European Securities and Markets Authority

ESMA Risk Dashboard

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ESMA Risk Dashboard

R.1
Main risks

Risk segments	Level	Outlook	Risk categories	Level	Outlook	Risk sources	Outlook
Overall ESMA remit	orange	→	Liquidity	orange	→	Macroeconomic environment	→
Systemic stress	yellow	→	Market	red	→	Low interest rate environment	↗
Securities markets	red	→	Contagion	orange	→	EU sovereign debt markets	→
Investors	yellow	→	Credit	orange	→	Infrastructure disruptions, incl. cyber risks	↗
Infrastructures and services	yellow	→	Operational	yellow	↗	Political and event risks	↗

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

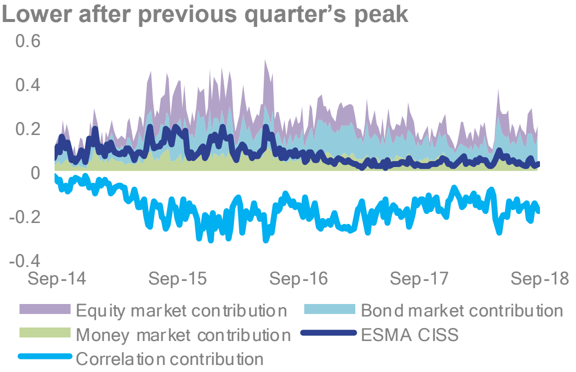
With the exception of bank shares, equity markets increased slightly over the course of 3Q18. However, market nervousness and sensitivity are rising, as evidenced by the global equity market sell-off at the beginning of 4Q18. Sovereign bond market volatility remained high, mainly driven by budget plans of Italy. Market risk thus remains very high, due also to generally high market valuations coupled with market uncertainty as the period of ultra-low interest rates is drawing to a close. Our outlook for liquidity, contagion and credit risk remains unchanged. Operational risk remains elevated with a negative outlook, as cyber threats and Brexit-related risks to business operations continues to be a major concern. Going forward, the macroeconomic, political and geopolitical environment and their interaction with market expectations, notably over future monetary policy actions, will continue to weigh on market volatility. Moreover, concerns over a potential no-deal Brexit increasingly weigh on economic and market expectations.

Risk summary

Market risk remained at a very high level in 3Q18, accompanied by very high risk in securities markets and elevated risks for investors, infrastructures and services. Equity and bond volatility remained high, reflecting sensitivities to events such as trade discussion and geo-political tensions and the underlying risk of risk premia reversal. The level of credit and liquidity risk remained high, with a deterioration in outstanding corporate debt ratings and still relatively low corporate and sovereign bond liquidity. Operational risk was elevated as cyber threats and Brexit-related risks to business operations remain major concerns. Investor risks persist across a range of products, and under the MiFIR product intervention powers ESMA recently extended the prohibition of Binary Options and the restrictions on CFDs to retail investors. Going forward, EU financial markets can be expected to become increasingly sensitive to mounting political and economic uncertainty from diverse sources, such as global trade discussions, emerging market capital flows, Brexit negotiations, and others. Assessing business exposures and ensuring adequate hedging against these risks will be a key concern for market participants in the coming months.

Systemic Risk as measured by the ESMA version of the Composite Systemic Indicator decreased from the high levels reached at the end of the previous quarter. The largest contribution continued to come from bond markets with interim spikes in the equity market contribution.

R.2
ESMA composite systemic stress indicator
Lower after previous quarter's peak



Note: ESMA version of the ECB-CISS indicator measuring systemic stress in securities markets. It focuses on three financial market segments: equity, bond and money markets, aggregated through standard portfolio theory. It is based on securities market indicators such as volatilities and risk spreads.
Sources: ECB, ESMA.

Risk sources

Macroeconomic environment: The most recent economic forecasts exhibit a sustained but less dynamic growth of 2.1% in the EU GDP for 2018 (before moderating further to 1.9% in 2019 and 1.7% in 2020). Global economic growth is projected to remain at its 2017 levels (3.7% for 2018-2019) although the expansion has become less balanced and downside risks to global growth have risen in the past six months and have become more differentiated across regions[1]. In the US, stronger-than-anticipated inflation reignited investors' fears of more aggressive interest-rate increases. The macroeconomic environment and its interaction with market expectations, notably over future monetary policy actions, played an active role in recent market sell-offs such as the October equity market price drop. This remains a significant risk source going forward. Appreciation of the USD continued over the reporting period and could be linked to recent fund and capital outflows from emerging economies.

Low interest-rate environment: Risks of a low interest-rate environment now relate to the gradual increase in interest rates and the pace of the quantitative easing tapering policies, in the EA and abroad. While search-for-yield behaviour by investors and potential mispricing of assets remains a concern in the short to medium run – market anxiety over signs of a reversal in risk premia was reflected in the global equity sell-off in October. Risk premia on bond markets (both sovereign and corporate) have started showing signs of risk reallocation. Ten-year EA sovereign spreads to the DE Bund decreased by 2bps on average in 3Q18 (R.9) even though they still stood at a relatively high level. For corporate bonds, spreads with respect to risk-free rates (as measured by Euro EURIBOR swap rates) increased for all but AAA-rated bonds (R.15). Potential curbing of search-for-yield behaviour is also reflected in the continued net outflows from most fund categories in 3Q18 (R.25, R26). Event risk, for example related to potential escalation of uncertainties in trade discussions is affecting market expectations, thus weighing on the economic outlook and potentially changing anticipations around future monetary policy. In this environment, markets could be more vulnerable to a risk premia repricing, hence our continued deteriorating outlook for this risk.

