



European Securities and  
Markets Authority

# TRV Statistical Annex

ESMA Report on Trends, Risks and Vulnerabilities

No. 1, 2020



19 February 2020  
ESMA50-165-1041

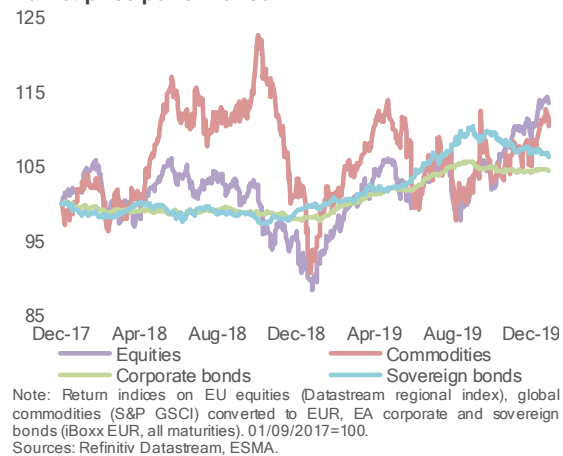
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# Market environment

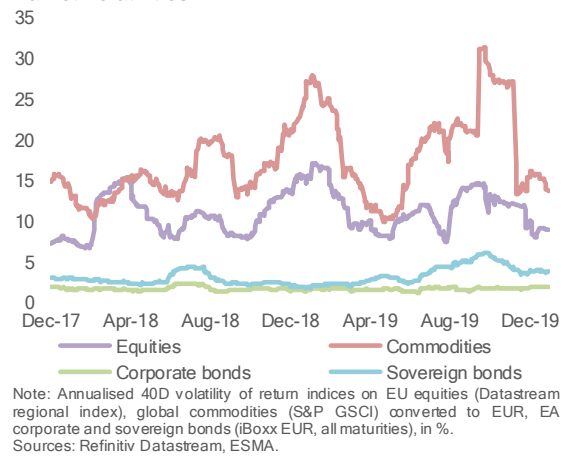
## A.1

### Market price performance



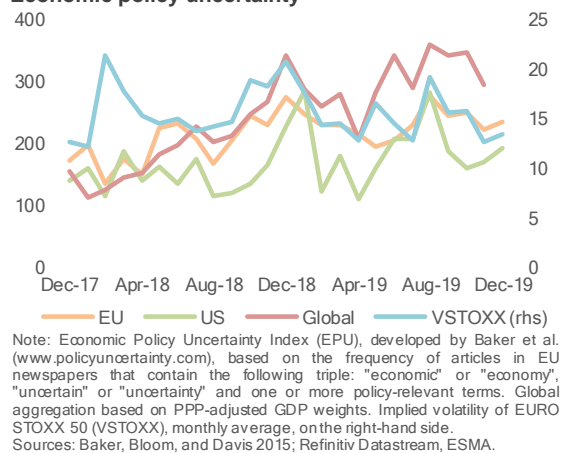
## A.2

### Market volatilities



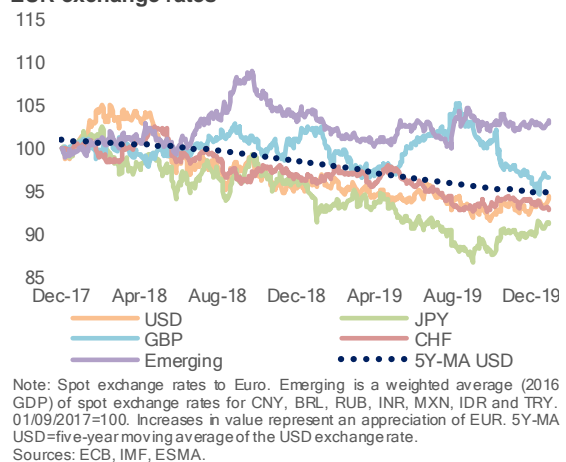
## A.3

### Economic policy uncertainty



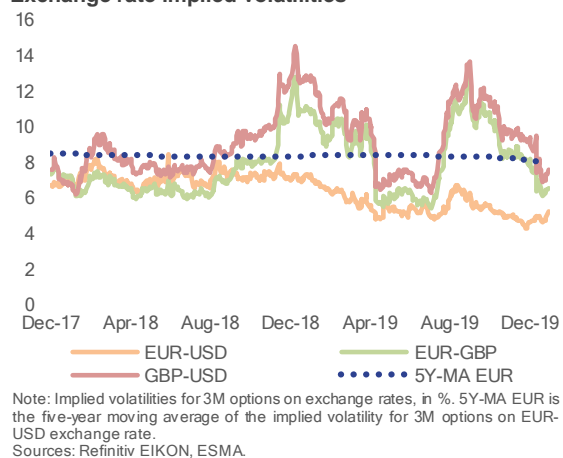
## A.4

### EUR exchange rates



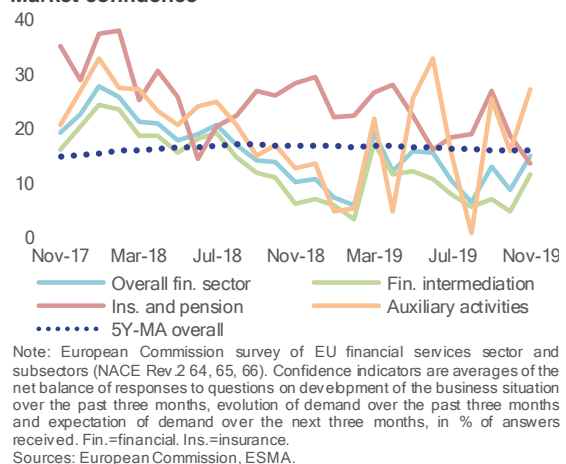
## A.5

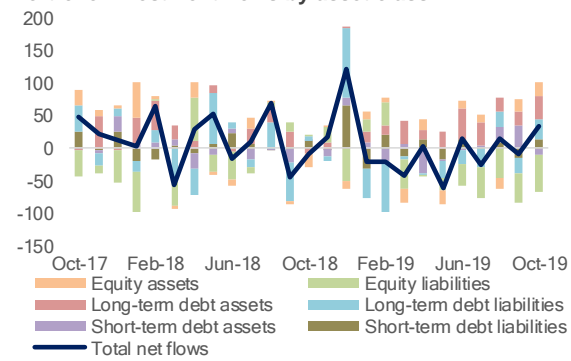
### Exchange rate implied volatilities



## A.6

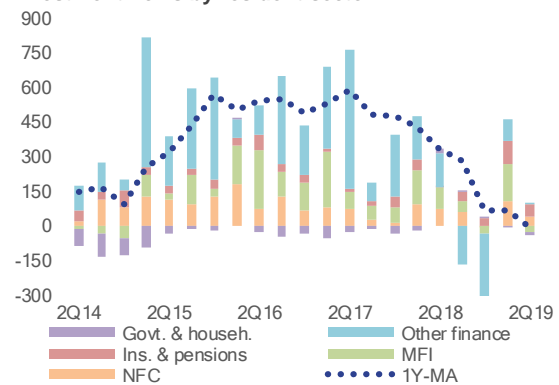
### Market confidence



**A.7****Portfolio investment flows by asset class**

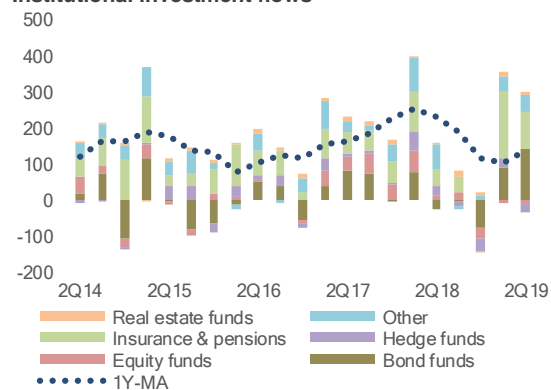
Note: Balance of Payments statistics, financial accounts, portfolio investments by asset class, EUR bn. Assets=net purchases (net sales) of non-EA securities by EA investors. Liabilities=net sales (net purchases) of EA securities by non-EA investors. Total net flows=net outflows (inflows) from (into) the EA.

Sources: ECB, ESMA.

**A.8****Investment flows by resident sector**

Note: Quarterly Sector Accounts. Investment flows by resident sector in equity (excluding investment fund shares) and debt securities, EUR bn. 1Y-MA=one-year moving average of all investment flows.

Sources: ECB, ESMA.

**A.9****Institutional investment flows**

Note: EA institutional investment flows by type of investor, EUR bn. Other=financial vehicle corporations, mixed funds, other funds. 1Y-MA=one-year moving average of all investment flows.

Sources: ECB, ESMA.

# Securities markets

## Equity markets

### A.10

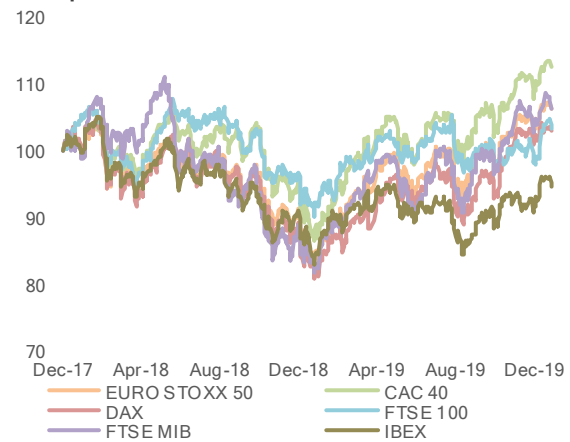
#### Price performance



Note: Datastream regional equity indices for the EU (in EUR), the US (in USD) and Japan (in JPY). 01/12/2017=100.  
Sources: Refinitiv Datastream, ESMA.

### A.11

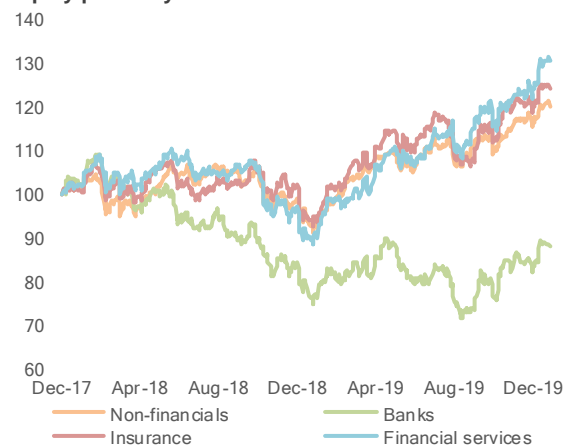
#### Price performance of national indices



Note: National equity indices from selected EU members. 01/12/2017=100.  
Sources: Refinitiv Datastream, ESMA.

### A.12

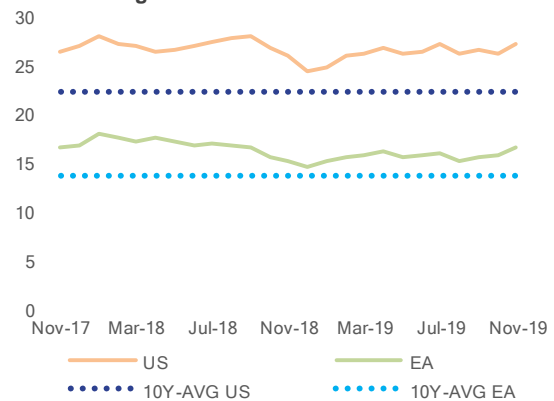
#### Equity prices by sector



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

### A.13

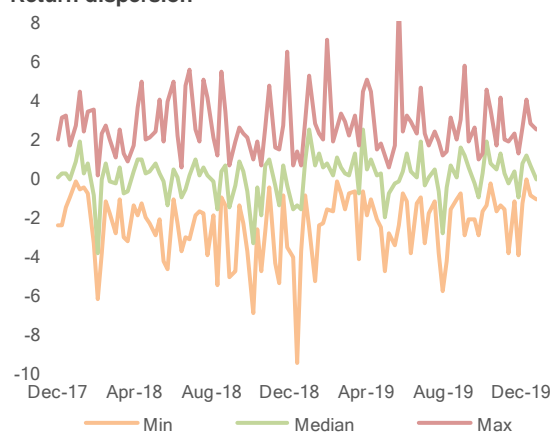
#### Price-earnings ratios



Note: Price-earnings ratios based on average inflation-adjusted earnings from the previous 10 years (cyclically adjusted price-earnings ratios). Averages computed from the most recent data point up to 10 years before.  
Sources: Refinitiv Datastream, ESMA.

### A.14

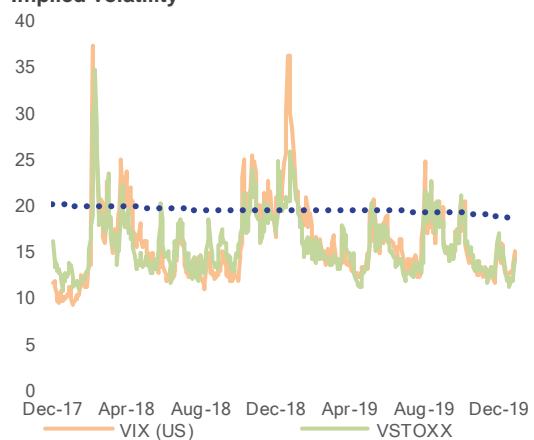
#### Return dispersion



Note: Dispersion of the weekly returns on the main equity indices in the EU.  
Sources: Refinitiv Datastream, ESMA.

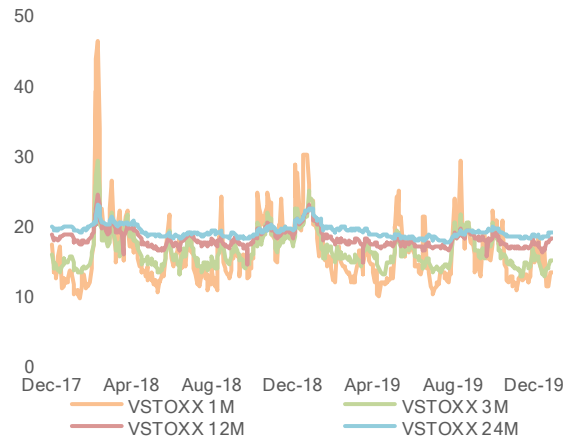
### A.15

#### Implied volatility



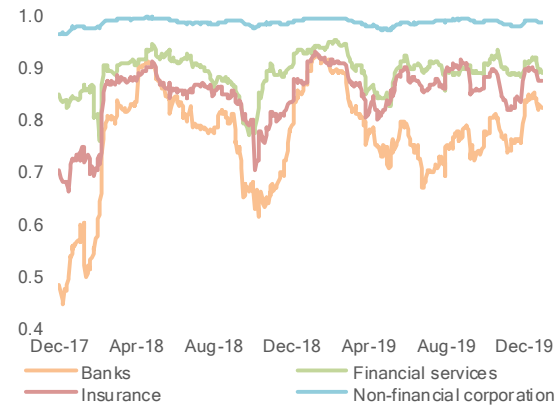
Note: Implied volatility of EURO STOXX 50 (VSTOXX) and S&P 500 (VIX), in %.  
Sources: Refinitiv Datastream, ESMA.

**A.16**  
**Implied volatility by option maturity**



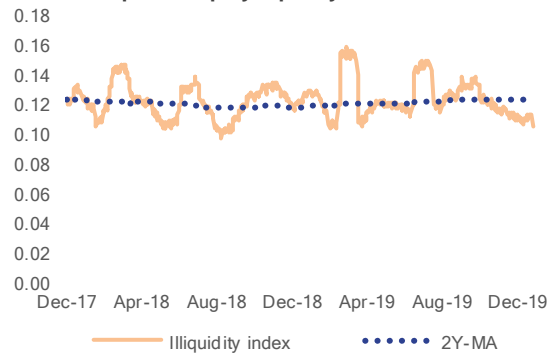
Note: EURO STOXX 50 implied volatilities, measured as price indices, in %.  
Sources: Refinitiv Datastream, ESMA.

**A.17**  
**Correlation STOXX Europe 600 and sectoral indices**



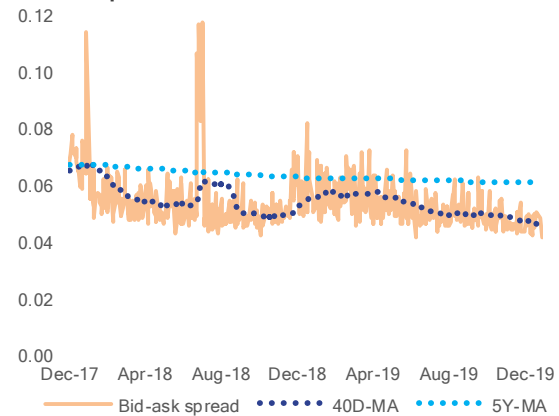
Note: Correlations between daily returns of the STOXX Europe 600 and STOXX Europe 600 sectoral indices. Calculated over 60D rolling windows.  
Sources: Refinitiv Datastream, ESMA.

**A.18**  
**ESMA composite equity liquidity index**



Note: Composite indicator of illiquidity in the equity market for the current STOXX Europe Large 200 constituents, computed by applying the principal component methodology to six input liquidity measures (Amihud illiquidity coefficient, bid-ask spread, Hui-Heubel ratio, turnover value, inverse turnover ratio and market efficiency coefficient). The indicator range is between 0 (higher liquidity) and 1 (lower liquidity).  
Sources: Refinitiv Datastream, ESMA.

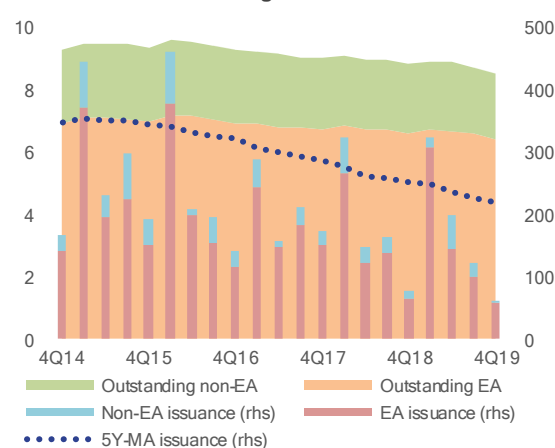
**A.19**  
**Bid-ask spread**



Note: Liquidity measure as median of the bid-ask price percentage difference for the current EU constituents of STOXX Europe Large 200, in %.  
Sources: Refinitiv Datastream, ESMA.

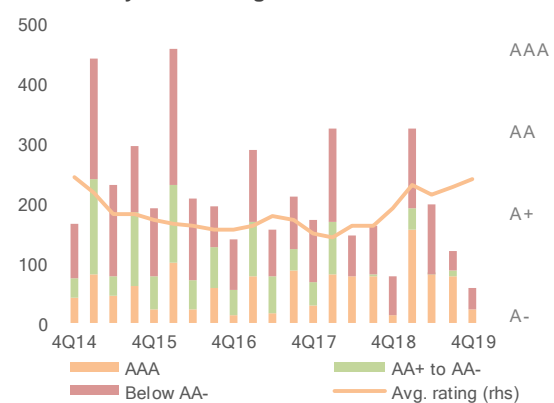
## Sovereign-bond markets

**A.20**  
**Issuance and outstanding**

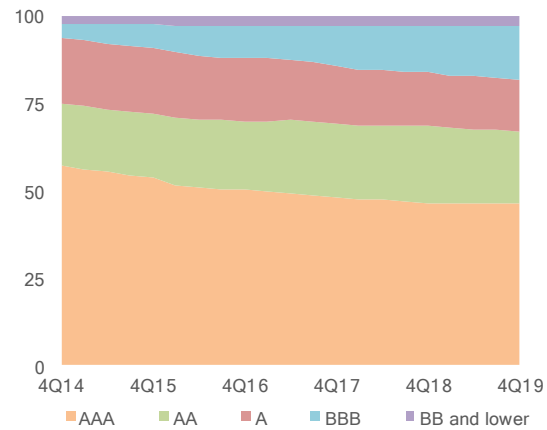


Note: Quarterly sovereign bond issuance in the EU (rhs), EUR bn, and outstanding amounts, EUR tn.  
Sources: Refinitiv EIKON, ESMA.

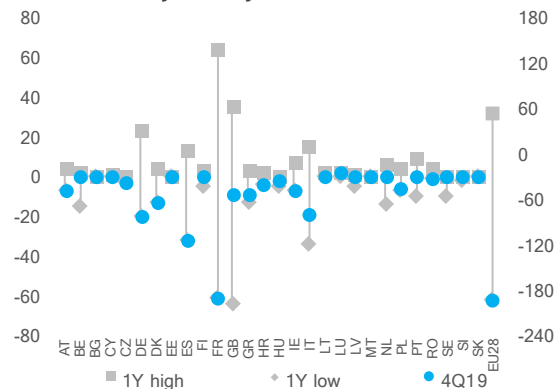
**A.21**  
**Issuance by credit rating**



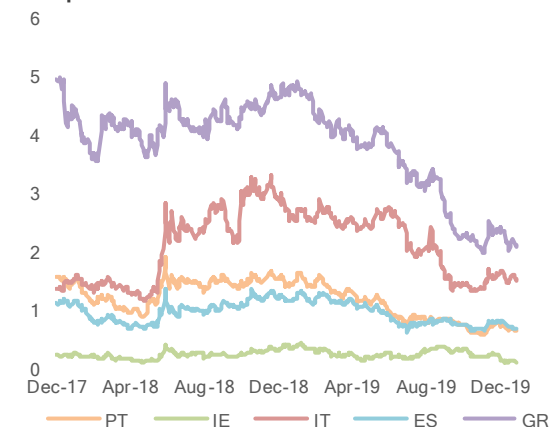
Note: Quarterly sovereign bond issuance in the EU by rating category, EUR bn. Avg. rating=weighted average rating computed as a one-year moving average of ratings converted into a numerical scale (AAA=1, AA+=2, etc.).  
Sources: Refinitiv EIKON, ESMA.

**A.22****Rating distribution**

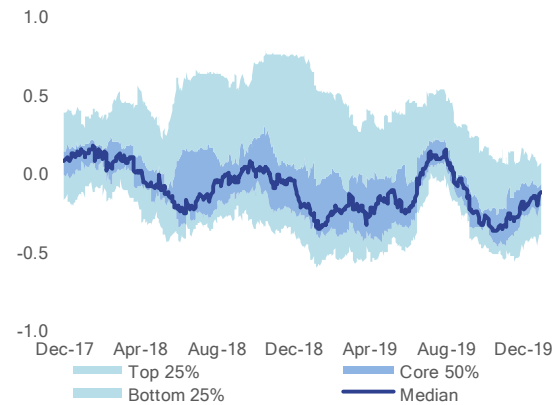
Note: Outstanding amount of sovereign bonds in the EU as of issuance date by rating category, in % of the total.  
Sources: Refinitiv EIKON, ESMA.

**A.24****Net issuance by country**

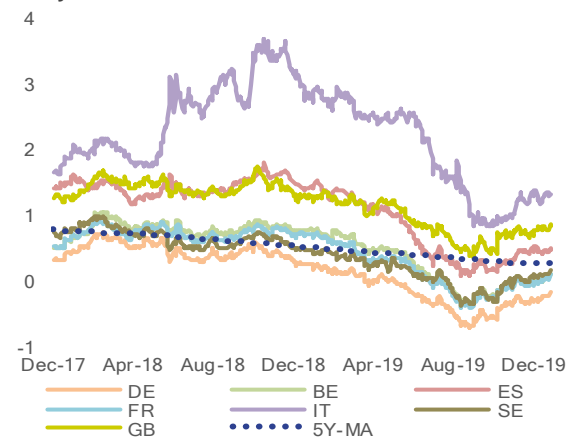
Note: Quarterly net issuance of EU sovereign debt by country, EUR bn. Net issuance calculated as the difference between new issuance over the quarter and outstanding debt maturing over the quarter. Highest and lowest quarterly net issuance in the past year are reported. EU total on right-hand scale.  
Sources: Refinitiv EIKON, ESMA.

