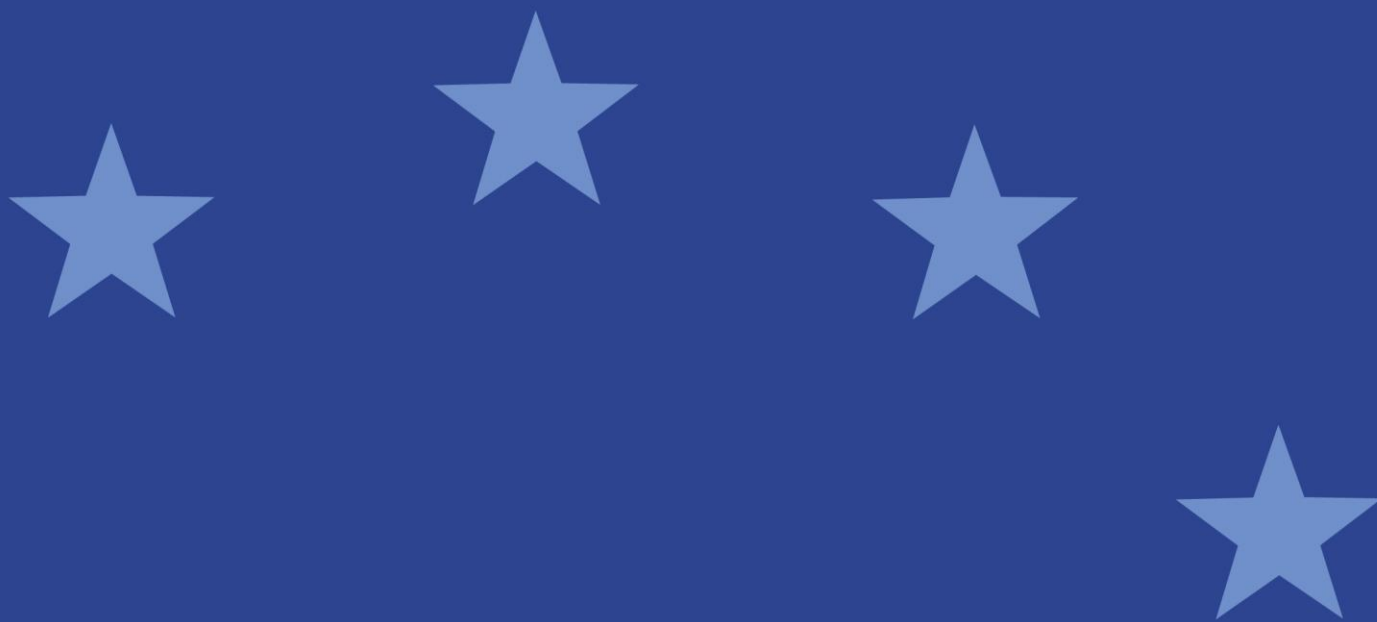




European Securities and
Markets Authority

Trends Risks Vulnerabilities

No. 1, 2015



ESMA Report on Trends, Risks and Vulnerabilities, No. 1, 2015

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List of abbreviations

ABS	Asset-Backed Securities
AF	Alternative Funds
AQR	Asset Quality Review
AuM	Assets under Management
AVG	Average
BF	Bond fund
BPS	Basis points
CAP	Cumulative Accuracy Profile
CCP	Central Counterparty
CDO	Collateralised Debt Obligation
CDS	Credit Default Swap
CEREP	ESMA Central Rating Repository
CRA	Credit Rating Agency
CSD	Central Securities Depository
DTCC	Depository Trust & Clearing Corporation
EA	Euro Area
EBA	European Banking Authority
ECB	European Central Bank
EF	Equity fund
EFAMA	European Fund and Asset Management Association
EIOPA	European Insurance and Occupational Pensions Authority
EM	Emerging market
EMIR	European Market Infrastructure Regulation
EOB	Electronic Order Book
EONIA	Euro Overnight Index Average
ESMA	European Securities and Markets Authority
ETF	Exchange Traded Fund
EU	European Union
FMI	Financial market intermediary
FRA	Forward Rate Agreement
HFT	High Frequency Trading
HY	High Yield
ICSD	International Central Securities Depository
IMF	International Monetary Fund
IPO	Initial Public Offering
IRS	Interest Rate Swap
LTRO	Long-Term Refinancing Operation
MA	Moving Average
MBS	Mortgage-Backed Securities
MMF	Money Market Funds
MS	EU Member State
MTN	Medium-Term Note
NAV	Net Asset Value
NCA	National Competent Authority
OIS	Overnight Index Swap
OMT	Outright Monetary Transactions
OTC	Over-the-Counter
PE	Price Earnings
RMBS	Residential Mortgage-Backed Securities
RoR	Rate of Return
SCDS	Sovereign Credit Default Swap
SF	Structured Finance
UCITS	Undertaking for Collective Investment in Transferable Securities
VaR	Value at Risk
YTD	Year-to-Date

Countries abbreviated according to ISO standards;

Currencies abbreviated according to ISO standards

Executive summary

Trends

Securities markets: Market conditions in the EU in 2H14 have remained tense, characterised by high asset valuations, stable asset prices over time but rising short-term price volatility across key markets, and high volatility and strong price movements in foreign exchange and commodity markets. Sources of market uncertainty include the low-interest-rate environment, public debt policies in the member states, strong swings in exchange rates and commodity markets, and political and geopolitical risks in the EU's vicinity. Capital market issuance for corporate funding continued to increase. At the same time, spreads of AAA-rated securitised products continued to narrow in 2H14 and are well below those for US-originated products.

Investors: Rates of return were stable or lower for most types of funds during 2H14, suffering from the reversal in equity and commodity markets. More generally, the low rates of return reconfirmed the persistent dampening effects of the low interest rate environment on the fund industry. Capital inflows slowed to EUR 84bn, concentrating on mixed and bond funds. The industry continued to expand, experiencing total growth of 8% in AuM since April 2014 driven partially by positive valuation effects, while its leverage continued to decrease. For money market funds leverage increased. As the valuation risk remained high, the potential upward movements in leverage of MMFs should be monitored by the industry and supervisors. Currently, these concerns are underlined by the recent fall in the liquidity of EU MMF assets. Portfolio investments of non-residents into EA securities remained positive in 2H14 but decreased relative to the preceding period.

Market infrastructures: EU trading venue turnover first decreased then rebounded in September, remaining above its five-year average. EU settlement activity returned to end-1H14 levels after initially falling during the summer. The continuity of financial benchmarks in the EU remained a key concern in 2H14. Interbank Offered Rate panels remained largely stable, as administrators of key interest reference rates have made significant progress in enhancing governance, quality, methodology and accountability of their benchmarks.

Risks

Main risks: Sources		Main risks: Categories			
Risk	Change since 3Q14	Risk category	Change since 3Q14	Outlook for 1Q15	Systemic risk
Risks in EU sovereign debt markets	➔	Liquidity risk	➔	➔	●
Market clustering	➔	Market risk	➔	➔	●
Funding risk	➔	Contagion risk	➔	➔	●
Valuation risk	➔	Credit risk	➔	➔	●
Market functioning	➔				

Note: Assessment of main risk sources for markets under ESMA remit, change since the last assessment. Upward arrows indicate an increase in the contribution to risks, downward arrows a decrease.

Note: Assessment of main risk categories for markets under ESMA's remit since last quarter and outlook for the following quarter. Risk Heat Map measures current risk intensity. Upward arrows indicate a risk increase; downward arrows indicate a risk decrease. Risk assessment based on categorisation of ESMA Risk Heat Map.

