators.aspx>

³⁵ <https://www.cryptonews.com/bakkt-bitcoin-futures-contracts-went-live-on-september-23-2019/43809/>

³⁶ [https://www.federalregister.gov/documents/2019/11/18/2019-24874/self-regulatory-organizations-nyse-arca-inc-](https://www.federalregister.gov/documents/2019/11/18/2019-24874/self-regulatory-organizations-nyse-arca-inc-order-scheduling-filing-of-statements-on-review-for-an)

[order-scheduling-filing-of-statements-on-review-for-an](https://www.federalregister.gov/documents/2019/11/18/2019-24874/self-regulatory-organizations-nyse-arca-inc-order-scheduling-filing-of-statements-on-review-for-an)

³⁷ [FCA \(2019\), 'CP19/22: Restricting the sale to retail clients of investment products that reference cryptoassets'](https://www.fca.gov/press-releases/2019/11/18/cp19-22-restricting-the-sale-to-retail-clients-of-investment-products-that-reference-cryptoassets).

³⁸ For greater details on the Libra project, see [ESMA \(2019\), Report on Trends, Risks and Vulnerabilities, No 2](#).

The equivalent of EUR 2.9bn was raised globally through **ICOs** in 2019, marking a **sharp decline** relative to 2018 (EUR 19bn raised in 2018).³⁹ Issuance volumes were relatively stable over 2019 at around EUR 0.2bn per month, except for May, when there was a spike in the volumes with the EUR 0.9bn ICO of Bitfinex, a CA trading platform (T.77). Since 2013, almost EUR 26bn has been raised through ICOs but the phenomenon has lost appeal in the last year. Whereas the first year-long ICO for EOS raised a record EUR 3.6bn in 2018,⁴⁰ a second ICO by EOS attracted only EUR 2.5mn in 2019.⁴¹ Global regulators' clampdowns on ICOs have helped investors to realise the high risks associated with ICOs. In the United States, growing enforcement actions by the SEC, including in relation to fraudulent or regulatorily non-compliant ICOs, have resulted in fines of several million US dollars.⁴²

Although several DLT projects at banks and market infrastructure providers have been cancelled or postponed, **there continue to be experiments around the technology**, e.g. around the issuance and recording of traditional

securities on DLT and custodial services for digital assets. Several companies have tested DLT to automate the issuance of debt and equity within the UK FCA regulatory sandbox, with the expectation that the fixed costs and the time frames for new issuances would decrease significantly. Several new providers offering custodial-type services for CAs have entered the market, and existing providers have announced new features, such as an expansion in the assets supported. Specialised crypto firms dominate but several incumbent financial institutions are also exploring the area. Deutsche Boerse for example is building an integrated digital asset ecosystem including issuance and custody.⁴³ SIX has launched a prototype of its digital exchange and CSD, with the objective of achieving instant settlement using a distributed CSD on DLT.⁴⁴ The New York State Department of Financial Services granted Fidelity a trust licence to offer trading and custody of Bitcoin.⁴⁵ The German parliament has passed a bill that will allow banks to sell and store cryptocurrencies and will require custody providers and cryptoexchanges to apply for a licence from 2020.⁴⁶

³⁹ <https://www.coinschedule.com/stats.html>

⁴⁰ <https://www.crowdfundinsider.com/2018/06/134320-eos-raised-4-billion-in-largest-ico-ever-now-they-are-launching-their-platform/>

⁴¹ <https://www.coindesk.com/the-first-yearlong-ico-for-eos-raised-4-billion-the-second-just-2-8-million>

⁴² <https://www.sec.gov/spotlight/cybersecurity-enforcement-actions>

⁴³ <https://www.thetradenews.com/deutsche-boerse-steps-digital-asset-world-full-ecosystem-plans/>

⁴⁴ [https://www.six-](https://www.six-group.com/en/home/media/releases/2019/20190923-six-)
[group.com/en/home/media/releases/2019/20190923-six-](https://www.six-group.com/en/home/media/releases/2019/20190923-six-)

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[update.html?utm_source=Fintech+Ecosystem+Insights&utm_campaign=d6319e9366-EMAIL_CAMPAIGN_2019_09_28_07_30&utm_medium=email&utm_term=0_e4cf6fd3-d6319e9366-87358027&mc_cid=d6319e9366&mc_eid=ea653d64f5](https://www.six-group.com/en/home/media/releases/2019/20190923-six-)

⁴⁵ https://www.dfs.ny.gov/reports_and_publications/press_releases/pr1911191

⁴⁶ <https://decrypt.co/12603/new-law-makes-germany-crypto-heaven>

Risk analysis

Financial stability

EU fund risk exposures to potential bond downgrades

Contact: antoine.bouveret@esma.europa.eu⁴⁷

Summary

This case study focuses on the impact of a potential credit shock on the EU fund industry. We simulate the effects of a wave of downgrades of BBB-rated corporate bonds (fallen angels) on bond funds, amid a rise in risk aversion. Overall, the direct impact would moderately affect fund performance with no significant performance-driven outflows. Similarly, asset sales from bond funds in response to the shock would only have a limited and non-systemic impact on asset prices. However, it also shows that in this scenario EU bond funds could amplify shocks coming from passive funds, especially non-EU ETFs.

Introduction

In a context of low interest rates, market participants have increased their exposures to riskier assets in the search for yield. This trend has allowed lower-rated corporates to issue bonds at relatively low spreads compared with historical standards and has encouraged the build-up of leverage in the corporate sector in the euro area and the United States. As a result, the HY bond market has expanded significantly, and the credit quality of the IG bond market has declined, as evidenced by the increasing share of lower-rated IG bonds (BBB) in outstanding debt.

Against this background, a stronger than expected deterioration of macroeconomic prospects could weigh on corporate earnings and reduce corporate credit quality. The risk is heightened in the case of BBB-rated companies that run the risk of being downgraded to speculative grade. A series of downgrades from BBB to high yield could thus significantly increase the supply of high-yield bonds and lead to a further widening in credit risk premiums.

The objective of this simulation is to assess the impact of a sudden deterioration of the credit quality of corporates on investment funds and on financial markets. Two main transmission channels are analysed. First, the deterioration in credit quality would lead to negative performance

and outflows from bond funds through the price channel. Second, in the case of downgrades of BBB bonds, the investment policy of some funds might force them to divest from the downgraded bonds (as they are no longer IG), which would result in further forced sales. The simulation applies the ESMA stress simulation framework for investment funds (ESMA, 2019).

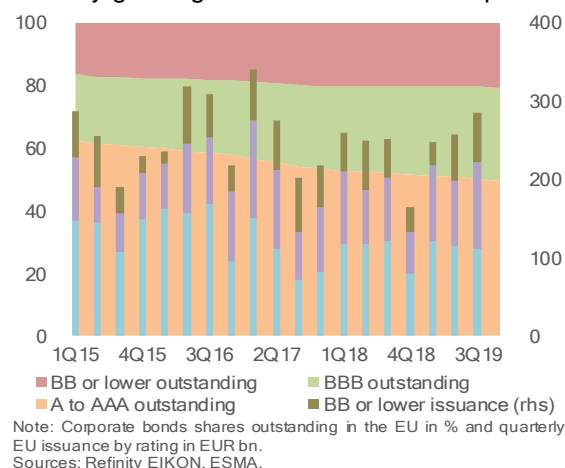
Investor exposures to BBB bonds have increased

The rise of bonds rated BBB

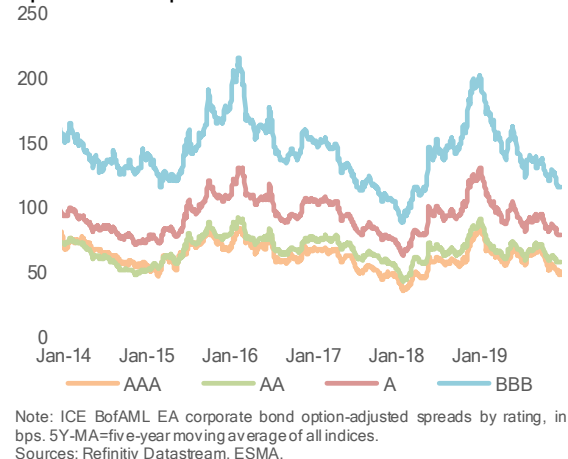
In recent years, sizeable issuance of bonds with a BBB rating has become the norm for both corporates and sovereigns. As a result, the share of outstanding corporate bonds in the EU that were rated BBB grew from 20% to 30% in 5 years, up to EUR 2.1tn as of 3Q19 (RA.1). For sovereigns, the growth in the share of bonds rated BBB in the EU has been even more dramatic, from only 3.5% in 3Q14 to 15% in 3Q19.

⁴⁷ This article has been authored by Giuliano Bianchini, Antoine Bouveret, Massimo Ferrari and Jean-Baptiste Haquin.

RA.1
EU corporate bond ratings outstanding and issuance
Steadily growing share of BBB-rated corporates



RA.2
Corporate bond spread compression
Spreads compress in 2019



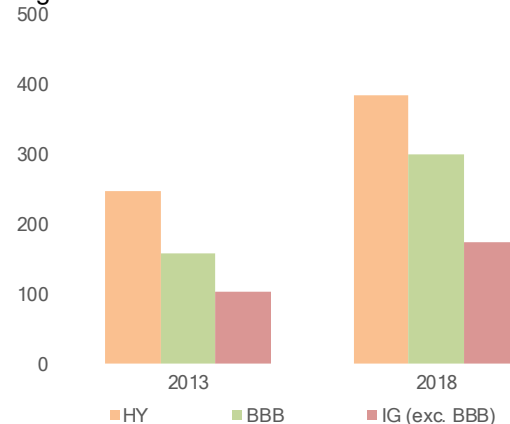
The rapid growth in BBB-rated debt in Europe mirrors trends in the United States. Between 2009 and 2019, the share of BBB-rated bonds in the US corporate debt tripled in size, reaching USD 2.8tn by July 2019 (Blackrock, 2019).

Growing investor demand for BBB bonds

The increasing availability of BBB-rated bonds has coincided with growing investor demand for BBB-rated debt relative to less risky bonds, arguably driven by search for yield. This is visible in the extended periods of compression of spreads across bonds of different ratings over the last 5 years. And, notably, spreads have been compressing again since early 2019 (RA.2).

Investors such as banks, insurers, pension funds and investment funds are the major holders of BBB debt. In the EA, BBB holdings represent 40% of insurance corporations and pension funds' and 35% of investment funds' total bond portfolios, compared with 33% and 31% respectively at the end of 2013.⁴⁸ In volume, investment funds held EUR 300bn of BBB-rated corporate bonds at the end of 2018 (RA.3).