EU sovereign debt markets: In 3Q18, EU sovereign bond yields were characterized by high volatility during short periods of political uncertainty, especially in one member state. Ten-year sovereign yields increased by 0.1 percentage point on average with consistent increases in IT, PT and ES (+0.3, +0.1 and +0.2pps respectively). The Italian spread to the German Bund increased to 252 bps, higher than any time since the Euro sovereign crisis.

Market functioning: Markets are still subject to glitches as shown by recent potential mispricing on one US trading venue, or with the delayed market opening of a German trading venue (15-Oct). The number of circuit-breaker occurrences was relatively low over the reporting period with an average of 57 interruptions per week (compared to a weekly average of 100 during 2Q18, with a peak at 202 during the last week of May), and below long-term averages (R.35). Regarding market infrastructures, central clearing continued to increase amid ongoing implementation of the clearing obligation for derivatives. Central clearing rates for all outstanding OTC credit derivatives grew from 25% to 27% in 2017[2]. For OTC interest rate derivatives, central clearing rates grew from 40% in 1Q17 to 58% in 4Q17. On 11 September, following a large divergence in spreads between Nordic and German Power markets, a Norwegian power market trader clearing his own trades at Nasdaq OMX Clearing AB was not able to meet intraday margin calls and declared default. Its positions were liquidated on 12 September. The cost of closing out the positions (EUR 114mn) was covered by the default resources of the CCP, including EUR 107mn from other members contributing to the dedicated default fund (out of a default fund of EUR 166mn) and EUR 7mn from the CCP's own capital.

Political and event risk: Most market movements linked to political and event risks in the EU were related to global trade discussions and tensions in the EU around one member state's spending plan. Brexit continues to remain the most significant political risk in the EU with continuing uncertainty around the conclusion of a withdrawal agreement.

1 IMF, World Economic Outlook, October 2018, and European Commission, Autumn 2018 Economic Forecast.

2 ESMA Annual Statistical Report – EU Derivatives Markets, 2018

Risk categories

Market risk – very high, outlook stable: With the exception of the banking sector, equity markets increased slightly over the course of 3Q18. However, markets sensitivity to event risks remained high, as evidenced by the global equity market sell-off at the beginning of 4Q18. Political developments in Europe, together with geopolitical events and discussions over international trade arguments were still driving the relatively high equity market volatility. Short episodes of higher volatility were occurring also on other markets such as sovereign and to a lesser extent corporate bond markets. On foreign-exchange markets, volatility was high for the USD and for emerging markets amid a strong US economy and expectations of monetary tightening from the Federal Reserve. Against the EUR, the USD remained around the same level over the course of the quarter. As discussed in other sections, interest rate risk represents one of the main market risks ahead.

Liquidity risk – high, outlook stable: Liquidity on equity markets, as measured by the ESMA illiquidity index started deteriorating during the second half of 3Q18, although not reaching unusually low levels of liquidity. Sovereign bond market liquidity recovered from its very low level of 2Q18, where it was affected by the May sovereign market movements in the EU. On corporate bond markets, both the bid-ask spread and the Amihud indicator only increased slightly in September, signalling slightly reduced liquidity. Trading volumes of centrally cleared repos decreased marginally in 3Q18 even though the long-term trend is going up (R.13). Collateral scarcity premia (i.e. the difference between general collateral and special collateral repo rates) were lower in 3Q18 than during the previous quarter. High levels of collateral scarcity premia reflect possible shortages of high-quality collateral (R.14). This may fuel liquidity risk and volatility in funding costs and reduce overall market confidence.

Contagion risk – high, stable outlook: On sovereign bond markets, the median correlation between Germany and other EU countries' bond yields was high in 3Q18, while the dispersion across MS has widened (R.19). This is usually the sign of a differentiation between a set of core countries and a periphery on EU sovereign markets. Market movements on Italian sovereign bonds only moderately spread to other markets, showing signs of a high but contained contagion risk. Across sectors, the correlation between equity sectoral indices was also lower for most sectors (R.20). Finally, interconnectedness between the non-banking sector, and in particular hedge funds, and the banking sector remained at a relatively high level (R.29).

Credit risk – high, outlook stable: In 3Q18, non-financial corporate bond spreads continued to increase for lower-rated bonds (BBB). This development which started in February as a result of asset reallocation and following market movements for equities and bonds could be considered a sign of shifting risk perceptions linked to risk premia reversals. Spreads stood within a range of 114bps for BBB-rated securities to 4bps for the AAA class, in comparison to the much narrower range of 66bps to 9bps at end-2017 (R.15). At the same time, the credit quality of outstanding corporate bonds continued to deteriorate, albeit at a slower pace (R.17).

Operational risk – elevated, outlook deteriorating: ESMA recently identified several significant investor protection and conduct risk concerns in the EU. As of 2 July 2018, there has been a ban on the marketing, distribution or sale of Binary Options to retail investors, which has been renewed from 2 October for a further three months. Also, from 1 August CFDs have been subject to a restriction on their marketing, distribution or sale to retail investors, which was then renewed for a further three months, from 1 November. Risks related to Brexit, and its uncertain impact on an array of complex legal and regulatory issues, continue to pose a significant operational risk to EU financial markets, both for investors and infrastructures, as the possibility of no agreement is still significant. With regard to cyber risks, concerns are expected to intensify in the medium to long term, especially with respect to business continuity and the integrity of proprietary data as financial data breaches are increasingly frequent in comparison to breaches in other sectors (R.43.). Finally, the dispersion of Euribor submission quotes was stable in 3Q18 (R.41).