● green=low, ● yellow=moderate, ● orange=high, ● red=very high.

Systemic stress: Following the increase in 3Q14, systemic stress showed higher volatility than in the previous reporting period, though remaining at relatively low levels, in line with continued monetary support. The heightened volatility was driven mainly by equity markets. At the beginning of the quarter higher implied volatilities, declining equity price trends and lower P/E ratios showed valuation concerns starting to materialise in the markets, yet continuing to fluctuate over the quarter. In fixed income markets prices remained high, albeit more differentiated across asset classes, while risk premia were low, signalling persisting valuation risks. As evidenced by the higher implied fixed income volatilities, the potential for market corrections is high. Drivers include weaker-than-expected economic recovery, persistent down-side influences including geopolitical tensions, local pockets of stress in debt markets, expectations of divergent monetary policies, commodity prices and exchange rates dynamics, and the increasing emergence of vulnerabilities in market functioning.

Liquidity risk: Intensified pressures on market liquidity were observed in 4Q14, with elevated risk perception a significant driver. Despite continued ample liquidity, signals of greater market stress were observed, especially at shorter maturities. Implied interest rate volatility remained high, and equity and bond price fluctuations increased, confirming mounting uncertainties surrounding future macroeconomic risks and the effectiveness of policy measures. These cyclical changes were complemented by growing market concerns over a structural deterioration in market liquidity.

Market risk: Market risk materialised in some areas in 4Q14. Increased market uncertainty was reflected in volatile stock market performance and greater dispersion in corporate bond spreads, with spreads for higher-rated bonds falling while those for lower-rated bonds rose in some cases. Heightened risk perceptions – especially for short-term maturities, as observed in increased implied volatilities – may explain the divergence in yields across rating classes, indicating revived demand for safer assets. As in previous quarters, high-yield issuance remained subdued in 4Q14 and continued to decrease, as concerns regarding EU and global growth perspectives mounted. Market outflows continued in US and global-markets-focused bond funds as well as in EU equity funds.

Contagion risk: In 4Q14, contagion risk remained broadly stable at high levels, with several countries facing increasing sovereign bond spreads. Improvements for some vulnerable countries were reflected in declining CDS exposures. A few larger sovereigns, however, saw their exposure increase, indicating rising demand for insurance against default risk. Dispersion in sovereign bond markets rose, mirroring repricing of risks in the light of current macroeconomic uncertainty. Conversely, corporate-sovereign bond yield correlations remained stable at high levels, signalling low dispersion within countries.

Credit risk: Credit risk remained high in 4Q14, but may start to recede. Major steps to ensure and increase soundness and stability in the banking system were taken during 2014. These include the AQR and stress test exercise in the banking sector. Net sovereign debt issuance declined in most countries, due partly to seasonality, but increased in two large economies. More activity was observed in the MBS segment, driven largely by one big economy. Debt maturity remained broadly constant across sectors. Developments in redemption needs varied, increasing in the short to medium term for banks while decreasing for other financials.

Vulnerabilities

Fund investments in loan participation and loan origination – nascent market, big risks?: The growth of funds investing (or “participating”) in loans is one of the most consistent latter-year trends in the EU fund industry, with AuM multiplying fivefold in the last two years, albeit from a low base. Whilst these funds do provide an alternative asset class in which to invest and offer a portfolio diversification opportunity, they also expose investors to credit and liquidity risk, calling for sophisticated risk-assessment. From an economic policy perspective, loan origination funds could contribute directly to the financing of SMEs, especially when traditional banking or market channels become impaired, as at present. While we acknowledge these potential benefits, loan origination funds could also introduce new sources of financial stability risk if not subject to adequate macro- and micro-prudential regulation. Where loan origination funds develop, it is therefore necessary to make sure that they are treated within a harmonised framework and that risk mitigants are available to supervisors.

Alternative indices – smart beta strategies and what they mean for investors: As the market begins to develop, monitoring of potential systemic risks and consideration of suitable mitigants is warranted. Alternative index products have grown rapidly since the financial crisis. While they minimise certain weaknesses of traditional market capitalisation-based indices, they expose investors to different risks. For example, in order to construct an alternative index, providers may weight securities according to volatility instead of by market capitalisation, with the potential side effect of exposing the index to more concentrated sector exposure and increasing the overall investment risk. Alternative index products are not necessarily more risky than traditional models, but they are often more opaque. A low level of transparency makes it difficult for investors to understand the risk-return profile of alternative indices. The main risks are related to the limited transparency of their constituents, weights, methodology and simulated past performance.

Monitoring systemic risk in the hedge-fund industry: This contribution proposes indicators for the monitoring of systemic risk in the hedge-fund industry, based on aggregate sector-wide individual interdependencies of performance rates between individual hedge funds and the entire industry. This information is extracted by using a large set of fund-individual regression analyses and aggregating significant coefficients found across the industry. The results obtained demonstrate that the proposed indicators identified almost all the financial crises included in the reporting sample (January 1995 to October 2013). The methodology can be applied to both the global and the EU hedge-fund industry.

Trends

Risks

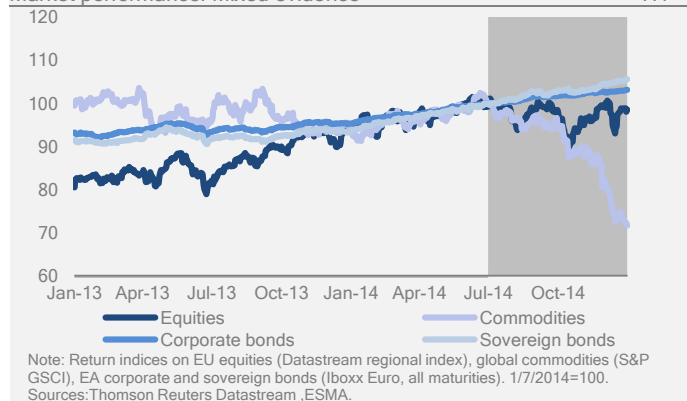
Vulnerabilities

Securities markets

Market overview

Market performance: Mixed evidence

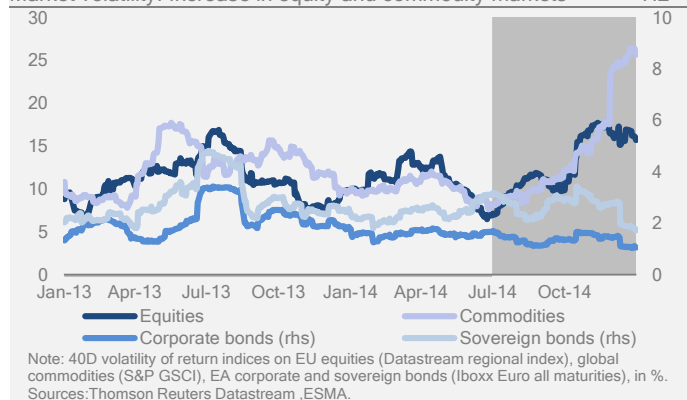
T.1



Market conditions in the EU in 2H14 have remained tense, characterised by high asset valuations, stable asset prices over time but rising short-term price volatility across key markets, and high volatility and strong price movements in foreign exchange and commodity markets. Market sentiment has become more volatile. Securities markets remain susceptible to huge swings in exchange rates and commodity markets, and also – leaving EU considerations aside – to geopolitical issues and military conflicts. Capital flows measured by portfolio investments of non-residents into EA securities, though remaining positive in 2H14 with flows into EA equities prevailing, decreased with respect to the previous period. Domestic purchases of foreign securities were also positive, albeit to a lesser extent, mainly directed at foreign bonds.

