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Securities markets

Market environment

A.1 Market price performance

Note: Return indices on EU equities (Datastream regional index), global commodities (S&P GSCI) converted to EUR, EA corporate and sovereign bonds (iBoxx EUR, all maturities). 01/06/2017=100.
Sources: Refinitiv Datastream, ESMA.

A.2 Market volatilities

Note: Annualized 45D volatility of return indices on EU equities (Datastream regional index), global commodities (S&P GSCI) converted to EUR, EA corporate and sovereign bonds (iBoxx EUR, all maturities), in %.
Sources: Refinitiv Datastream, ESMA.

A.3 Economic policy uncertainty

Note: Economic Policy Uncertainty Index (EPU), developed by Baker et al. (www.policyuncertainty.com), based on the frequency of articles in EU newspapers that contain the following triple: “economic” or “economy”, “uncertain” or “uncertainty” and one or more policy-relevant terms. Global aggregation based on PPP-adjusted GDP weights. Implied volatility of EURO STOXX 50 (VSTOXX), monthly average, on the right-hand side.
Sources: Baker, Bloom, and Davis 2015; Refinitiv Datastream, ESMA.

A.4 EUR exchange rates

Note: Spot exchange rates to Euro. Emerging is a weighted average (2016 GDP) of spot exchange rates for CNY, BRL, RUB, INR, MXN, IDR, and TRY. 03/04/2017=100. Increases in value represent an appreciation of EUR.
Sources: ECB, IMF, ESMA.

A.5 Exchange rate implied volatilities

Note: Implied volatilities for 3M options on exchange rates, in %. SY-MA EUR is the five-year moving average of the implied volatility for 3M options on EUR-USD exchange rate.
Sources: Refinitiv Eikon, ESMA.

A.6 Market confidence

Note: European Commission survey of EU financial services sector and subsectors (NACE Rev2 64, 65, 66). Confidence indicators are averages of the net balance of responses to questions on development of the business situation over the past three months, evolution of demand over the past three months and expectation of demand over the next three months, in % of answers received.
Sources: European Commission, ESMA.
A.11 Non-bank wholesale funding

Note: Amount of wholesale funding provided by Euro area non-banks, EUR bn, 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, insurance, pension funds, financial vehicle corporations, investment funds and money market funds).

Sources: ECB, ESMA.

A.13 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.14 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.15**
Price performance

![Image of price performance chart]

Note: Datastream regional equity indices for the EU (in EUR), the US (in USD) and Japan (in JPY). 01/06/2017=100.
Sources: Refinitiv Datastream, ESMA.

**A.16**
Price performance of national indices

![Image of price performance chart]

Note: National equity indices from selected EU members. 01/06/2017=100.
Sources: Refinitiv Datastream, ESMA.

**A.17**
Equity prices by sector

![Image of equity prices by sector chart]

Note: STOXX Europe 600 sectoral return indices. 01/06/2017=100.
Sources: Refinitiv Datastream, ESMA.

**A.18**
Price-earnings ratios

![Image of price-earnings ratios chart]

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: Thomson Reuters Datastream, ESMA.

**A.19**
Return dispersion

![Image of return dispersion chart]

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

**A.20**
Implied volatility

![Image of implied volatility chart]

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

**A.21**
Implied volatility by option maturity

![Image of implied volatility by option maturity chart]

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

**A.22**
Correlation STOXX Europe 600 and sectoral indices

![Image of correlation chart]

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.
Sovereign-bond markets

A.23 ESMA composite equity liquidity index

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<thead>
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<tbody>
<tr>
<td>Illiquidity index</td>
<td>0.50</td>
<td>0.49</td>
<td>0.47</td>
<td>0.45</td>
<td>0.44</td>
<td>0.43</td>
<td>0.42</td>
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Note: Composite indicator of illiquidity in the equity market for the current STOXX Europe Large 250 constituents, computed by applying the principal component methodology to six input liquidity measures (Amihud Illiquidity coefficient, bid-ask spread, HHI-Heubel ratio, turnover value, inverse turnover ratio and market efficiency coefficient). The indicator range is between 0 (higher liquidity) and 1 (lower liquidity).
Sources: Thomson Reuters Datastream, ESMA.