RA.3
Holdings of BBB-rated bonds by investment funds
Significant increase in volume



⁴⁸ See chart 4.2 (ECB, 2019).

Simulation

Motivation and modelling choices

Background

BBB-rated bonds are the most susceptible to being downgraded to high-yield and becoming 'fallen angels'. Although the average share of BBB-rated corporate bonds downgraded to high-yield has historically been below 5% per year, it reached 15% during the financial crisis in 2009. And if BBB bonds were downgraded to high-yield, some investors could be forced to sell those securities where their mandates do not allow for high-yield bonds. Funds with an IG investment mandate would be affected most. Within this category, funds can be passive, i.e. they track an IG index (such as most ETFs), or active, i.e. their objective is to outperform an IG index.

IG funds could be incentivised to sell downgraded securities that fall out of the index (Box RA.4). Eventually, significant sales could affect bond prices beyond fundamentals and put additional pressure on funding conditions for corporates.

RA.4

Investment funds' investment policies

A rating downgrade would challenge funds' investment policies

Fund managers are required to disclose their objectives and investment policy to investors. For example, UCITS managers must publish information on the main categories of eligible financial instruments that are the object of investment in the key investor information document. Funds investing in debt securities must indicate whether they are issued by corporate bodies, governments or other entities, and any minimum rating requirements.

UCITS funds referring to a benchmark or tracking an index must indicate the potential deviation from the benchmark index. They should also disclose the rebalancing frequency and its effects on the costs in the strategy. In addition to scheduled rebalancing, the index provider can carry out additional ad hoc rebalancing to the underlying index. When the underlying index is rebalanced, the fund in turn rebalances its portfolio, thus incurring transaction costs.

In the case of a credit rating downgrade, fund managers may have to rebalance their portfolio to comply with their investment policy. This is the case if their mandate only allows for investment grade securities or, in the case of index trackers, if the security falls out of the reference index. However, the legislation does not impose a period within which to conform with the investment policy and in principle managers can take the time to rebalance their portfolio in the interest of the shareholders. Funds tracking a

benchmark may nevertheless be incentivised to adjust their portfolios rapidly, as keeping the downgraded security exposes them to additional tracking error risk.

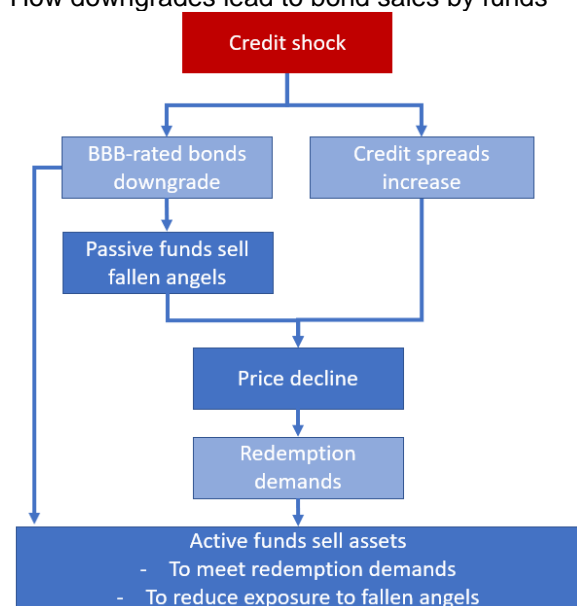
In most cases, fire sale events are unlikely to happen for active funds because their mandate allows enough time for portfolio rebalancing. Usually, investment policies include a provision that, in the event of downgrades, the fund may continue to hold downgraded bonds for a certain period of time to avoid distressed sales. However, there can be a risk from first-mover advantage during stressed events. In contrast, passive funds have incentives to rebalance portfolios immediately (e.g. to minimise tracking error). As a result, active funds may – anticipating these actions – also be incentivised to sell downgraded assets to avoid further deterioration in their performance (Goldstein et al., 2017), exerting further downward pressure on bond prices.

Modelling post-credit-shock sales by funds

The scenario we model is an unexpected increase in credit risk that results in a wave of downgrades of BBB-rated corporate bonds by credit rating agencies (CRAs). Following the downgrades, the price of fallen angel bonds falls, reflecting higher credit risk. This initial shock leads to forced sales from passive funds.

At this stage, active funds (which have not sold bonds yet) face redemptions due to negative returns that reflect mark-to-market losses due to the initial credit shock and the forced sales of passive funds. Active funds need to liquidate part of their portfolio (i) to meet investors' redemptions and (ii) to realign their exposures to be consistent with their investment policies (RA.5).

RA.5
How downgrades lead to bond sales by funds



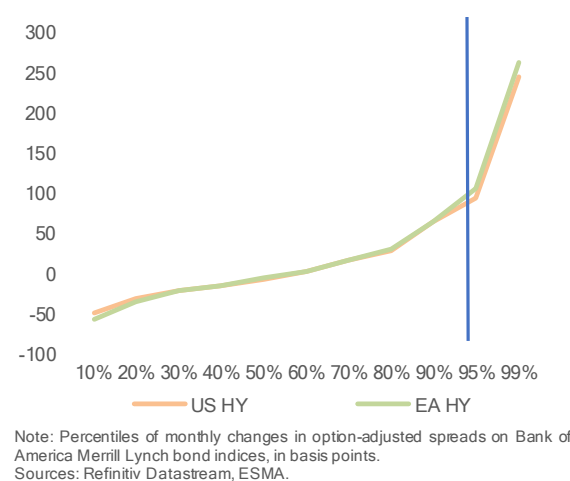
Design of the scenario

The initial credit shock is characterised by:

- an increase in credit spreads that negatively affects the value of bond funds’ portfolios and their returns;
- a wave of rating downgrades that leads to portfolio rebalancing, asset sales and further impacts on the value of the downgraded assets.

The increase in bond spreads is calibrated using the 95th percentile monthly increase observed during the 2004-2018 period. This calibrates the credit shock to the largest historically observed monthly increase in spreads that occurs with 5% probability. The chart below shows the distribution of monthly spread changes for US and EA HY bond indices (RA.6). The 95th percentile is 112bps for EA HY bonds and 93bps for US HY bonds. So, overall, we assume a 100bps increase in spreads for HY bonds and EM bonds, and a 20bps increase for IG bonds.

RA.6
Corporate bond spreads
Historical distribution of changes in HY spreads



For rating downgrades, the calibration focuses on fallen angels, i.e. IG corporates that are downgraded to HY. We calibrate the fallen angel rate to 11% of BBB notional globally, based on historical data reported by CRAs for European, US and other corporates for the first half of 2009,⁴⁹ considered as a reference period for credit stress (RA.7).

RA.7
Transition matrix

Stressed corporate rating migration (%)

CQS	1	2	3	4	5	6	W
1	81%	15%	1%	0%	0%	0%	3%
2	0%	87%	8%	2%	0%	0%	3%
3	0%	1%	89%	5%	1%	0%	5%
4	0%	0%	1%	82%	9%	2%	6%
5	0%	0%	0%	2%	77%	16%	6%
6	0%	0%	0%	0%	1%	57%	42%

NB: Aggregated transition matrix of long-term corporate ratings for the period 1H2009. CQS refers to credit quality step, CQS1 to AAA to AA ratings, CQS2 to A ratings, CQS3 to BBB ratings, CQS4 to CQS6 to ratings below BBB-. W refers to withdrawal. The table reads as follows: 89% of corporates rated CQS 3 at the beginning of the reporting period (left column) were still rated CQS 3 at the end of the reporting period (top row).
Sources: CEREP, ESMA.

The downgrades would apply to around USD 520bn globally, including USD 330bn for US corporates and USD 110bn for European corporates based on Bank of America Merrill Lynch global corporate bond indices.

⁴⁹ ESMA’s central repository (CEREP) for rating activity

statistics and rating performance statistics of CRAs.

Sample of funds

For this simulation, the focus is on EU active and passive bond funds that invest in corporate bonds. The table below provides an overview of the sample used (RA.8). Overall, the sample accounts for around 90% of the EU bond industry and close to 95% of EU mixed funds covered by Morningstar. For active funds, the final sample includes close to 6,600 UCITS with an aggregate NAV of EUR 2,490bn at the end of 2018. Some funds were excluded because of data gaps regarding flows, NAV or portfolio composition (for a detailed discussion of the sample see ESMA, 2019). European passive funds amount to EUR 100bn in NAV, and non-European passive funds to EUR 625bn.

RA.8

Sample of funds

Main features

Fund type	Database coverage		Sample		
	NAV (bn EUR)	Number of funds	NAV (bn EUR)	% of NAV	Number of funds
HY	196	424	174	89	297
EM	243	500	229	94	439
Euro FI	800	2,363	734	92	2,030
Global FI	529	1,124	420	79	592
Mixed	993	3,855	933	94	3,240
Total					
active	2,761	8,266	2,490	90	6,598
Passive funds (ETFs)	100	142	100	100	142
<i>Memo items</i>				NAV	
<i>UCITS bond funds</i>				2,536	
<i>UCITS mixed funds</i>				1,728	

Sources: Morningstar, European Fund and Asset Management Association, ESMA.

Calibration of the redemption shock

The shock is calibrated in two stages. First, for each active corporate bond fund, the impact of the shock on returns is estimated using the duration, D , of the portfolio and the size of the yield increase due to the spread shock:

$$\Delta \text{Return} = D \times \text{spread shock}$$

The increase in spreads translates into negative returns, which can be estimated using the duration of the bond funds. For bond funds for which the duration of the portfolio is not available, the duration is assumed to be equal to the duration of the corresponding corporate bond benchmark index. Antoniewicz and Duvall (2018) show that, for US bond funds, the duration of bond funds is very close to the duration of major corporate bond indices.

Then, based on the flow–return relationship, fund flows are estimated for each fund within corporate bond fund styles.

Impact on markets

The sale of assets in response to the initial credit shock happens in two ways:

- First, IG passive funds are assumed to sell all of their fallen angels immediately. (with any additional redemption requests assumed not to result in the sale of fallen angels);
- IG active bond funds sell assets to meet redemption requests caused by the price decline. They also sell some of their fallen angels to avoid further deterioration of their performance in the short run and to maintain the credit profile of their portfolio.

In order to quantify the selling pressure due to outflows, we use a slicing approach, whereby funds liquidate assets in proportion to their weight in the portfolio (for a discussion of liquidation strategies see ESMA, 2019).

The additional forced sales due to downgrades are estimated by assuming that active funds must divest a portion of the fallen angels quickly to comply with their mandate and risk management policy. We follow Aramonte and Eren (2019) by assuming a third of downgraded bonds must be offloaded very quickly.