Market volatility: Increase in equity and commodity markets

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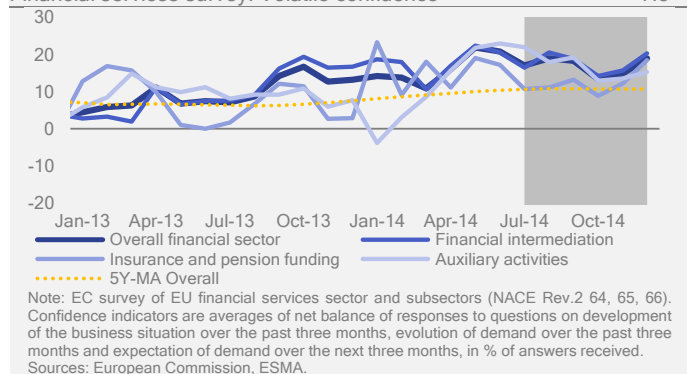


Market performance: EU market performance was mixed in 2H14, driven by increased uncertainty surrounding the end of the Fed tapering programme, weak macroeconomic prospects in the EA and globally, fears of disinflation in Europe, commodity prices and exchange rate dynamics. Equity prices were very volatile in the reporting period, falling by 1.5%. Commodities plummeted by 28.3%, driven by energy and, in particular, oil prices amid lower demand from China and the EU, a stronger USD and a surge in US supply. Sovereign and corporate bonds ticked up slightly, with corporate bonds gaining 3.2% and sovereigns 5.7%, in line with the decrease in yields over the period.

Market volatility: After subsiding and converging at the end of the previous reporting period, volatilities in returns on EU indices started to diverge again in 2H14. In equity and commodity markets volatility increased dramatically to 15.7% and 25.7%, from 7.6% and 8% respectively at the beginning of 2H14; for corporate and sovereign bonds it stood around its June levels, at 1.1% and 1.7% respectively. Overall, markets experienced some sudden and hard-to-explain shifts in volatility over the reporting period.

Financial services survey: Volatile confidence

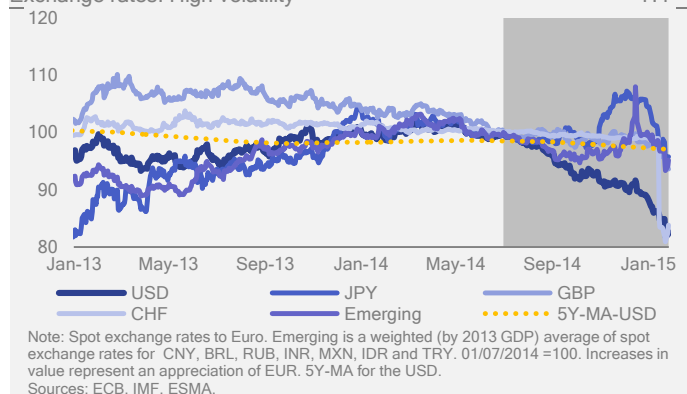
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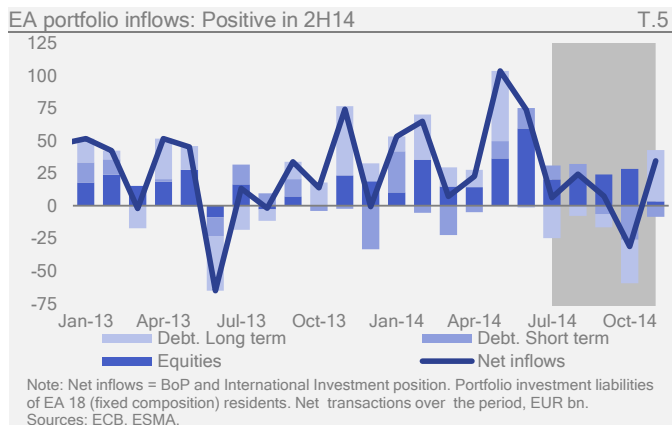
Market sentiment: In 2H14 confidence in financial services, as measured by the EU Commission financial services confidence survey indicators, stayed above the overall 5YMA. However, it was very volatile, declining from 21 in June to 13 in October and then reverting to 19, around its end-1H14 level. Lower confidence was observed in the insurance and pension fund sector, and in activities auxiliary to financial intermediation; but both remained above their 5YMA.

Exchange rates: High volatility

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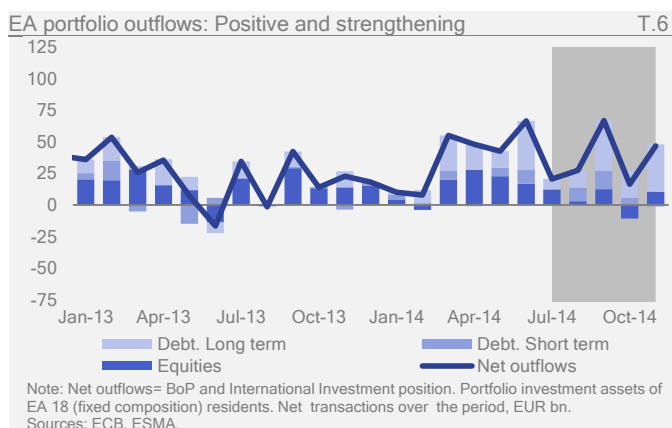


Exchange rates: In 2H14 the Euro depreciated relative to the USD, falling from a high of nearly 1.40 to almost 1.20. The downturn was driven by the simultaneous improvement in the US economic outlook, low EA growth and inflation and expectations of divergent monetary policies. In the reporting period many emerging market currencies weakened, particularly those of commodity exporters (the ruble depreciated by 54% following sharply lower oil prices and heightened geopolitical tensions). On 15 January 2015, the Swiss National Bank unexpectedly removed the exchange rate floor of 1.20 on the value of the euro versus the Swiss franc. The market reacted with an immediate, sharp appreciation of the franc.

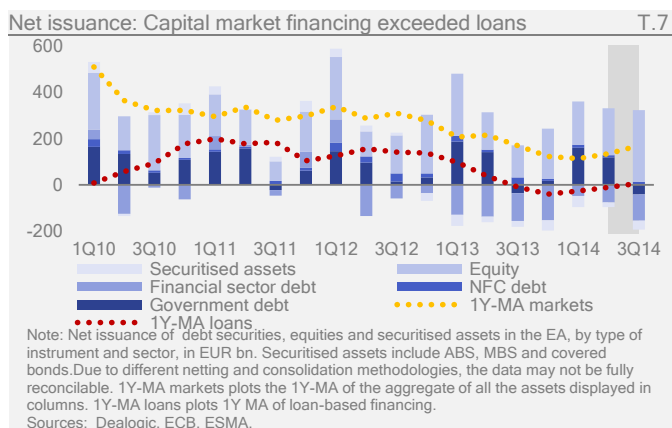


Portfolio inflows: In 2H14 net portfolio investment by foreign investors into EA securities remained positive (EUR 42bn), while decreasing relative to the 1H14 total of EUR 325bn and also in comparison to the same period of 2013, when it stood at EUR 133bn. Notably, net inflows into EU equities contracted from EUR 171bn in 1H14 to EUR 98bn in 2H14 but remained positive, while turning negative in the EU bond sector (-EUR 56bn).