A.24 Bid-ask spread

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<tr>
<td>Bid-ask spread</td>
<td>0.12</td>
<td>0.10</td>
<td>0.08</td>
<td>0.06</td>
<td>0.04</td>
<td>0.02</td>
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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.

A.25 Issuance and outstanding

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

A.26 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.27 Rating distribution

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

A.28 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.29 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.30 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.
The Median BE (lower 10%) is applying Feb-19 volume market outstanding by indices ESMA rolling bid market 5Y-MA EU IT Bunds), net and notional DE of ES % of Jun-19 10% between sovereign Dispersion The MTS, BE, Jun-18 of of by coefficient, Jun-19 ESMA. bonds, liquidity ESMA Jun-19 sovereign ESMA PT FR, EU 10% MTS Bunds), throughout Feb-19 Feb-18 computed indices in DE, Jun-19 EU sovereign ESMA bonds, liquidity ESMA Jun-19 (illiquidity 17% bonds Dispersion indicator of a Jun-18 Feb-18 bps DE measures Euro FI, of bond MTS, range PT) MTS, Bottom 25% Composite the Annualised the for 10 years, 60 (vs selected mid Oct-18 datastream, ESMA.

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

A.31 10Y spreads

A.32 Yield dispersion

A.33 Volatility

A.34 Yield correlation dispersion

A.35 CDS spreads

A.36 CDS notional

A.37 Bid-ask spreads

A.38 ESMA composite sovereign bond liquidity index

Note: Annualized 400 volatility of 10Y sovereign bonds, selected EU members, in %, SY-MA=five-year moving average of EA 10Y bond indices computed by Datastream.
Sources: Refinitiv Datastream, ESMA.

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

Note: Dispersion of correlations between 10Y DE Bunds and other EU countries’ sovereign bond redemption yields over 60D rolling windows.
Sources: Refinitiv Datastream, ESMA.

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.

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.
**Corporate-bond markets**

### A.39 Liquidity

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<th>2Q14</th>
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<th>2Q17</th>
<th>2Q18</th>
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<td>0</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
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</tbody>
</table>

*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.40 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.41 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.42 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.

### A.43 IG and HY bond issuance

Note: Quarterly issuance of corporate bonds by rating category, in % of the total. Sources: Thomson Reuters EIKON, ESMA.

### A.44 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.45 Debt redemption profile by sector

Note: Quarterly redemptions over 5Y-horizon by EU private financial and non-financial corporates, EUR bn. 1Y-change/RediffERENCE 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.46 Rating distribution

Note: Outstanding amount of corporate bonds in the EU as of issuance date by rating category, in % of the total. Sources: Thomson Reuters EIKON, ESMA.
A.47

Hybrid capital instruments

- Outstanding (rhs)
- SY-MA issue

Note: Quarterly hybrid capital instruments issuance in the EU, EUR bn, and outstanding amounts (rhs), EUR bn. 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.48

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.49

Yields by credit rating

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

A.50

Spreads by credit rating

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

A.51

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.52

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 mln. Turnover is the one-month moving average of the ratio of trading volume over outstanding amount, in %.
Sources: IHS Markit, ESMA.

Credit quality

A.53

SFI ratings issued by collateral type

Note: Number of rated structured finance instruments by asset class. ABS=Asset-backed securities; CDO=Collateralised debt obligations; CMBS=Commercial mortgage-backed securities; OTH=Other; RMBS=Residential mortgage-backed securities.
Sources: RADAR, ESMA.

A.54

SFI ratings outstanding by collateral type

Note: Outstanding EU ratings of structured finance instruments by asset class, in % of total. ABS=Asset-backed securities; CDO=Collateralised debt obligations; CMBS=Commercial mortgage-backed securities; OTH=Other; RMBS=Residential mortgage-backed securities.
Sources: RADAR, ESMA.
A.63 Rating drift

Note: 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.64 Rating volatility

Note: 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.

A.65 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. In % of bank liabilities on rhs.
Sources: ECB, AFME, ICMA, Markit Securities Finance, ESMA.

A.66 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. In % of bank liabilities on rhs.
Sources: Federal Reserve Flow of Funds, Refinitiv Datastream, ESMA.

A.67 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. In % of bank assets on rhs.
Sources: ECB, ESMA.