**A.26****10Y spreads**

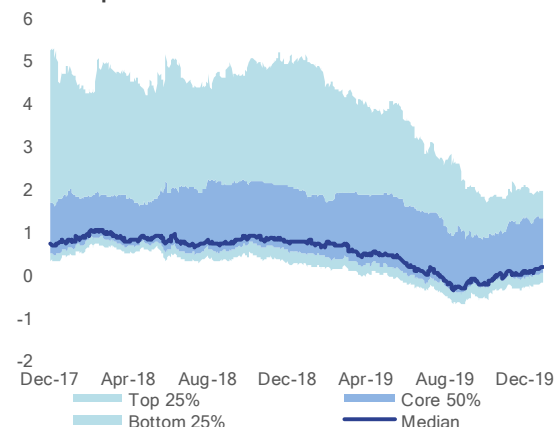
Note: Selected 10Y EA sovereign bond risk premia (vs. DE Bunds), in %.  
Sources: Refinitiv Datastream, ESMA.

**A.23****Equity-sovereign bond correlation dispersion**

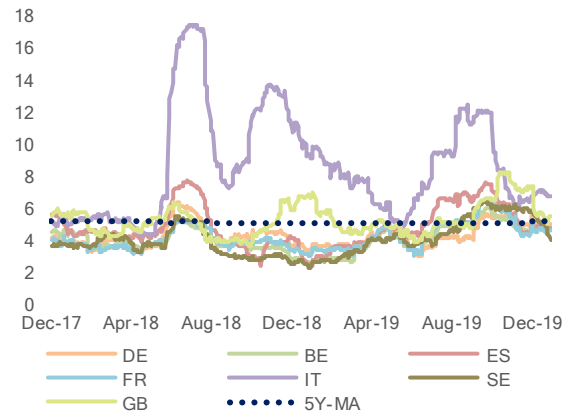
Note: Dispersion of the correlation between daily returns of national equity indices and national sovereign debt return index, for 17 countries in the EU, over 60D rolling windows.  
Sources: Refinitiv Datastream, ESMA.

**A.25****10Y yields**

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

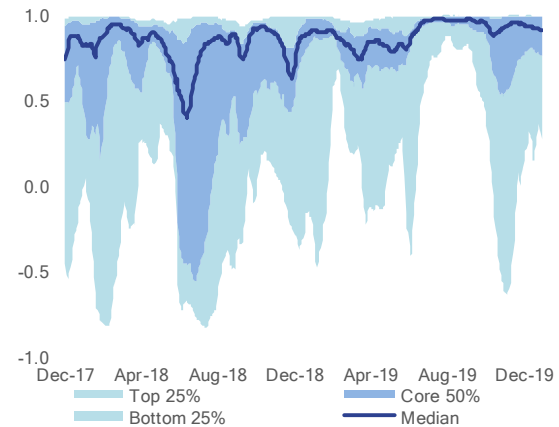
**A.27****Yield dispersion**

Note: Dispersion of yields on 10Y sovereign bonds of 17 EU countries, in %.  
Sources: Refinitiv Datastream, ESMA.

**A.28****Volatility**

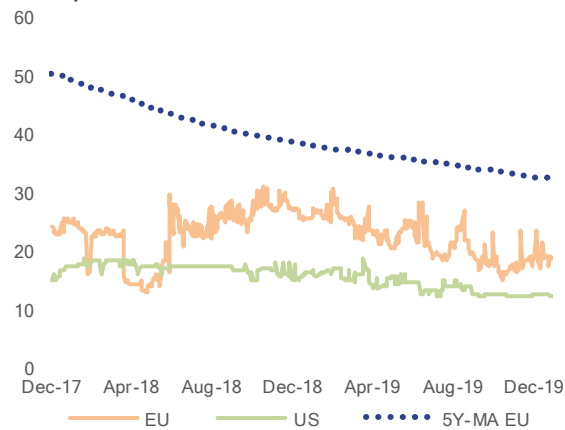
Note: Annualised 40D volatility of 10Y sovereign bonds, selected EU members, in %. 5Y-MA=five-year moving average of EA 10Y bond indices computed by Datastream.

Sources: Refinitiv Datastream, ESMA.

**A.29****Yield correlation dispersion**

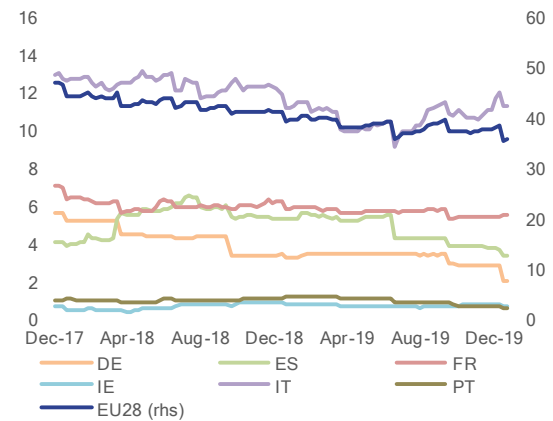
Note: Dispersion of correlations between 10Y DE Bunds and other EU countries' sovereign bond redemption yields over 60D rolling windows.

Sources: Refinitiv Datastream, ESMA.

**A.30****CDS spreads**

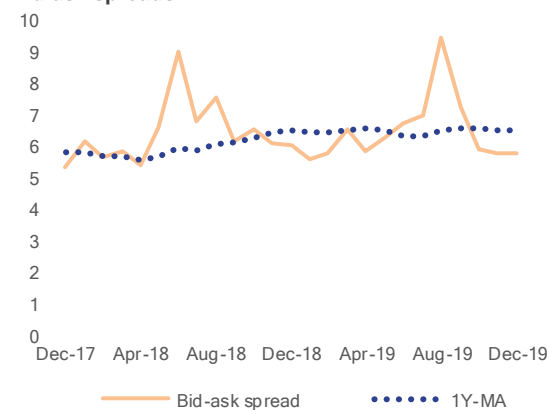
Note: Datastream CDS sovereign indices (5 years, mid-spread).

Sources: Refinitiv Datastream, ESMA.

**A.31****CDS notional**

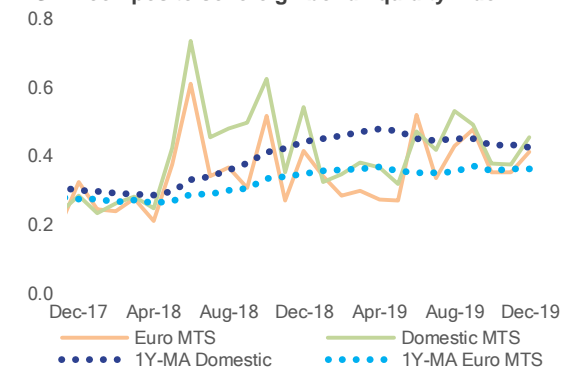
Note: Value of outstanding net notional sovereign CDS for selected countries, in USD bn.

Sources: DTCC, ESMA.

**A.32****Bid-ask spreads**

Note: Bid-ask spread as weighted average of bid-ask spreads throughout a month weighted by trading volume across 10 EU domestic markets (AT, BE, DE, ES, FI, FR, IE, IT, NL and PT) and Euro MTS, in bps.

Sources: MTS, ESMA.

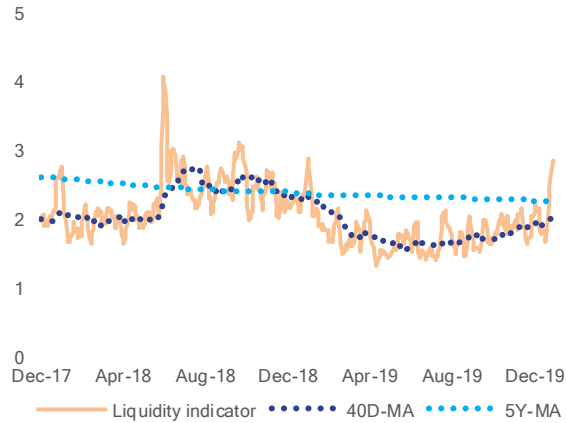
**A.33****ESMA composite sovereign bond liquidity index**

Note: Composite indicator of market liquidity in the sovereign bond market for the domestic and Euro MTS platforms, computed by applying the principal component methodology to four input liquidity measures (Amihud illiquidity coefficient, Bid-ask spread, Roll illiquidity measure and Turnover). The indicator range is between 0 (higher liquidity) and 1 (lower liquidity).

Sources: MTS, ESMA.

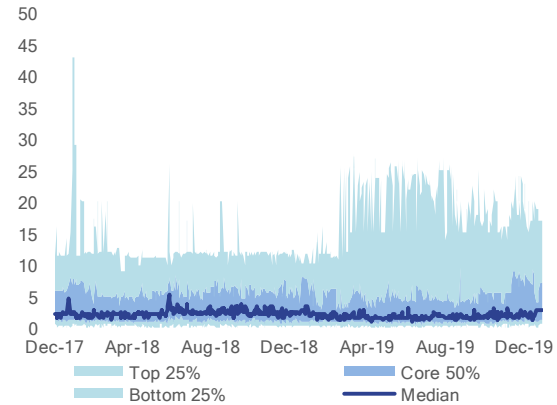


**A.34**  
**Liquidity**



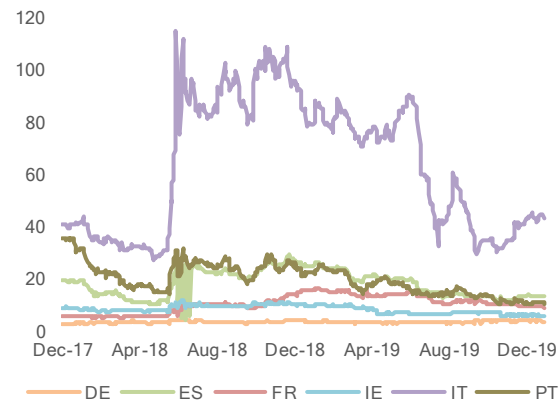
Note: Liquidity measured as median across countries of the bid-ask yields difference for 10Y sovereign bonds, in bps. 21 EU countries are included.  
Sources: Refinitiv EIKON, ESMA.

**A.35**  
**Liquidity dispersion**



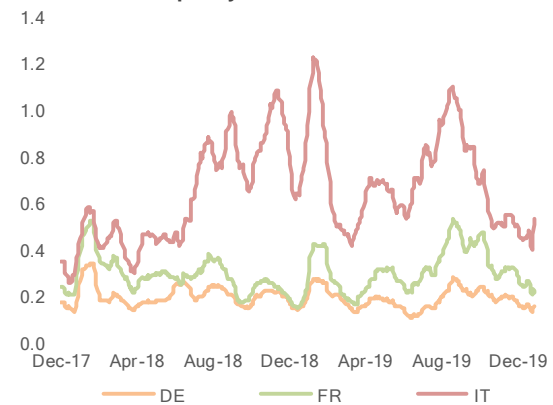
Note: Dispersion of liquidity measured as median across countries of the bid-ask yields difference for 10Y sovereign bonds, in bps. 21 EU countries are included.  
Sources: Refinitiv EIKON, ESMA.

**A.36**  
**Redenomination risk**



Note: Difference between 5Y CDS spreads under the 2014 ISDA definition (where debt redenomination is a credit event), and under the ISDA definition (where it is not), in bps.  
Sources: Refinitiv Datastream, ESMA.

**A.37**  
**Bond futures liquidity**



Note: One-month moving averages of the Hui-Heubel illiquidity indicator for selected 10Y sovereign bond futures, in %.  
Sources: Refinitiv Datastream, ESMA.

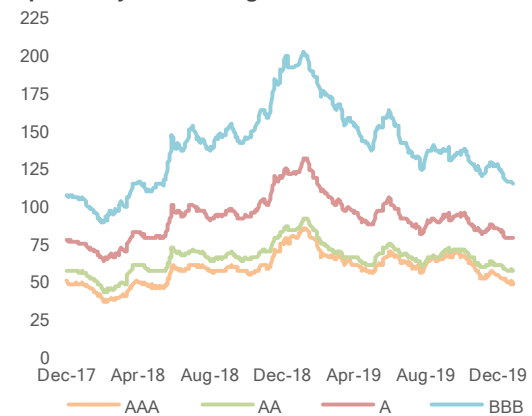
## Corporate-bond markets

**A.38**  
**Yields by credit rating**

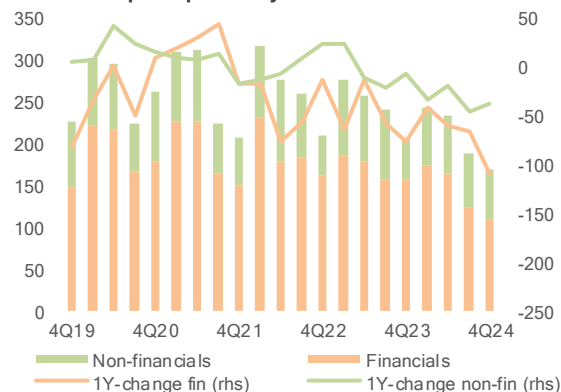


Note: Markit iBoxx euro corporate bond indices for all maturities, in %. 5Y-MA=five-year moving average of all indices.  
Sources: Refinitiv Datastream, ESMA.

**A.39**  
**Spreads by credit rating**

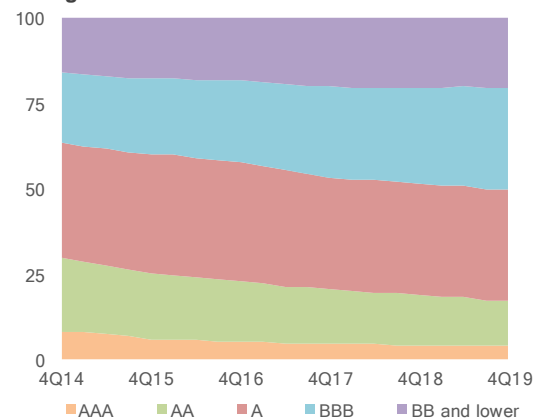


Note: EA corporate bond option-adjusted spreads by rating, in bps.  
Sources: Refinitiv Datastream, ESMA.

**A.40****Debt redemption profile by sector**

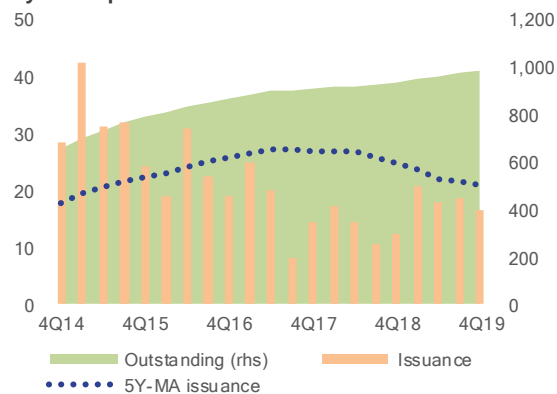
Note: Quarterly redemptions over 5Y-horizon by EU private financial and non-financial corporates, EUR bn. 1Y-change= difference between the sum of this year's (four last quarters) and last year's (8th to 5th last quarters) redemptions.

Sources: Refinitiv EIKON, ESMA.

**A.41****Rating distribution**

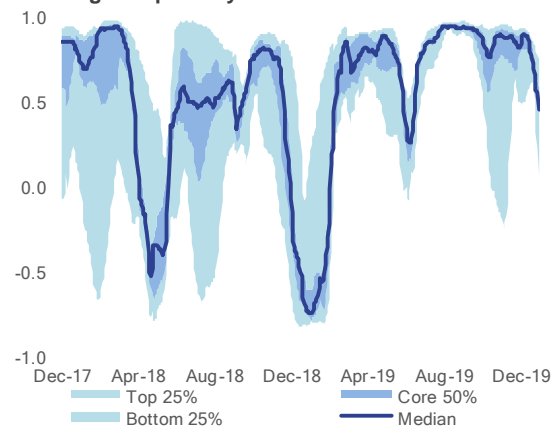
Note: Outstanding amount of corporate bonds in the EU as of issuance date by rating category, in % of the total.

Sources: Refinitiv EIKON, ESMA.

**A.42****Hybrid capital instruments**

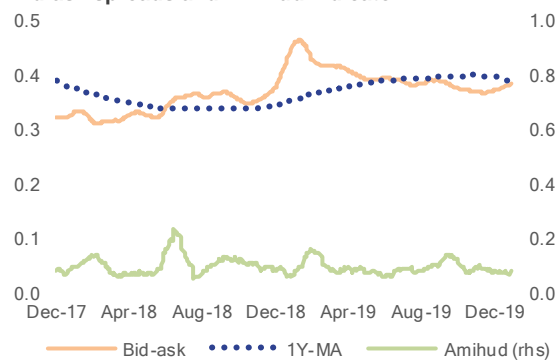
Note: Quarterly hybrid capital instruments issuance in the EU, EUR bn, and outstanding amounts (rhs), EUR tn. According to Thomson Reuters EIKON classification, hybrid capital refers to bonds having the qualities of both an interest-bearing security (debt) and equity.

Sources: Refinitiv EIKON, ESMA.

**A.43****Sovereign-corporate yield correlation**

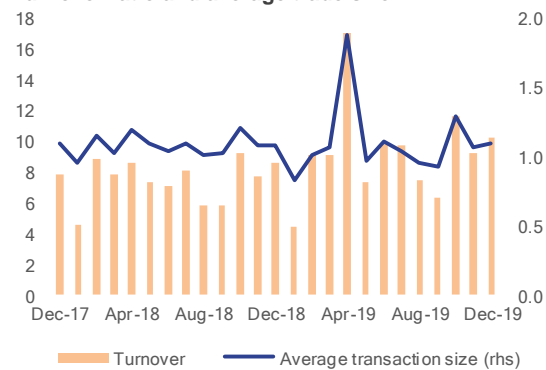
Note: Dispersion of correlation between Barclays Aggregate for corporate and 10Y sovereign bond redemption yields for AT, BE, ES, FI, FR, IT and NL.

Sources: Refinitiv Datastream, ESMA.

**A.44****Bid-ask spreads and Amihud indicator**

Note: Markit iBoxx EUR Corporate bond index bid-ask spread, in %, computed as a one-month moving average of the iBoxx components in the current composition. 1Y-MA=one-year moving average of the bid-ask spread. Amihud liquidity coefficient index between 0 and 1. Highest value indicates less liquidity.

Sources: IHS Markit, ESMA.

**A.45****Turnover ratio and average trade size**

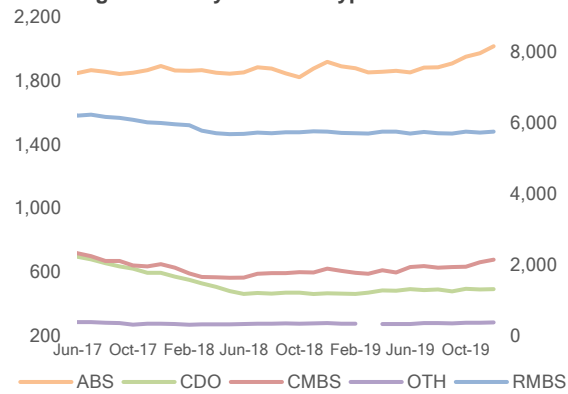
Note: Average transaction size for the corporate bond segment as the ratio of nominal amount of settlement instructions to number of settled instructions, in EUR mn. Turnover is the one-month moving average of the ratio of trading volume over outstanding amount, in %.

Sources: IHS Markit, ESMA.

## Credit quality

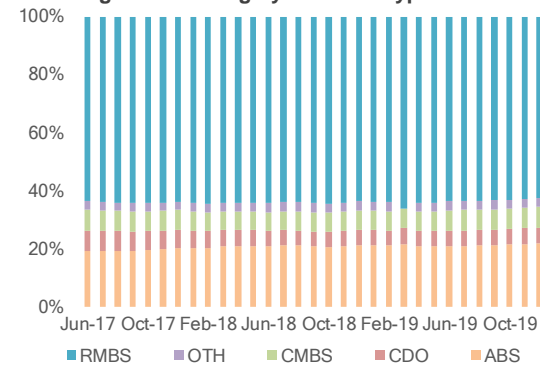
A.46

### SFI ratings issued by collateral type



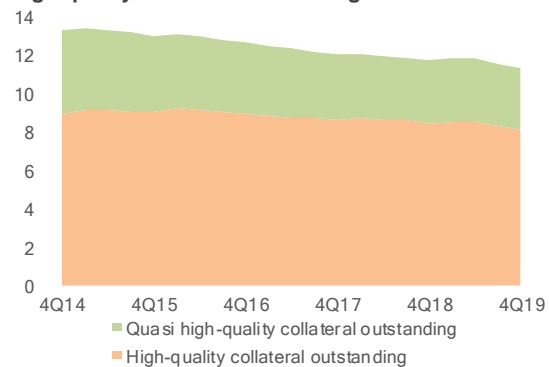
A.47

### SFI ratings outstanding by collateral type



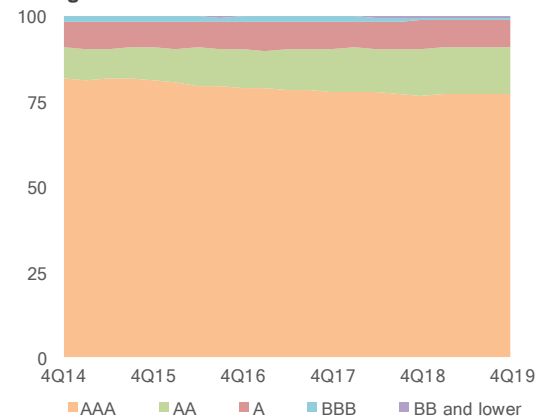
A.48

### High-quality collateral outstanding



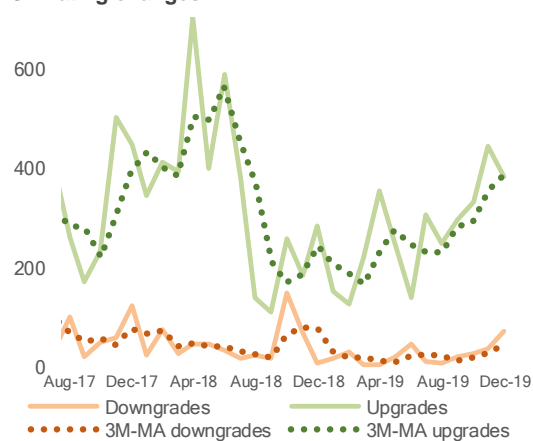
A.49

### Rating distribution of covered bonds



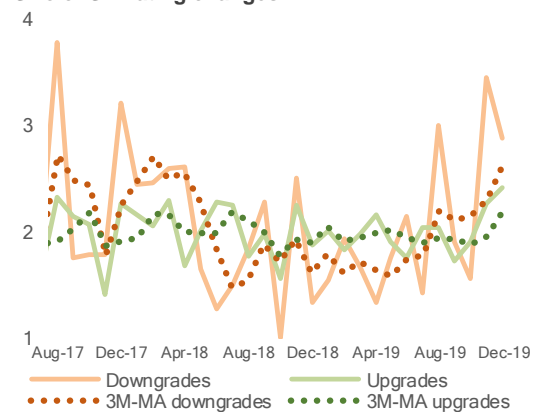
A.50

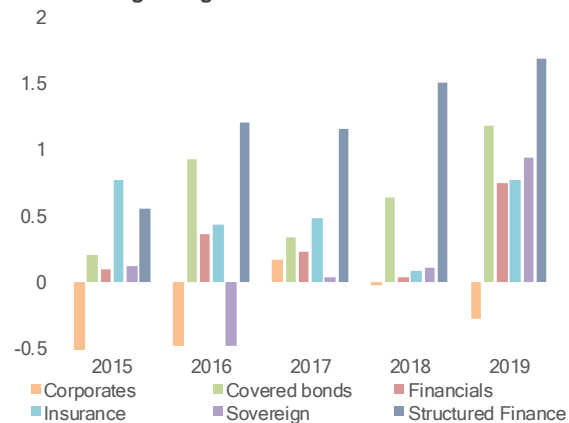
### SFI rating changes



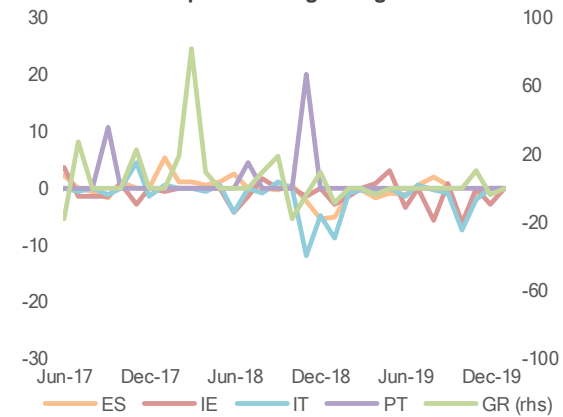
A.51

### Size of SFI rating changes

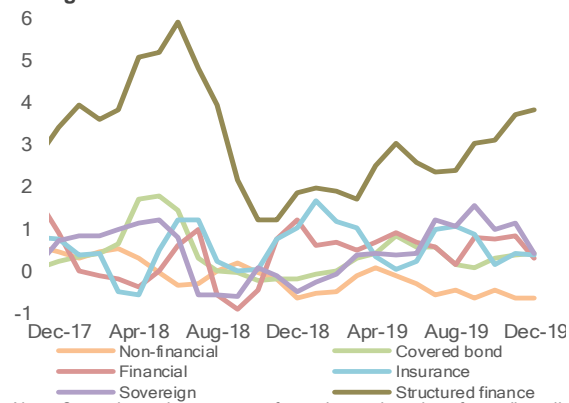


**A.52****Size of rating changes**

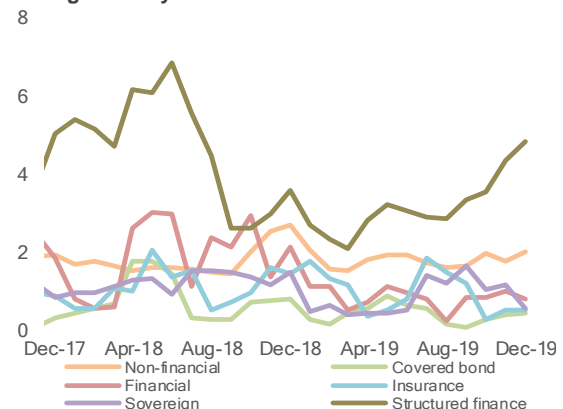
Note: Average change in notches for long-term ratings that changed for issuer types, covered bond instruments and structured finance, 2019 is year-to-date. Sources: RADAR, ESMA.