The price impact of asset sales depends on the volumes of sales and market depth:

$$MD(\tau) = c \frac{ADV}{\sigma} \sqrt{\tau}$$

The market depth over a time horizon, τ , is a function of a scaling factor, c , times the ratio between the average daily trading volumes and the asset volatility, multiplied by the square root of the time horizon. The price impact is therefore lower when the time horizon is longer. The parameters are similar to those of ESMA (2019): the sale of EUR 1bn of bonds has a negative price impact of around 12bps for HY bonds. The calibration is meant to be conservative: in a stress scenario, the market depth is likely to be affected by dealer willingness to increase inventories (Baranova et al., 2019).

Results

Following the initial credit shock, passive funds sell EUR 27bn of fallen angels (including EUR 4.5bn from EU passive funds), resulting in an additional price decline of 338bps.

Active funds experience outflows ranging from less than 0.5% of NAV for EM, global and mixed funds to 1.4% for HY bond funds, reflecting the deterioration of their performance due to the initial credit shock and the immediate sales of passive funds (RA.9).

RA.9

Credit risk shock

Estimates of outflows by fund style

Fund style	Redemption shock (% of NAV)
HY	1.4
Euro FI	1.3
EM	0.3
Global FI	0.3
Mixed	0.0

NB: Size of redemption shock in% of NAV by fund style. EM = emerging market, FI = fixed income, HY= high yield.

Source: ESMA.

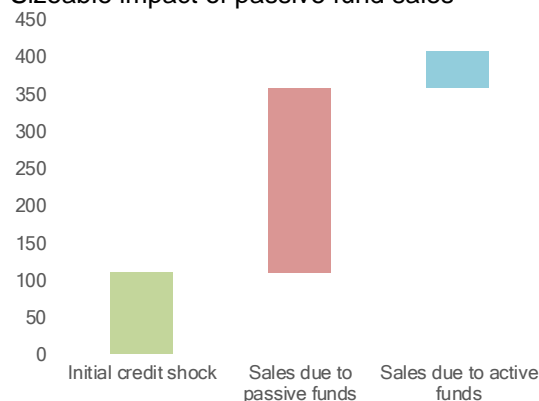
Active funds sell assets to meet redemption requests and to divest from fallen angels. Sales of bonds lead to additional price falls of 54bps for HY bonds, and 25bps for IG bonds.

RA.10 shows the corresponding impact of the shock on the HY market, which amounts to a cumulative increase of 410bps. Yields in the IG market would increase by 45bps (including a 25bps increase due to sales by active funds).

RA.10

High-yield bonds

Sizeable impact of passive fund sales



Note: Increase in HY bond yields.

Source: ESMA.

Overall, bond funds would not have a systemic impact on the HY market but instead would have a small additional effect (+50bps) on top of the more significant shock caused by passive funds, (+248bps), caused mainly by sales of non-EU ETFs (+208bps). On the other hand, the impact stemming from active fund sales may be underestimated here, as the expected size of shock creates the conditions for the first-mover advantage described earlier. Therefore, active funds may well sell more than a third of their fallen angels if they anticipate significant sales from other investors.

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Financial stability and investor protection

BigTech – implications for the financial sector

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Summary

Several large technology firms (BigTechs) now offer financial services, taking advantage of their vast customer networks, data analytics and brand recognition. However, the growth of BigTech financial services varies by region, reflecting differences in existing financial services provision and regulatory frameworks. Prospective benefits include greater household participation in capital markets, greater transparency and increased financial inclusion (although some individuals may be excluded). On the risk side, the high level of market concentration typically observed in BigTech may get carried into financial services, with potentially adverse impacts on consumer prices and financial stability. The cross-sectoral and global nature of the business strengthens the case for comprehensive cooperation among relevant regulators.

Introduction

BigTechs are large, established technology companies. They have different core businesses – such as social media platforms or search engines – which are non-financial in nature. BigTechs share the common characteristic that their core lines of business generate vast amounts of data and they have in-depth expertise to manage and analyse such data.

The financial services industry has recently seen BigTechs entering sectors previously the domain of incumbents. For example, several BigTechs already offer payments. In entering financial services provision, BigTechs interact with financial firms in different ways – including in some cases entering into partnerships – and continue to collect new data.

These major technology firms, such as Alibaba, Amazon and Apple, typically enjoy advantages such as strong financial positions, brand recognition and established global customer networks. In many cases, these companies can also use proprietary data generated through their other services, such as social media, to tailor their offerings to customer preferences. BigTechs therefore have the potential to gain a significant

market share in various financial services in the coming years. However, given the vast amount of sensitive consumer information they handle and the scale of their existing operations (many of which are interconnected with financial markets) their entry into finance also poses distinct risks to markets and consumers.

This article first documents and analyses the entry of BigTechs into financial services, outlining key characteristics of the firms and their business models. It then discusses possible implications for the financial sector, highlighting risks and potential benefits.

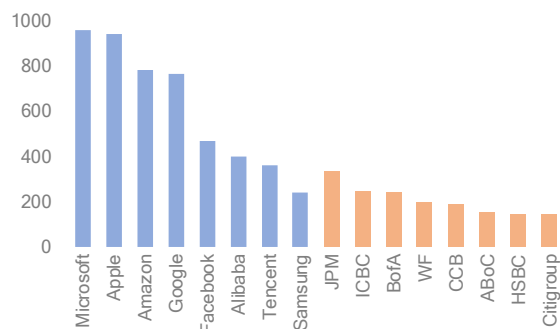
Market characteristics

Overview

BigTech firms have grown rapidly in recent years. The largest BigTechs have a significantly greater market capitalisation than the world's largest financial groups (RA.11).

⁵⁰ This article was authored by Patrick Armstrong, Sara Balitzky and Alexander Harris.

RA.11

Market capitalisation of largest BigTechs and banks
Several BigTechs are larger than any banks

Note: Market capitalisation, EUR bn, of eight largest technology companies (blue bars) and eight largest banking groups (orange bars) globally as of 30 September 2019. Google=Alphabet Inc; JPM=JP Morgan; ICBC=Industrial and Commercial Bank of China; BofA=Bank of America; WF=Wells Fargo; CCB=China Construction Bank; ABoC=Agricultural Bank of China.
Sources: Refinitiv Eikon, ESMA.

However, despite this recent growth, financial services represent only 11% of revenues among a sample of the largest BigTechs (Gaunt, 2019).

The largest 10 BigTechs by market capitalisation now all offer payment services. Credit provision is also offered by many BigTechs, although their market share is still small.⁵¹ Many of the largest BigTechs first entered financial services by providing payments. In some cases, BigTechs that had developed retail platforms (e.g. Alibaba, Amazon) had existing customer bases to which it was natural to offer retail payment services. Incumbents, in contrast, may in principle have scope to gather many customer data thanks to long-established client relationships, but may face a barrier in doing so from IT legacy issues. Among the financial activities offered by BigTechs at the time of writing, only asset management is in ESMA's remit. Asset management offerings by BigTechs are limited at present (RA.12).

RA.12

Financial services offered by selection of BigTechs
China-based BigTechs offer many services

Financial services	BigTechs offering, piloting or planning services as of 1Q19		
	China-based (n = 3)	US-based (n = 4)	Other (n = 3)
Payments	3	4	3
Credit	3	3	2
Current accounts	3	0	1
Asset management	2	0	2
Insurance	2	1	0

NB: Number of BigTech firms among selected sample in given country/region providing given financial services. China-based firms in sample: Alibaba, Baidu, Tencent. US-based: Amazon, Apple, Facebook, Google. Other: Mercado Libre, Samsung, Vodafone.
Source: Adapted from FSB (2019a).

The provision of other financial services, such as asset management and insurance, is less widespread among BigTechs. However, where BigTechs do offer such services, these can involve very large numbers of (potential) customers. The box below presents an asset management example: the Chinese Yu'e Bao ('leftover treasure') fund (RA.13). In 2017, it became the world's largest MMF, although it has seen large outflows since 1Q18. BigTechs that are active in the insurance sector typically use their platforms as distribution channels for third-party products, while simultaneously collecting customer data they can sell to insurers (BIS, 2019).

Some projects currently being developed or piloted aim to operate at a global scale. A prominent example is Facebook's planned Libra project, which aims to provide cross-border payments using its own 'coin' pegged to a basket of fiat currencies and government securities.⁵²

⁵¹ Lending by technology companies is 0.5% of total credit provision globally, rising to 3% in China. See

Gaunt (2019).

⁵² For more information on Libra, see ESMA (2019).

RA.13

Example of BigTech-provided asset management

Yu'e Bao became world's largest MMF in 2017

Ant Financial, an affiliate of Alibaba, created the Yu'e Bao money market fund in 2013. The fund makes use of surplus cash in customers' digital wallets. Users can buy MMF shares on a mobile platform integrated with their digital wallet, in very small denominations (RNB 0.01), which then earns a return. Furthermore, they can make payments directly from their MMF holdings or redeem MMF shares into their bank account on demand.

Yu'e Bao grew to over EUR 200bn in assets under management by 4Q17 and was briefly almost twice the size of the next largest MMF globally. However, from 1Q18 to 3Q19, the fund saw over EUR 100bn in outflows, at a time when Chinese financial authorities highlighted regulation of systemically important MMFs as an area for attention (Wildau and Jia, 2019). Concerns included the lack of macroprudential requirements applying to such MMFs and liquidity risks. Another issue was that online MMFs, in benefiting from an interest rate spread between their bank deposits and fund assets, were pushing up funding costs for commercial banks.

In June 2018, the authorities announced several regulatory measures, including restricting online MMF share sales to commercial banks or licensed sale agents, restricting T +0 redemption of MMFs to qualifying commercial banks and introducing caps on such redemptions, and prohibiting non-bank payment institutions from selling MMFs.

Yu'e Bao has been able to offer higher returns than many established MMFs operating in countries with much lower prevailing interest rates than China. In addition, Yu'e Bao is reportedly able to offer competitive returns within the Chinese market thanks to its negotiating power derived from the size of the fund.

Sources: Bloomberg News, Financial Stability Board, ESMA.

Data- and network-driven business model

FinTech (financial technology) business models have been facilitated by the wider digitalisation of the financial sector. This equally applies to the business model of BigTechs in finance. Digitalisation gives firms digital proximity to clients, disrupting the advantage that incumbent

firms previously enjoyed from physical proximity to clients through established branch networks.⁵³

In addition, certain features of the existing online business of BigTechs facilitate their entry into finance. BigTechs moving into finance arrive from varied parts of the digital services sector. For example, Amazon and Alibaba have their origins in e-commerce, whereas Tencent and Facebook originated as social media platforms, and Google and Baidu started as search engines. However, a shared characteristic of these BigTechs is access to client data. Such data form the basis of the firms' core business models (which may involve targeted advertising, for example, or personalised features in a user platform). The ability to make use of such data through advanced technology is integral to their business, unlike that of incumbent financial institutions.