A.68 Financial market interconnectedness

Note: Loan and debt securities vs-à-vs MFI counterparts, as a share of total assets. EA investment funds and MMF, in %. Total funds includes: bond funds, equity funds, mixed funds, real estate funds, hedge funds, MMF and other non-MMF investment funds.
Sources: ECB, ESMA.

A.69 Sovereign repo volumes

Note: Repo transaction volumes executed through CCPs in seven sovereign euro repo markets (AT, BE, DE, FI, FR, IT and NL), EUR tn.
Sources: RepoFunds Rate, ESMA.

A.70 Sovereign repo market specialness

Note: Median, 75th and 90th percentile of weekly specialness, measured as the difference between general collateral and special collateral repo rates on government bonds in selected countries.
Sources: RepoFunds Rate, ESMA.
A.79
Securities lending with open maturity

Note: Ratio of European securities on loan at open maturity over total securities on loan, outstanding values, in %.
Sources: Market Securities Finance, ESMA.

A.80
Securitised product issuance and outstanding

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

A.81
Covered bond issuance and outstanding

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

A.82
Covered bond spreads

Note: Asset swap spreads based on iBoxx covered bond indices, in bps. 5Y-MA=five-year moving average of all bonds.
Sources: Refinitiv Datastream, ESMA.

Short selling

A.83
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, Thomson Reuters Datastream, ESMA.

A.84
Dispersion of net short positions in EU shares

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

A.85
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.86
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.
Commodity markets

A.95 Prices

A.96 Volatility

A.97 Open interest

A.98 Implied volatility

Derivatives markets

A.99 OTC notional outstanding

A.100 OTC market value

A.101 ETD notional outstanding by product category

A.102 ETD turnover by product category

Note: S&P GSCI commodity indices and Brent price, indexed, 01/06/2017=100. 5Y-MA=five-year moving average computed using S&P GSCI. Indices denominated in USD.
Sources: Refinitiv Datastream, ESMA.

Note: Annualised 4QD volatility of S&P GSCI commodity indices and Brent price, in %. 3Y-MA=three-year moving average computed using S&P GSCI.
Sources: Refinitiv Datastream, ESMA.

Note: Continuous future open interests on number of barrels, in million of contracts. 5Y-MA oil (gas)=five-year moving average of light crude oil futures (natural gas futures).
Sources: Refinitiv Datastream, ESMA.

Note: One-month implied volatility of at-the-money options, in %. 3Y-MA oil (gas)=three-year moving average of light crude oil (natural gas).
Sources: Refinitiv Datastream, ESMA.

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

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.

Note: Global average daily turnover in exchange-traded derivatives by product category, in USD tn. 1Y-MA FX=one-year moving average for interest rate, 1Y-MA FX=one-year moving average for foreign exchange.
Sources: Bank for International Settlements, ESMA.
A.103
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.104
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.105
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.106
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.107 Ongoing trading suspensions by rationale

200
150
100
50
0
2016 4Q16 2017 4Q17 2018
Market management arrangements
Issuer’s failure to disclose periodic information on time
Undisclosed price-sensitive information
Other non-compliance with rules of the regulated market
Other disorderly trading conditions
Unknown
Average duration (rhs)
Note: Number of suspensions of financial instruments traded on EEA trading venues ongoing at the end of the reporting period, grouped by quarter during which they started and by rationale. Average duration, in years, computed as the mean of the difference between the end-of-quarter date and the start date. Sources: ESMA Registers.

A.108 Trading suspensions – lifecycle and removal

300
250
200
150
100
50
0
4Q15 2Q16 4Q16 2Q17 4Q17
Suspensions started
Removals
Suspensions ended
Average duration (rhs)
Note: Number of former suspensions, split by quarter in which they started and ended, and removals of financial instruments traded on EEA trading venues. Average duration of former suspensions, in days, computed as the mean of the difference between the end-of-quarter date and the start date. Sources: ESMA Registers.

A.109 Equity trading turnover by transaction type

2,500
2,000
1,500
1,000
500
0
EOB TRF TRV
All trading
MTF
Dark pools (rhs)
Off-order book (rhs)
Note: Monthly equity turnover in the EU by transaction type, EUR bn. 2Y-MA two-year moving average of all trading, EOB=electronic order book, TRF=trade reporting facilities. Sources: FESE, ESMA.