**A.53****Non-financial corporate rating changes**

Note: Number of upgrades minus downgrades of non-financial corporate issuers for ES, GR, IE, IT and PT, in % of outstanding ratings. Ratings from Fitch Ratings, Moody's and S&P's. Sources: RADAR, ESMA.

**A.54****Rating drift**

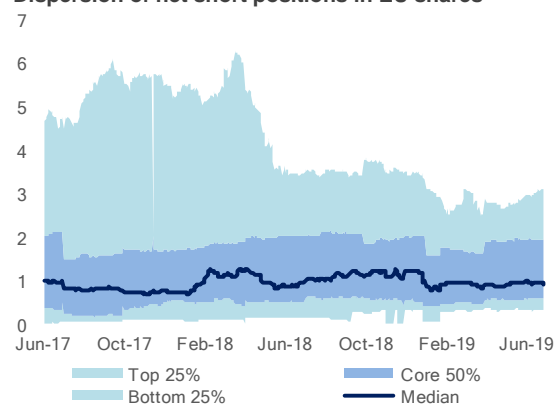
Note: 3 month moving average of net change in ratings from all credit rating agencies, excluding CERVED and ICAP, by asset class computed as a percentage number of upgrades minus percentage number of downgrades over number of outstanding ratings. Sources: RADAR, ESMA.

**A.55****Rating volatility**

Note: 3 month moving average of volatility of ratings by all credit rating agencies, excluding CERVED and ICAP, by asset class computed as number of rating changes over number of outstanding ratings. Sources: RADAR, ESMA.

**Short selling****A.56****Value of net short positions in EU shares**

Note: Market value of short selling positions as percentage of total market value in the EU. Number of shares part of a main national index on which short positions were reported by NCAs under the EU Short Selling Regulation (rhs). Sources: National Competent Authorities, Refinitiv Datastream, ESMA.

**A.57****Dispersion of net short positions in EU shares**

Note: Dispersion of net short positions by country as percentage of market value of those positions relative to each country's blue-chip index market value. Sources: National Competent Authorities, Refinitiv Datastream, ESMA.

**A.58****Value of net short positions in EU shares by sector**

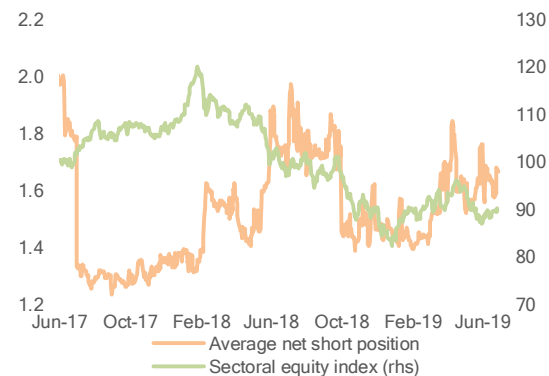
Note: Average of net short positions in EU shares for manufacturing, financial and information technology and utilities, in % of issued share capital.  
Sources: National Competent Authorities, ESMA.

**A.59****Value of net short positions in EU sovereign debt**

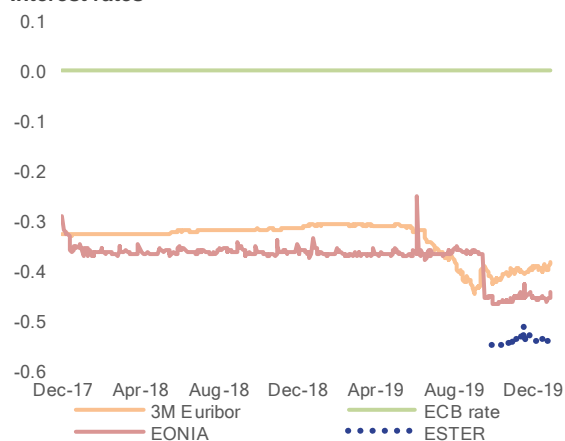
Note: Duration-adjusted short positions held on sovereigns in the EU, EUR tn.  
Sources: National Competent Authorities, ESMA.

**A.60****Net short positions in industrial shares and equity prices**

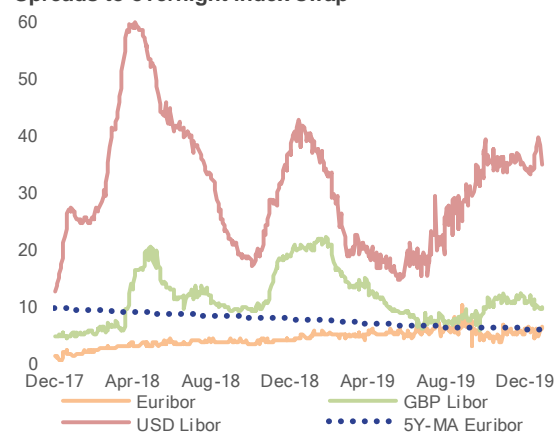
Note: Average of net short positions in EU manufacturing shares, in % of issued share capital (left axis), and EU industrials equity benchmark (right axis), indexed 01/06/2017=100.  
Sources: Refinitiv EIKON, National Competent Authorities, ESMA.

**A.61****Net short positions in financial shares and equity prices**

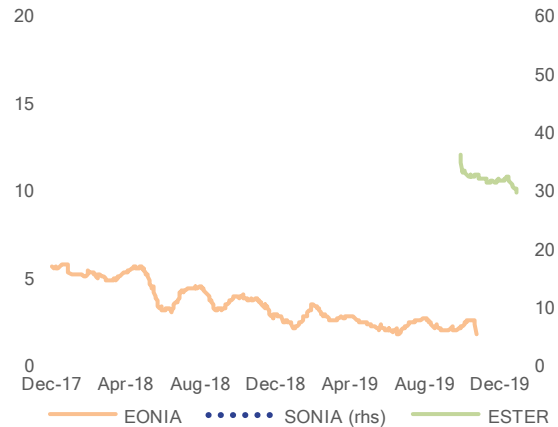
Note: Average of net short positions in EU financial shares, in % of issued share capital (left axis), and EU financials equity benchmark (right axis), indexed 01/06/2017=100.  
Sources: Refinitiv EIKON, National Competent Authorities, ESMA.

**Money markets****A.62****Interest rates**

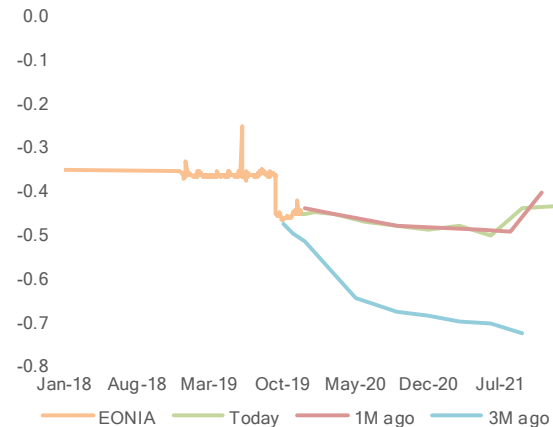
Note: Money market rates, in %.  
Sources: Refinitiv Datastream, ESMA.

**A.63****Spreads to overnight index swap**

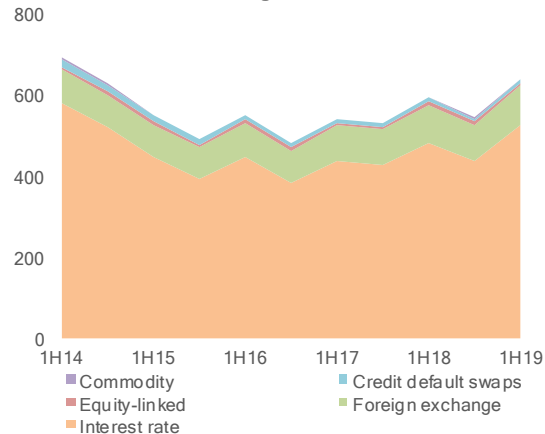
Note: Spreads between 3M interbank rates and 3M overnight index swap, in bps.  
Sources: Refinitiv Datastream, ESMA.

**A.64****Interbank overnight activity**

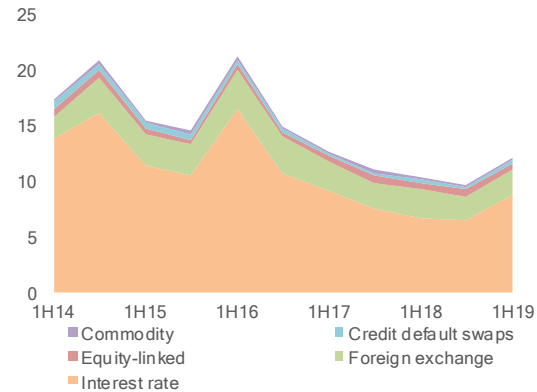
Note: 1M-MA of daily lending volumes on Euro Overnight Index Average (EONIA), EUR bn, and Sterling Overnight Index Average (SONIA), GBP bn. Sources: ECB, Refinitiv EIKON, ESMA.

**A.65****EONIA forwards**

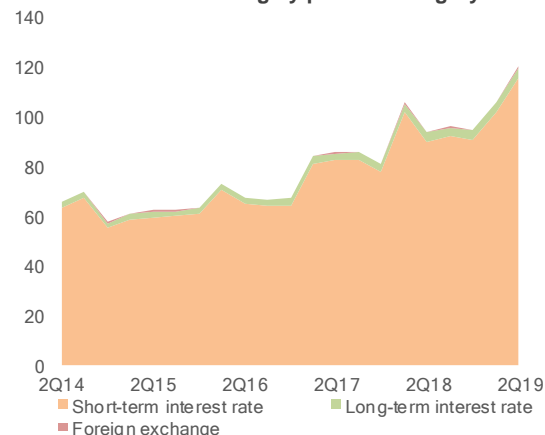
Note: Euro overnight index swap forwards, in %. Sources: Refinitiv EIKON, ESMA.

**Derivatives markets****A.66****OTC notional outstanding**

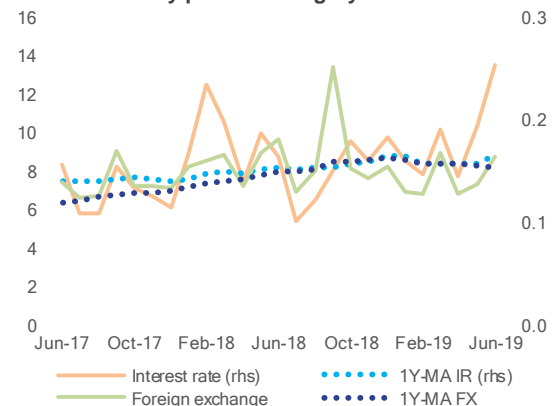
Note: Gross notional amounts of outstanding OTC derivatives by product category, USD tn. Sources: Bank for International Settlements, ESMA.

**A.67****OTC market value**

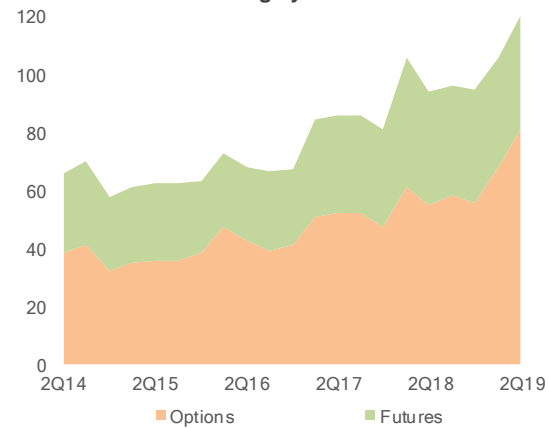
Note: Gross market values of outstanding OTC derivatives by category, USD tn. Gross market values represent the cost of replacing all open contracts at the prevailing market prices. Sources: Bank for International Settlements, ESMA.

**A.68****ETD notional outstanding by product category**

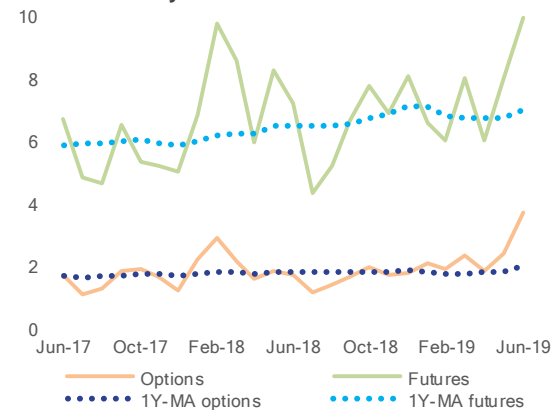
Note: Open interest in exchange-traded derivatives by product category, in USD tn. Sources: Bank for International Settlements, ESMA.

**A.69****ETD turnover by product category**

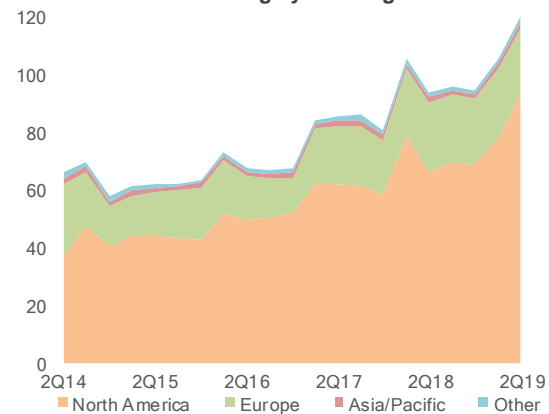
Note: Global average daily turnover in exchange-traded derivatives by product category, in USD tn. 1Y-MA IR=one-year moving average for interest rate, 1Y-MA FX=one-year moving average for foreign exchange. Sources: Bank for International Settlements, ESMA.

**A.70****ETD notional outstanding by asset class**

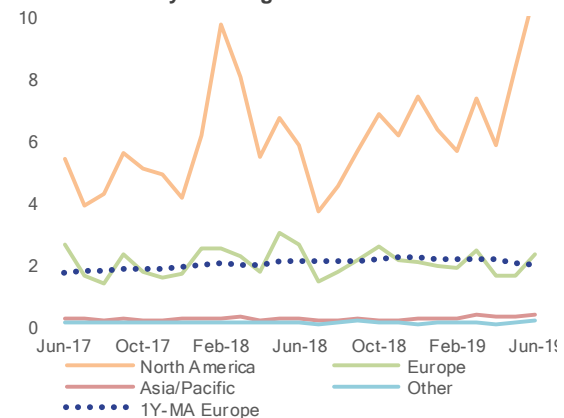
Note: Open interest in exchange-traded derivatives by asset class, in USD tn.  
Sources: Bank for International Settlements, ESMA.

**A.71****ETD turnover by asset class**

Note: Global average daily turnover in exchange-traded derivatives by asset class, in USD tn.  
Sources: Bank for International Settlements, ESMA.

**A.72****ETD notional outstanding by exchange location**

Note: Open interest in exchange-traded derivatives by exchange location, in USD tn.  
Sources: Bank for International Settlements, ESMA.

**A.73****ETD turnover by exchange location**

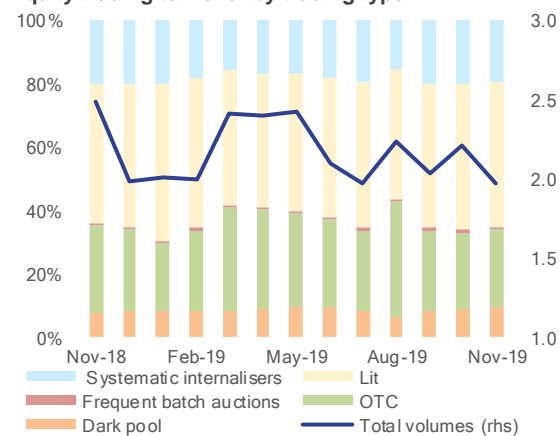
Note: Global average daily turnover in exchange-traded derivatives by exchange location, in USD tn. "Europe" as defined by BIS.  
Sources: Bank for International Settlements, ESMA.

# Infrastructures and services

## Trading venues and MiFID entities

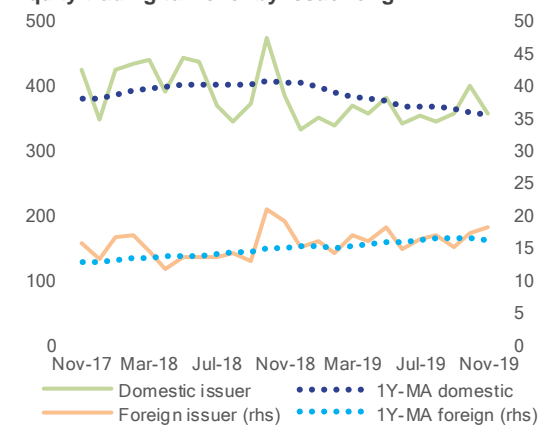
A.74

### Equity trading turnover by trading type



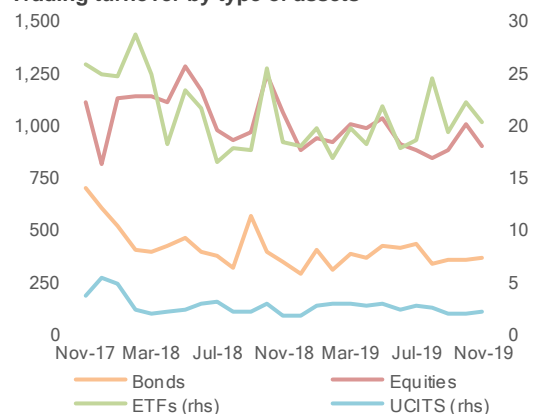
A.75

### Equity trading turnover by issuer origin



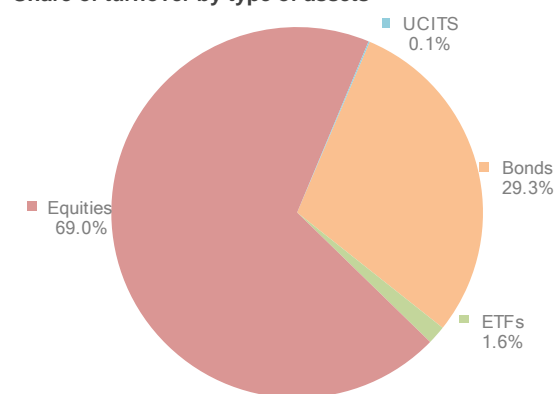
A.76

### Trading turnover by type of assets



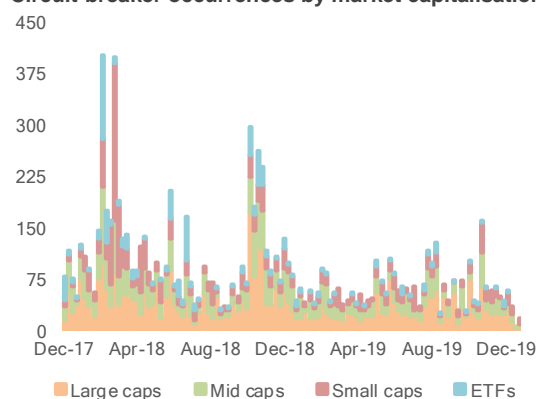
A.77

### Share of turnover by type of assets



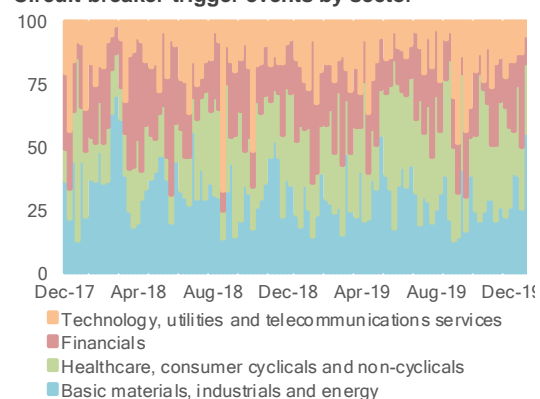
A.78

### Circuit-breaker occurrences by market capitalisation

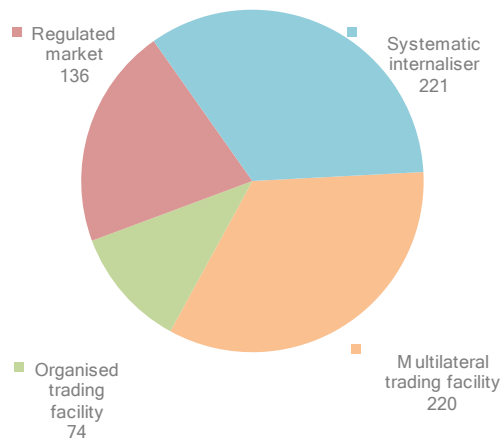


A.79

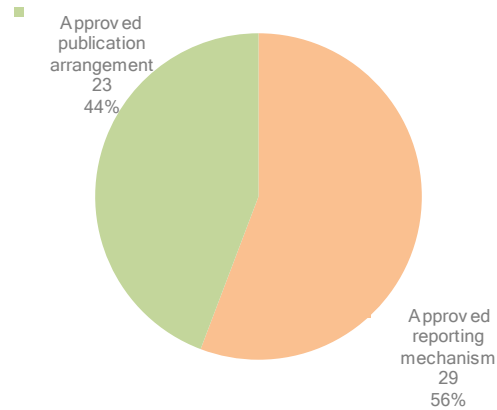
### Circuit-breaker-trigger events by sector



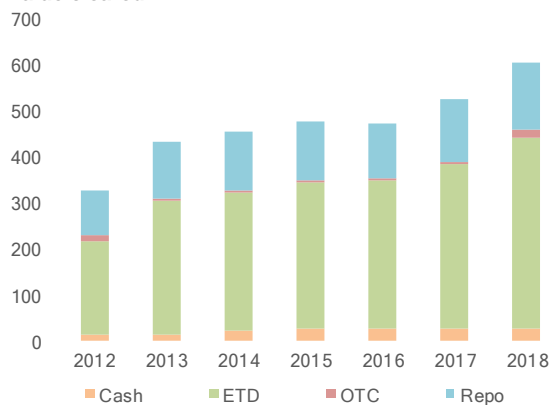


**A.80****Number of trading venues and systematic internalisers**

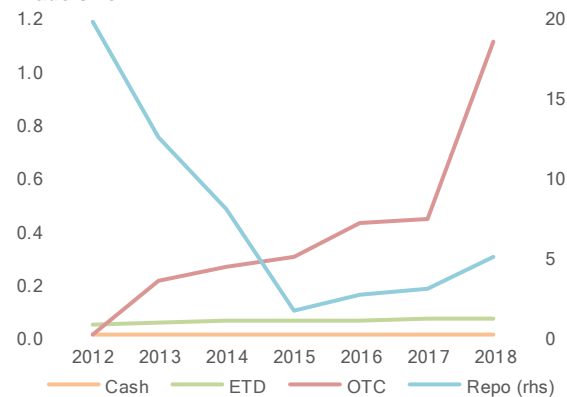
Note: Number of trading venues registered under MiFID II/MiFIR by national competent authorities and notified to ESMA, by type.  
Sources: ESMA Registers.