Securities markets

R.3

Risk summary

Risk level

Risk change from 2Q18

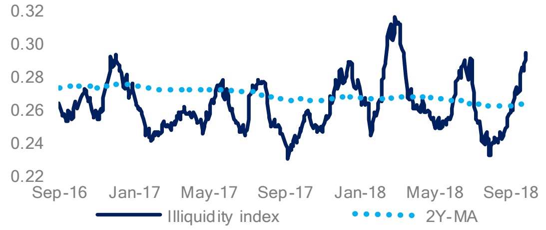
Outlook for 4Q18

Risk drivers

– Risk-premia reversal
– Political risk
– Geopolitical and event risks
– Potential scarcity of collateral

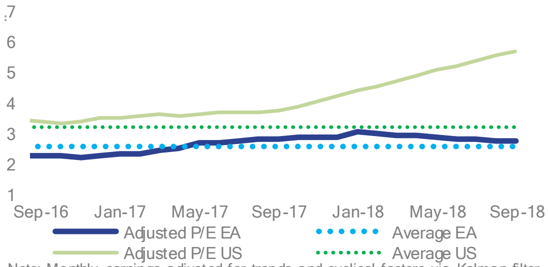
Note: Assessment of main risk categories for markets under ESMA remit since past quarter, and outlook for forthcoming quarter. Systemic risk assessment based on categorisation of the ESA Joint Committee. Colours indicate current risk intensity. Coding: green=potential risk, yellow=elevated risk, orange=high risk, red=very high risk. Upward arrows indicate a risk increase, downward arrows a risk decrease. ESMA risk assessment based on quantitative indicators and analyst judgment.

R.4
ESMA composite equity illiquidity index
Higher liquidity in July, worsening thereafter



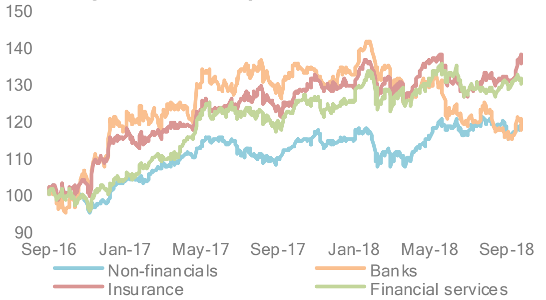
Note: Composite indicator of illiquidity in the equity market for the current Eurostoxx 200 constituents, computed by applying the principal component methodology to six input liquidity measures (Amihud illiquidity coefficient, bid-ask spread, Hui-Heubel ratio, turnover value, inverse turnover ratio,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

R.5
Equity valuation
Returning to average in EA



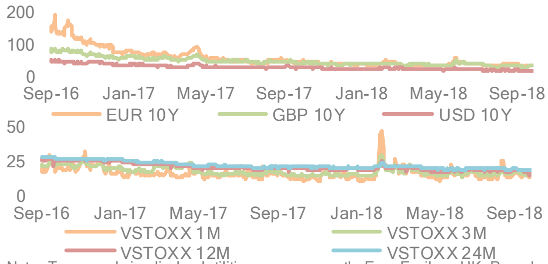
Note: Monthly earnings adjusted for trends and cyclical factors via Kalman filter methodology based on OECD leading indicators; units of standard deviation; averages computed from 8Y. Data available until July 2018.
Sources: Thomson Reuters Datastream, ESMA.

R.6
Equity prices
Relatively stable, except for banks



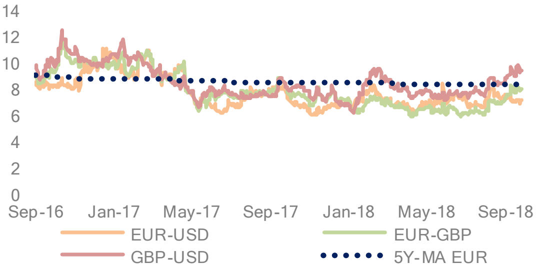
Note: STOXX Europe 600 equity total return indices. 01/09/2016=100.
Sources: Thomson Reuters Datastream, ESMA.

R.7
Financial instrument volatilities
Spike in August for short-term implied volatilities



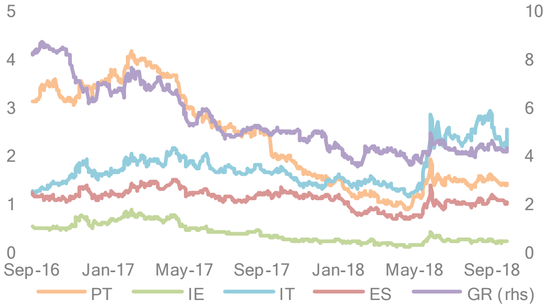
Note: Top panel: implied volatilities on one-month Euro-Euribor, UK Pound Sterling-GBP Libor and US Dollar-USD Libor swaptions measured as price indices, in %; bottom panel: Euro Stoxx 50 implied volatilities, measured as price indices, in %.
Sources: Thomson Reuters EIKON, Thomson Reuters Datastream, ESMA.

R.8
Exchange rate volatilities
Increased volatility for GBP



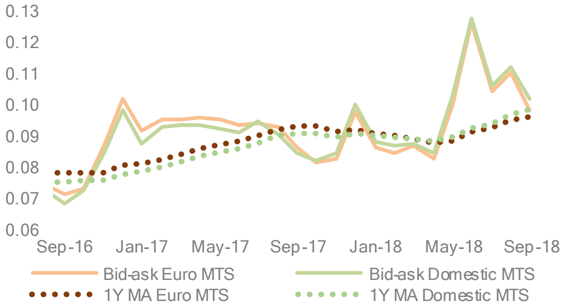
Note: Implied volatilities for 3M options on exchange rates. 5Y-MA EUR is the five-year moving average of the implied volatility for 3M options on EUR-USD exchange rate.
Sources: Thomson Reuters EIKON, ESMA.