A.110 Share of equity trading by transaction type

200
400
600
800
1,000
1,200
0
50
100
150
200
2Q16 4Q16 2Q17 4Q17 2Q18
Trade reporting facilities
Dark pools
Electronic order book
Off-order book
Note: Share of equity turnover in the EU by transaction type over the reporting period, in % of total. Sources: FESE, ESMA.

A.111 Equity trading turnover by type of trading venue

1,200
1,000
800
600
400
200
0
Regulated exchange
MTF
1Y-MA share (rhs)
Note: Monthly equity turnover by type of EU trading venue, in EUR bn. Trading on multilateral trading facilities (MTF) as % of total trading on the right axis. 1Y-MA share=one-year moving average share of MTFs. Sources: FESE, ESMA.

A.112 Equity trading turnover by origin of issuer

500
400
300
200
100
0
Domestic issuer
Foreign issuer
Foreign issuer (rhs)
1Y-MA foreign (rhs)
Note: Monthly equity turnover on EU trading venues by origin of the traded equity, in EUR bn. Data for London Stock Exchange, Equiduct and BATS Chi-X Europe are not reported. Foreign equities are issued in a country other than that of the trading venue. Sources: FESE, ESMA.

A.113 Turnover by type of assets

1,500
1,250
1,000
750
500
250
0
Equities
ETFs (rhs)
UCITS (rhs)
Bonds
Note: Monthly turnover on EU trading venues by type of assets, in EUR bn. Data for Aquis Exchange, BATS Chi-X Europe, Equiduct, London Stock Exchange, TOM MTF and Turquoise are not reported for bonds, ETFs and UCITS. Sources: FESE, ESMA.

A.114 Share of turnover by type of assets

Equities 70.8%
ETFs 1.4%
Bonds 27.6%
UCITS 0.2%
Note: Share of turnover on EU trading venues by asset class, in % of total turnover over the reporting period. Data for Aquis Exchange, BATS Chi-X Europe, Equiduct, London Stock Exchange, TOM MTF and Turquoise are not reported for bonds, ETFs and UCITS. Sources: FESE, ESMA.
Central counterparties

A.119 Value cleared

Note: Volume of transactions cleared by reporting CCPs. Annual data, EUR in, for cash, repos, exchange-traded 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.120 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.121 OTC derivatives central clearing rates

Note: Share of gross notional amount outstanding for credit derivatives (CD) and interest rate derivatives (IRD), in %. Sources: TRs, ESMA.

A.122 Share of transactions cleared by CCPs

Note: Share of volume of transactions cleared by reporting CCPs for cash, repos, non-OTC and OTC derivatives, 2017. 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.
Central securities depositories

A.123 IRD trading volumes

Note: Daily trading volumes for the main euro 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.124 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.

Credit rating agencies

A.129 Outstanding ratings issued by the top 3 CRAs

Note: Evolution of outstanding ratings, indexed 3Q15=100. S&P, Moody’s and Fitch. Sources: RADAR, ESMA.

A.130 Outstanding ratings excluding the top 3 CRAs

Note: Evolution of outstanding ratings, indexed 3Q15=100. All CRAs excluding S&P, Moody’s and Fitch. Sovereign on right hand axis. Sources: RADAR, ESMA.
Financial benchmarks

**A.131**  
Number of benchmark panel banks

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Note: Number of banks contributing to the Euribor and Eonia panels.  
Sources: European Money Markets Institute, ESMA.

**A.132**  
Number of benchmark administrators

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<th>US</th>
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<td>20</td>
<td>16</td>
<td>12</td>
<td>8</td>
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</tbody>
</table>

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

**A.133**  
Derivatives referencing EONIA by maturity

<table>
<thead>
<tr>
<th></th>
<th>Before end-2019</th>
<th>End-2019 to end-2021</th>
<th>End-2021 to end-2023</th>
<th>End-2023 to end-2028</th>
<th>After 2028</th>
</tr>
</thead>
<tbody>
<tr>
<td>Euribor</td>
<td>16</td>
<td>12</td>
<td>8</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Eonia</td>
<td>16</td>
<td>12</td>
<td>8</td>
<td>4</td>
<td>0</td>
</tr>
</tbody>
</table>