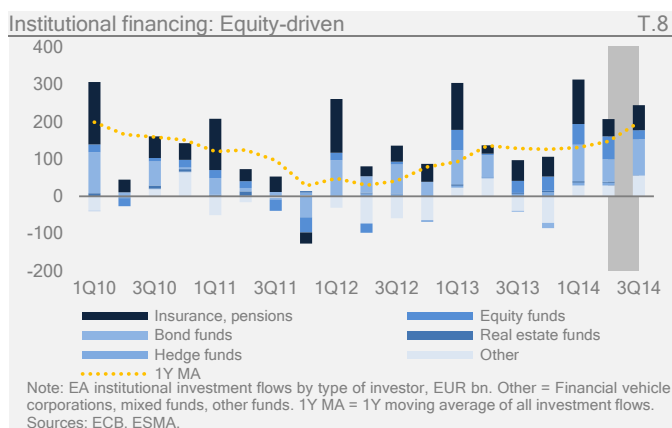
Portfolio outflows: EA investor purchases of foreign portfolio securities have been consistently positive since September 2013, with outflows of EUR 230bn in 1H14. These were mainly in foreign bonds, which accounted for EUR 142bn, against EUR 88bn in equities. In 2H14 outflows remained positive (EUR 178bn), higher than in the same period of 2013 (EUR 130bn), with EUR 151bn referring to foreign bonds and EUR 27bn to equities.



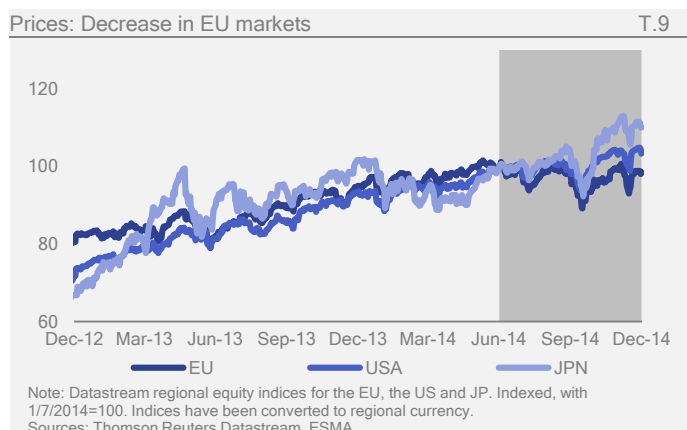
Capital market financing – issuance: Net issuance activity dropped significantly in 2013 to EUR 663bn from EUR 1,127bn in 2012, notwithstanding continued deleveraging. In 1H14 EA net issuance amounted to EUR 511bn, broadly stable on the same period of 2013. Still, its importance for funding increased as net new loans contracted by EUR 126bn in 2013 and EUR 76bn in 1H14. Driving the reduction was a decline in net financial sector debt issuance, which fell by over EUR 470bn in 2013, with issuance of securitised assets dropping by EUR 142bn. In 2013 net equity issuance reached nearly EUR 900bn, while that of government securities exceeded EUR 300bn. In 1H14 the decline in net financial sector issuance continued with a reduction of more than EUR 90bn and a EUR 68bn drop in the issuance of securitised assets. Net equity issuance in 1H14 was around EUR 360bn, down on the same period of the previous year when it was nearly EUR 440bn, while that of government securities topped EUR 280bn. Net issuance by non-financial corporations amounted to EUR 31bn, only EUR 6bn less than in the same period of 2013.



Capital market financing – institutional funding: Resuming the rising trend that began in 1Q12, financing by institutional investors grew from EUR 430bn in 2012 to nearly EUR 600bn in 2013 and reached a new record-high in the first three quarters of 2014 at EUR 709bn. In 2014, bond funds contributed the largest share of EUR 256bn, EUR 100bn more than for the whole of 2013. Flows from equity funds were also higher than in 2013, rising to more than EUR 140bn against EUR 131bn in 2013. In 3Q14 flows from bond funds increased in comparison to the previous quarter reaching EUR 67.6bn (they were EUR 60.6bn in 2Q14), while flows from equity funds and real estate funds slowed, reaching EUR 23.7bn (EUR 61.1bn in 2Q14) and EUR 3bn (EUR 4.2bn in 2Q14) respectively. Flows from hedge funds remained stable around EUR 7bn.

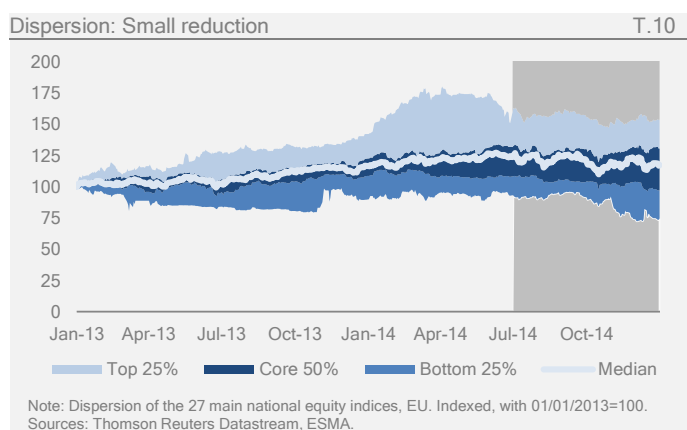


Equity markets

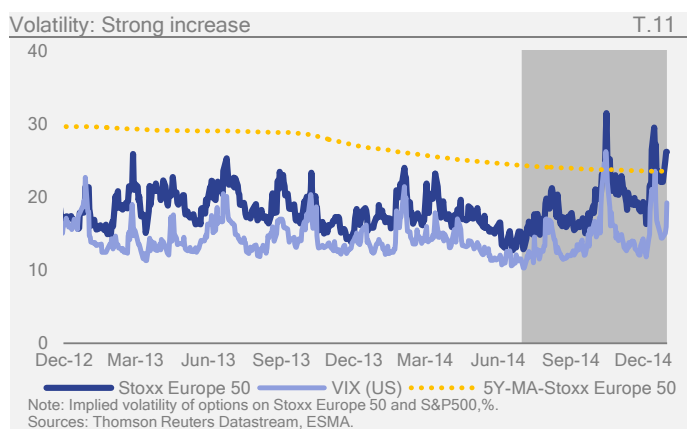


Equity prices in the EU fell by 1.5% in 2H14; volatility increased, dropping temporarily in both October and December, driven mainly by worries over the weaker-than-expected economic outlook, disinflation in Europe, commodity prices and exchange rate dynamics. Price dispersion among EU national equity indices decreased at the beginning of 2H14 for the first time in the year, but then started to increase again. US and JP equity indices outperformed those of the EU. Liquidity dispersion in EU equity markets remained moderate, while the median bid-ask spread continued to narrow slightly.

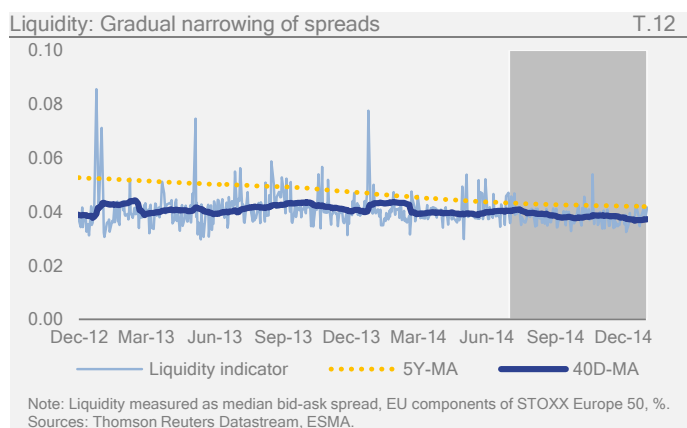
Performance: EU equity prices fell in 2H14 by 1.5% to end up only slightly above their five-year average. After a decline in August, prices recovered slightly before falling again in October to their lowest level since the end of 2013; despite recovering in November, they still fell short of their end-1H14 level. Potential drivers, among others, were uncertainties stemming from concerns over a slowdown in the EA economy within the context of persistently weak global economic growth and geopolitical issues. Equity prices in both the US and JP also dipped in October but recovered immediately afterwards to reach new peaks. Stronger market performance and rapid recoveries during the reporting period caused both indices to end the year higher.