BigTechs leverage the data from their customer networks and infrastructure in different ways. BigTechs may provide financial services in partnership with incumbents: selling data or offering critical input such as data analysis or cloud services. Alternatively, a BigTech may offer its own range of financial services to clients directly (Pacheco, 2019).

Under either approach, BigTechs' key advantage lies in customer data. Data from a range of sources, often available in real time, allow better targeting of clients and a more nuanced understanding of individual client needs and preferences.⁵⁴ Such possibilities arise at a time of shifting consumer behaviour and changing consumer expectations, which are increasingly centred around tailor-made products (Pollari and Raisbeck, 2017).

In short, personalisation is a disruptive consumer behaviour trend that BigTechs use to their advantage (Gimpel and Rau, 2018). In contrast, most incumbent financial institutions begin with some form of traditional financial relationship and have only lately begun to leverage soft information (e.g. consumer preferences elicited from client data) to cater to demand more effectively and strengthen the client relationship. Even if a BigTech engages in partnerships with financial sector incumbents, it will remain the point of contact for consumers, which may allow

⁵³ The phenomenon of digital proximity is explored by Tanda and Schena (2019).

⁵⁴ According to Pollari and Raisbeck (2017), consumers want financial institutions that respond quickly to their

needs and offer tailor-made products. This demand has led to greater personalisation of financial services.

it to expand its customer base. On the other hand, incumbents have the advantage of established distribution networks and sector-specific expertise (Adrian and Mancini-Griffoli, 2019).

Comparison with FinTech firms

Unlike many FinTech firms,⁵⁵ which enter the market for innovative financial services as start-ups, BigTechs enter the market with distinct advantages such as having a strong financial position, access to low-cost capital, an established global user base and the technological expertise and data to tailor their offerings to customer preferences. They therefore have the potential to rapidly gain a large market share in various financial services.

The business operations of FinTech firms, on the other hand, tend to be restricted to those few areas of banking (e.g. product distribution) that retain a high return on equity in an era of low bank profitability generally. FinTech firms do not enjoy the same level of access to detailed soft information (e.g. on customer preferences or habits) as BigTechs and possess little brand recognition (De la Mano and Padilla, 2018).

FinTechs may partner with banks and other incumbent firms to overcome some of these disadvantages. However, even in doing so they lack the global reach and customer network effects that BigTechs enjoy. On the other hand, FinTech firms share some advantages with BigTechs over incumbent financial institutions, such as being unconstrained by legacy IT systems for providing relevant services. Another possibility is that FinTechs may look to partner with BigTechs to provide scale for innovative new services.

Geographical breakdown

The largest BigTechs are mostly headquartered outside the EU, predominantly in China or the United States (RA.12). The reasons the EU lacks such firms and the economic implications of the disparity are the subject of much debate. Detailed

analysis of the issue is beyond the scope of this article, but possible explanatory factors include differences in systems of government, corporate law, availability of venture capital and societal attitudes towards new technology.⁵⁶

The provision of financial services by BigTechs varies considerably across regions, and in two respects. First, consumers in some regions tend to use BigTech-provided financial services more than do consumers in other regions.⁵⁷ Second, BigTech firms headquartered in China differ from their US-based counterparts in which services they offer and how.

Customer trends by region

BigTech firms provide far more payment services (predominantly to retail customers) in China than in the EU and the United States. In the United States, while some BigTechs are major providers of various forms of e-commerce, alternative transport and housing modes, they are significantly less involved in financial services. Generally, BigTechs have expanded rapidly in emerging economies in regions such as South-East Asia, East Africa and Latin America (BIS, 2019).

One reason for these differences is likely to be the existence of widespread bank-based retail payment infrastructures in the EU and the United States to a greater degree than in China or in many emerging economies. Digital payment use is rapidly growing in China, representing an opportunity for BigTechs to gain market share among significant numbers of new users of online financial services (RA.14). In contrast, in the EU and the United States existing financial services infrastructures are more developed. A vast majority of adults have used digital payments for years, starting before the recent entry of BigTechs into the market.

⁵⁵ The definition of FinTech is closely related to that of TechFin, a term introduced by Alibaba chairman Jack Ma. 'TechFin' refers to the harnessing of technology to offer redefined and more inclusive financial services. See King (2019).

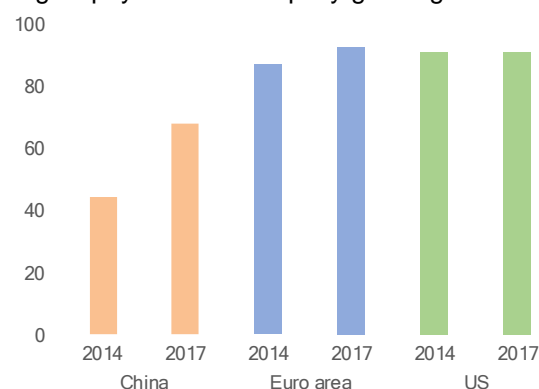
⁵⁶ Cowell (2019) posits that relevant tax rules, bankruptcy law, start-up funding and the depth of corporate bond markets in the United States may have contributed to the trend, though she notes the European origins of key

technologies such as the world wide web. For further discussion of the relationship between technological growth and governmental and societal factors see for example Beattie (2019), Caliskan (2015) and Renda (2019).

⁵⁷ This could reflect differences in the level of digitalisation, i.e. in terms of available connectivity tools, human digital skills and the use of the internet (European Commission, Digital Economy and Society Index, 2018).

RA.14

Trends in use of digital payments by region
Digital payments use rapidly growing in China



Note: Respondents aged 15+ who have made or received digital payments in the past year, by region, %.

Sources: World Bank Global Findex Database 2017, ESMA.

Other drivers of the use of BigTech financial services, discussed in more detail below, include the regulatory landscape, brand recognition, and linguistic and demographic factors. Compared with China, the EU and the United States have more developed and rigid regulatory structures, and populations that may be less willing to migrate to BigTech financial services.

Regional differences between BigTechs

China-based BigTechs tend to offer a greater range of financial services using infrastructure and networks developed separately from incumbent financial institutions. In contrast, US-based BigTechs tend to offer fewer services, and do so by using the networks and infrastructure of existing financial institutions (sometimes working in partnership with the latter).

While most BigTech firms offer payments, other financial services such as insurance and money market funds are predominantly provided by China-based BigTechs.

Drivers and barriers

A range of different factors may be involved in the growth of BigTech financial services to date and their future development, on both the demand side and the supply side.

Demand-side factors

Demand for BigTech financial services is supported by strong BigTech brand recognition and customer engagement. The brand value of the 10 largest BigTechs in 2019, for example, exceeded EUR 1.2tn, with several BigTechs each serving over a billion users (WPP, 2019).

Brand recognition can support **trust** among customers that underpins financial services. The financial crisis saw a significant decline in the level of public trust in financial institutions.⁵⁸ Consequently, BigTechs and FinTech firms more generally no longer face a 'trust barrier' when offering new products and services to consumers willing to look for alternatives.

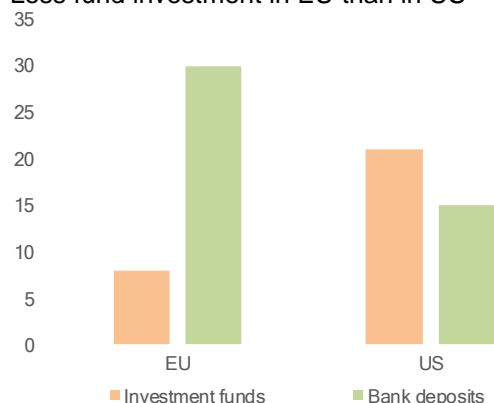
The decline in trust served both to delay the recovery of financial incumbents and to reduce their resiliency to new sources of competition, as clients have moved their business elsewhere (Osli and Paulson, 2009). However, significant concerns around privacy and illicit use of personal customer data by some BigTechs have emerged in recent years (PwC, 2019).

Geographical differences in adoption may be associated with differences in **culture** and approaches to household finances. Cultural factors may interact with institutional features such as tax and pensions systems to determine demand for BigTech services. For example, in the United States, where public pension provision is more restricted than in many EU Member States, household participation rates in investment funds are higher, despite comparable median household wealth. US households also hold a greater share of their wealth (21%) in investment funds than their EU counterparts (13%). EU households hold more of their wealth in bank deposits (RA.15).

⁵⁸ For example, survey evidence suggests that trust in banks among respondents from the general public aged 34-64 fell from 43% to 27% in France and from 34% to

17% in Germany between 2007 and 2010 (Edelman, 2010).

RA.15

Household asset allocation in EU and United States
Less fund investment in EU than in US

Note: Share of household wealth by selected asset classes and region, %.
 Investment funds=regulated investment funds.
 Sources: Investment Company Institute, ESMA

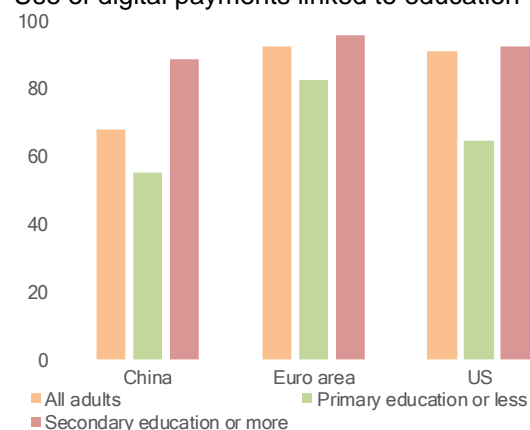
Differences of this kind are likely to affect demand to support future BigTech offerings of asset management services, although it may not yet be clear in which direction. On one hand, the larger market size in the United States, in terms of participant numbers, may support such demand. On the other hand, BigTechs may instead be able to win new market share in the EU by making investment funds available to retail customers who previously did not participate. In other words, it is possible that existing cultural factors can be overcome or even present an opportunity for BigTechs in providing financial services.

Cultural and societal factors also interact with **existing technological infrastructure and commercial networks** to determine demand for BigTech financial services. The widespread use of BigTechs for financial services in China, for instance, may be associated with the prevalence of e-commerce in the country, the limited availability of other means of electronic payment and high rates of mobile phone ownership in the country. In the EU, in contrast financial services and products such as investment funds continue to be provided in large part via bank-based distribution networks. However, BigTechs lack the established network of financial activities and services that incumbents have built over the

years. They must therefore connect with a larger customer base to exploit network externalities (BIS, 2019).⁵⁹

Another related factor is **demographics**. Evidence suggests that younger individuals use online and mobile banking services more frequently than older individuals (World Bank, 2017). The EU has a relatively high median age (43 years, in 2018, compared with a worldwide median age of 30), suggesting that demand for technologically innovative financial services may be lower than in other regions globally.⁶⁰ In general, an older population is less willing to incur the switching costs from traditional means of payment, savings and investment to more digital modes (De la Mano and Padilla, 2018).⁶¹ Finally, more educated consumers are more likely to be users of digital financial services such as payments than those with lower education levels (RA.16).