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

**A.134**  
Derivatives referencing EURIBOR by maturity

<table>
<thead>
<tr>
<th></th>
<th>Before end-2019</th>
<th>End-2019 to end-2021</th>
<th>End-2021 to end-2023</th>
<th>End-2023 to end-2028</th>
<th>After 2028</th>
</tr>
</thead>
<tbody>
<tr>
<td>Euribor</td>
<td>50</td>
<td>40</td>
<td>30</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>Eonia</td>
<td>50</td>
<td>40</td>
<td>30</td>
<td>20</td>
<td>10</td>
</tr>
</tbody>
</table>

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

Fund industry

A.135 Fund performance

A.136 Fund volatility

A.137 Entities authorised under UCITS

A.138 Share of entities authorised under UCITS by country

A.139 Entities authorised under AIFMD

A.140 Share of entities authorised under AIFMD by country

A.141 Assets by market segment

A.142 NAV by legal form

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

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

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

Note: NAV of EU fund industry, EUR tn. Quarterly data.
Sources: EFAMA, ESMA.
A.143 NAV by fund market segment

A.144 Leverage by market segment

A.145 Fund flows by fund type

A.146 Fund flows by regional investment focus

A.147 Bond fund flows by regional investment focus

A.148 Equity fund flows by regional investment focus

A.149 Net flows for bond funds

A.150 Net asset valuation

Note: EA investment funds’ NAV by fund type, EUR tn. Sources: ECB, ESMA.

Note: EA investment funds’ leverage by fund type computed as the AuM/NAV ratio. Sources: ECB, ESMA.

Note: EU-domiciled funds’ two-month cumulative net flows, EUR bn. Sources: Refinitiv Lipper, ESMA.

Note: Cumulative flows into bond and equity funds (BF and EF) over time since 2004 by regional investment focus, EUR bn. Sources: Refinitiv Lipper, ESMA.

Note: EA investment funds’ leverage by fund type computed as the AuM/NAV ratio. Sources: ECB, ESMA.

Note: Two-month cumulative equity flows by regional investment focus, EUR bn. Sources: Refinitiv Lipper, ESMA.

Note: Two-month cumulative bond flows by regional investment focus, EUR bn. Sources: Refinitiv Lipper, ESMA.

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 (e.g. funds investing in emerging government bonds reported as Emerging; funds investing in HY corporate bonds reported as HY). Sources: Refinitiv Lipper, ESMA.

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.151 Liquidity risk profile of EU bond funds

Note: Fund type is reported according to the average liquidity ratio, in % (Y-axis), the effective average maturity of assets, in years (X-axis), and the size. Each series is reported for two years, i.e. 2017 (pale colours) and 2018 (dark colours). Sources: Refinitiv Lipper, ESMA.

A.152 Cash as percentage of assets

Note: Cash held by EU corporate bond funds, in % of total assets. Short positions can have a negative value. Sources: Refinitiv Lipper, ESMA.

A.153 Credit quality of bond funds’ assets

Note: Ratings of bonds held by EU bond funds, data in % of total assets. Sources: Thomson Reuters Lipper, ESMA and Standard & Poor’s.

Money market funds

A.155 MMF performance

Note: EU-domestic MMFs’ 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 2nd percentile. Sources: Refinitiv Lipper, ESMA.

A.156 MMF flows by domicile

Note: MMF two-month cumulative net flows by domicile, EUR bn. Sources: Refinitiv Lipper, ESMA.

A.157 MMF flows by geographical focus

Note: MMF two-month cumulative net flows by geographical focus, EUR bn. Sources: Refinitiv Lipper, ESMA.

A.158 Assets and leverage

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

Hedge fund returns

Fund flows by domicile

Alternative fund flows by geographical focus

Hedge fund performance by strategy

Assets and leverage

Direct and indirect property fund flows

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.

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.

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

Note: Alternative mutual funds' two-month cumulative net flows by domicile, EUR bn. Data on alternative mutual funds represent only a subset of the entire alternative fund industry. Sources: Refinitiv Lipper, ESMA.

Note: Alternative mutual funds' two-month cumulative net flows by geographical focus, EUR bn. Data on alternative mutual funds represent only a subset of the entire alternative fund industry. Sources: Refinitiv Lipper, ESMA.

Note: Two-month cumulative flows for direct and indirect 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.167

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 2nd percentile.
Sources: Refinitiv Lipper, ESMA.