R.9
Sovereign risk premia
Higher for one MS, without contagion after May



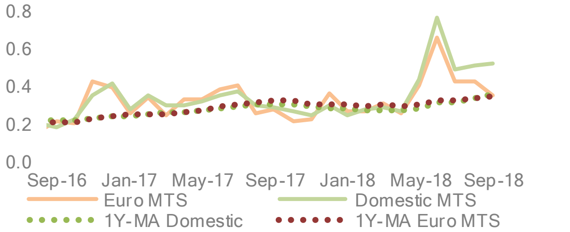
Note: Selected 10Y EA sovereign bond risk premia (vs. DE Bunds), in %.
Sources: Thomson Reuters Datastream, ESMA.

R.10
Sovereign bond bid-ask spreads
Still high after end-2Q18 spike



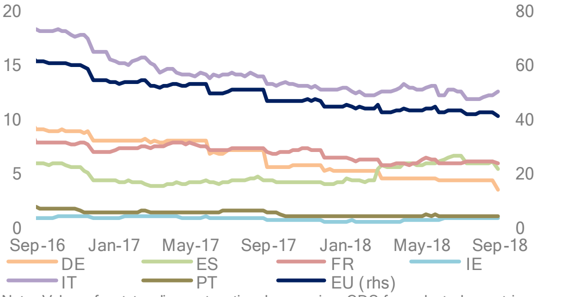
Note: Bid-ask spread as average bid-ask spread throughout a month across ten EU markets, Domestic and Euro MTS, in %.
Sources: MTS, ESMA.

R.11
ESMA composite sovereign bond illiquidity index
Relatively low liquidity , despite 3Q improvement



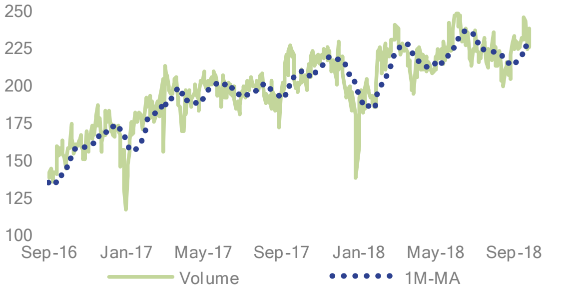
Note: Composite indicator of market liquidity in the sovereign bond market for the domestic and Euro MTS platforms, computed by applying the principal component methodology to four input liquidity measures (Amihud illiquidity coefficient, Bid-ask spread, Roll illiquidity measure and Turnover). The indicator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

R.12
Sovereign CDS volumes
Stable, except for one MS



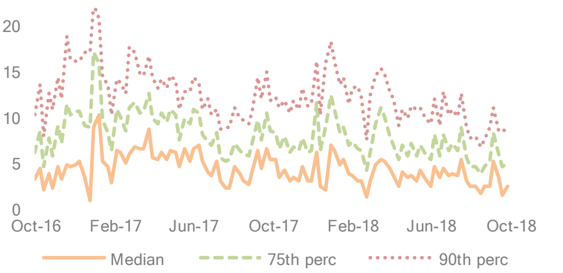
Note: Value of outstanding net notional sovereign CDS for selected countries; USD bn.
Sources: DTCC, ESMA.

R.13
Sovereign repo volumes
Decreasing volumes until September



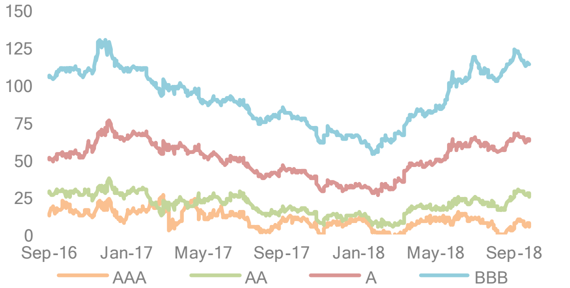
Note: Repo transaction volumes executed through CCPs in seven sovereign EUR repo markets (AT, BE, DE, FI, FR, IT and NL), EUR bn.
Sources: RepoFunds Rate, ESMA.

R.14
Repo market specialness
Slightly reduced dispersion



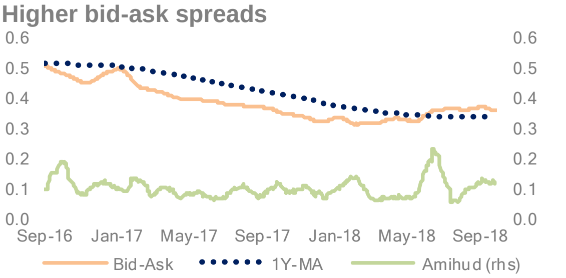
Note: Median, 75th and 90th percentile of weekly specialness, measured as the difference between general collateral and special collateral repo rates on government bonds in selected countries.
Sources: RepoFunds Rate (BrokerTec, MTS, ICAP), ESMA.

R.15
Corporate bond spreads
Spreads diverging in 3Q18



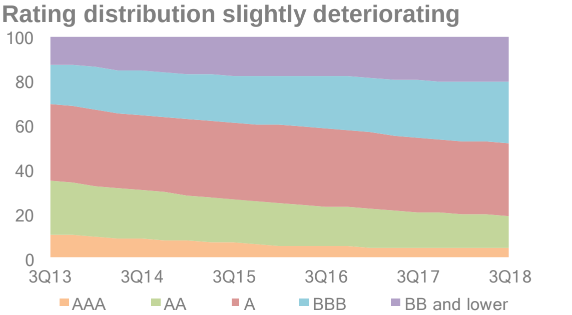
Note: EA corporate bond spreads by rating between iBoxx corporate yields and ICAP Euro Euribor swap rates for maturities from 5 to 7 years, in bps.
Sources: Thomson Reuters Datastream, ESMA.