RA.16

Use of digital payments by region and education level
Use of digital payments linked to education

Note: Respondents aged 15+ who have made or received digital payments in the past year, by region and education level, %.
 Sources: World Bank Global Findex Database 2017, ESMA.

Supply-side factors

Thanks to their vast size, BigTechs benefit from **economies of scale** in offering financial services. The fact that Yu'e Bao (Box RA.13) has been able to negotiate advantageous interest rates with its counterparties is one example.

⁵⁹ For further evidence on the role of social factors and individual attitudes as drivers of the propensity to use digital financial services, see for example Caratelli et al. (2019).

⁶⁰ Sources: CIA World Factbook (2019) and Eurostat (2019).

⁶¹ However, this does not necessarily imply that young adults are the most likely demographic group to use digital financial services in all cases. Lener et al. (2019) present data suggesting that, in Italy, the group most likely to use digitalised financial advice in middle-aged, high-earner-not-rich-yet (HENRY) investors.

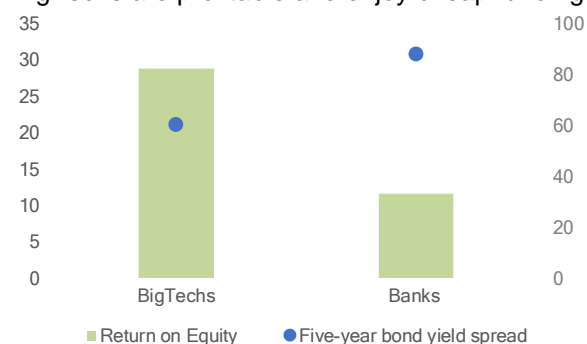
Combined with global customer networks, these economies of scale mean BigTechs are well placed to move into ancillary product offerings. Although margins on financial services products are often lower than those in BigTechs' original core business areas, the opportunity to expand into new business lines and to create in turn a multiservice platform remains a compelling business proposition.

BigTechs also have an incentive to supply financial services due to complementarity with their **technological expertise** and **proprietary data**. BigTechs have abundant infrastructure and staff to build mobile and online apps and platforms that integrate different financial services. Personal data provided by clients or gathered from online services, and transaction data on online marketplaces and other platforms, are valuable resources to use as inputs to machine learning or other big data algorithms⁶² Furthermore, BigTechs have relevant experience of integrating new services into their platforms into their core platforms (Adrian and Mancini-Griffoli, 2019).

Many BigTechs have a strong financial position compared with incumbent financial services providers, with a high return on equity at a time when banks face low profitability (RA.17).⁶³ Relatedly, many of the largest BigTechs have access to low-cost funding. That said, some rapidly expanding technology firms are reliant on early-stage funding and/or are yet to become profitable.

RA.17

Profitability and funding costs of BigTechs and banks
BigTechs are profitable and enjoy cheap funding



Note: Arithmetic averages of return on equity as of 30 September 2019, %, and spread of relevant five-year (5Y) corporate bonds over 5Y US treasuries, Jan-Sept 2019 average, in bps, for selected BigTechs and banks. Return on equity for the eight largest BigTechs and banks by market cap. 5Y bond yield spread for Apple and Alphabet (Google) in case of BigTechs and for largest 5 US banking groups by market capitalisation as of 30 September 2019 in case of banks. Sources: Refinitiv Eikon, ESMA.

Finally, **regulation** may variously encourage, impede or change the way in which BigTech financial services develop. In China, for example, the growth of Yu'e Bao from 2013 to 2017 took place in the absence of applicable macroprudential regulation, whereas subsequent increased regulatory attention, including new measures announced in June 2018, has been associated with very large (but steady) outflows.

Following the financial crisis, regulators of incumbent financial institutions introduced new capital requirements and regulations to avoid a repeat of certain factors that are thought to have given rise to the crisis. The new requirements forced incumbents to raise fresh capital and carry out major IT spending to meet the newly implemented regulations. BigTechs, on the other hand, remained largely outside the regulatory sphere and were able to enter certain parts of the financial services sector without needing to meet the capital and regulatory requirements of the incumbent institutions.

In addition to applicable financial regulation, data protection regulation can also be an important supply side factor. The EU General Data Protection Regulation (GDPR)⁶⁴ covers the

⁶² An example of the power of such data is the '3-1-0' model for credit provision by Ant Financial. The model envisages that a prospective borrower should be able to complete a credit application in 3 minutes and that the algorithm should be able to issue a decision on the loan in 1 second, with zero human input to the decision.

⁶³ In EU-headquartered banking groups, profitability is typically even lower than in the United States. See for example de Guindos (2019).

⁶⁴ Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation) (OJ L 119, 4.5.2016, p. 1).

processing of personal data relating to individuals in the EU. It includes safeguards to protect personal data and the rights of individuals regarding their data. Stronger protections around personal data may affect data-driven provision of financial services. The GDPR has changed the way in which data are collected and processed in the EU and elsewhere, given its extraterritorial requirements (European Commission, 2019).

At the same time, other legislation may promote the entry of BigTech into EU financial services markets. A key example is the second EU Payment Services Directive (PSD2),⁶⁵ which promotes innovative mobile and internet payment services. The entry into force of the directive in 2018 was followed by a large increase in the number of BigTechs with licensed payment subsidiaries in the EU.

PSD2 is designed to enhance competition among incumbents and allow for the entry of new financial market participants. One way it does this is by facilitating 'open banking', i.e. enabling third party service providers, with the consent of individuals, to gain access to transaction data from their bank accounts principally through application programming interfaces. Open banking is intended to allow the public to more easily compare competitive offerings and switch accounts. Although the EU was the first to develop an open banking framework, other jurisdictions have since followed.⁶⁶

Issues for regulators

ESMA takes a balanced approach to innovation, working to safeguard against the risks associated with innovations without impeding the benefits they may bring. While BigTechs may offer a range of financial services in different ways, and the market continues to evolve, it is possible to identify several benefits and risks and the broad implications these can have for ESMA's balanced approach to innovation. The analysis below is presented with ESMA's remit in mind, but also

includes issues relevant elsewhere in the financial sector and beyond.

Benefits

Positive aspects to the growth in BigTech firms providing financial services can include **reduced costs** and greater efficiency in certain sectors. Lower costs are driven by increased competition from these new market entrants, which enjoy considerable economies of scale, network effects with other business lines, and complementarities with proprietary data and technological expertise. Furthermore, BigTechs can use data to screen and monitor loan applications, reducing inefficiencies arising from asymmetric information (BIS, 2019).

Another key benefit is that BigTech firms may be expected to improve **financial inclusion**, especially in regions where a significant proportion of the adult population is underbanked or unbanked. However, this is tempered by the risk of financial exclusion of individuals who are unable to use BigTech platforms, are unfamiliar with them or decide not to use them. Certain demographic groups such as the elderly are disproportionately likely to be affected by this risk. Education levels may also be a factor (RA.16).⁶⁷

The entry of BigTechs into financial services offers the opportunity for **greater diversification** of household investments, to the extent that BigTech provision of investments or asset management may encourage participation by households in capital markets. In leveraging advanced technology, BigTechs may be able to offer products with better functionality and quality as well as innovative financial services, providing a better fit to the individual needs of many households (De la Mano and Padilla, 2018).

BigTech in finance may promote **greater transparency** in the provision of financial services, through the increased use of online and data-driven business models. For example, online and data-driven business models offer the possibility to audit decision-making in detail,

⁶⁵ Directive 2015/2366/EU of the European Parliament and of the Council of 25 November 2015 on payment services in the internal market, amending Directives 2002/65/EC, 2009/110/EC and 2013/36/EU and Regulation (EU) No 1093/2010, and repealing Directive 2007/64/EC.

⁶⁶ For example, the Australian Treasury has recently consulted on open banking (FinTech Australia, 2017).

⁶⁷ Another related risk is that, even if individuals start to use financial services, such as investment management, for

the first time in a digital environment, they may not be in a position to make well-informed decisions. According to an experimental study by Agnew and Szykman (2005), investment choices made by individuals are sensitive to how information is displayed, the number of choices offered and the similarity of those choices. The authors find that financial literacy helps mitigate the risk of information overload.

which may not be possible with traditional services such as credit provision or investment advice.

In addition, the entry of BigTechs into financial services may serve to hasten the pace at which incumbent institutions improve their own digital business models – seeking greater efficiencies and providing personalised services – so as to remain competitive. However, as discussed below, there is a risk that immediate competitive pressures may give way to greater market concentration in the longer term.

Risks

The entry of BigTech into financial services may pose risks to financial stability and investor protection. One source of risk is the fact that BigTechs are often **outside the existing regulatory sphere**, although they may fall under existing regimes for specific activities. They may come to the market without facing capital requirements or needing to meet certain other regulatory conditions, and without maintaining the compliance infrastructure that regulated incumbent institutions need to have (Pollari and Raisbeck, 2017). This, in turn, may pose risks to the objectives of ESMA and other regulators.

While the current level of financial activities of BigTechs does not in itself prompt immediate concern from the perspective of financial stability, a structural issue is the **interconnection** between financial markets and many different services that BigTechs provide, including cloud services, data analytics and credit provision to other non-financial firms to manage their liquidity. Such interconnectedness may amplify financial stability risks associated with the entry of BigTech into financial markets.

A potential future source of risk is that the scale of BigTechs means their entry into financial services may affect **market structure** (FSB, 2019b). Risks to financial stability may arise if

BigTechs use their resources, data and technology infrastructure to achieve dominant market shares in certain financial services.⁶⁸ Relatedly, one view is that greater pressure on incumbents' profitability may encourage them to take greater risks (FSB, 2019a). Additionally, the concentration of financial services among firms with a large cross-sectoral presence may mean that cybersecurity incidents arising in other economic sectors may have a direct impact on financial services.⁶⁹

From an investor protection perspective, while costs may be lower in the short run as the result of increased competition from low-cost entrants, the entry of BigTechs could in fact lead to **greater market concentration** in the longer term, eventually imposing greater costs on consumers.⁷⁰ Short-run costs may also be lower because of predatory pricing, whereby entrants aim to achieve a dominant position in the longer term. In addition to these possibilities, higher prices could be sustained if a few BigTechs occupy a gatekeeping role of providing consumers with a single interface through which they can access financial services alongside other services such as social media.⁷¹ This business model could entail high economic costs of switching for consumers (Gaunt, 2019). The potential for market concentration combined with high switching costs means that BigTech activities may be monitored by competition authorities in the coming years. The gatekeeping function may also add to the risk of **financial exclusion** among segments of the population.