A.168

Volatility

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

A.169

NAV and number by domicile

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

A.170

NAV by asset type

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

A.171

Tracking error

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

A.172

Flows by domicile

Note: ETF net flows by domicile, EUR bn.
Sources: Refinitiv Lipper, ESMA.

A.173

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.174

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.175
Assets of European ETFs by replication method

A.176
Flows into 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

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

Investment resources available to households

A.177 Disposable income

A.178 Household saving and investment rates

Note: Household annual saving and investment rates, based on four-quarter cumulated transactions. %, SY-MA saving=five-year moving average of the saving rate. SY-MA investment=five-year moving average of the investment rate. Sources: ECB, ESMA.

A.179 Investor sentiment

Note: Sentix Sentiment Indicators for Euro Area private and current institutional investors on a 10Y horizon. The zero benchmark is a risk-neutral position. Sources: Refinitiv Datastream, ESMA.

Asset allocation by retail investors

A.180 Growth rates in financial assets

Note: Quarterly asset growth rates by type of investment, %, IF shares=investment fund shares. Sources: Eurostat, ESMA.

A.181 Household assets to liabilities ratio

Note: EU households' financial assets and liabilities, EUR tn. Assets/liabilities ratio in %. Sources: ECB, ESMA.

A.182 Household financial assets by class

Note: Financial assets of EU households, EUR tn. and growth in debt securities, equity and IF shares held by EU households, right-hand axes. %, 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.

A.183 Share of securities investments in household assets

Note: Debt securities, equity and IF shares as a share of total household financial assets, %. IF shares=investment fund shares. Sources: Eurostat, ESMA.

A.184 Net financial asset acquisition by type

Note: Net incurrence of liabilities and net financial flows for households in the euro area, % of disposable income. 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. Sources: Eurostat, ESMA.
## Costs and performance

### A.185 Net return dispersion

<table>
<thead>
<tr>
<th>Year</th>
<th>Bottom mid-tail 15</th>
<th>Core 50</th>
<th>EU net</th>
</tr>
</thead>
<tbody>
<tr>
<td>2Q15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4Q15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2Q16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4Q16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2Q17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4Q17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2Q18</td>
<td></td>
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<tr>
<td>4Q18</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>2Q19</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

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.187 Dispersion in the absolute cost impact

<table>
<thead>
<tr>
<th>Year</th>
<th>Alternative</th>
<th>Bond</th>
<th>Commodity</th>
</tr>
</thead>
<tbody>
<tr>
<td>2Q15</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2Q16</td>
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<td></td>
<td></td>
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<tr>
<td>2Q17</td>
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<td></td>
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<tr>
<td>2Q18</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2Q19</td>
<td></td>
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</tbody>
</table>

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

### A.189 Retail fund synthetic risk and reward indicator

<table>
<thead>
<tr>
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</tbody>
</table>

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.186 Absolute costs

<table>
<thead>
<tr>
<th>Year</th>
<th>EU</th>
<th>Real Estate</th>
<th>Money Market (rhs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2Q15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2Q16</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2Q17</td>
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<td>2Q18</td>
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<tr>
<td>2Q19</td>
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</tr>
</tbody>
</table>

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

### A.188 Net returns by asset class

<table>
<thead>
<tr>
<th>Year</th>
<th>Alternative</th>
<th>Bond</th>
<th>Commodity</th>
<th>Equity</th>
<th>Money market</th>
<th>Real Estate</th>
<th>Equity (rhs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2Q15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2Q16</td>
<td></td>
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</tr>
<tr>
<td>2Q17</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>2Q18</td>
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</tr>
</tbody>
</table>

Note: Evolution of Net Returns for UCITS funds, by assets class. Results for Equity, Bond, Mixed, Assets and Money Market. Sources: Refinitiv Lipper, ESMA.

### A.190 Portfolio returns

<table>
<thead>
<tr>
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</tbody>
</table>

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.

### Complaints

#### A.191 Total complaints

<table>
<thead>
<tr>
<th>Quarter</th>
<th>1Q17</th>
<th>3Q17</th>
<th>1Q18</th>
<th>3Q18</th>
<th>1Q19</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

Note: Complaints reported directly to 17 NCAs: AT, BG, CY, CZ, DE, DK, EE, ES, FR, HU, IE, LT, LU, MT, RO, SI. Total volume estimated by summing highest total among reporting channels for each NCA. Sources: ESMA complaints database.