R.16
Corporate bond bid-ask spreads and Amihud indicator
Higher bid-ask spreads



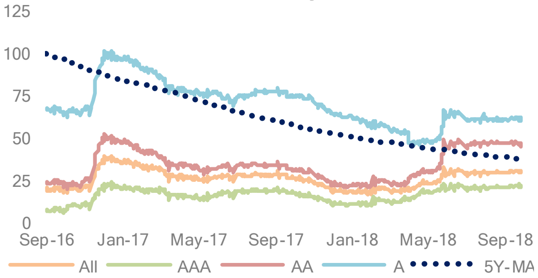
Note: EUR Markit iBoxx corporate bond index bid-ask spread, in %, computed as a one-month moving average of the iBoxx components in the current composition. 1Y-MA=one-year moving average of the bid-ask spread. Amihud liquidity coefficient index between 0 and 1. Higher value indicates less liquidity.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

R.17
Long term corporate debt outstanding
Rating distribution slightly deteriorating



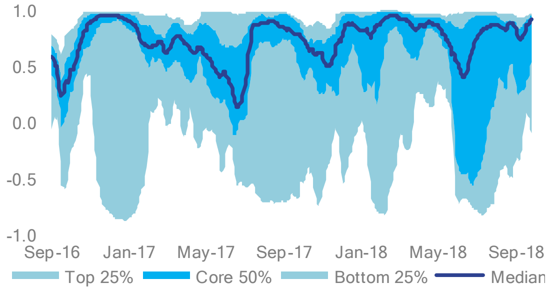
Note: Outstanding amount of corporate bonds in the EU as of issuance date by rating category, in% of the total.
Sources: Thomson Reuters EIKON, ESMA.

R.18
Covered bond spreads
Stable, after increase in May



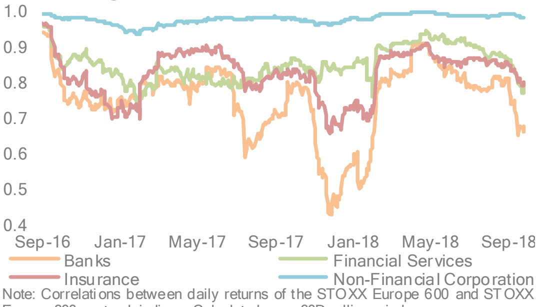
Note: Asset swap spreads based on iBoxx covered bond indices, in bps. 5Y-MA=five-year moving average of all bonds.
Sources: Thomson Reuters Datastream, ESMA.

R.19
Dispersion in sovereign yield correlation
High correlation



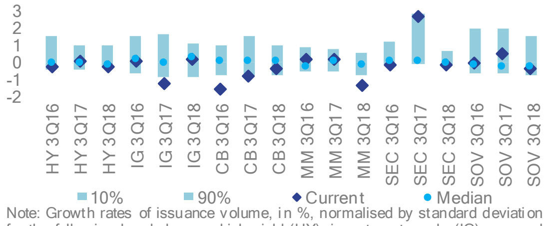
Note: Dispersion of correlations between 10Y DE Bunds and other EU countries' sovereign bond redemption yields over 60D rolling windows.
Sources: Thomson Reuters Datastream, ESMA.

R.20
Sectoral equity indices correlation
Decreasing correlations for all but non-financials



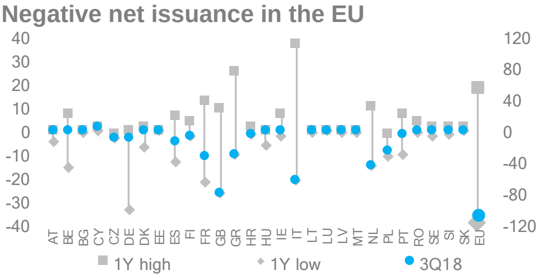
Note: Correlations between daily returns of the STOXX Europe 600 and STOXX Europe 600 sectoral indices. Calculated over 60D rolling windows.
Sources: Thomson Reuters Datastream, ESMA.

R.21
Debt issuance growth
Decline in issuance across bond classes



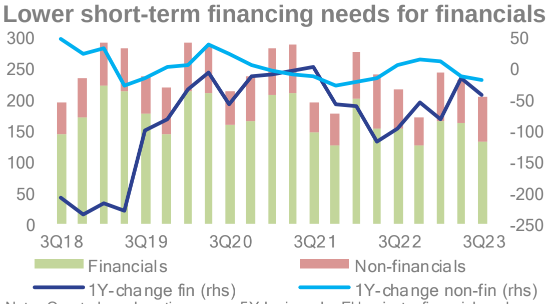
Note: Growth rates of issuance volume, in %, normalised by standard deviation for the following bond classes: high yield (HY); investment grade (IG); covered bonds (CB); money market (MM); securitised (SEC); sovereign (SOV). Percentiles computed from 12Q rolling window. All data include securities with a maturity higher than 18M, except for MM (maturity less than 12M). Bars denote the range of values between the 10th and 90th percentiles. Missing diamond indicates no issuance for previous quarter.
Sources: Thomson Reuters EIKON, ESMA.

R.22
Net sovereign debt issuance
Negative net issuance in the EU



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: Thomson Reuters EIKON, ESMA.

R.23
Debt redemption profile
Lower short-term financing needs for financials



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: Thomson Reuters EIKON, ESMA.