**A.81****Data reporting services providers**

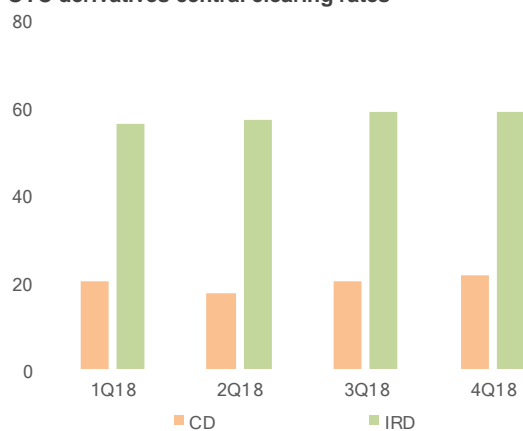
Note: Number of data reporting services providers registered under MiFID II/MiFIR by national competent authorities and notified to ESMA, by type.  
Sources: ESMA Registers.

**Central counterparties****A.82****Value cleared**

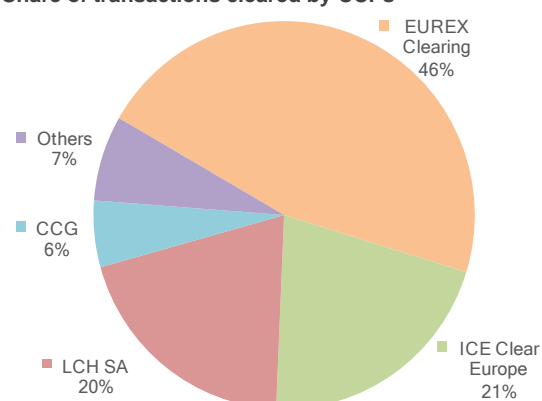
Note: Volume of transactions cleared by reporting CCPs. Annual data, EUR tn, for cash, repos, non-OTC and OTC derivatives. LCH Ltd, although the largest CCP in terms of volume in the OTC segment, is not reported owing to uneven reporting during the period.  
Sources: ECB, ESMA.

**A.83****Trade size**

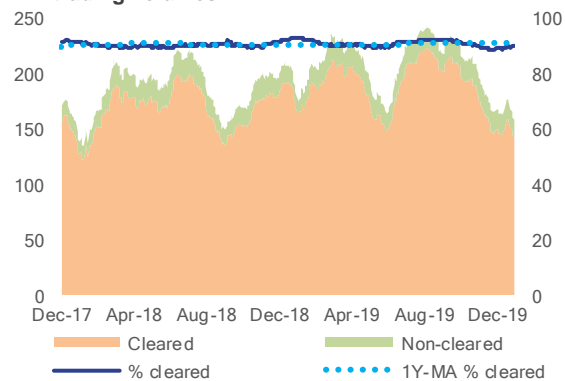
Note: Average size of transactions cleared by reporting CCPs, for cash, repos, non-OTC and OTC derivatives. Annual data, EUR mn. LCH Ltd, although the largest CCP in terms of volume in the OTC segment, is not reported owing to uneven reporting during the period.  
Sources: ECB, ESMA.

**A.84****OTC derivatives central clearing rates**

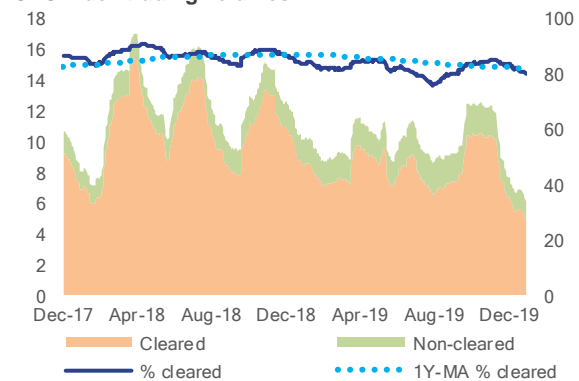
Note: Clearing ratios of gross outstanding notional for interest rate derivatives and credit derivatives in %.  
Sources: TRs, ESMA.

**A.85****Share of transactions cleared by CCPs**

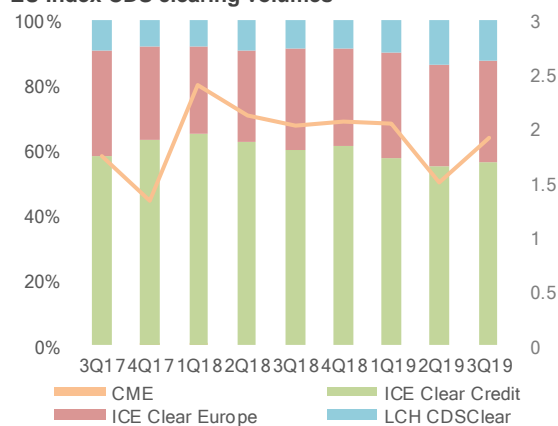
Note: Share of volume of transactions cleared by reporting CCPs for cash, repos, non-OTC and OTC derivatives, 2018. LCH Ltd, although the largest CCP in terms of volume in the OTC segment, is not reported owing to uneven reporting during the period.  
Sources: ECB, ESMA.

**A.86****IRD trading volumes**

Note: Daily trading volumes for EU-currency-denominated IRD products (EUR, HUF, PLN, GBP). Products include IRS, basis swaps, FRA, inflation swaps, OIS. 40-day moving average notional, USD bn. ISDA SwapsInfo data are based on publicly available data from DTCC Trade Repository LLC and Bloomberg Swap Data Repository.  
Sources: ISDA SwapsInfo, ESMA.

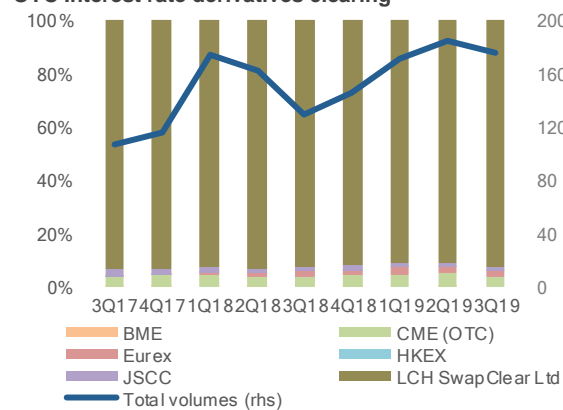
**A.87****CDS index trading volumes**

Note: Daily trading volumes for the main EUR CDS indices including Itraxx Europe, Itraxx Europe Crossover, Itraxx Europe Senior Financials. 40-day moving average notional, USD bn. ISDA SwapsInfo data are based on publicly available data from DTCC Trade Repository LLC and Bloomberg Swap Data Repository.  
Sources: ISDA SwapsInfo, ESMA.

**A.88****EU Index CDS clearing volumes**

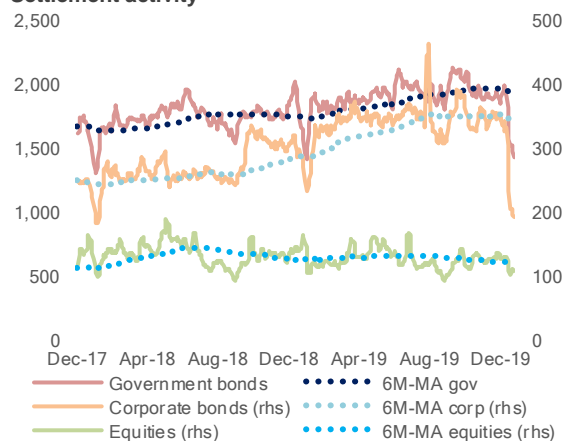
Note: Market share on OTC central clearing of iTraxx Europe and iTraxx Crossover, in %. Quarterly notional volumes cleared, in EUR trillion (right axis).

Sources: Clarus Financial Technology, ESMA.

**A.89****OTC Interest rate derivatives clearing**

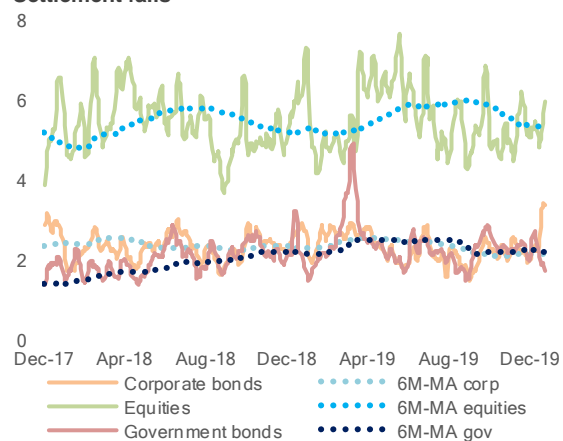
Note: Market share on OTC central clearing of basis swaps, fixed-float swaps, FRAs and OIS in EUR, USD, JPY or GBP, in %. Quarterly notional volumes cleared, in EUR trillion (right axis).

Sources: Clarus Financial Technology, ESMA.

**Central securities depositories****A.90****Settlement activity**

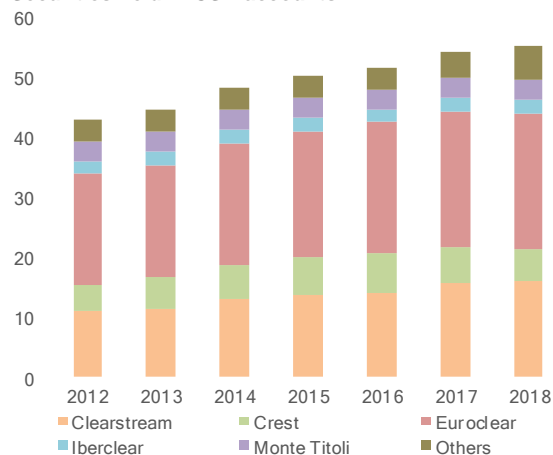
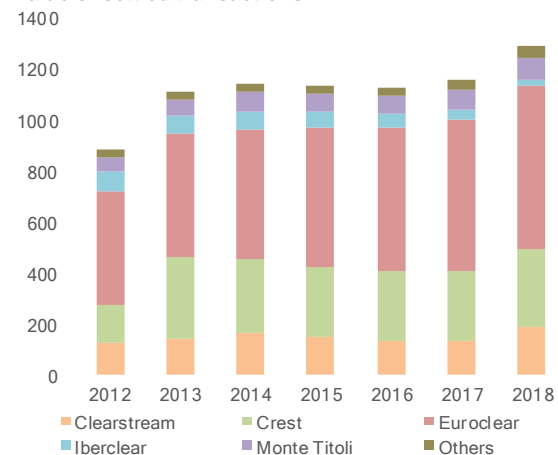
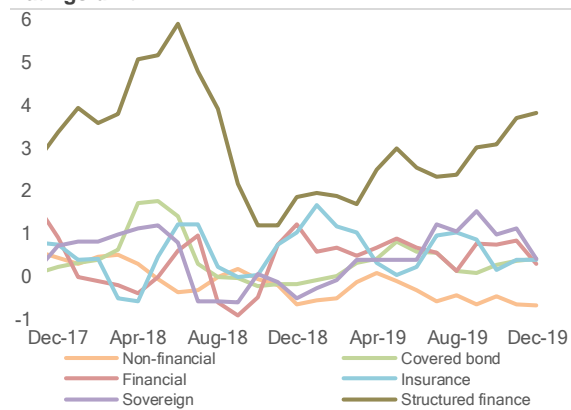
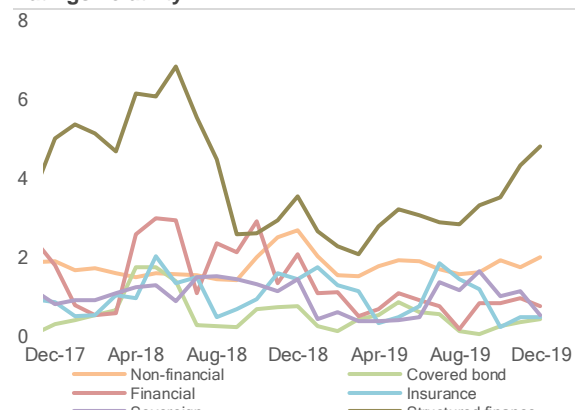
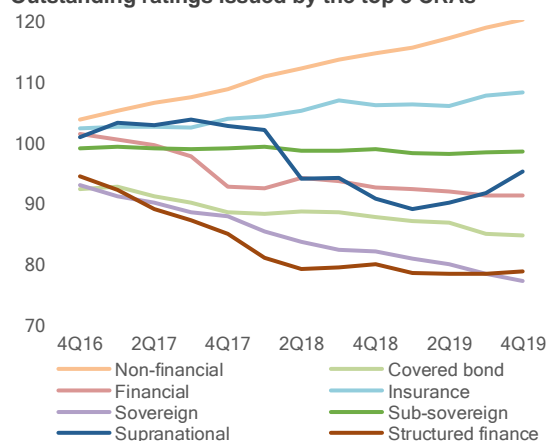
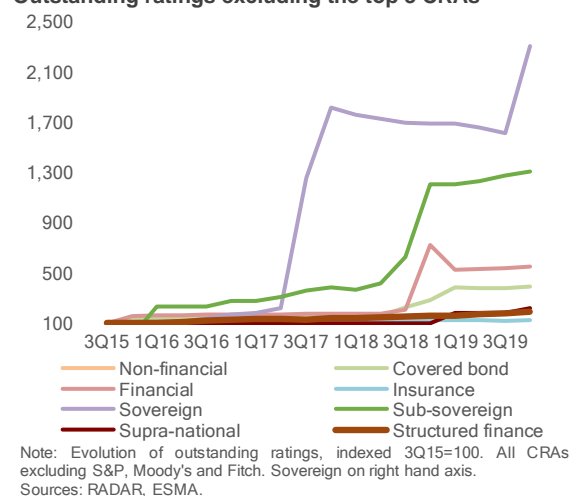
Note: Total value of settled transactions in the EU as reported by NCAs, in EUR bn, one-week moving averages.

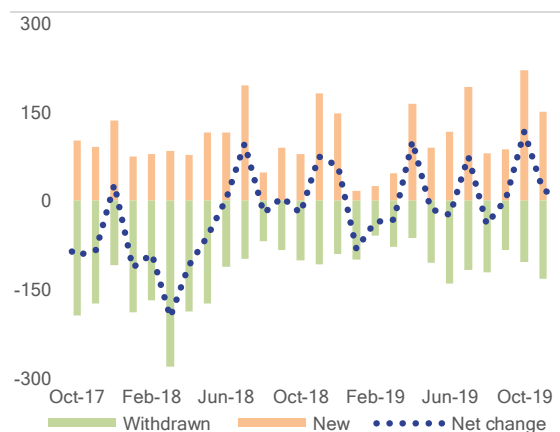
Sources: National Competent Authorities, ESMA.

**A.91****Settlement fails**

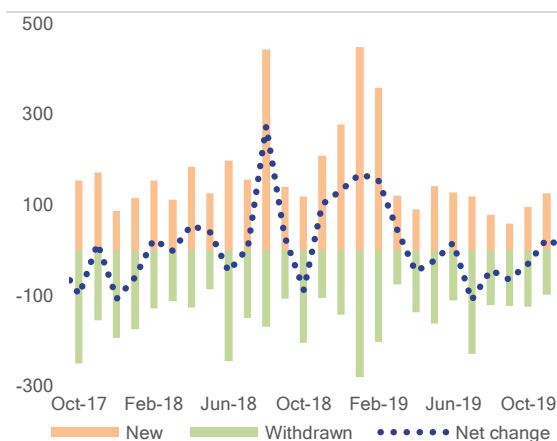
Note: Share of failed settlement instructions in the EU, in % of value, one-week moving averages.

Sources: National Competent Authorities, ESMA.

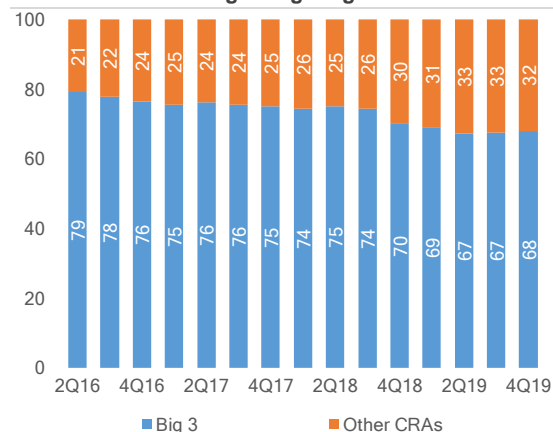
**A.92****Securities held in CSD accounts****A.93****Value of settled transactions****Credit rating agencies****A.94****Ratings drift****A.95****Ratings volatility****A.96****Outstanding ratings issued by the top 3 CRAs****A.97****Outstanding ratings excluding the top 3 CRAs**

**A.98****Changes in structured finance instrument ratings**

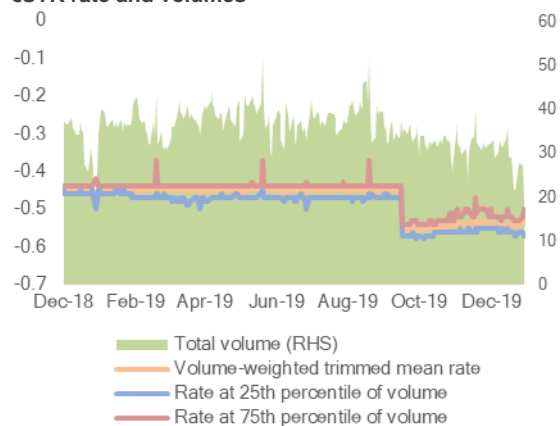
Note: Number of withdrawn and new ratings for structured finance instruments.  
Sources: RADAR, ESMA.

**A.99****Changes in outstanding covered bond ratings**

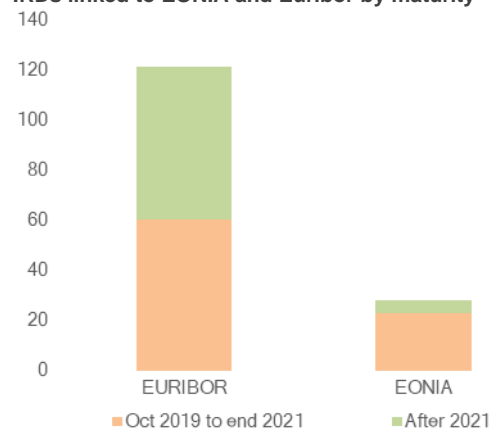
Note: Number of withdrawn and new ratings for covered bonds.  
Sources: RADAR, ESMA.

**A.100****Share of outstanding ratings Big 3 CRAs vs. others**

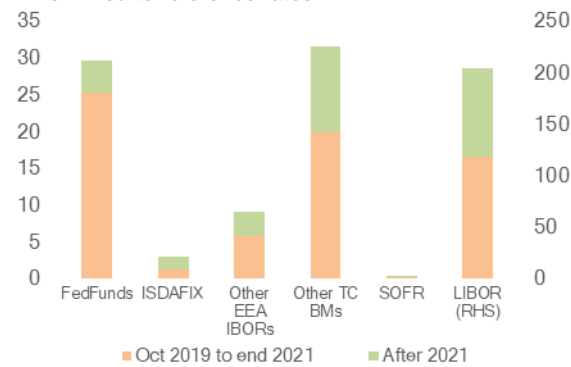
Note: Share of outstanding ratings from S&P, Moody's and Fitch, and ratings from all other CRAs, in %.  
Sources: RADAR, ESMA.