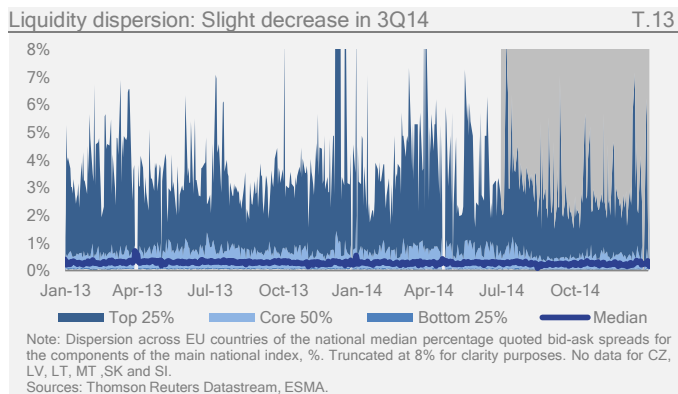
Price dispersion: Among EU national equity indices, dispersion dropped slightly in 2H14 compared to the preceding six months. Between the end of August and the beginning of September, the indices of the countries within the core 50% converged, only to begin diverging again in September. This was due to some EU equity indices in the lower part of the core 50% experiencing a modest decline, while indices closer to the upper bound increased towards the end of the reporting period. The level of dispersion in the top 25% countries converged towards the level of the core 50%, unlike the preceding period, while the bottom 25% indices diverged towards the end of the year.



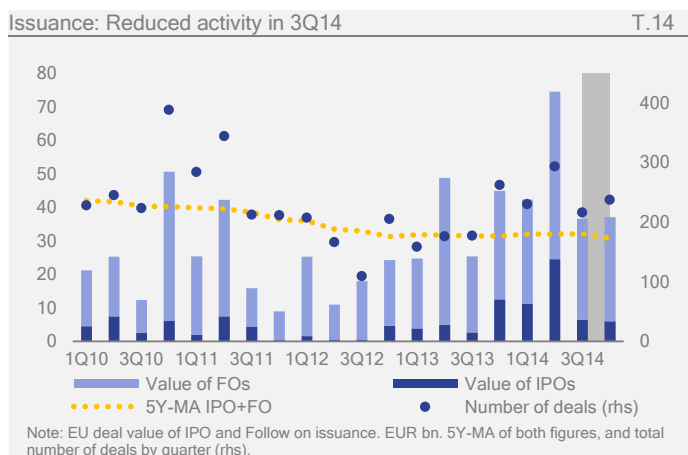
Volatility: The implied volatility of options increased from an average of 17.3% in 1H14 to an average of 19.2% during the reporting period. The beginning of October 2014 saw a sudden surge in volatility to a level above 31.5%, the highest since mid-2012, before returning to lower levels. This caused volatility to surpass the five-year average for the first time after a long and stable period below this threshold. The spike in volatility was triggered by uncertainties surrounding macroeconomic performance in some big EA countries amid persistently weak global economic growth. Another spike in volatility occurred in December, possibly due to growing uncertainty about future monetary policy tightening in the US and concerns related to disinflation in the EA, commodity prices and exchange rate dynamics.



Liquidity: Bid-ask spreads for stocks in the Eurostoxx 50 index narrowed gradually from the end of 2013 and continued to do so in the reporting period. At this level, the median bid-ask spread remained marginally below its five-year average. Spreads evolved in a relatively stable manner in EU markets for blue chips since 2Q14.

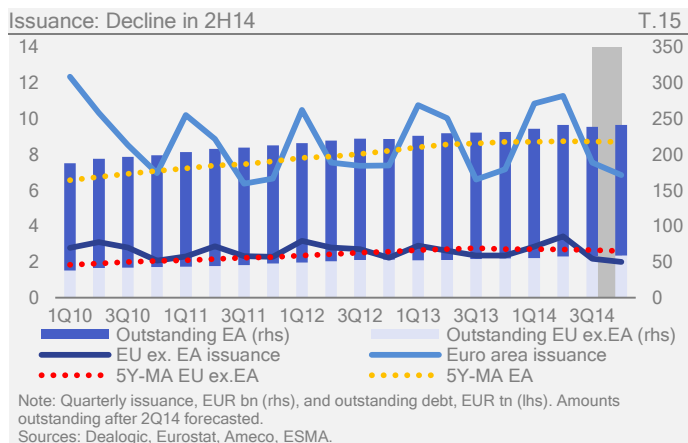


Liquidity dispersion: EU equity market liquidity dispersion decreased a little during the reporting period, with occasional spikes in bid-ask spreads caused by market liquidity deteriorating in some MS with relatively less liquid markets. This reduction in liquidity dispersion led to lower bid-ask spread dispersion on average in the core 50% markets, although it increased in the top 25% group, which is composed of smaller and less mature markets. Bigger, mostly northern European markets that comprise the bottom 25% remained at the same very liquid levels.

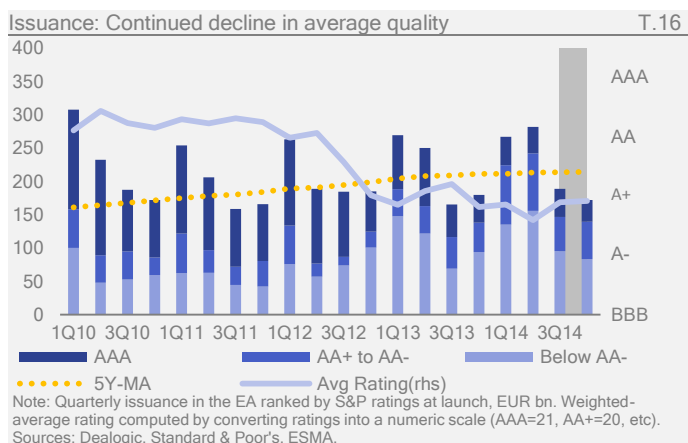


New listings: In 2H14 the number and value of IPOs and follow-on offerings receded relative to the preceding period, when the financial, real estate, consumer products and industrial sectors had boosted IPO and follow-on offering volumes and prices. However, relative to the same period of 2013 the number and volume of IPO and follow-on offerings increased, driven by the industrial and financial sectors. Overall, the value of IPOs and follow-on offerings fell from EUR 116.7 in 1H14 to EUR 73.6bn in 2H14, though remaining above its 5YMA of EUR 62.7bn. In 2H14 the value of follow-on offerings (EUR 61.2bn) remained significantly higher than that of IPOs (EUR 12.3bn). Whilst falling from 523 in 1H14 to 453 in 2H14, the total number of deals (rhs) was still higher than in the same period of 2013 (439 in 2H13).