Investors

R.24

Risk summary

Risk level

Risk change from 2Q18

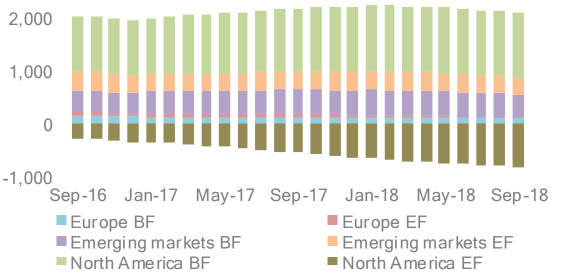
Outlook for 4Q18

Risk drivers

– Asset re-valuation and risk re-assessment
– Correlation in asset prices
– Risky market practices: VCs, ICOs

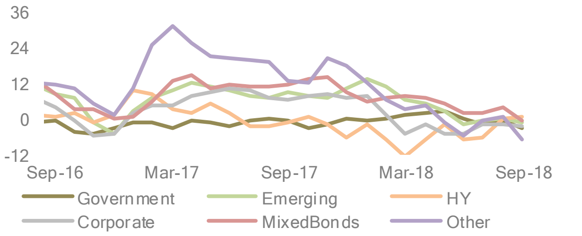
Note: Assessment of main risk categories for markets under ESMA remit since past quarter, and outlook for forthcoming quarter. Systemic risk assessment based on categorisation of the ESA Joint Committee. Colours indicate current risk intensity. Coding: green=potential risk, yellow=elevated risk, orange=high risk, red=very high risk. Upward arrows indicate a risk increase, downward arrows a risk decrease. ESMA risk assessment based on quantitative indicators and analyst judgment.

R.25
Cumulative global investment fund
Outflows from all fund categories in 3Q18



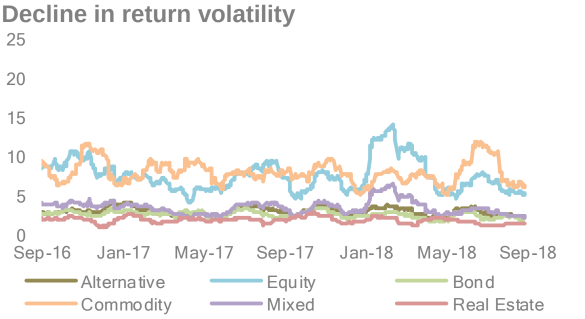
Note: Cumulative net flows into bond and equity funds (BF and EF) over time since 2004 by regional investment focus, EUR bn.
Sources: Thomson Reuters Lipper, ESMA.

R.26
EU bond fund net flows
Net outflows for most categories



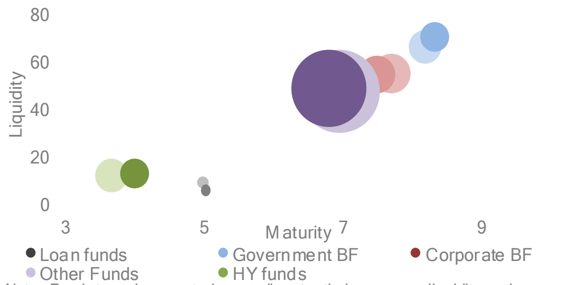
Note: Two-month cumulative net flows for bond funds, EUR bn. Funds investing in corporate and government bonds that qualify for another category are only reported once e.g. funds investing in emerging government bonds reported as Emerging; funds investing in HY corporate bonds reported as HY).
Sources: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

R.27
RoR volatilities by fund type
Decline in return volatility



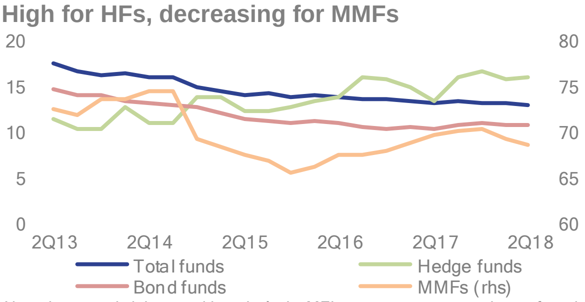
Note: Annualised 40D historical return volatility of EU domiciled mutual funds, in %.
Sources: Thomson Reuters Lipper, ESMA.

R.28
Liquidity risk profile of EU bond funds
Stable liquidity and mixed maturity changes



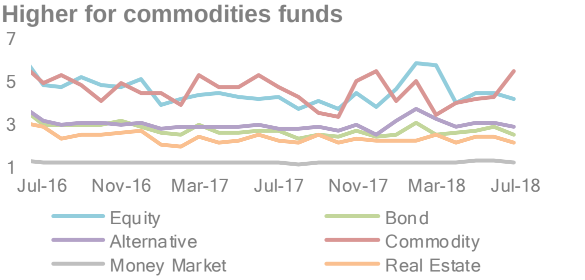
Note: Fund type is reported according to their average liquidity ratio, as a percentage (Y-axis), the effective average maturity of their assets (X-axis) and their size. Each series is reported for 2 years, i.e. 2017 (bright colours) and 2018 (dark colours).
Sources: Thomson Reuters Lipper, ESMA.

R.29
Financial market interconnectedness
High for HFs, decreasing for MMFs



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

R.30
Retail fund synthetic risk and reward indicator
Higher for commodities funds



Note:The calculated Synthetic Risk and Reward Indicator is based on ESMA SRRI 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:Thomson Reuters Lipper, ESMA.