Financial decisions made in an automated digital environment are faster and easier than those made in many other contexts. However, there is a risk that these features may worsen the quality of investor decision-making.⁷²

Finally, BigTechs possess vast quantities of data representing the online and digital footprint of individuals across different economic and social activities. Although BigTechs typically devote

⁶⁸ BigTechs share some characteristics with firms characterised as 'too big to fail' during the 2008 financial crisis. Such characteristics include significant market power, competitive advantages and large economies of scale (Moosa, 2010).

⁶⁹ As well as cross-sectoral competition issues, the entry of BigTechs into finance may raise cross-border security questions. See Petralia et al. (2019).

⁷⁰ An example of BigTechs already reaching a dominant market share in other sectors, and the consequent pricing power they achieve, is a large platform hosting third-party online retail sales. The provider is able to generate

revenue by levying fees of 6%-50% of the sale price of the retail goods (Loten and Janofsky, 2015).

⁷¹ The gatekeeping strategy relates to the business model characteristics discussed above, in that it may involve entering a market with a single offering, before expanding into many lines of business and product offerings integrated into a single platform.

⁷² This risk may be mitigated by attentive design of automated tools, including high-quality decision trees, feedback loops and control questions.

huge resources in the form of advanced technology and specialist expertise to **cybersecurity**, this feature could make them an attractive target for cyberattacks, and increase the detriment to individuals (for instance as regards their privacy) in the event of a data breach. The treatment of **sensitive customer information** has met with much recent criticism (Stucke, 2018).

Regulatory implications

The growth of digital technology across economic sectors may raise policy and regulatory questions on topics such as standards for privacy, data protection, management and competition. Furthermore, technology firms may be regarded as representing a sector of strategic national and international importance.

The reach, resources, data availability and generally non-regulated nature of BigTechs has major implications for regulators, putting a premium on consistent supervision and standards across borders and sectors. In addition to immediate consequences, there may be longer-term implications.

For securities regulators, a relevant area of focus may be investor education initiatives aimed at making investors aware of the risks around the speed of decision-making that is possible in an online environment. Investor education may also be used to address the risk of financial exclusion among groups who find using online platforms difficult.

The diverse business lines of BigTech firms, coupled with potentially complex interlinkages with traditional financial institutions, may make it difficult to determine a clear regulatory boundary. There may be a greater need to complement an entity-based approach to regulation with an activity-based approach to ensure appropriate and internationally consistent coverage of activities that have implications for financial stability. This is especially important given the cross-sector and cross-border nature of BigTechs' engagement.

The regulatory response may need to be nuanced and to keep evolving. Regulators such as ESMA need to appreciate the pace of technological change that BigTechs introduce, as

well as the potential benefits to the economy and society in terms of costs and efficiencies.

Regulators and supervisors are well positioned to gain insights about business propositions from initiatives such as innovation facilitators (including regulatory sandboxes). Development of innovative SupTech tools may provide further information about market developments, helping authorities to mitigate potential risks and set appropriate supervisory expectations. To this end, ESMA continues to facilitate and coordinate sharing of information on financial innovation among its NCAs. Innovation facilitators across the financial sector are a valuable source of market intelligence. The importance of sharing such information among authorities at EU level is reflected in the recent establishment of the European Forum for Innovation Facilitators (EFIF) by the European Commission and the ESAs.⁷³

More generally, there may be value in continuing to deepen cooperation at national, European and international levels among financial sector regulators and supervisors and other authorities, such as those responsible for data protection. In this way, authorities may be better equipped to keep pace with fast-evolving technological changes and the increasingly cross-border and cross-sector business model demonstrated by the entry of BigTechs into finance.

Conclusion

BigTech firms have grown rapidly in recent years and are now entering the financial sector. BigTechs have scope to compete with financial sector incumbents because of their vast size, global customer networks, brand recognition and ability to leverage their proprietary data to offer personalised services. Many also have strong financial positions. Although the use of BigTech-provided financial services is currently more prevalent in jurisdictions such as China for reasons of economic and regulatory development, demographics and culture, BigTechs have the potential to gain significant market share in developed regions, including the EU, in the near future.

The data-driven business model of BigTechs represents a significant development in the provision of financial services globally. While

⁷³ For more information, see the [EFIF webpage](#).

benefits may include greater efficiency and cheaper product offerings for consumers, the potential scale of the phenomenon means that regulators should pay close attention to ensuing risks around financial stability and consumer protection. Risks to consumers arise in several respects, including risks to privacy and data rights, higher costs if competition suffers in the longer term and the risk of financial exclusion, which may disproportionately affect certain demographic groups. To mitigate these risks, many regulators are already undertaking proactive monitoring of developments and cooperating across economic sectors at national, European and international levels.

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Financial stability

Short-termism pressures from financial markets

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Summary

Short-termism in finance refers to the focus placed by market participants on short-run profitability at the expense of long-term investments, a tendency that political initiatives such as the EU's action plan on financing sustainable growth seek to limit. The recent empirical evidence collected by ESMA sheds some light on commonly discussed drivers of short-termism. In particular, our findings suggest that the misalignment of investment horizons in financial markets and the remuneration of fund managers and executives that rewards short-term profit seeking could be potential sources of short-termism. Improvements in the availability and quality of ESG disclosure could serve to promote more long-term investment decisions by investors.

Introduction

In its action plan on financing sustainable growth in March 2018, the European Commission includes fostering transparency and long-termism in financial and economic activity as one of its three main aims (European Commission, 2018). On 4 February 2019 the Commission sent a call for advice to the ESAs, requesting them to collect evidence of undue short-term pressure from capital markets on corporations and consider, if necessary, further steps based on that evidence (European Commission, 2019). Following that call, ESMA collected evidence in a public consultation and issued the advice on 18 December 2019 (ESMA 2019). This article discusses some of the commonly identified drivers of short-termism in financial markets, building on the recent collection of evidence by ESMA.

What is short-termism?

Most definitions of short-termism include a reference to the conflict between long-term goals and market drivers.

Short-termism has been defined recently as:

- the focus on short time horizons by both corporate managers and financial markets, prioritising near-term shareholder interests over long-term growth of the firm (Mason, 2015);
- a tendency to place too much weight on short-run profitability at the expense of the long run (HLEG, 2018);
- the need to meet quarterly earnings at the cost of long-term investment (Tang and Greenwald, 2016).

From an investor's perspective, the short-term focus of the investment manager or of the issuer on near-term earnings may come at the cost of reduced investment in both physical and human resources. Excessive focus on near-term earnings and remunerations may conflict with the longer-term interests of a firm's stakeholders, including the investors.

Short-termist goals are reflected in short-term actions. It is on this basis that short-termism can be measured and monitored. For example, the investment-holding period and the turnover of stocks by institutional investors are, inter alia, useful indicators to monitor short-termism in financial markets. Based on these indicators, recent evidence suggests that short-termism has

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been increasing, with stocks being held for record short periods of time (Roberge et al., 2014; OECD, 2011).

Another indicator is the turnover rate, which conveys the time spent by managers and corporate post-holders in a given job. Recent evidence here also suggests growing short-termism. For example, the mean duration of departing chief executives from the world's largest 2 500 companies declined from around 10 years in 1995 to around 6 years in 2009 (Haldane, 2010).

The investment horizon is another good indicator for monitoring short-termism. Available evidence here indicates that allocations to long-term and less liquid assets, such as infrastructure and venture capital, have been declining and are being overtaken in importance by allocations to hedge funds and to other high-frequency traders (OECD, 2011).

According to market intelligence, there is an excessive focus of equity research on near-term corporate earnings rather than on sustainable earnings growth over the medium term. This also signals short-termism.

Drivers of short-termism

Possible drivers

The misalignment of investment horizons between investors, asset managers and asset owners is one of the main indicators of short-termism in financial markets. While asset managers typically have a short-term horizon (1 year or less) in their asset evaluations and incentives, investors and asset owners may have much longer-term horizons.

A short-termism 'vicious circle' has also been highlighted whereby the setting of short-term goals and metrics by companies in response to investor demand contributes to shorten investors' horizons further. A frequently cited reason for this vicious circle is stock market forecasts of firm value based on companies' quarterly reported earnings, thus introducing a short-term or myopic incentive in company behaviour (Stein, 1989).

Sustainability is also linked to long-term horizons, because investments needed to generate public good externalities – in economic, social and environmental terms – tend to require action with a long-term orientation. Investment in education, housing, infrastructure, renewable energy and climate change mitigation all require a long-term

horizon, often over several years if not decades (Carney, 2015).

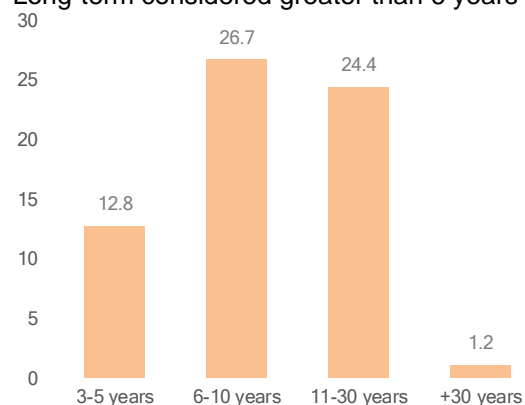
Sustainability cannot develop in a context where investment is dominated by short-term considerations. This is because delivering a sustainable development in economic, social and environmental dimensions requires large-scale investments in physical and intangible assets that are amortised not over a few months but over several years (HLEG, 2018).

Evidence from the ESMA survey

The recent ESMA survey sheds some light on the features and focus of financial market participants investment strategies and horizons. It shows, for example, that over 51% of respondents defined an investment horizon as long-term when it is longer than 6 years (RA.18).

RA.18

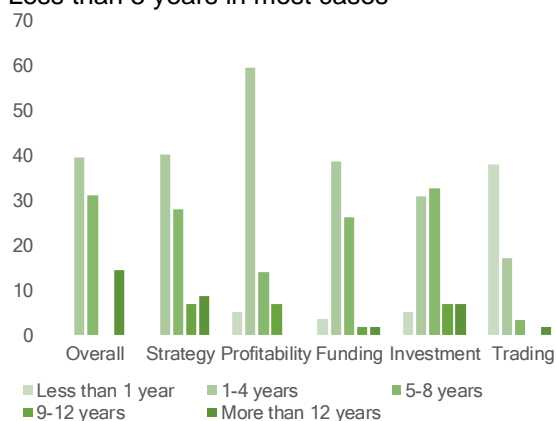
Time frame considered for long-term investment
Long-term considered greater than 6 years



Note: Time frame considered when defining long-term investment (Q7),%.
34.1% of respondents chose the option 'other', not shown in the chart.
Source: ESMA public consultation.