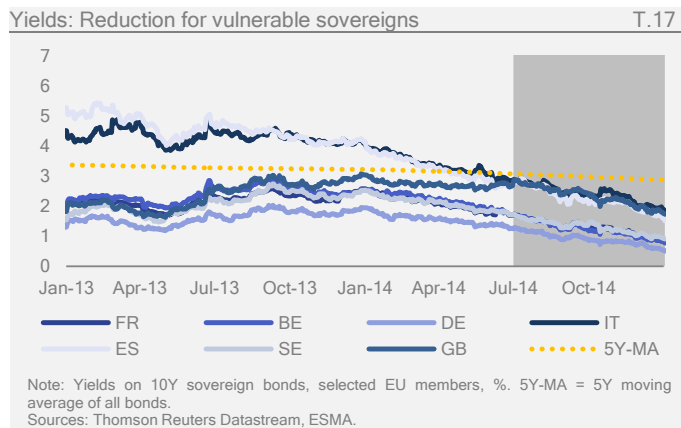
Sovereign bond markets



Sovereign bond issuance decreased in 2H14 but remained broadly stable compared to 2H13, consistent with typically higher government bond issuance in the first part of the year. The average rating of EA sovereign debt issued in 2H14 improved slightly compared to the previous semester. During the reporting period there were two instances of volatility spikes for two large and vulnerable MS, starting in mid-October and again in mid-December. Sovereign CDS spreads remained far below their five year average, with a slight uptick during periods of higher volatility in sovereign bond markets. Overall, yields and volatility levels from both the core and peripheral countries seemed to diverge, having converged in 1H14.

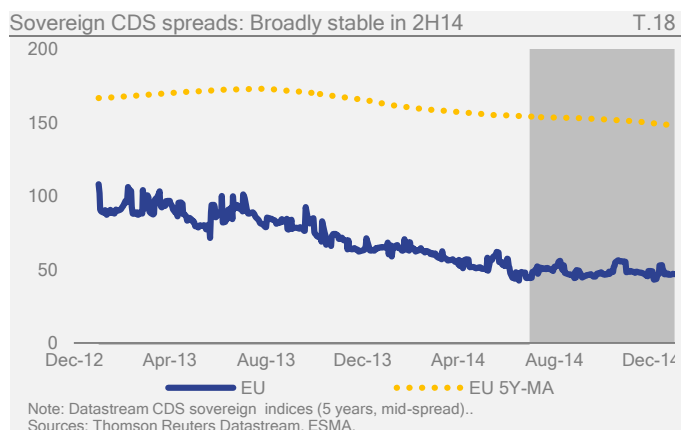


Issuance: EU sovereign bond issuance totalled EUR 465bn in 2H14, broadly stable compared to the same period of 2013 (EUR 463bn) but lower than in the earlier quarters of 2014 (EUR 337bn in 1Q14 and EUR 368bn in 2Q14). Quarterly issuance volumes in 2H14 were thus lower than in 1H14, in line with the tendency for government bond issuance to concentrate on the first two quarters of each year. The 2H14 decrease was due mainly to issuance by EA sovereigns, which, at EUR 360bn, was EUR 193bn lower than in 1H14 (EUR 553bn) but higher than in 2H13 (EUR 345bn). EU sovereign issuance outside the EA, on the other hand, totalled EUR 105bn in 2H14, down on 1H14 (EUR 157bn) and also lower than the same period of last year (EUR 118bn). Outstanding EU sovereign debt reached a new high of EUR 19.2tn in 2H14, including EUR 14.5tn for the EA.

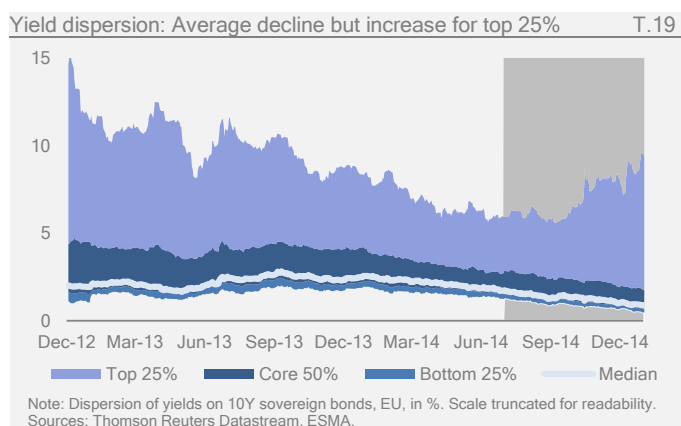


Ratings: The average credit quality of EA sovereign issues, having declined in 1H14, improved slightly in 2H14, remaining in the A bracket. Across the rating spectrum, AAA-rated bonds accounted for 21% of the new issuance, up six percentage points. The share of bonds rated from AA+ to AA- fell two percentage points to 30%, while bonds below AA- represented 49%, down from 53% in the previous quarter.

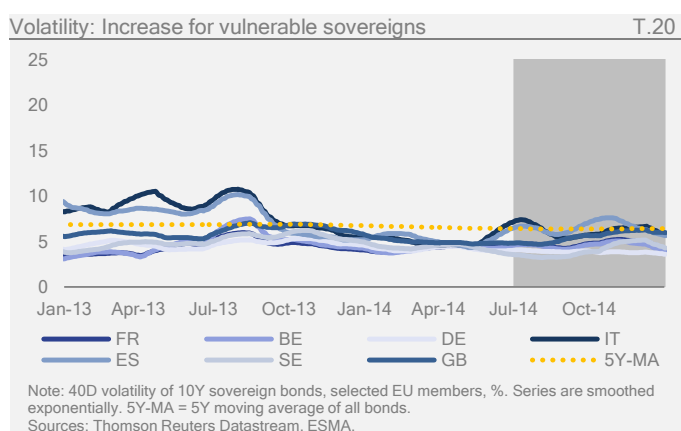
Yields: In the context of a broad-based downward trend, yields on ten-year sovereign bonds generally declined in 2H14, falling far below long-term averages in both the core and peripheral countries. Nevertheless, as from mid-October weaker macroeconomic growth prospects coupled with deflationary concerns drove up bond yields in more vulnerable economies. Volatility in the sovereign bonds of one MS increased during the reporting period, with yields reaching 9.5% at the end of the year. Conversely, yields continued to decline in core countries, reflecting a rising appetite for safe-assets. The shift in US monetary policy stance may also have impacted the longer end of the term spectrum.



Sovereign CDS spreads: EU sovereign CDS spreads remained around their low end-1H14 level, well below the 5YMA. They did, however, increase once at the beginning of 2H14 and again in October to end the reporting period at 47bps. CDS spreads seem to have risen during periods of higher volatility in the more vulnerable sovereign bonds, coinciding with uncertainty around the end of the Fed's tapering programme and the publication of weak macroeconomic data at global level and in the Eurozone.

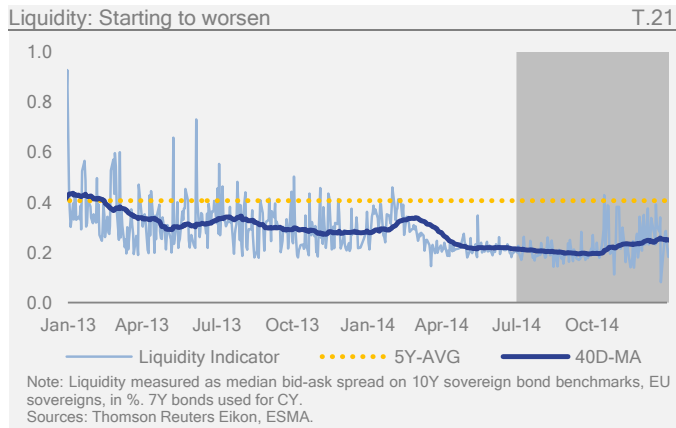


Yield dispersion: Dispersion in EU sovereign bond yields edged up slightly in 2H14 as yields from the most vulnerable MS diverged from the rest. 10Y spreads narrowed in most countries. End-December the median stood at 0.9%, down from 1.7% end-June. Yield dispersion in the third quartile fell from 2.9% end-June to 1.7% end-December. Nevertheless, as yields in the most vulnerable countries started to rise in mid-October, so too did dispersion in the top 25% of the sample (from 3.3% at the end of June to 7.5% at the end of the reporting period), following recent developments in fixed income markets and an apparent appetite for less risky assets.