Infrastructures and services

R.31

Risk summary

Risk level

Risk change from 2Q18

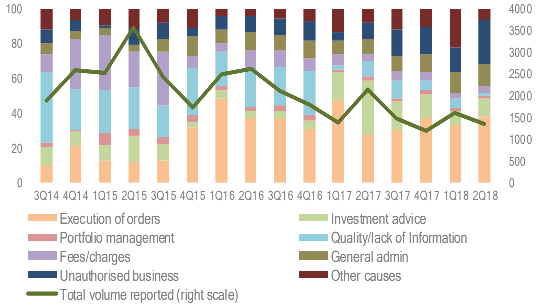
Outlook for 4Q18

Risk drivers

– Operational risks, incl. cyber and Brexit-related risks
– Conduct risk, incl. intentional or accidental behaviour by individuals, market abuse
– Systemic relevance, interconnectedness between infrastructures or financial activities, system substitutability

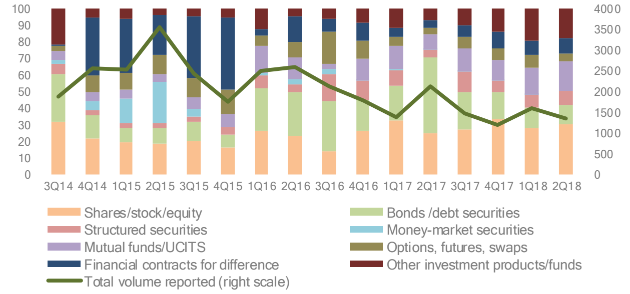
Note: Assessment of main risk categories for markets under ESMA remit since past quarter, and outlook for forthcoming quarter. Systemic risk assessment based on categorisation of the ESA Joint Committee. Colours indicate current risk intensity. Coding: green=potential risk, yellow=elevated risk, orange=high risk, red=very high risk. Upward arrows indicate a risk increase, downward arrows a risk decrease. ESMA risk assessment based on quantitative indicators and analyst judgment.

R.32
Complaints indicator by rationale
Decrease in volumes in 2Q18



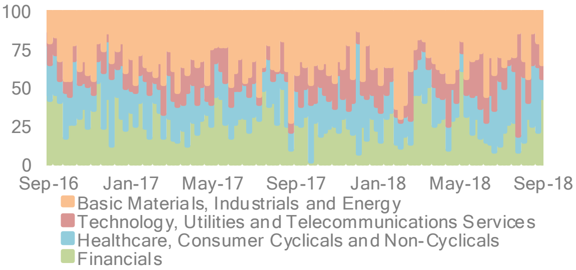
Note: Complaints reported directly to 18 NCAs: AT, BG, CY, CZ, DE, DK, EE, ES, FI, HR, HU, IT, LT, LU, MT, PT, RO, SI. Line shows total volume of these complaints. Bars show % of total volume by cause. Data collected by NCAs.
Source: ESMA complaints database

R.33
Complaints indicator by instrument
Equity, UCITS and bond instruments dominating



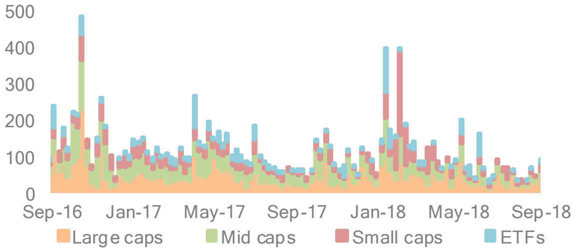
Note: Complaints reported directly to 18 NCAs: AT, BG, CY, CZ, DE, DK, EE, ES, FI, HR, HU, IT, LT, LU, MT, PT, RO, SI. Line shows total number of these complaints. Bars show % of total volume by type of financial instrument.
Source: ESMA complaints database

R.34
Circuit-breaker-trigger events by sector
Higher share for healthcare



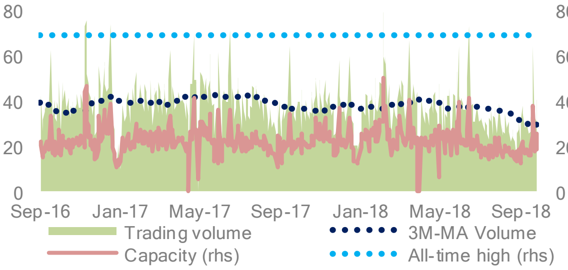
Note: Percentage of circuit-breaker-trigger events by economic sector. Results displayed as weekly aggregates.The analysis is based on a sample of 10,000 securities, including all constituents of the STOXX Europe 200 Large/Mid/Small caps and a large sample of ETFs tracking the STOXX index or sub-index.
Sources: Morningstar Real-Time Data, ESMA.

R.35
Circuit-breaker occurrences by market capitalisation
No abnormal level of CB triggers



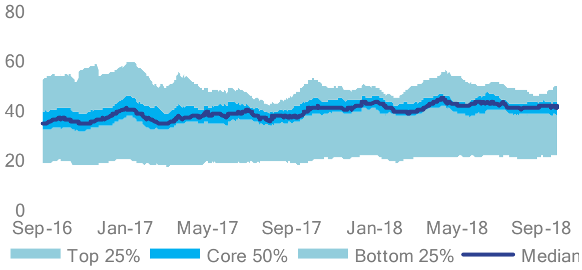
Note: Number of daily circuit-breaker-trigger events by type of financial instrument and by market cap. Results displayed as weekly aggregates.The analysis is based on a sample of 10,000 securities, including all constituents of the STOXX Europe 200 Large/Mid/Small caps and a large sample of ETFs tracking the STOXX index or sub-index.
Sources: Morningstar Real-Time Data, ESMA.