#### A.192 Complaints data by type of firm

<table>
<thead>
<tr>
<th>Quarter</th>
<th>Bank</th>
<th>Non-bank investment firm</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>1Q17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3Q17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1Q18</td>
<td></td>
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<td></td>
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<tr>
<td>3Q18</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>1Q19</td>
<td></td>
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</tr>
</tbody>
</table>

Note: Complaints reported directly to 18 NCAs: AT, BG, CY, CZ, DE, DK, EE, ES, FI, FR, HU, IE, LT, LU, MT, PT, RO, SI. % of total volume by type of firm involved. Source: ESMA complaints database.
A.193
Complaints data by cause

Note: Complaints reported directly to 17 NCAs: AT, BG, CY, CZ, DE, DK, EE, ES, HR, HU, IT, LT, LU, MT, PT, RO, SI. Line shows total volume of these complaints. Bars show % of total volume by cause. Data collected by NCAs. Source: ESMA complaints database

A.194
Complaints data by instrument

Note: Complaints reported directly to 17 NCAs: AT, BG, CY, CZ, DE, DK, EE, ES, HR, HU, IT, LT, LU, MT, PT, RO, SI. Line shows total number of these complaints. Bars show % of total volume by type of financial instrument. CFDs=Contracts for Differences. Source: ESMA complaints database.
Financial innovation

A.195 Monitoring of financial innovation by NCAs

<table>
<thead>
<tr>
<th>Crypto assets, ICOs and DLT</th>
<th>New derivatives or ETFs</th>
<th>Crowdfunding</th>
<th>Automated advice</th>
<th>ESG investing</th>
<th>Algo- or AI-based trading</th>
<th>Cloud-based outsourcing</th>
<th>Bail-in securities / CoCos</th>
<th>Loan participation funds</th>
<th>Alternative index products</th>
<th>Social trading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher priority</td>
<td>Medium priority</td>
<td>Lower priority</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Note: Percentage of NCAs assigning given priority level to given innovation for 2H18 (n=23). “CoCos”=contingent convertible bonds. Top-10 highest priority topics listed, selected via lexicographic ranking of reported priority levels. Sources: ESMA financial innovation monitoring database.

A.196 Changes in NCA innovation monitoring

<table>
<thead>
<tr>
<th>Crypto assets, ICOs and DLT</th>
<th>New derivatives or ETFs</th>
<th>Crowdfunding</th>
<th>Automated advice</th>
<th>ESG investing</th>
<th>Algo- or AI-based trading</th>
<th>Cloud-based outsourcing</th>
<th>Bail-in securities / CoCos</th>
<th>Loan participation funds</th>
<th>Alternative index products</th>
<th>Social trading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change in higher priority</td>
<td>Change in all monitoring</td>
<td></td>
<td></td>
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</table>

Note: Changes in number of NCAs assigning a given priority level to selected topics in financial innovation for 2H18 compared with 1H18 (n=21). “CoCos”=contingent convertible bonds. Source: ESMA financial innovation monitoring database.

A.197 Crypto-Asset prices

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

A.198 Crypto-Asset price volatility

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

A.199 Bitcoin futures market

Note: Total open interest in Bitcoin futures, in number of contracts, and change in monthly average total open interest, % (right axis). Sources: Refinitiv Datastream, ESMA.

A.200 ICO issuances

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

Sustainable finance

A.201 ESG share price performance by region

Note: MSCI ESG leaders total return indices, denominated in USD, indexed with 01/09/2017=100. Sources: Refinitiv Datastream, ESMA.

A.202 ESG index risk-adjusted returns

Note: Annual returns of the EURO STOXX 50 and its ESG leaders subindex, in % Risk-adjusted returns measured as Sharpe ratios. Current year data year-to-date. Sources: Refinitiv Datastream, ESMA.
A.203
Green bond issuance

Note: Quarterly issuance and outstanding amount of green bonds from EU-domiciled issuers (including sovereign and supranational issuers), EUR bn. Sources: Refinitiv EIKON, ESMA.

A.204
Green bonds outstanding by sector

Note: Share of green bonds outstanding from EU-domiciled issuers, by issuer parent sector. Sources: Refinitiv EIKON, ESMA.

A.205
Emission allowance prices

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

A.206
Emission allowance turnover

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