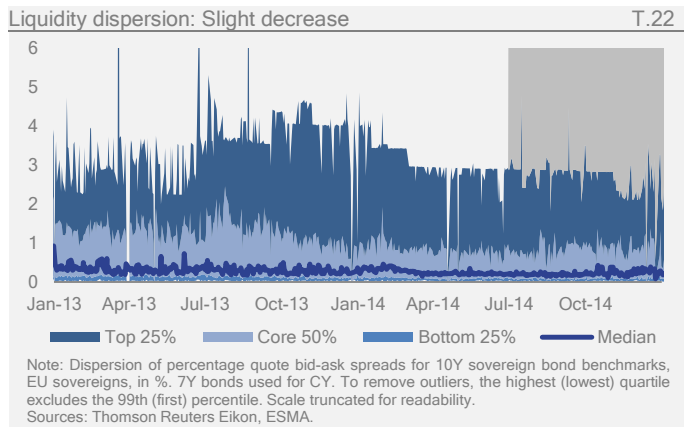
Volatility: After remaining at low levels in 1H14, volatility in EU government bond markets started to rise in June in peripheral countries, peaking in July for two larger and vulnerable MS and breaking through the 5YMA. In vulnerable countries volatility started to pick up again mid-August following the release of weaker-than-expected economic data. Mid-November the average volatility on these selected sovereign bonds peaked at 5.2% as inflation expectations and low economic forecasts drove risk aversion to a higher level, ending the reporting period at 4.2%.

Liquidity: The EU sovereign bond market liquidity indicator started to worsen in 2H14. At the beginning of the reporting period, continuing the trend that began in February, liquidity improved with the median bid-ask spread moving further below its five-year average to reach its lowest level since the beginning of 2010. Nevertheless, concerns over the possible

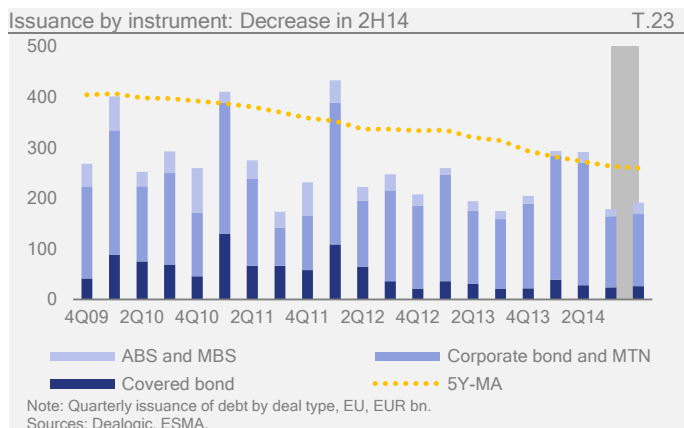


decline in market-making and recent developments in fixed income markets pointed to potential short term vulnerabilities in individual markets. This showed up in the data as the liquidity indicator started to deteriorate in October for the first time since 1Q14, reaching a median bid-ask spread (40-day moving average) of 25bps at the end of the reporting period. The volatility of this liquidity indicator was also higher during the second half of 2H14, and on several occasions it peaked near its 5Y average for the first time since January 2014.

Liquidity dispersion: Liquidity dispersion across sovereign issuers decreased slightly in the first part of 2H14, in line with the trend during the second part of 1H14. Overall, and despite the improvement in both funding conditions and market liquidity, the upper quartile (i.e. the less liquid segment) remained composed mainly of more vulnerable sovereigns or of MS with relatively narrower and less liquid debt markets. The dispersion across this group decreased slightly in spite of occasional spikes. Dispersion within the core 50%, which comprises almost half the sample, increased throughout the reporting period, especially in September and October. This can be explained mainly by an increase in bid-ask spreads for countries in the upper range of the core 50%.

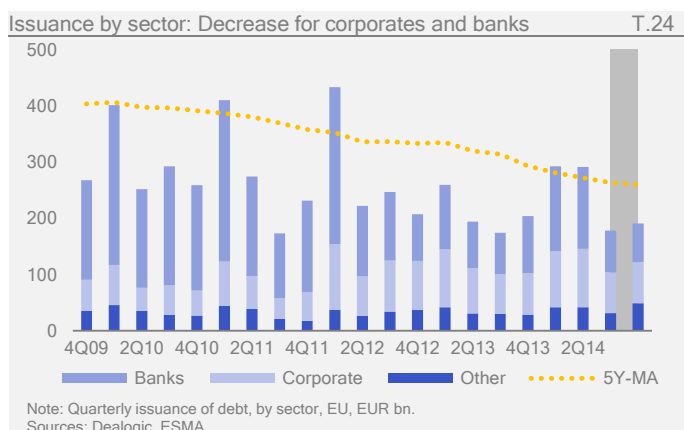


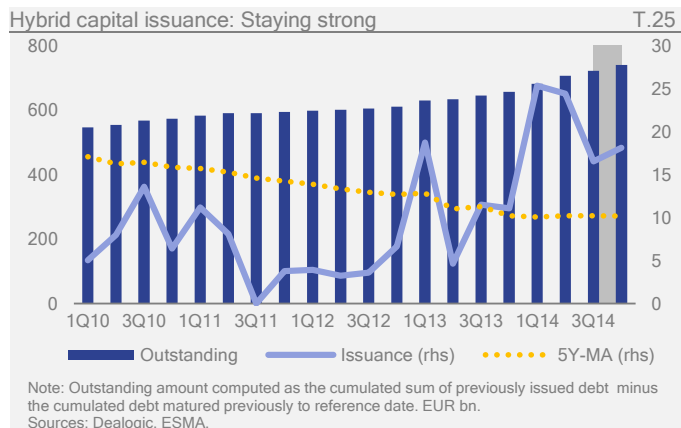
Corporate bond markets



Corporate bond issuance decreased, both for banks and non-financial corporates. At the same time, the volume of ABS and MBS securities issued remained very low, and covered bond issuance was subdued. Issuance of hybrid capital securities issued in 2014 exceeding 2013 issuance. Meanwhile, corporate bond yields remained low, but compression was reduced as intensified investor uncertainty revived demand for safer assets.