**Financial benchmarks****A.101****€STR rate and volumes**

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

**A.102****IRDs linked to EONIA and Euribor by maturity**

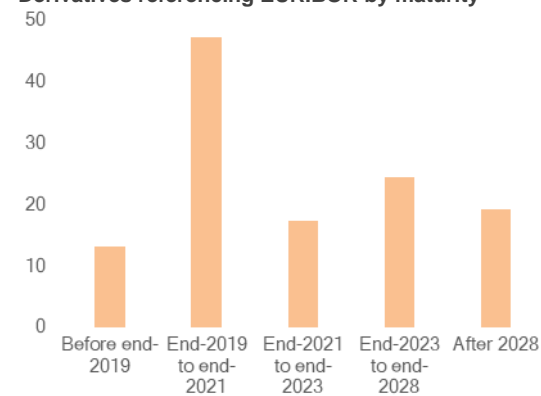
Note: Gross notional amount of IRD outstanding referencing EONIA and EURIBOR by maturities. As of 25 October 2019  
Sources: TRs, ESMA

**A.103****IRDs linked to reference rates**

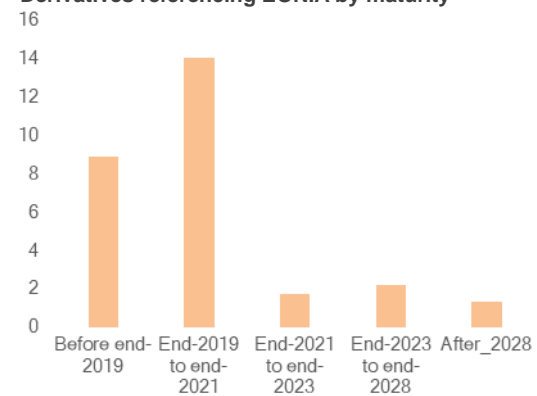
Note: Gross notional amount of IRD outstanding referencing benchmarks, by maturities. Other EEA includes NIBOR, PRIBOR, STIBOR, WIBOR and BUBOR, other Third country benchmarks include BBSW, CDOR, JIBAR, TIBOR, TELBOR and MOSPRIM. As of 25 October 2019, EUR trn  
Sources: TRs, ESMA

**A.104****Number of benchmark administrators**

Note: Number of benchmark administrators reported to ESMA by country of administrator  
Sources: ESMA Registers

**A.105****Derivatives referencing EURIBOR by maturity**

Note: Gross notional amount of derivatives outstanding referencing EURIBOR by maturity date, as of end-October 2019, EUR trillion.  
Sources: TRs, ESMA

**A.106****Derivatives referencing EONIA by maturity**

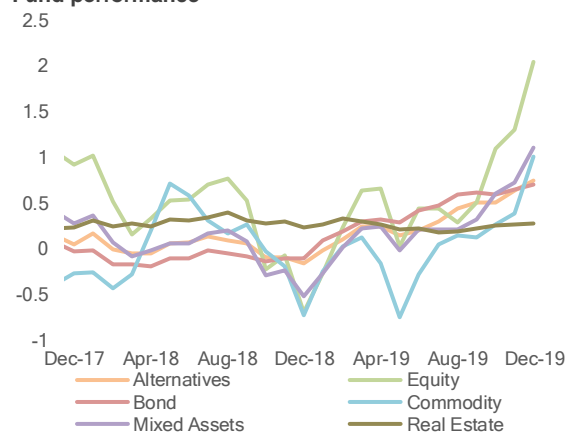
Note: Gross notional amount of derivatives outstanding referencing EONIA by maturity date, as of end-October 2019, EUR trillion  
Sources: TRs ESMA

# Asset management

## Fund industry

### A.107

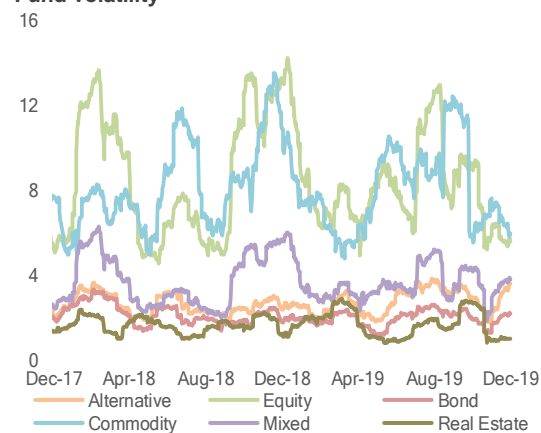
#### Fund performance



Note: EU-domiciled investment funds' annual average monthly returns, asset-weighted, in %.  
Sources: Refinitiv Lipper, ESMA.

### A.108

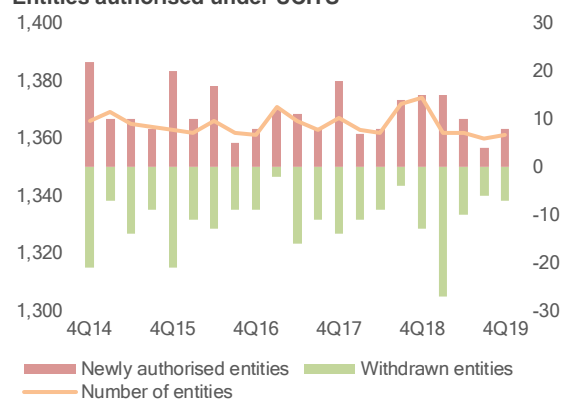
#### Fund volatility



Note: Annualised 40D historical return volatility of EU domiciled mutual funds, in %.  
Sources: Refinitiv Lipper, ESMA.

### A.109

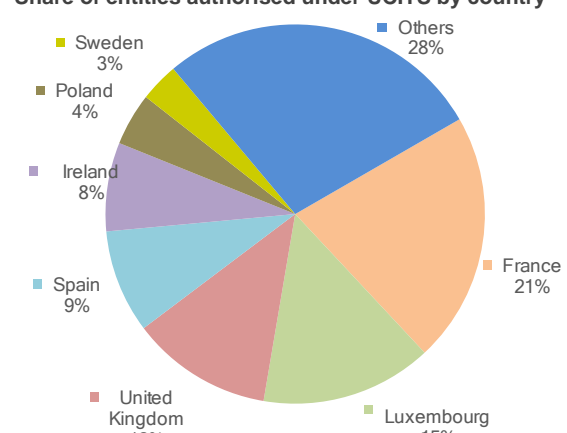
#### Entities authorised under UCITS



Note: Number of entities authorised under the UCITS Directive by national competent authorities of the Member States and notified to ESMA. Newly authorised entities and withdrawn entities on the right axis.  
Sources: ESMA Registers.

### A.110

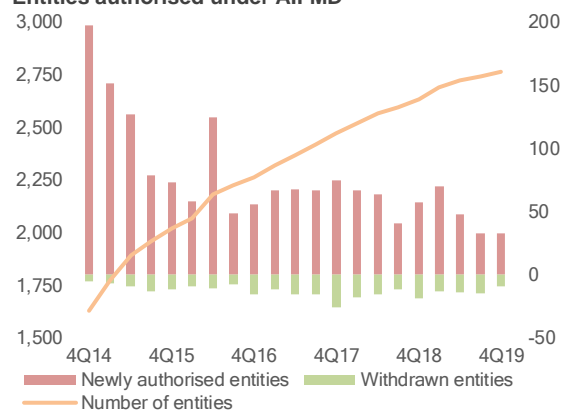
#### Share of entities authorised under UCITS by country



Note: Number of entities authorised under the UCITS Directive by national competent authorities and notified to ESMA, in %.  
Sources: ESMA Registers.

### A.111

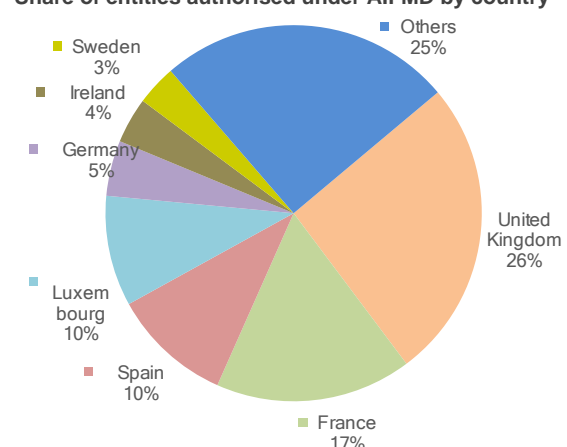
#### Entities authorised under AIFMD



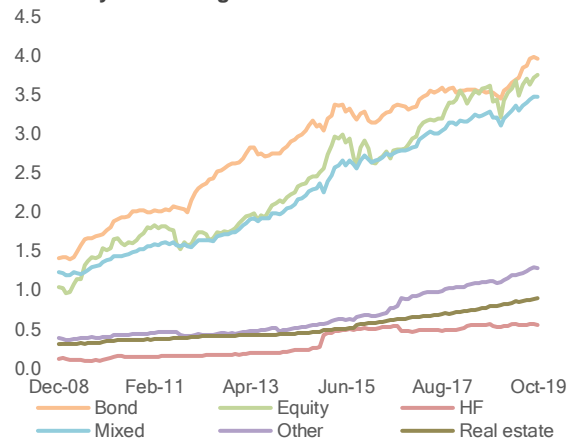
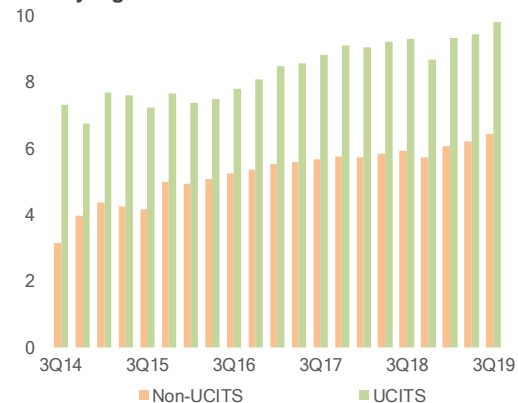
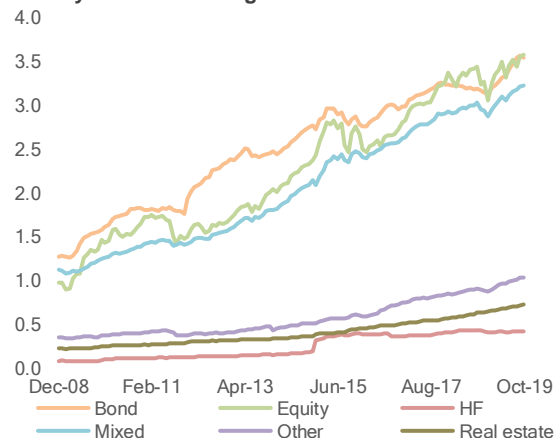
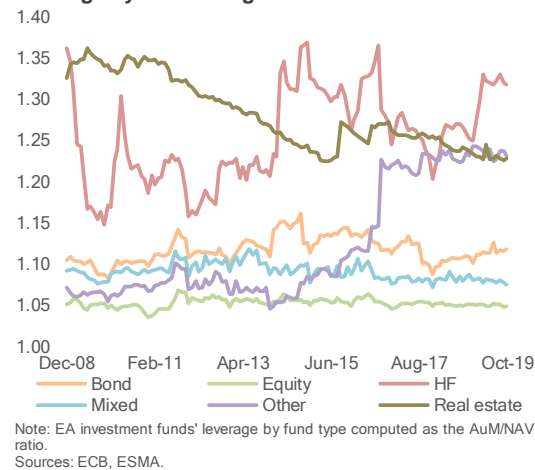
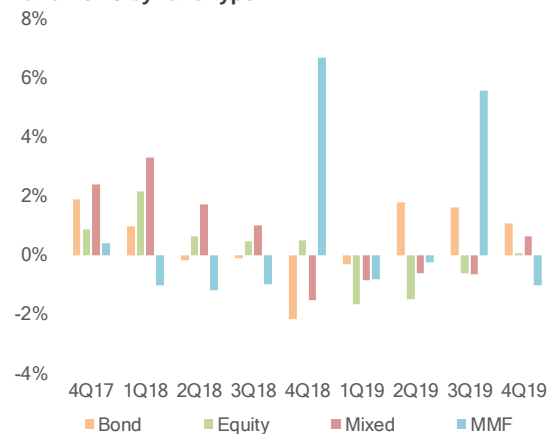
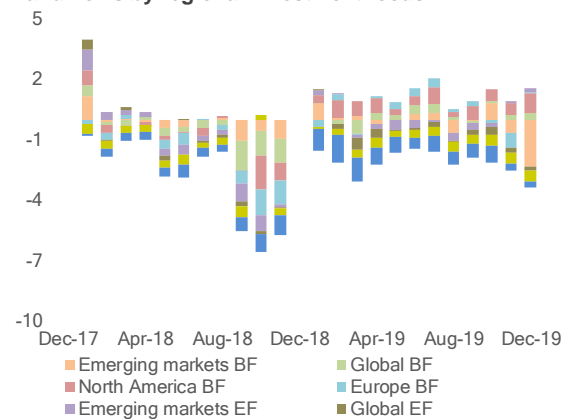
Note: Number of entities authorised under AIFMD by national competent authorities of the Member States and notified to ESMA. Newly authorised entities and withdrawn entities on the right axis.  
Sources: ESMA Registers.

### A.112

#### Share of entities authorised under AIFMD by country

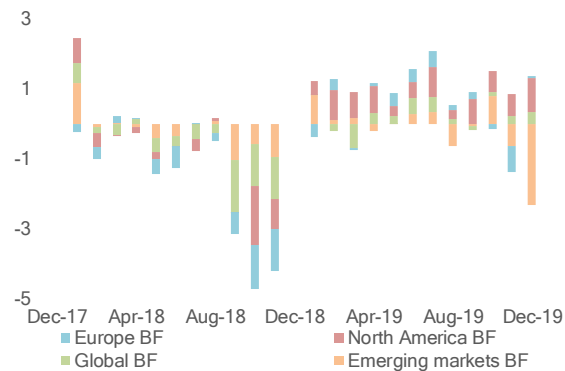


Note: Number of entities authorised under AIFMD by national competent authorities and notified to ESMA, in %.  
Sources: ESMA Registers.

**A.113****Assets by market segment****A.114****NAV by legal form****A.115****NAV by fund market segment****A.116****Leverage by market segment****A.117****Fund flows by fund type****A.118****Fund flows by regional investment focus**

**A.119****Bond fund flows by regional investment focus**

5

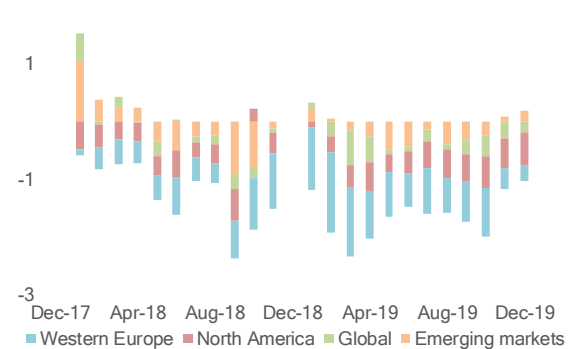


Note: Bond flows by regional investment focus, in % of NAV.

Sources: REFINITIV Lipper, ESMA.

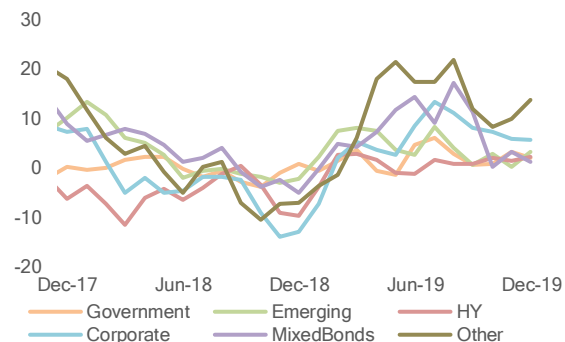
**A.120****Equity fund flows by regional investment focus**

3



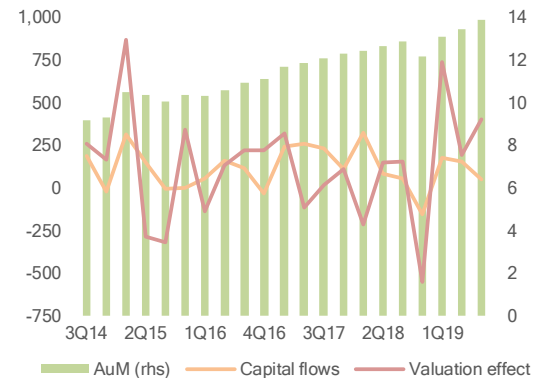
Note: Equity flows by regional investment focus, in % of NAV.

Sources: REFINITIV Lipper, ESMA.

**A.121****Net flows for bond funds**

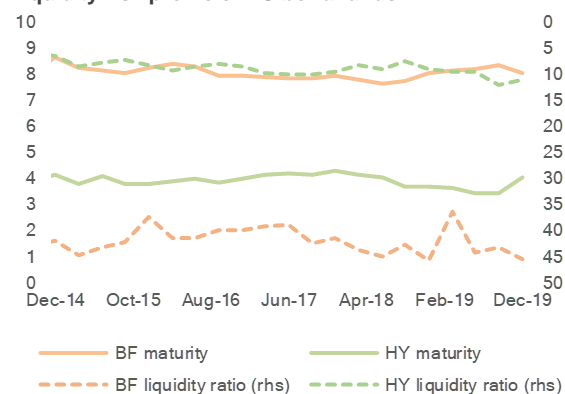
Note: Two-month cumulative net flows for bond funds, EUR bn. Funds investing in corporate and government bonds that qualify for another category are only reported once e.g. funds investing in emerging government bonds reported as Emerging; funds investing in HY corporate bonds reported as HY).

Sources: Refinitiv Lipper, ESMA.

**A.122****Net asset valuation**

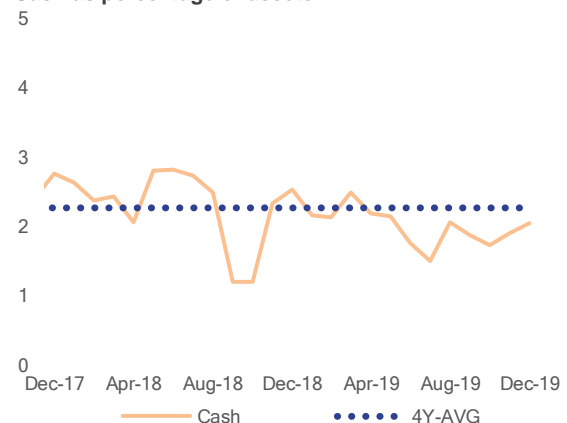
Note: Net valuation effect related to the AuM of EA investment funds, computed as the intraperiod change in AuM, net of flows received in the respective period. Capital flows and valuation effects in EUR bn. AuM expressed in EUR tn.

Sources: ECB, ESMA.

**A.123****Liquidity risk profile of EU bond funds**

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

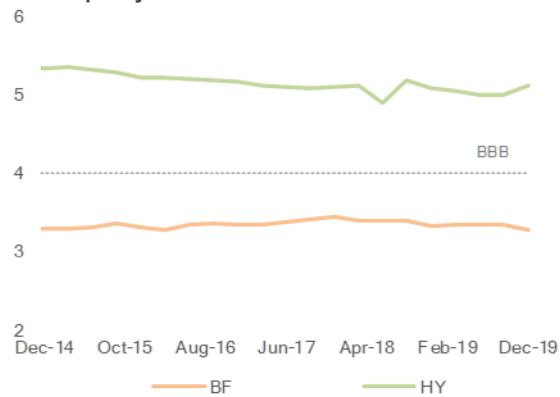
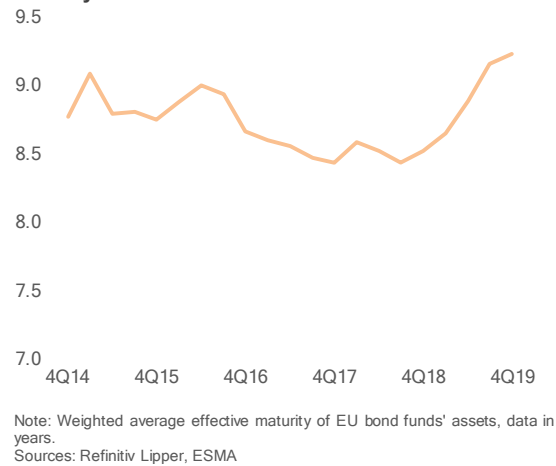
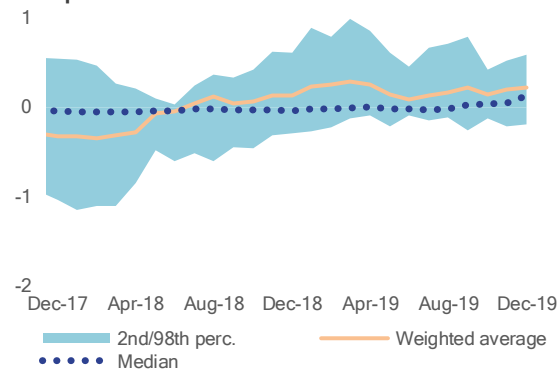
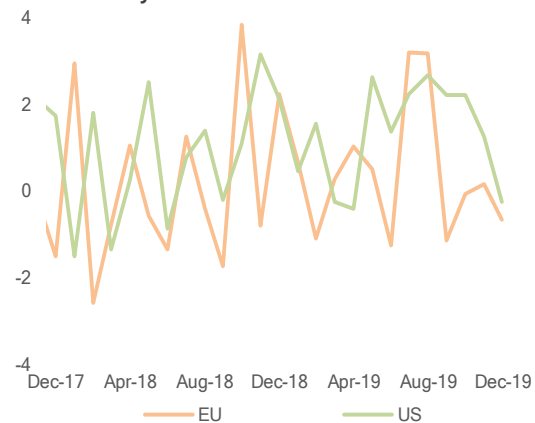
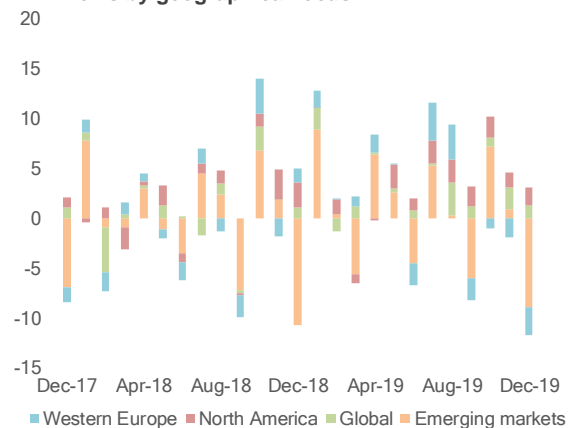
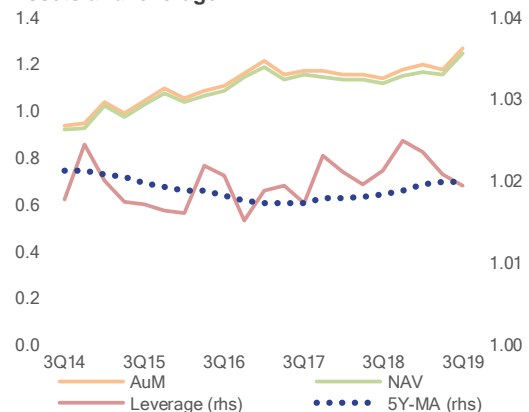
Sources: Refinitiv Lipper, ESMA.

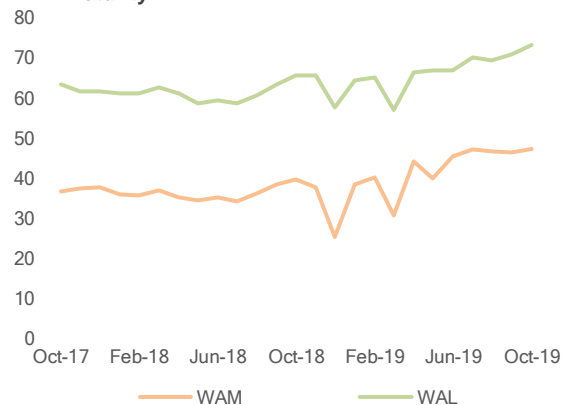
**A.124****Cash as percentage of assets**

Note: Cash held by EU corporate bond funds, in % of portfolio holdings (%). Short positions can have a negative value.

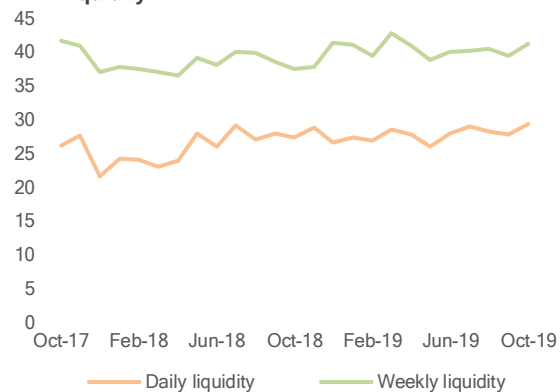
Sources: Refinitiv Lipper, ESMA.