The time horizon applied overall to general business activities is less than 5 years for 40% of respondents. Almost 60% of respondents also chose this range in relation to profitability activities. Some 31% of respondents indicated that the time horizon they apply in their overall business activities is between 5 and 8 years (RA.19). The divergent horizons between different respondents and activities highlight the potential for misalignment of horizons.

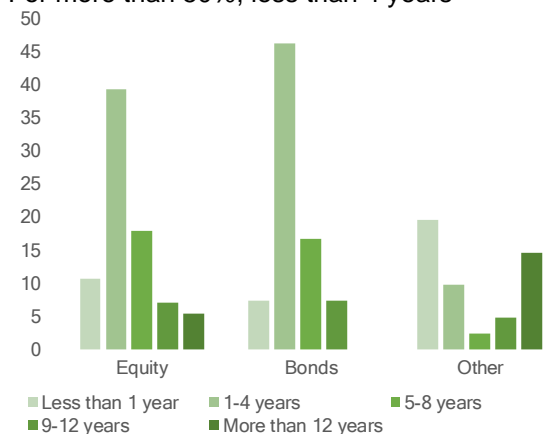
RA.19
Time horizon applicable to business activities
Less than 5 years in most cases



Note: Time horizon applicable to business activities (Q8), %
Source: ESMA public consultation.

The evidence on the actual investment-holding periods (RA.20) shows that the equities are commonly held in portfolios for less than 5 years (50% of respondents). Only a small minority of respondents (13%) apply a holding period that exceeds 9 years. Similarly, the holding period for bonds is less than 5 years for 54% of respondents, while only 7% hold them for a period of longer than 9 years.

RA.20
Holding period
For more than 50%, less than 4 years



Note: Actual holding period prevailing in the investment strategy (Q11), %
Source: ESMA public consultation.

Respondents were asked about the extent to which nodes in the investment value chain contribute to short-termism. Here 45% of respondents consider that sell-side analysts contribute to short-term investment behaviour to a large extent. Smaller proportions of the respondents consider that other financial market participants contribute to a large extent to short-

termism, including top managers of listed issuers (28%), retail investors (20%), asset owners (17%) and asset managers (15%) (RA.21).

RA.21
Drivers of short-termism
Sell-side analysts contribute to short-termism



Note: Nodes in the investment value chain contributing to the tendency towards short-termism (Q9), %
Source: ESMA public consultation.

Market participants tend to indicate several concurring factors without selecting the main cause of short-termism. Potential drivers cited include client demand (35%), market pressures (31%) and competitive pressure (30%). On the other hand, 44% of respondents consider that executive management remuneration does not result in short-termism by their institution, while 21% of respondents think that executive remuneration is only a limited driver of short-termism. Macroeconomic environment contributes to short-termism according to 42% of respondents, while it is not considered relevant at all by 22%.

Finally, 80% of the respondents to the survey do not expect any major change in relation to the investment horizon characterising their business in the coming years.

Can environmental, social and governance disclosure help?

The public debate on short-termism frequently cites disclosures of sustainability and environment, social and governance (ESG) factors as a way to relieve pressure on corporates and financial institutions to deliver short-term financial results, thus enabling investors to take a longer-term approach.

The disclosure of appropriate non-financial measures constitutes an important element to complement traditional financial measures (Barton, 2017). The recent increase in stakeholder scrutiny of ESG matters, including by

large institutional investors, and companies' growing awareness of the risks and opportunities associated with ESG issues confirm the importance of disclosure on these aspects.

As of 2018, 1 950 organisations, with almost USD 90tn in assets under management, had signed the Principles for Responsible Investment. This indicates a growing commitment by investors to incorporating sustainability issues into their analysis and decision-making. ESG factors also increasingly appear to influence the allocation and monitoring of assets at major institutions (Deutsches Aktieninstitut and Rothschild & Co. Deutschland, 2018).

However, the existing literature also identifies a number of challenges to effective mandatory ESG disclosure, most notably the difficulty of creating standards that ensure disclosure of comparable, reliable and relevant ESG information, the (lack of) materiality of ESG information disclosed, the use of boilerplate language as an avoidance tool, and the absence of an enforcement and assurance regime for ESG reporting (Christensen et al., 2019). Another challenge identified relates to the risk of bias in the reported information (Boiral, 2013).

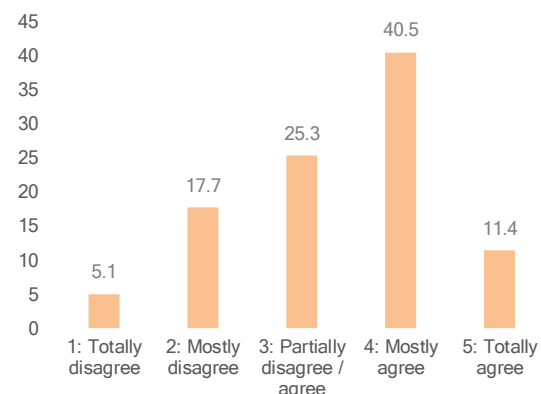
These challenges and the increasing demand from investors for ESG disclosure highlight the importance of the quality of the information provided by issuers.

The importance of ESG disclosure by listed companies for enabling investors to take long-term investment decisions is also supported by some of the ESMA survey findings: 77% of the respondents acknowledge, to varying degrees, that ESG disclosure provides insights into a listed company's long-term risk profile, that it complements the information provided by listed companies in their financial statements and that it provides insights into a company's future financial performance (RA.22).

RA.22

ESG disclosure by listed companies

Improved ESG disclosure for longer investments



Note: Extent of agreement with the statement: disclosure of ESG information by listed companies enables investors to take long-term investment decisions (Q15), %.

Source: ESMA public consultation.

However, several factors discouraging investors from using ESG disclosure to apply a long-term investment horizon have also been mentioned, including:

- a lack of sufficiently forward-looking disclosure on ESG risks and opportunities;
- a lack of comparability between different companies' disclosure, due to the Non-Financial Reporting Directive requirements not being sufficiently detailed and allowing use of various frameworks;
- a lack of a clear link between ESG matters and the company's current and future performance;
- a lack of consistency between companies' disclosed ESG policies and evidence of their actions.

Finally, ESG data quality also remains an issue: data are self-reported, leading to low reliability and consistency; disclosure methodologies vary between data providers; and data are often not quantifiable.

Fair value accounting: a short-termism driver?

Another potential factor affecting investment horizons is the use of fair-value measurement, especially since the implementation of IFRS 13 Fair Value Measurement (effective since 2013) and of IFRS 9 Financial Instruments (effective since 2018). Some stakeholders have voiced concerns that the increased volatility in profit and loss brought by IFRS 9 might lead those entities that are subject to the new standard, namely listed companies, to reduce their exposure to

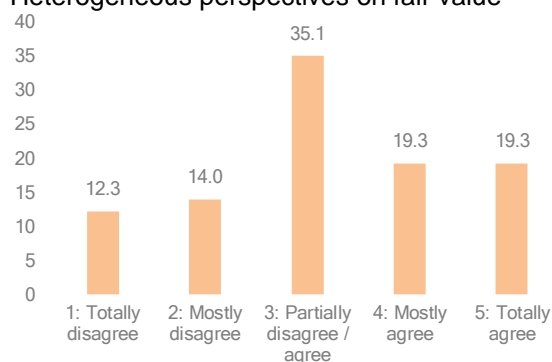
equity-type instruments, which would be detrimental to long-term investment.

While recognising the limitations of fair value accounting, the economic literature overall recognises that there are no credible alternatives (Véron, 2008; CFA Institute, 2013; Magnan et al., 2015).

The ESMA survey findings also shed light on fair value accounting: 39% of respondents generally agreed that fair value provides relevant information for a company's management regarding the short- and long-term consequences of the investments held, 35% held mixed views (i.e. partly agreeing and partly disagreeing) and 26% disagreed (RA.23). More decisively, for a majority of respondents IFRS 9 is not a decisive factor when deciding whether or not to undertake a new long-term investment (58%) or when triggering divestment (66%).

RA.23

Perspectives on fair value accounting measures
Heterogeneous perspectives on fair value



Note: Fair value accounting, replies to the question: for the purpose of enabling an external analyst or investor to assess the performance of long-term investments held in equity instruments by a company, fair value provides relevant information in order to better understand the short-term and the long-term consequences of the investments (Q23), %
Source: ESMA public consultation.

Therefore, according to both the survey and the recent literature, the fair value measurement does not appear to lead to distortions of the investment process that trigger undue short-termist pressures in financial markets.

Investor engagement

Shareholder engagement is often mentioned as a way to counter short-termism and to ensure the sustainable development of companies. Traditionally, researchers considered monitoring to be the key tool to reduce the information

asymmetries between shareholders and managers (Berle and Means, 1933). Corporate finance literature has also investigated this (Rock, 2015), and concluded that investors lack proper incentives to monitor.⁷⁵

Recent literature also presents a variety of engagement possibilities available to minimise this principal-agent problem between shareholders and management (Ertimur et al., 2010) and investigated their ability to steer firms' strategies more towards long-term value.

These engagement strategies can be classified in three broad categories: (i) engaging in private conversations with management and the board, (ii) exercising voting rights at companies' shareholder meetings and (iii) proposing resolutions at companies' shareholder meetings (shareholders' proposals).

The typical areas for shareholder engagement are governance and strategy. As shown in a survey presented by McCahery et al. (2015), 88% of the respondents consider inadequate corporate governance and excessive compensation somewhat or very important triggers for engagement. Another important trigger is disagreement with a firm's strategy, e.g. a proposed merger or acquisition (82%). These results indicate that investors engage not only over short-term issues (e.g. on dividend policy) but also, and even more, on long-run strategic issues.

Overall, considering the whole spectrum of engagement measures, there is some evidence of the beneficial role of engagement in terms of increasing shareholder value (Cuñat et al., 2012; Iliev and Lowry, 2015).

Based on the evidence collected through ESMA's public survey, fund managers perceive themselves as following a predominantly active investment strategy (82%) and tending to invest with a long-term horizon (71%) (RA.24).