R.36
Trading system capacity proxy
Volumes at 25% of capacity on average



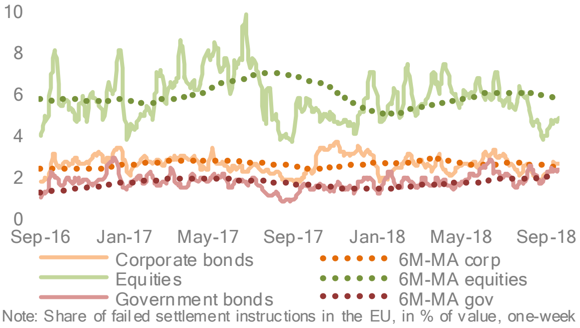
Note:Daily and three-month moving average trading volume registered on 36 EU trading venues, EUR bn. Capacity computed as the average across trading venues of the raio of daily trading volume over maximum volume observed since 31/03/2016, in %.
Sources: Morningstar Realtime, ESMA.

R.37
Equity market concentration
Stable level of concentration



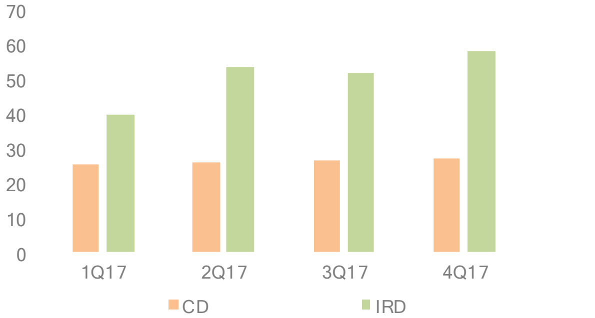
Note: Concentration of notional value of equity trading by national indices computed as a 1M-MA of the Herfindahl-Hirschman Index, in %. Indices included are FTSE100, CAC40, DAX, FTSE MIB, IBEX35, AEX, OMXS30, BEL20, OMXC20, OMXH25, PSI20, ATX.
Sources: BATS, ESMA.

R.38
Settlement fails
Decrease for equities



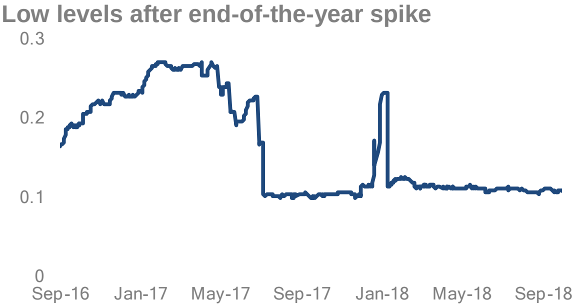
Note: Share of failed settlement instructions in the EU, in % of value, one-week moving averages.
Sources: National Competent Authorities, ESMA.

R.39
OTC central clearing rates
Increasing for CD and IRDs in 2017



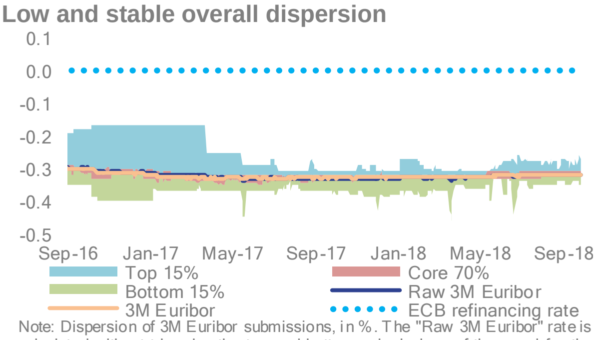
Note: Share of gross notional amount outstanding for credit derivatives (CD) and interest rate derivatives (IRD), in %.
Sources: TRs, ESMA.

R.40
Difference between the Euribor and the maximum contribution
Low levels after end-of-the-year spike



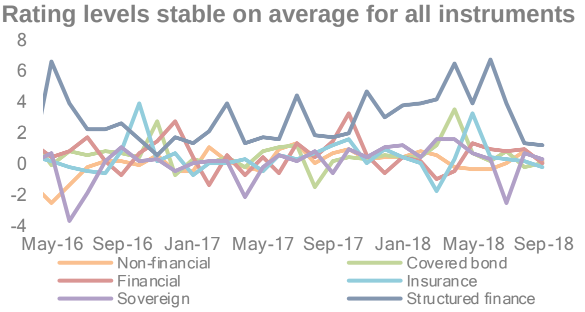
Note: Normalised difference in percentage points between the highest contribution submitted by panel banks and the corresponding Euribor rate. The chart shows the maximum difference across the 8 Euribor tenors.
Sources: European Money Markets Institute, ESMA.

R.41
Euribor – Dispersion of submission levels
Low and stable overall dispersion



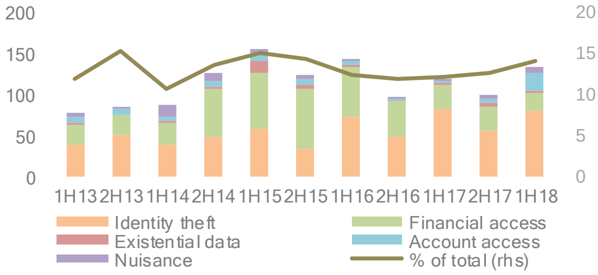
Note: Dispersion of 3M Euribor submissions, in %. The "Raw 3M Euribor" rate is calculated without trimming the top and bottom submissions of the panel for the 3M Euribor.
Sources: European Money Markets Institute, ESMA.

R.42
Rating changes
Rating levels stable on average for all instruments



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.

R.43
Financial services data breaches
Increasing share for financials



Note: Estimated number of data breaches, financial services only, worldwide, by type. Breaches in financial services sector as % of total data breaches across all sectors (secondary axis). Both series as reported by the Gemalto Breach Level Index. The underlying data were gathered by Gemalto from publicly available reports of information breaches.
Sources: Gemalto Breach Level Index, ESMA.

European Securities and Markets Authority