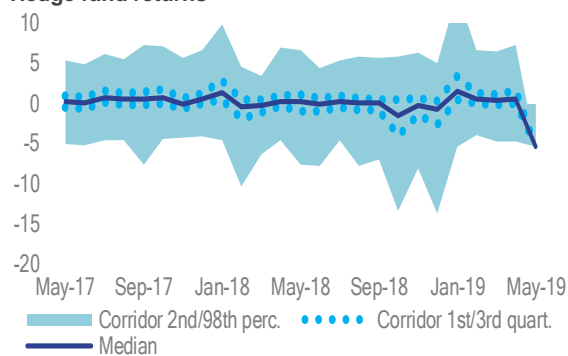
**A.125****Credit quality of bond funds' assets****A.126****Maturity of EU bond funds' assets****Money market funds****A.127****MMF performance****A.128****MMF flows by domicile****A.129****MMF flows by geographical focus****A.130****Assets and leverage**

**A.131****MMF maturity**

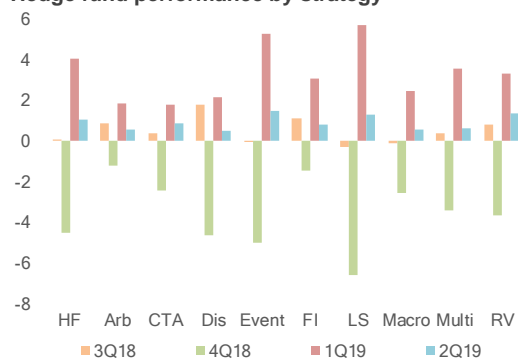
Note: Weighted average maturity (WAM) and weighted average life (WAL) of EU prime MMFs, in days. Aggregation carried out by weighting individual MMFs' WAM and WAL by AuM.  
Sources: Fitch Ratings, ESMA.

**A.132****MMF liquidity**

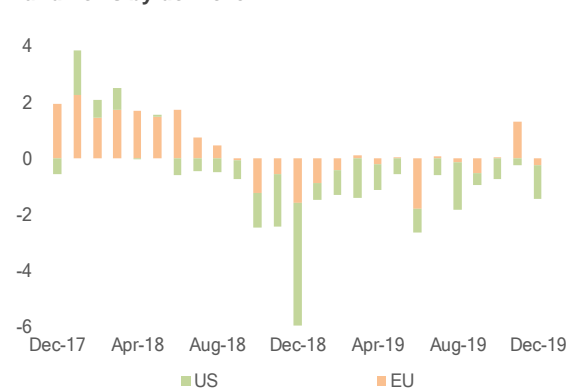
Note: Daily and weekly liquidity includes all assets maturing overnight and shares by AAA MMFs, securities issued by highly rated sovereigns with a maturity of less than one year, in % of total assets. Aggregation carried out using individual MMF data weighted by AuM.  
Sources: Fitch Ratings, ESMA.

**Alternative funds****A.133****Hedge fund returns**

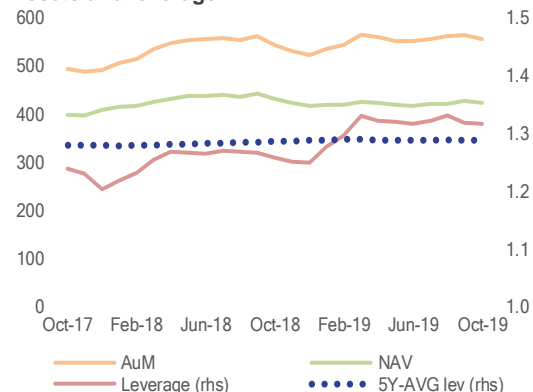
Note: EU-domiciled hedge funds' monthly returns, in %. The graph shows the returns' median, the difference between the returns corresponding to the 2<sup>nd</sup> and 98<sup>th</sup> percentiles and the difference between the returns corresponding to the 1<sup>st</sup> and 3<sup>rd</sup> quartiles.  
Sources: Refinitiv Lipper, ESMA.

**A.134****Hedge fund performance by strategy**

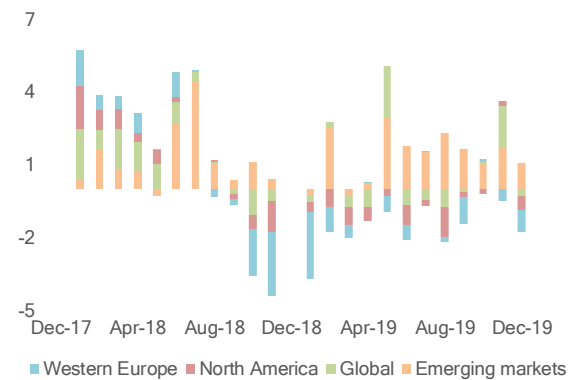
Note: Growth of hedge fund performance indices by strategy: hedge fund index (HF), arbitrage (Arb), commodity trading advisor (CTA), distressed debt (Dis), event driven, fixed income (FI), long/short equity (LS), macro, multi-strategy, relative value (RV), in %.  
Sources: Eurekahedge, ESMA.

**A.135****Fund flows by domicile**

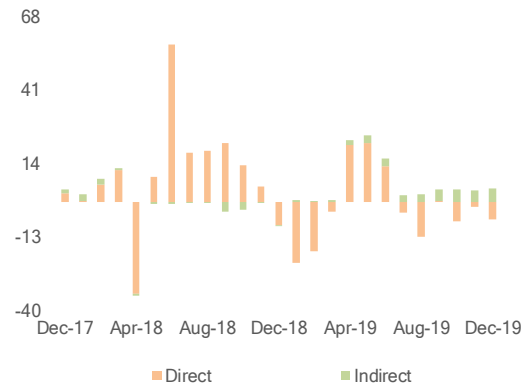
Note: Alternative mutual funds net flows by domicile, in % of NAV. Data on alternative mutual funds represents only a subset of the entire alternative fund industry.  
Sources: Refinitiv Lipper, ESMA.

**A.136****Assets and leverage**

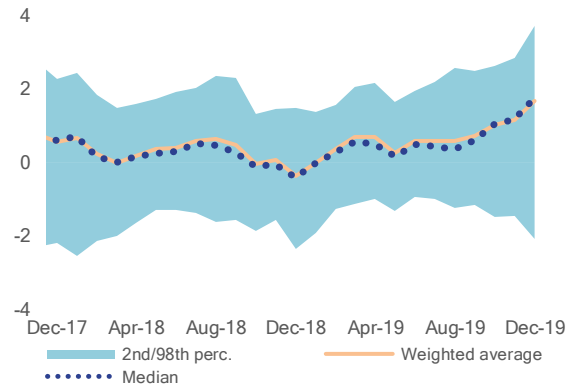
Note: NAV and AuM of EA hedge funds, EUR bn. Leverage computed as the AuM/NAV ratio. 5Y-AVG lev=five-year moving average for the leverage ratio.  
Sources: ECB, ESMA.

**A.137****Alternative fund flows by geographical focus**

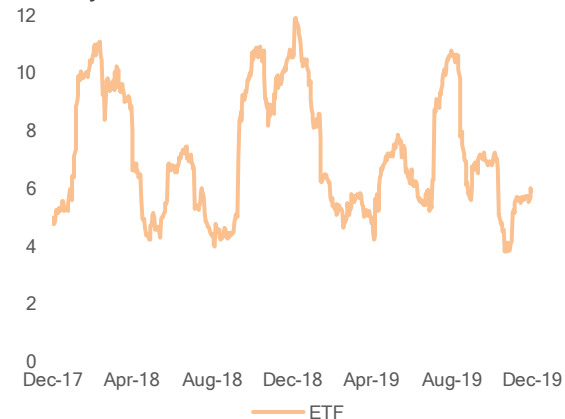
Note: Alternative mutual funds' net flows by geographical focus, in % of NAV. Data on alternative mutual funds represents only a subset of the entire alternative fund industry.  
Sources: Refinitiv Lipper, ESMA.

**A.138****Direct and indirect property fund flows**

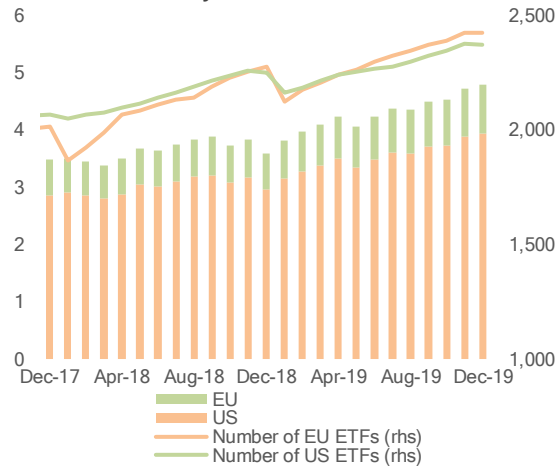
Note: Two-month cumulative flows for direct and indirect EU property funds. Indirect property funds invest in securities of real estate companies, including Real Estate Investment Trusts (REITs).  
Sources: Morningstar, ESMA.

**Exchange-traded funds****A.139****Returns**

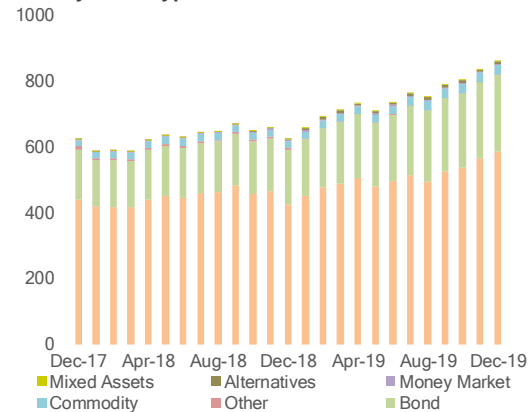
Note: EU-domiciled ETFs' average yearly returns by month, asset-weighted, in %. The graph shows the median and average asset-weighted returns and the difference between the returns corresponding to the 98th and the 2nd percentile (light blue corridor).  
Sources: Refinitiv Lipper, ESMA.

**A.140****Volatility**

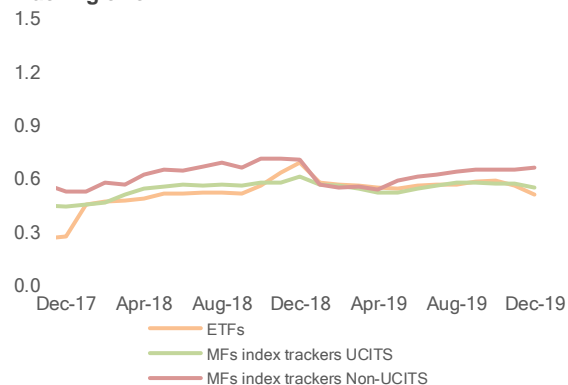
Note: Annualised 40D historical return volatility of EU-domiciled ETF, in %.  
Sources: Refinitiv Lipper, ESMA.

**A.141****NAV and number by domicile**

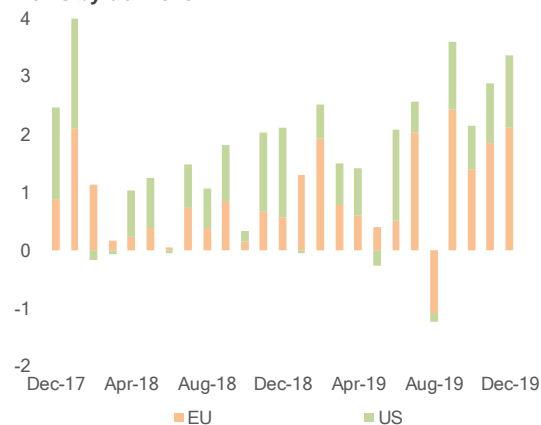
Note: NAV of ETFs, EUR tn, and number of ETFs.  
Sources: Refinitiv Lipper, ESMA.

**A.142****NAV by asset type**

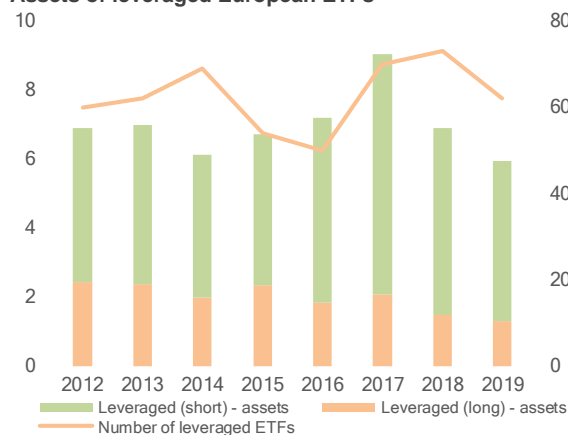
Note: NAV of EU ETFs by asset type, EUR bn.  
Sources: Refinitiv Lipper, ESMA.

**A.143****Tracking error**

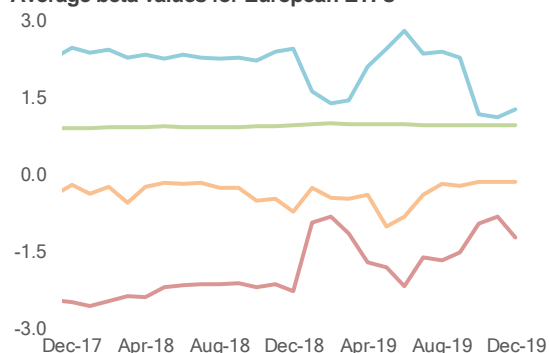
Note: Tracking error defined as standard deviation of fund excess returns compared to benchmark. The graph shows the tracking error for ETF and mutual funds both UCITS and non-UCITS. Yearly standard deviation reported on monthly frequency. End-of-month data.  
Sources: Refinitiv Lipper, ESMA.

**A.144****Flows by domicile**

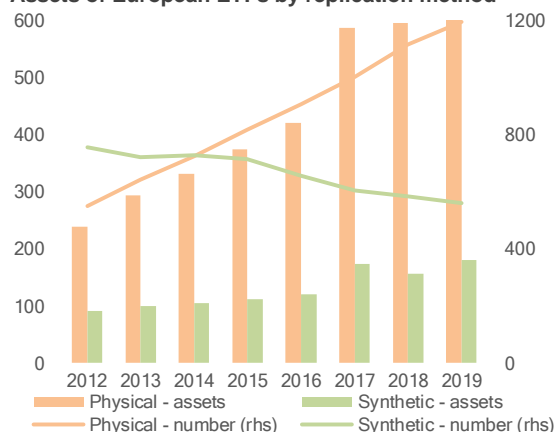
Note: ETF net flows by domicile, in % of NAV.  
Sources: Refinitiv Lipper, ESMA.

**A.145****Assets of leveraged European ETFs**

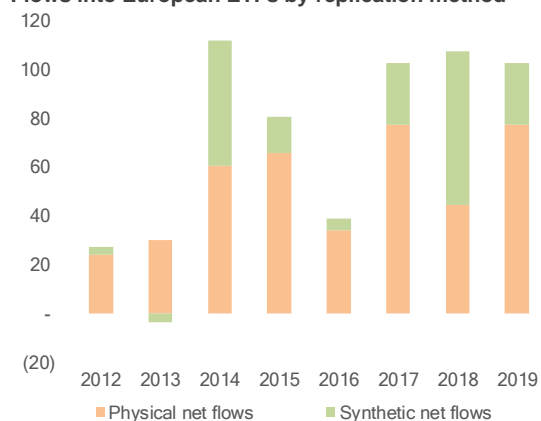
Note: Total assets of leveraged long and leveraged short ETFs with primary listings in Europe, in EUR bn and total number of products (rhs), in thousand.  
Sources: ETFGI, ESMA

**A.146****Average beta values for European ETFs**

Note: Leveraged ETFs are self-reported. The annual average monthly beta is measured as the volatility of a fund return in comparison to its benchmark. An unleveraged ETF replicating its benchmark will typically have a beta close to 1.0.  
Sources: Refinitiv Lipper, ESMA.

**A.147****Assets of European ETFs by replication method**

Note: Total assets of physical and synthetic ETFs with primary listings in Europe, in EUR bn and total number of products (rhs).  
Sources: ETFGI, ESMA

**A.148****Flows into European ETFs by replication method**

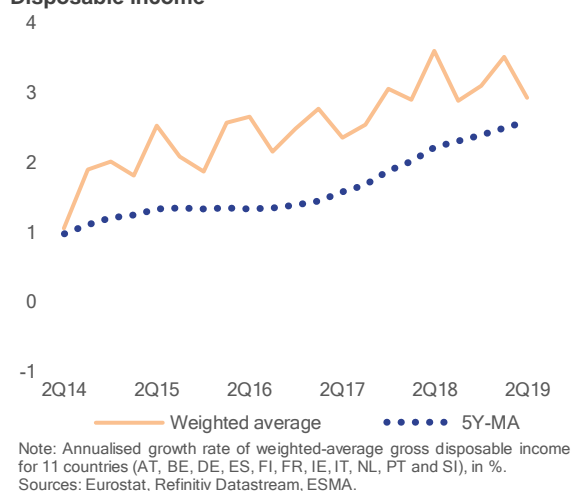
Note: Net flows of physical and synthetic ETFs with primary listings in Europe, in EUR bn.  
Sources: ETFGI, ESMA

# Consumers

## Investment resources available to households

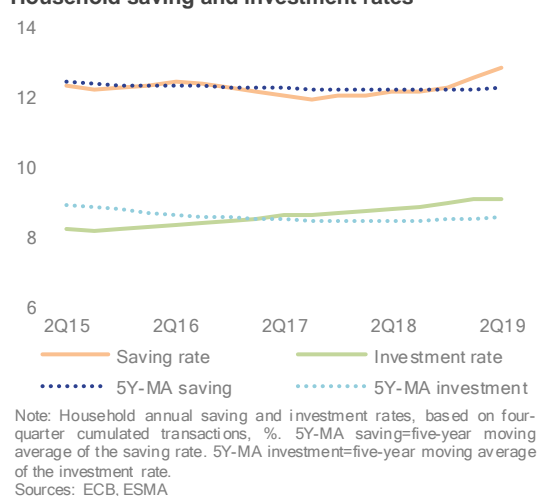
A.149

### Disposable income



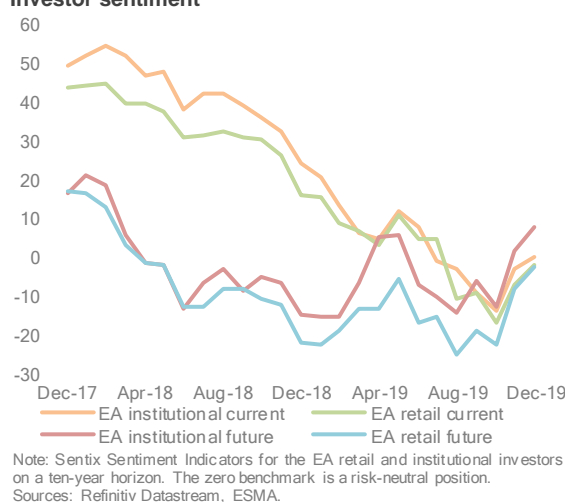
A.150

### Household saving and investment rates



A.151

### Investor sentiment



A.152

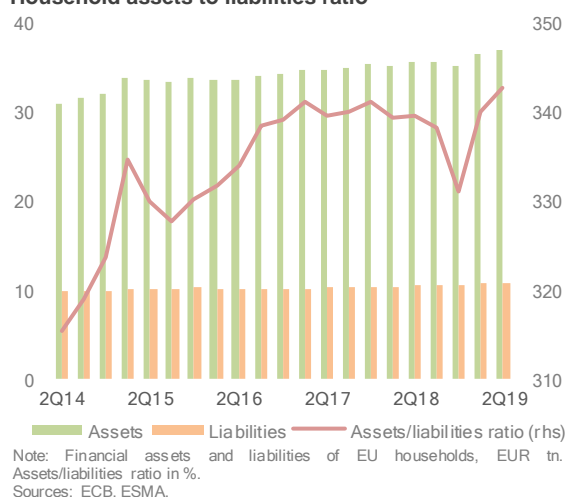
### Growth rates in financial assets



## Asset allocation by retail investors

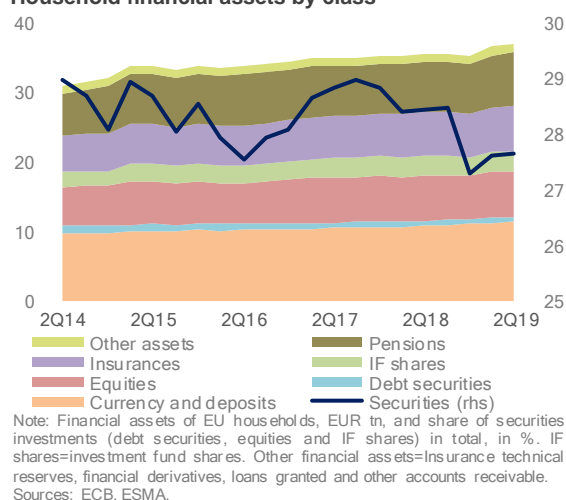
A.153

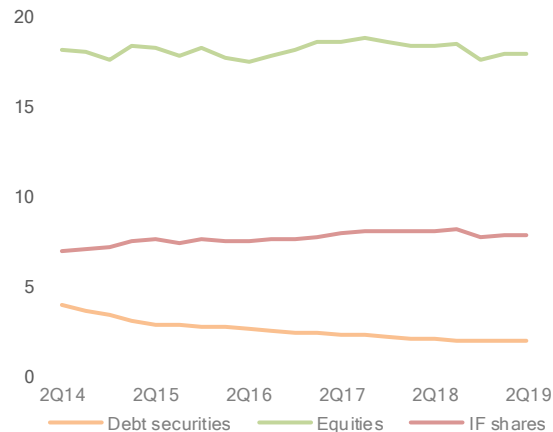
### Household assets to liabilities ratio



A.154

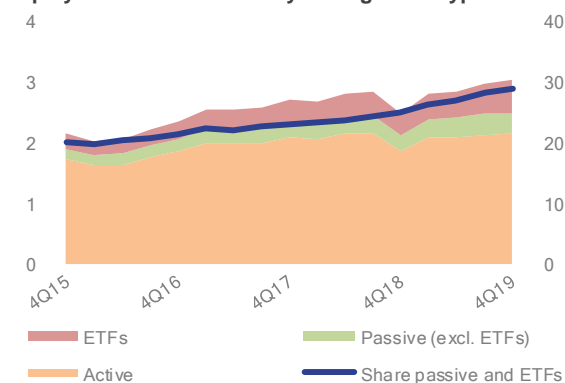
### Household financial assets by class



**A.155****Share of securities investments in household assets**

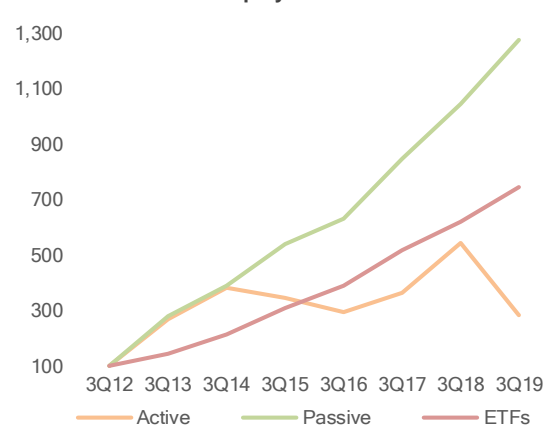
Note: Share of debt securities, equities and IF shares into the financial assets of EU households, in %. IF shares=investment fund shares.