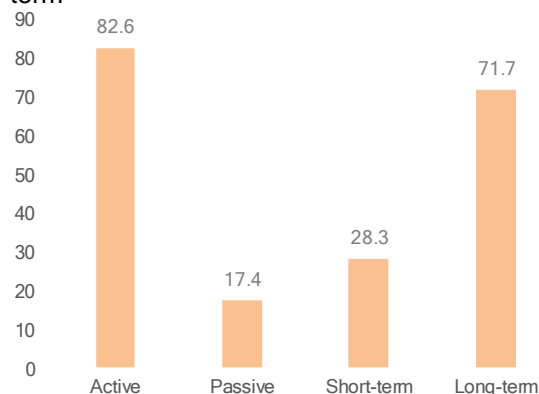
⁷⁵ They suffer from 'rational apathy' because rational shareholders exert the effort to make an informed decision only if the expected benefits of doing so outweigh

its costs. As a result, free-riding issues operate as key obstacles to effective monitoring.

RA.24

Fund managers' strategies

Managers define themselves as active and long-term



Note: Distribution of replies to Q27 (i): 'is your investment strategy predominantly active or passive?' and to Q27 (ii): 'are you predominantly long-term or short-term?', %.

Sources ESMA public consultation.

Among those respondents who indicate that they have a long-term active investment strategy, several explained that their approach is characterised by low portfolio turnover and focuses on sustainable value creation. On that basis, they conduct thorough scrutiny of the companies they invest in, assessing, inter alia, the quality of corporate governance of investee companies.

Respondents who identified themselves as long-term passive investors generally explained that their portfolio allocation follows a certain index/benchmark and is not decided by a portfolio manager. In most cases this implies being the quasi-permanent owner of certain securities and therefore a long-term focus is an inherent part of their business strategy, in line with their clients' interest.

Short-term investors often argue that their investment strategy is dictated by liquidity needs, the nature of their clients and/or the type of products they market.

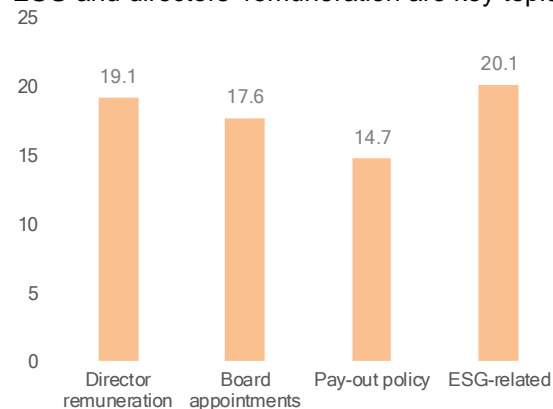
In addition, it is interesting to note that, while leading asset managers consider themselves predominantly active and long-term, they acknowledge that their equity holdings are nonetheless managed with a short-term horizon.

Moreover, the results of the call for evidence also indicate that long-term engagement increasingly addresses sustainability-related topics, for example when it comes to AGM votes (RA.25).

RA.25

Active engagement topics

ESG and directors' remuneration are key topics



Note: Distribution of replies to the question: what are the main topics your firm engages on in order to mitigate any potential sources of undue short-termism? (Q32), %.

Source: ESMA public consultation.

Remuneration of fund managers and executives

Short-termism is often related to the pursuit of short-term earnings and behavioural factors.⁷⁶ On earnings, the performance of corporate executives and investment managers is frequently assessed on a short-term time horizon. There is a link between short-term earnings and a company's share price, which in turn is a key determinant of senior executives' compensation. Similarly, investment fund performance is often measured against recent investment returns and portfolio managers are compensated on the basis of that short-term performance.

The recent evidence collected by ESMA is also informative on remuneration. For two of the most common fund types, namely equity funds and fixed income funds, around 27% of respondents indicated that the variable component of remuneration for identified staff was over 50%. Hedge fund and alternative fund respondents were evenly split between the two extreme options of 0-20% and over 50%. Private equity respondents showed a slight majority for over

⁷⁶ As regards behavioural factors, availability bias and myopia are often cited in literature as potential drivers of short-termism. Emphasis on short-term performance is likely to fuel availability bias, the human tendency to focus on the information that is readily available. Myopic loss

aversion is the tendency to focus unduly on short-term losses. Under its influence, corporate executives and investors may overreact to recent losses.

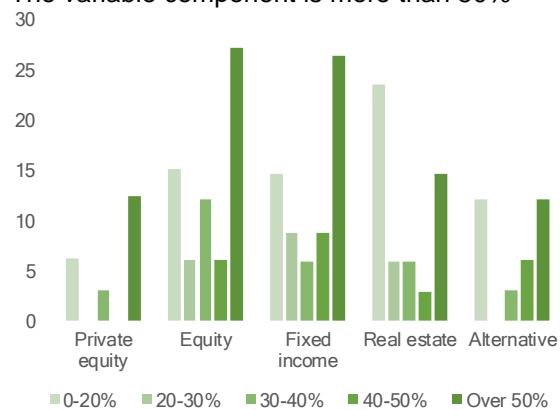
50% while real estate respondents reported a slight majority for 0-20%.

Overall, across all fund types, a slight majority of those who responded indicated that the variable component of identified staff remuneration is over 50%, while the second most popular option is at the other end, namely 0-20% (RA.26).

RA.26

Remuneration of fund managers

The variable component is more than 50%



Note: Distribution of replies to the question: 'in the salaries of identified staff of your firm's funds, what is the average share of the variable component compared to the fixed component?'; (Q40), %
Source: ESMA public consultation.

A significant majority of respondents indicated that the time period considered for the pay-out of the variable remuneration is 4 years or less (1-4 years). The majorities were striking in equity (57%) and fixed income (56%) funds.

The remuneration of executive directors is also a traditional area of research. In particular, because remuneration is often connected to short-term indicators, such as annual and quarterly performance metrics, it is frequently argued that it provides incentives to take riskier decisions to boost short-term revenues (Salazar and Mohamed, 2016).

Evidence from the survey shows that variable remuneration constitutes either less than 30% or more than 50% of fixed remuneration. The reference period for the calculation of variable remuneration is normally between 1 and 4 years (67%) or less than 1 year (30%). Deferral of payment of variable remuneration is either by 3-5 years (63%) or by less than 3 years (37%). Only one third of respondents stated that variable remuneration is linked to ESG-related objectives. Some respondents commented that such objectives are part of the company's strategic targets or KPIs and incorporated as such in their remuneration packages.

In line with the economic literature, more than 40% of respondents considered that there are common practices in the remuneration of corporate executives that contribute to short-termism, for example stock options linked to short-term value of the company's shares or to shareholder return based on an inappropriate peer group. The absence of malus or clawback clauses and the connection of remuneration to short-term KPIs such as sales were also mentioned.

Conclusion

Building on the recent collection of evidence through ESMA's survey on short-termism, this article discusses some of the commonly identified drivers of short-termism. Based on the survey, sell-side investment research and the remuneration of fund managers and executives are identified as potential factors determining excessive focus on short-term results. Improvements to the quality of ESG disclosure and institutional investor engagement would further help investors take more long-term investment decisions.

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Annexes

TRV statistical annex

In addition to the statistics presented in the risk-monitoring and risk analysis sections above we provide extensive and up-to-date charts and tables with key data on the markets under ESMA's remit in the TRV Statistical Annex, which is published jointly with the TRV and can be accessed from <https://www.esma.europa.eu/market-analysis/financial-stability>.

List of abbreviations

€STR	Euro short-term rate
1H(Q)19	First half (quarter) of 2019
AI	Artificial intelligence
AIF	Alternative investment fund
AIFM	Alternative investment fund manager
AIFMD	Directive on Alternative Investment Fund Managers
AuM	Assets under management
BF	Bond fund
BMR	Benchmarks Regulation
bps	Basis points
BUBOR	Budapest Interbank Offered Rate
CA	Cryptoasset
CBOE	Chicago Board Options Exchange
CCP	Central counterparty
CDS	Credit default swap
CEREP	Central repository
CFD	Contract for differences
CFTC	Commodity Futures Trading Commission
CME	Chicago Mercantile Exchange
CNAV	Constant net asset value
CRA	Credit rating agency
CPMI-IOSCO	Committee on Payments and Market Infrastructures-International Organization of Securities Commissions
CSD	Central securities depository
DLT	Distributed ledger technology
EA	Euro area
EBA	European Banking Authority
ECB	European Central Bank
EFIF	European Forum for Innovation Facilitators
EIOPA	European Insurance and Occupational Pensions Authority
EM	Emerging market
EONIA	Euro Overnight Index Average
ESA	European supervisory authority
ESG	Environmental, social and governance
ESMA	European Securities and Markets Authority
ESTER	Euro short-term rate
ETF	Exchange-traded fund
ETS	Emissions-trading system
EU	European Union
Euribor	Euro Interbank Offered Rate
FCA	Financial Conduct Authority
FinTech	Financial technology
FSB	Financial Stability Board
FVC	Financial vehicle corporation
GDP	Gross domestic product
GDPR	General Data Protection Regulation
HY	High yield
ICE	Intercontinental Exchange
ICO	Initial coin offering
IFRS	International Financial Reporting Standard
IG	Investment grade
IMF	International Monetary Fund
IRD	Interest-rate derivative

ISIN	International Securities Identification Number
KID	Key Information Document
KPI	Key performance indicator
LEI	Legal Entity Identifier
LIBOR	London Interbank Offered Rate
LVNAV	Low-volatility net asset value
MFIs	Monetary and Financial Institutions
MiFID II	Directive on Markets in Financial Instruments repealing Directive 2004/39/EC
MiFIR	Regulation on Markets in Financial Instruments
ML	Machine learning
MMF	Money market fund
MMFR	Money Market Fund Regulation
MTF	Multilateral trading facility
NAV	Net asset value
NCA	National competent authority
NFC	Non-financial corporates
NIBOR	Norwegian Interbank Offered Rate
OFI	Other financial institution
OTC	Over the counter
ppt	Percentage point
Pribor	Prague Interbank Offered Rate
PRIIP	Packaged Retail and Insurance-based Investment Product
RegTech	Regulatory technology
SEC	Securities and Exchange Commission
SFT	Securities Financing Transaction
SFTR	Securities Financing Transaction Regulation
SI	Systematic internaliser
SOFR	Secured Overnight Financing Rate
Stibor	Stockholm Interbank Offered Rate
SupTech	Supervisory technology
TechFin	Technology firm that begins to offer financial services
TRV	Report on trends, risks and vulnerabilities
UCITS	Undertakings for Collective Investment in Transferable Securities
VNAV	Variable net asset value
WEF	World Economic Forum
WIBOR	Warsaw Interbank Offered Rate

Currencies abbreviated in accordance with ISO standards
Countries abbreviated in accordance with ISO standards

Currencies abbreviated in accordance with ISO standards



European Securities and
Markets Authority