Sources: ECB, ESMA.

**A.157****Equity UCITS market size by management type**

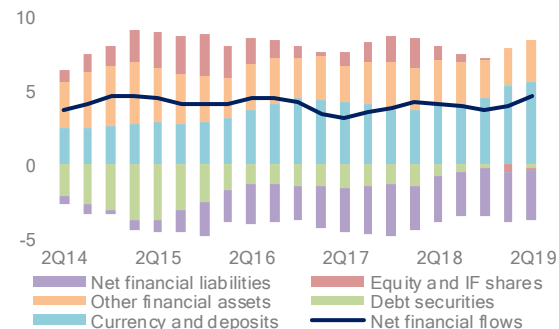
Note: Market size for EU-domiciled UCITS equity, actively and passively managed, and ETFs. All observations for which information on fund value, fund performance, net flows, subscription and redemption fees are available, EUR bn. Share of passive and ETFs in %, right-hand size.

Sources: Refinitiv Lipper, ESMA.

**A.159****Cumulative netflows equity UCITS**

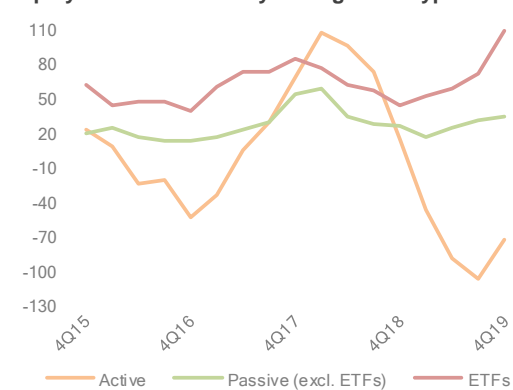
Note: EU domiciled equity UCITS by management type, active, passive and ETFs. Cumulative net flows, 3Q12=100.

Sources: Refinitiv Lipper, ESMA.

**A.156****Net financial asset flows**

Note: Net acquisition of financial assets and net incurrence of liabilities for EA households as a share of their gross disposable income adjusted for changes in pension entitlements, based on a one-year rolling period, in %. IF shares=investment fund shares. Other financial assets=Insurance technical reserves, financial derivatives, loans granted and other accounts receivable. Net financial flows=Net household lending (positive values) or borrowing (negative values) to/from sectoral financial accounts. Liabilities multiplied by -1 to present as outflows.

Sources: ECB, ESMA.

**A.158****Equity UCITS netflows by management type**

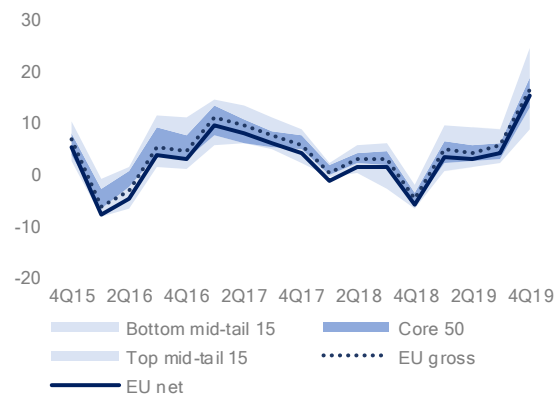
Note: EU-domiciled equity UCITS by management type, active passive, and ETFs. Annual netflows at quarterly frequencies, EUR bn.

Sources: Refinitiv Lipper, ESMA.

## Costs and performance

### A.160

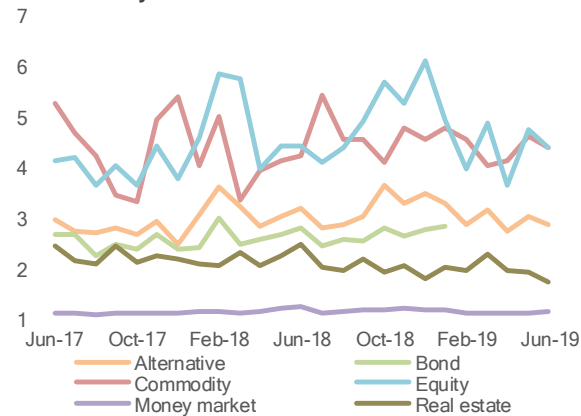
#### Dispersion of returns all assets



Note: Net returns of UCITS, retail investors, adjusted for total expense ratio and load fees, in %. Distribution represents selected EU markets. Top mid-tail 15=distribution between the 75th and 90th percentile. Bottom mid-tail 15=distribution between the 10th and 25th percentile.  
Sources: Refinitiv Lipper, ESMA.

### A.162

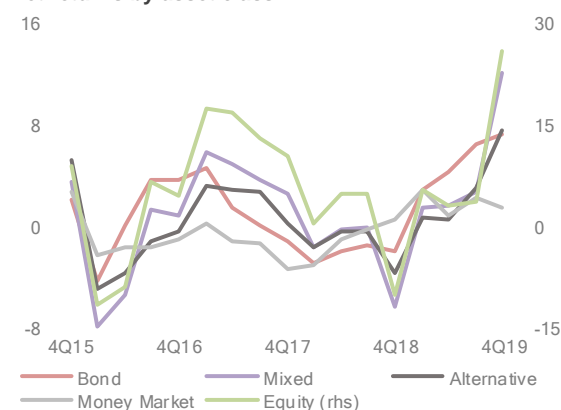
#### Retail fund synthetic risk and reward indicator



Note: The calculated synthetic risk and reward indicator (SSRI) is based on ESMA SSRI guidelines. It is computed via a simple 5-year annualised volatility measure which is then translated into categories 1-7 (with 7 representing higher levels of volatility).  
Sources: Refinitiv Lipper, ESMA.

### A.164

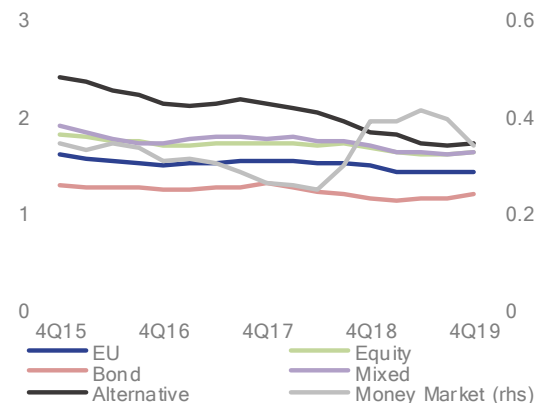
#### Net returns by asset class



Note: Evolution of net returns, excluding ongoing costs (TER) and subscription and redemption fees for UCITS funds, by assets class, %. Equity on the right hand side.  
Sources: Refinitiv Lipper, ESMA.

### A.161

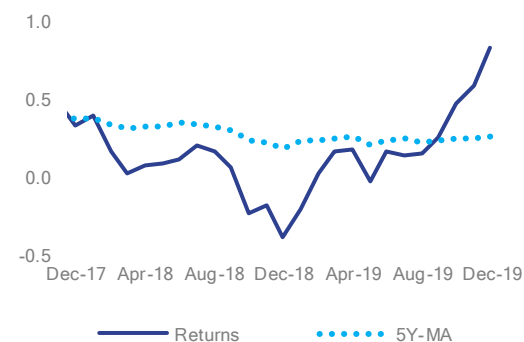
#### Absolute costs



Note: Total costs (ongoing costs, subscription and redemption fees) of UCITS funds, retail investors, %. Money market funds on the right hand side.  
Sources: Refinitiv Lipper, ESMA.

### A.163

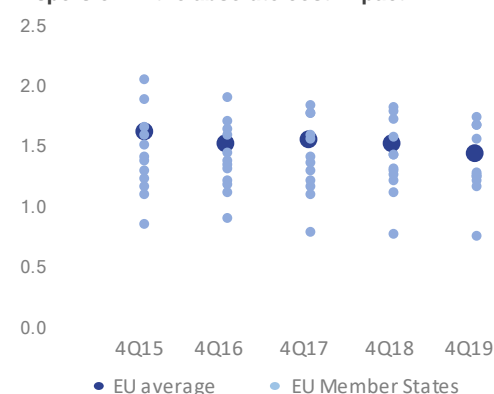
#### Portfolio returns



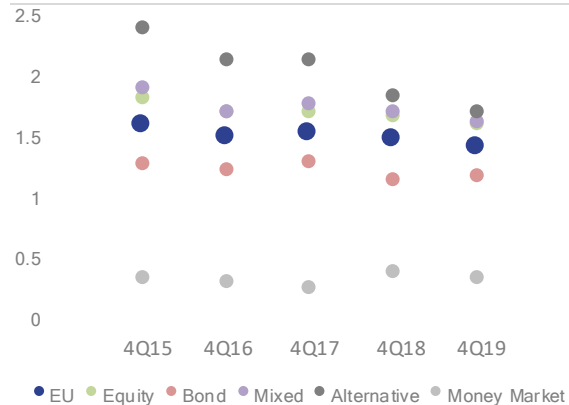
Note: Annual average gross returns for a stylised household portfolio, in %. Asset weights, computed using ECB Financial Accounts by Institutional Sectors, are 37% for collective investment schemes (of which 12% mutual funds and 25% insurance and pension funds), 31% for deposits, 22% for equity, 7% debt securities and 3% for other assets. Costs, fees and other charges incurred for buying, holding or selling these instruments are not taken into account.  
Sources: Refinitiv Datastream, Refinitiv Lipper, ECB, ESMA.

### A.165

#### Dispersion in the absolute cost impact

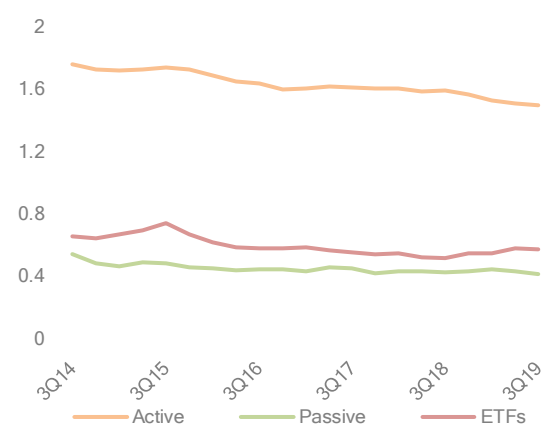


Note: Dispersion of total costs (ongoing costs, subscription and redemption fees) of UCITS funds, computed as the difference between gross and net returns, by country, retail investors, %.  
Sources: Refinitiv Lipper, ESMA.

**A.166****UCITS total cost dispersion by asset class**

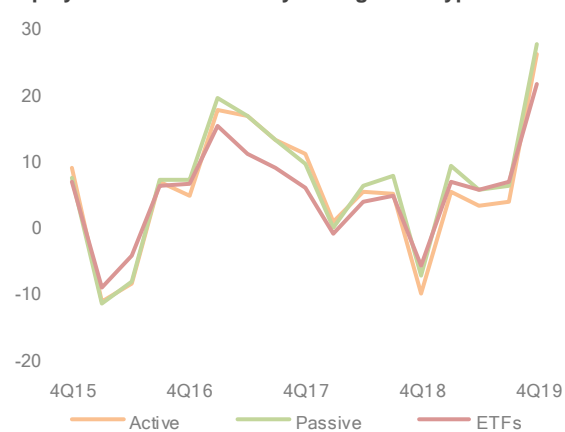
Note: Dispersion of total costs (ongoing costs, subscription and redemption fees) of UCITS funds, computed as the difference between gross and net returns, per asset class, retail investors, %.

Sources: Refinitiv Lipper, ESMA.

**A.167****Equity UCITS total costs by management type**

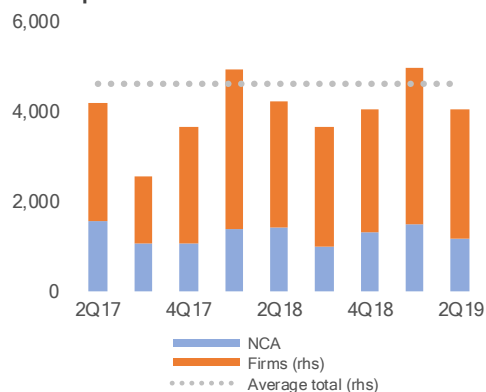
Note: Evolution of total costs, ongoing costs (TER), subscription and redemption fees for UCITS funds, by management type, %.

Sources: Refinitiv Lipper, ESMA.

**A.168****Equity UCITS net returns by management type**

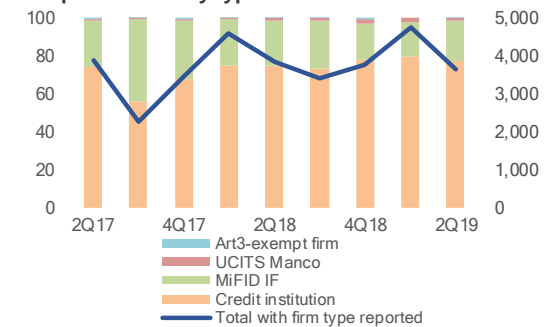
Note: Evolution of net returns, gross net of ongoing costs (TER) and subscription and redemption fees for UCITS funds, by assets class, %.

Sources: Refinitiv Lipper, ESMA.

**Complaints****A.169****Total complaints**

Note: Number of complaints recorded by quarterly-reporting NCAs (n=17) via given reporting channels. "NCA"=Reports lodged directly by consumers with NCAs. "Firms"=Complaints recorded by NCAs via firms. "Average total"=average total number from 2Q17 to 2Q19.

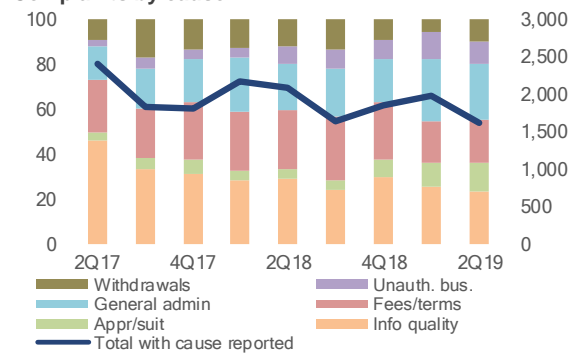
Sources: ESMA complaints database

**A.170****Complaints data by type of firm**

Note: Share of complaints for quarterly-reporting NCAs (n=17) received direct from consumers and via firms by type of firm involved, excluding complaints with firm type recorded, %. "Total with firm type reported"=Number of complaints via these reporting channels excluding those with no firm type recorded. "MiFID IF"=MiFID investment firm. "UCITS Manco"=UCITS management company. "Art3-exempt firm"=Firm exempt under Article 3 of MiFID.

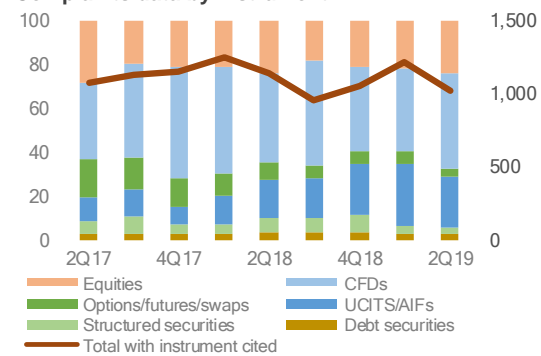
Sources: ESMA complaints database



**A.171****Complaints by cause**

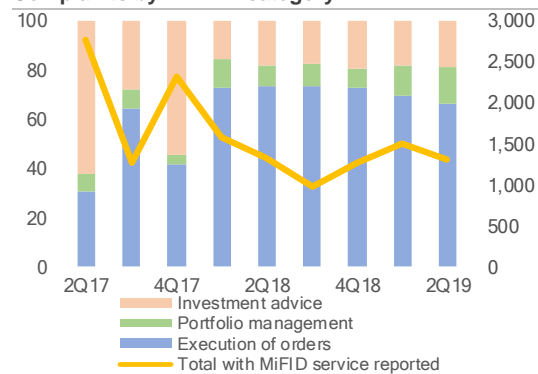
Note: Share of complaints for quarterly-reporting NCAs (n=17) received direct from consumers and via firms by underlying cause, excluding complaints with no cause recorded, %. 'Unauth. bus.'=Unauthorised business. 'Appr/suit'=Appropriateness or suitability assessment. 'Info quality'=Quality or lack of information. 'Total with cause reported'=Number of complaints via these reporting channels including those with none of the listed causes recorded.

Sources: ESMA complaints database

**A.172****Complaints data by instrument**

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'.

'CFDs'=Contracts for Differences.  
Sources: ESMA complaints database

**A.173****Complaints by MiFID II category**

Note: Share of complaints for quarterly-reporting NCAs (n=17) received direct from consumers and via firms recorded as associated with a given MiFID service, excluding complaints with no such category recorded, all reporting channels, %. 'Total with MiFID service reported'=Total complaints received via these reporting channels recorded as associated with a MiFID service.

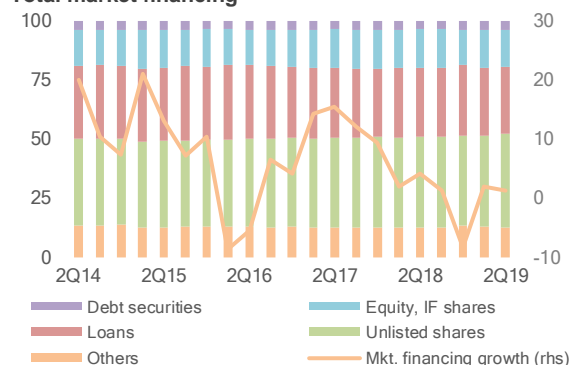
Sources: ESMA complaints database

# Market based finance

## Capital markets financing

A.174

### Total market financing

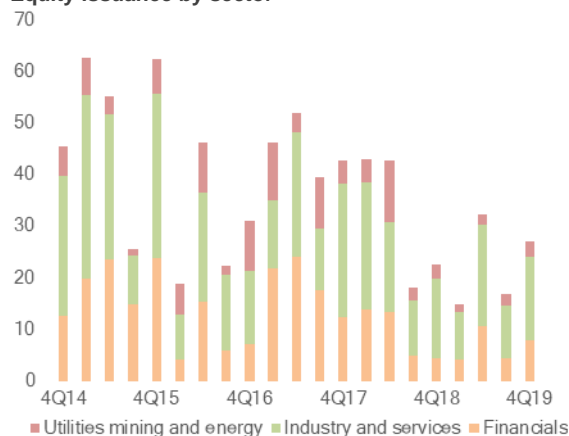


Note: Quarterly Sector Accounts. Liabilities of non-financial corporations (NFC), by debt type as a share of total liabilities. Others include: financial derivatives and employee stock options; insurance, pensions and standardised guarantee schemes; trade credits and advances of NFC; other accounts receivable/payable.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

Sources: ECB, ESMA.

A.176

### Equity issuance by sector

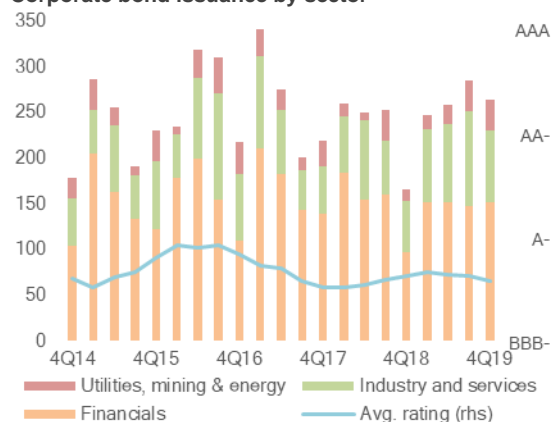


Note: EU equity issuance by sector, EUR bn. Financials includes banking & investment services, insurance, investment trusts and real estate.

Sources: Refinitiv EIKON, ESMA.

A.178

### Corporate bond issuance by sector

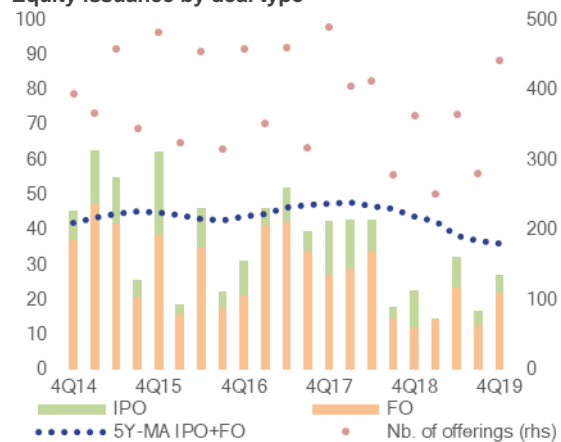


Note: Quarterly corporate bond issuance in the EU by sector, EUR bn. Avg. rating=weighted average rating computed as a one-year moving average of ratings converted into a numerical scale (AAA=1, AA+=2, etc.).

Sources: Refinitiv EIKON, ESMA.

A.175

### Equity issuance by deal type

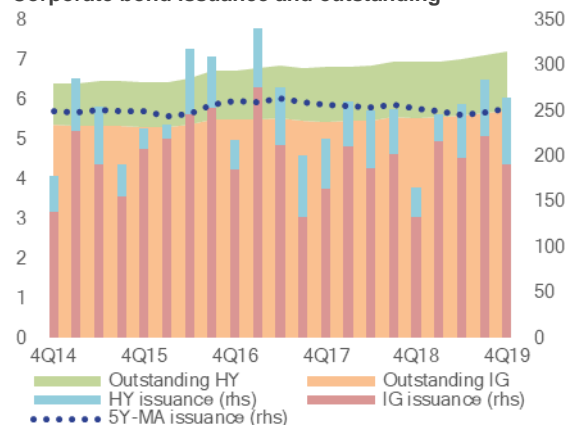


Note: EU equity issuance by type, EUR bn, and number of equity offerings. 5Y-MA=five-year moving average of the total value of equity offerings.

Sources: Refinitiv EIKON, ESMA.

A.177

### Corporate bond issuance and outstanding

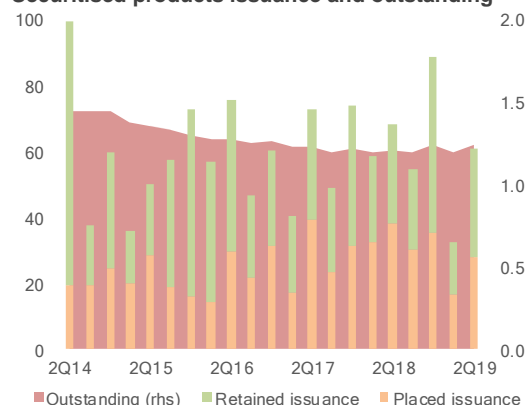


Note: Quarterly investment-grade (rating >= BBB-) and high-yield (rating < BBB-) corporate bond issuance in the EU (rhs), EUR bn, and outstanding amounts, EUR tn.

Sources: Refinitiv EIKON, ESMA.

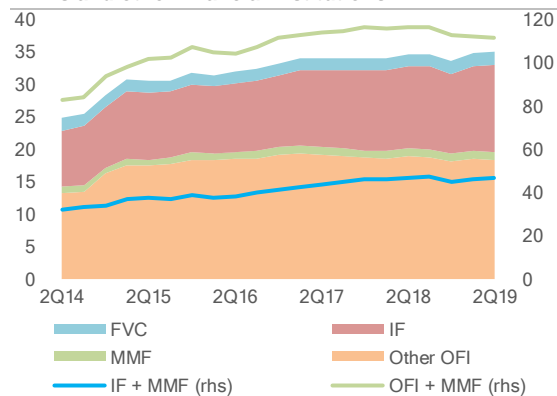
A.179

### Securitised products issuance and outstanding

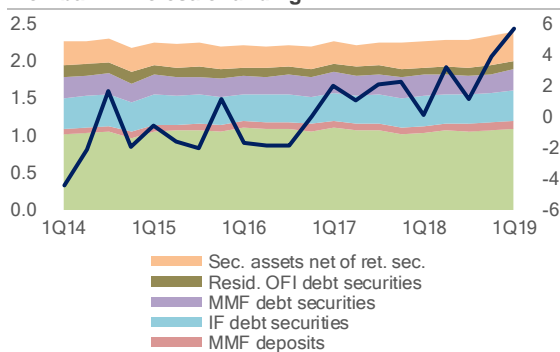


Note: Issuance, EUR bn, and outstanding amount, EUR tn, of securitised products in Europe, retained and placed.

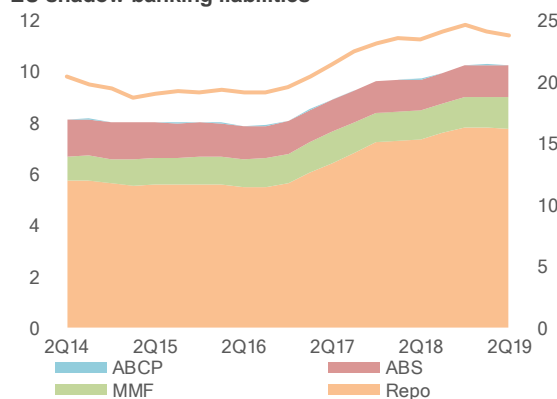
Sources: AFME, ESMA.

**A.180****MMFs and other financial institutions**

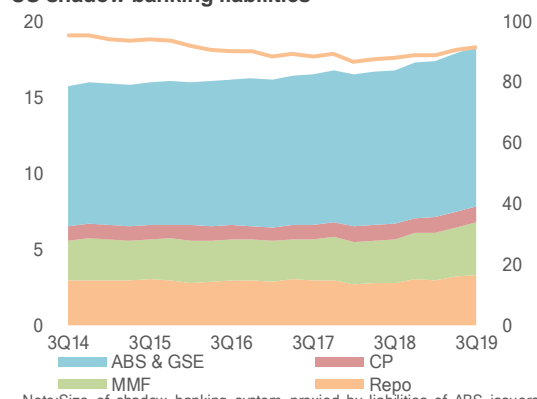
Note: Total assets for EA MMF and other financial institutions (OFI): investment funds (IF), financial vehicle corporations (FVC), Other OFI estimated with ECB Quarterly Sector Accounts, in EUR tn. Expressed in % of bank assets on rhs.  
Sources: ECB, ESMA.

**A.181****Non-bank wholesale funding**

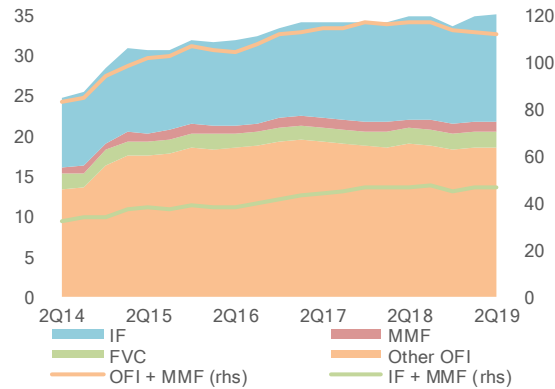
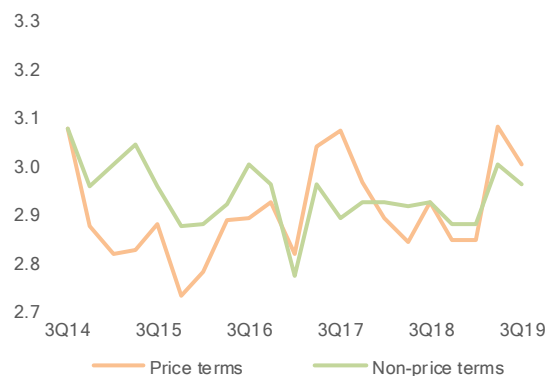
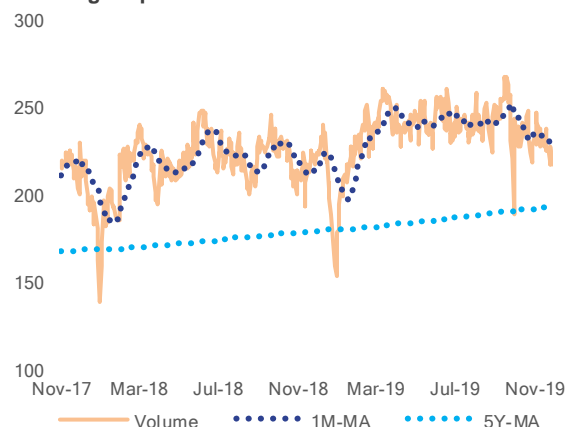
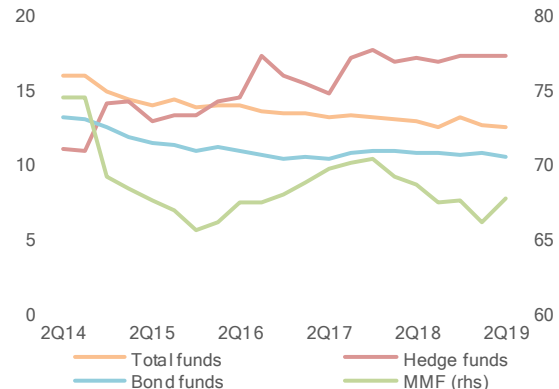
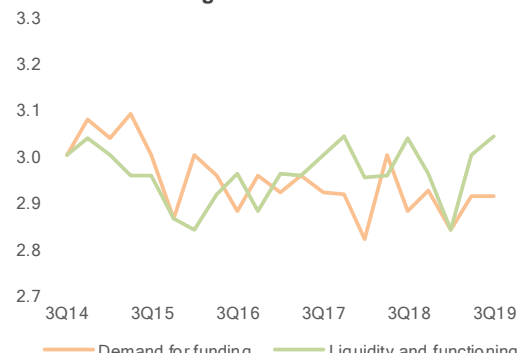
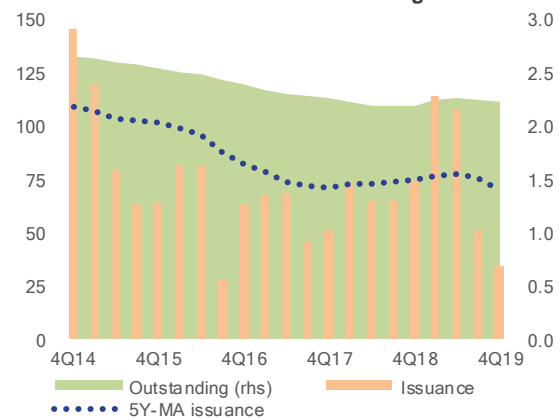
Note: Amount of wholesale funding provided by Euro area non-banks, EUR tn, and growth rate (rhs), in %. Resid. OFI reflects the difference between the total financial sector and the known sub-sectors within the statistical financial accounts (i.e. assets from banking sector, insurances, pension funds,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

**Market-based credit intermediation****A.182****EU shadow banking liabilities**

Note: Size of shadow banking system proxied by amounts of ABS and ABCP outstanding, size of the EU repo market and EU securities on loan (collateralised with cash), and liabilities of MMF, in EUR tn. Expressed in % of bank liabilities on rhs.  
Sources: ECB, AFME, ICMA, Finance, ESMA.

**A.183****US shadow banking liabilities**

Note: Size of shadow banking system proxied by liabilities of ABS issuers, government-sponsored enterprise (GSE) and pool securities, open commercial paper (CP), size of the US repo and securities lending (collateralised with cash) markets, and liabilities of MMF, in USD tn. Expressed in % of bank liabilities on rhs.  
Sources: Federal Reserve Flow of Funds, Refinitiv Datastream, ESMA.

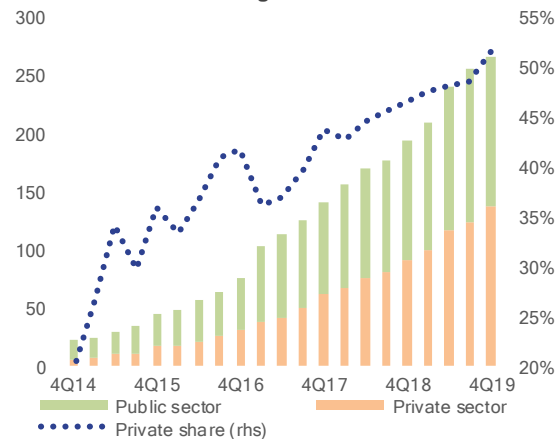
**A.184****MMFs and other financial institutions****A.186****Credit terms in SFT and OTC derivatives****A.188****Sovereign repo market turnover****A.185****Financial market interconnectedness****A.187****Securities financing conditions****A.189****Covered bond issuance and outstanding**

# Sustainable finance

## Green finance

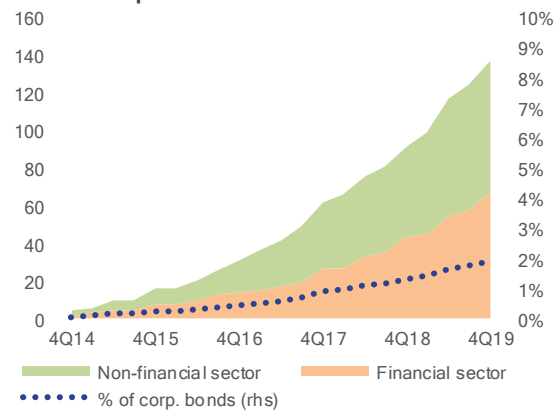
### A.190

#### Green bonds outstanding



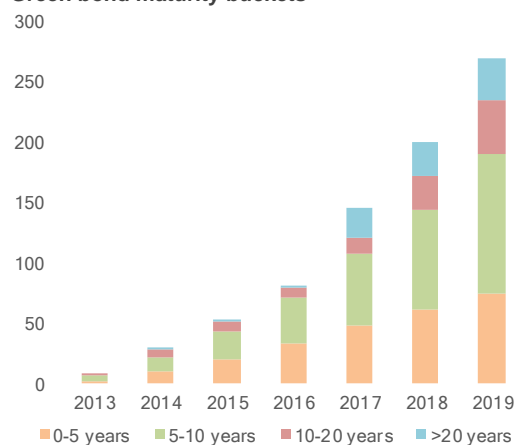
### A.192

#### Green bond private sector issuance



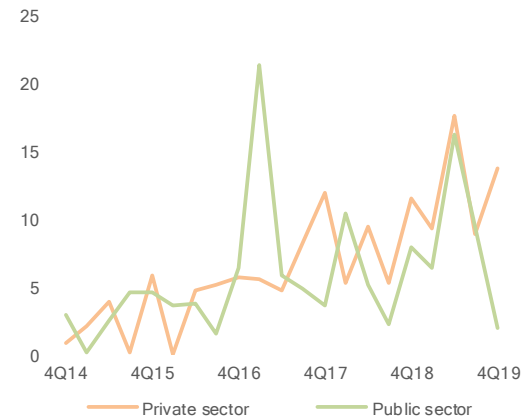
### A.194

#### Green bond maturity buckets



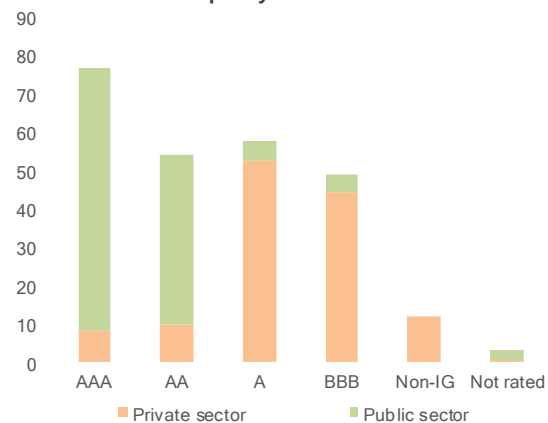
### A.191

#### Green bond issuance



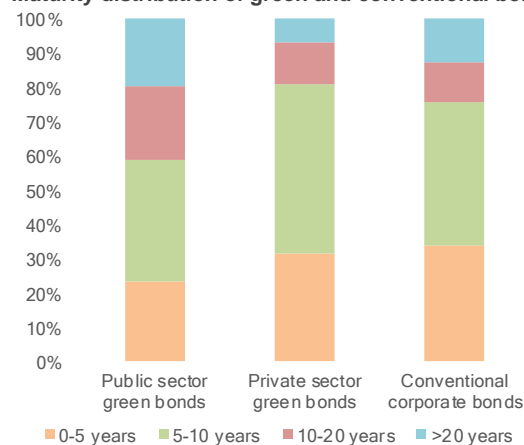
### A.193

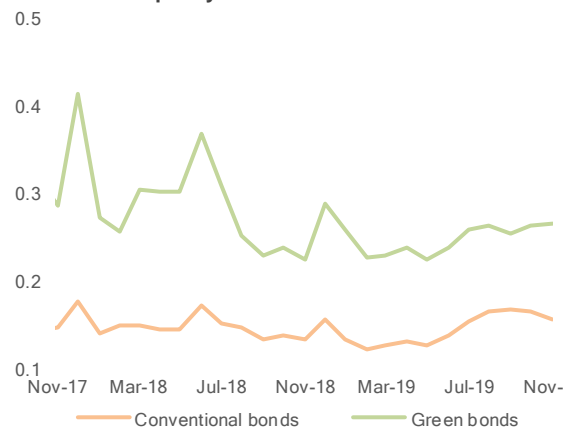
#### Green bond credit quality



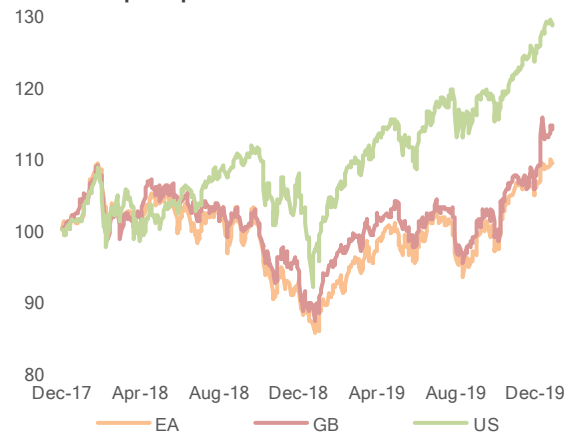
### A.195

#### Maturity distribution of green and conventional bonds

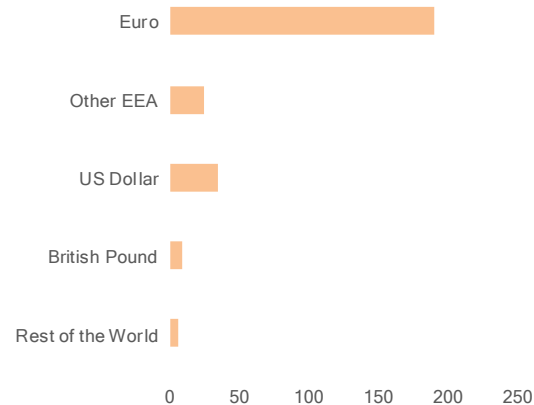


**A.196****Green bond liquidity**

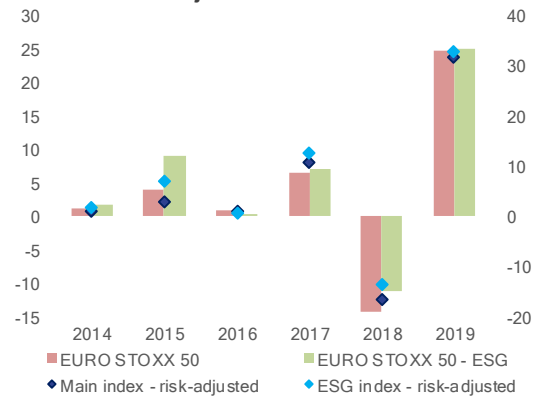
Note: Average bid-ask spread for green bonds and other bonds issued by the same issuer traded on EuroMTS, in bps.  
Sources: MTS, ESMA.

**A.198****ESG share price performance**

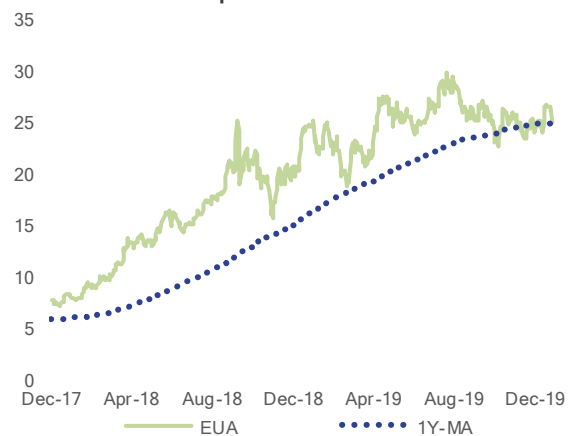
Note: MSCI ESG leaders total return indices, denominated in USD, indexed with 01/11/2017=100.  
Sources: Refinitiv Datastream, ESMA.

**A.197****Green bond currencies**

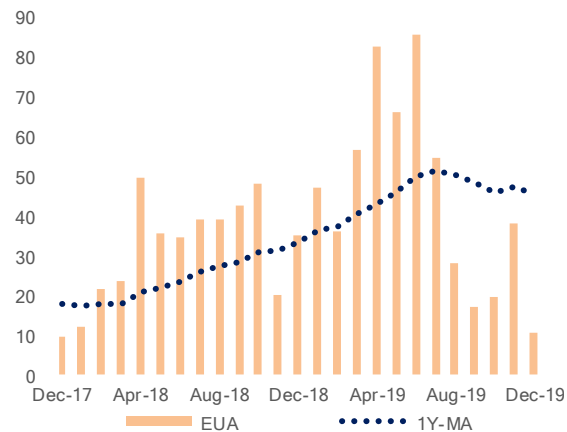
Note: Green bonds outstanding in the EU by currency, EUR bn.  
Sources: Climate Bonds Initiative, Refinitiv EIKON, ESMA.

**A.199****ESG index risk-adjusted returns**

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.

**Emissions trading****A.200****Emission allowance prices**

Note: Daily settlement price of European Emission Allowances (EUA) on European Energy Exchange spot market, in EUR/tCO<sub>2</sub>.  
Sources: Refinitiv Datastream, ESMA.

**A.201****Emission allowance turnover**

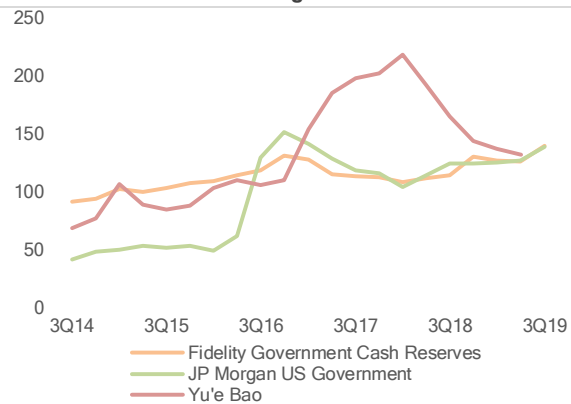
Note: Monthly turnover of European Emission Allowances (EUA) on European Energy Exchange, in EUR mn.  
Sources: Refinitiv Datastream, ESMA.

# Financial innovation

## Financial innovation

### A.202

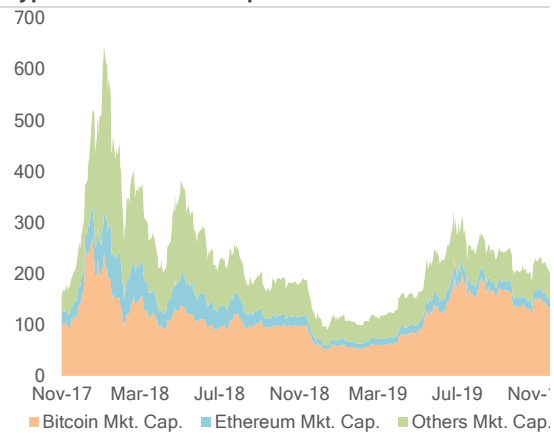
#### Total net assets in world's largest MMFs



Note: Fund value of 3 largest MMFs as of 30 June 2019, EUR bn. \*Yu'e Bao=TianHong Income Box Money Market Fund. 2Q18 value for Yu'e Bao interpolated.  
Sources: Morningstar Direct, ESMA.

### A.203

#### Crypto-Assets market capitalisation



Note: Bitcoin, Ethereum and other crypto-currencies market capitalisation, EUR bn.

### A.204

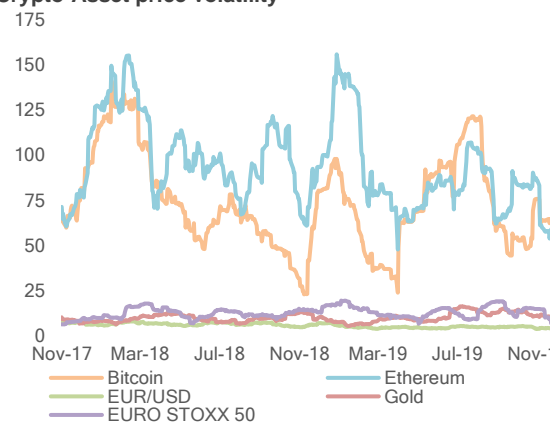
#### Crypto-Asset prices



Note: Prices of selected crypto-assets, EUR thousand.  
Sources: Refinitiv Datastream, ESMA.

### A.205

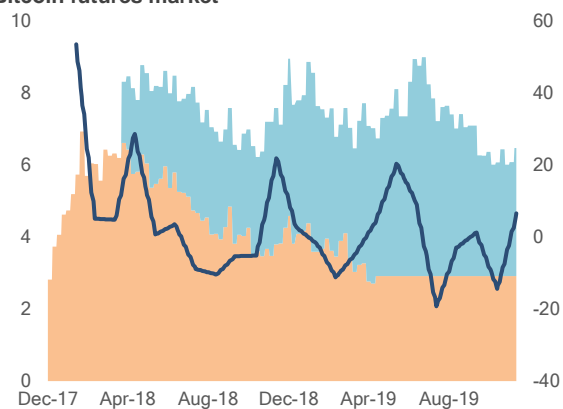
#### Crypto-Asset price volatility



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.

### A.206

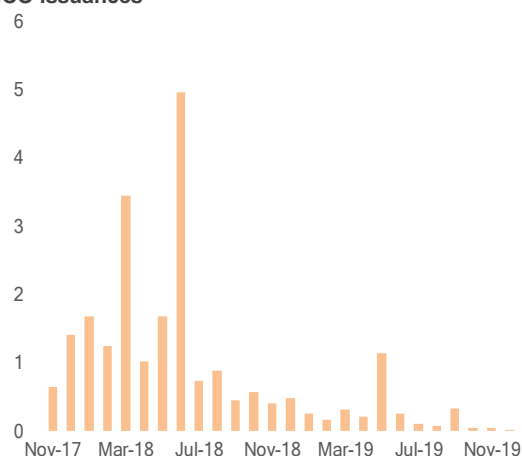
#### Bitcoin futures market



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

### A.207

#### ICO issuances



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



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