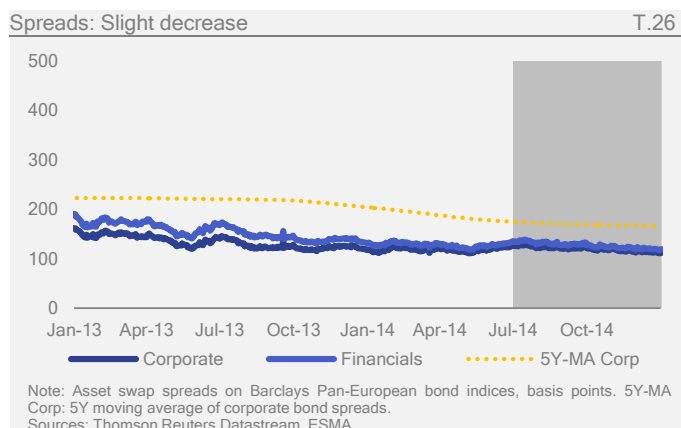
Issuance by instrument: EU gross corporate bond issuance declined from EUR 585bn in 1H14 to EUR 370bn in 2H14, well below the five-year average. However, the decline in total issuance was negligible compared to the same period of the previous year, as corporate bond issuance typically tends to be concentrated in the first part of the year. While the share of covered bonds and corporate bond and money market issuance decreased, the share of ABS and MBS grew slightly. Looking into the type of instruments, issuance of ABS and MBS rose to EUR 36bn in 2H14 from EUR 30bn in 1H14. At the same time corporate bond and money market issuance fell from EUR 486bn in 1H14 to EUR 281bn in 2H14, well below the same period of the previous year (EUR 305bn in 2H13). In 2H14 covered bond issuance amounted to EUR 50bn, down on the total of EUR 67bn for the previous period and still significantly lower than pre-crisis averages.



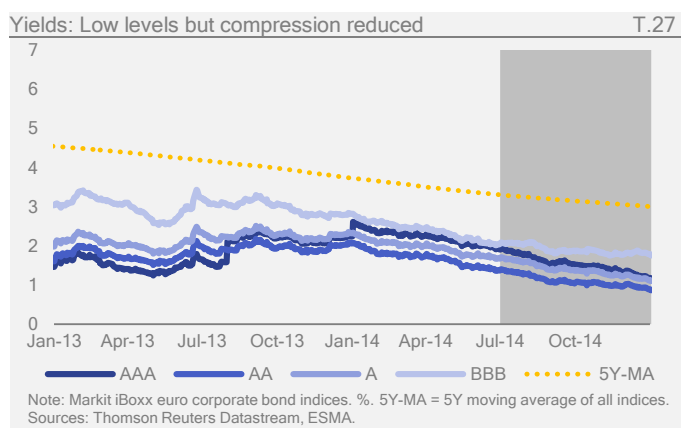


Issuance by sector: By sector, both bank and corporate bond volumes more than halved versus the previous period, with EUR 143bn and EUR 146bn respectively issued in 2H14 (against EUR 297bn and EUR 204bn respectively in 1H14). However, if compared to the same period of last year, corporate bond issuance was broadly stable (EUR 143bn in 2H13), while bank issuance declined slightly (EUR 176bn in 2H13).

Hybrid capital: Issuance of hybrid capital instruments, which include contingent capital securities and bail-in securities, remained strong in 2014. EUR 84bn of hybrid capital was issued in 2014, compared with EUR 46bn in 2013. Driven by lower borrowing costs, the share of contingent convertible capital securities (also known as CoCos) likewise increased, with issuance exceeding the overall 2013 amount. The amount of hybrid capital outstanding in the EU rose to EUR 741bn. Hybrid securities are designed to mitigate the need for public funding should a systemically important financial institution be in trouble.



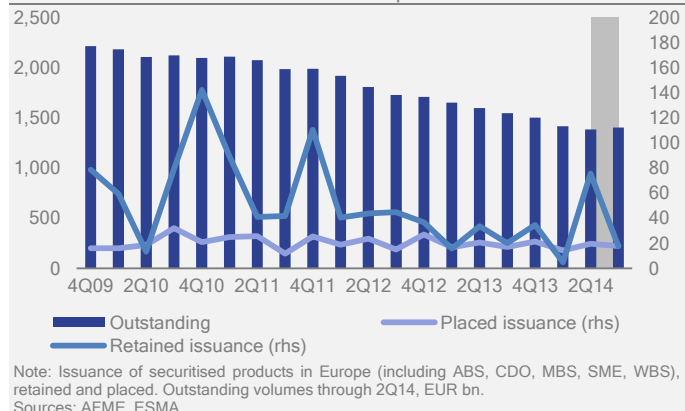
Spreads: Bond spreads contracted slightly in the second part of 2014, with the benchmark index of financial sector bonds falling 17bps and 13bps for corporates. Corporate and financials spread differentials further narrowed to 6bps in 2H14, with both spreads falling below 130bps from the beginning of September, well under their respective five-year averages. The narrowing spread trend began in 2014 following the convergence of borrowing costs between the financial and corporate sectors.



Yields: Corporate bond yields continued to decline in the second half of 2014, falling below 2% across rating categories. Accounting for this, corporate bond yields fell by between 31bps and 76bps across rating categories as from the end of 2013. AA-rated bonds experienced the largest decline, with yields falling from 2.06% to 0.87% in the reporting period. The convergence between higher- and lower-rated bonds continues to reflect yield compression related to structural and cyclical factors, as well as potential search-for-yield strategies. However, the convergence trend partially reversed in 2H14 as the differential between AA-rated bonds and BBB-rated bonds decreased from 76bp at the end of 2013 to 69bp in June 2014 and then narrowed to 88bp end-December 2014.

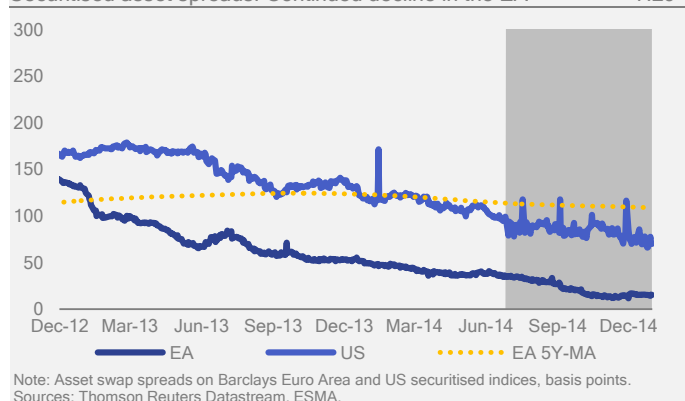
Securitisation and covered bonds

Securitisation volumes: Decline after the peak T.28



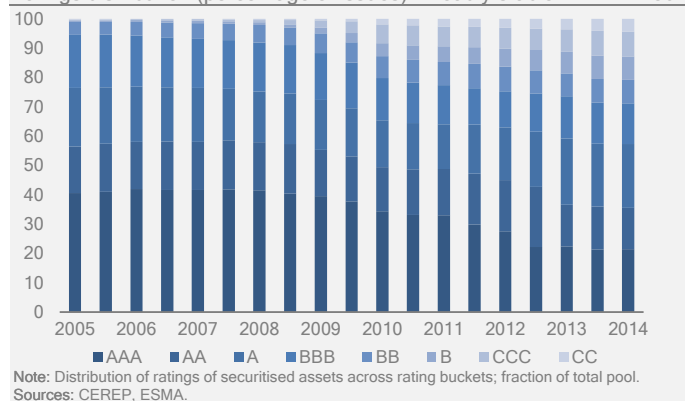
EU issuance of securitised products peaked in 2Q14, although retained issuance dominated this peak as placed issuance remained flat. With issuance exceeding redemptions, outstanding volumes of securitised products increased marginally. At the same time, the credit quality of rated tranches broadly stabilised, reflected by ratings upgrades gaining the upper hand in value terms and falling risk premia. In terms of the average size of ratings changes, downgrades continued to dominate. In terms of rating accuracy by collateral type, CMBS continued to underperform. The value of covered bonds outstanding fell even as spreads continued to tighten.

Securitized asset spreads: Continued decline in the EA T.29



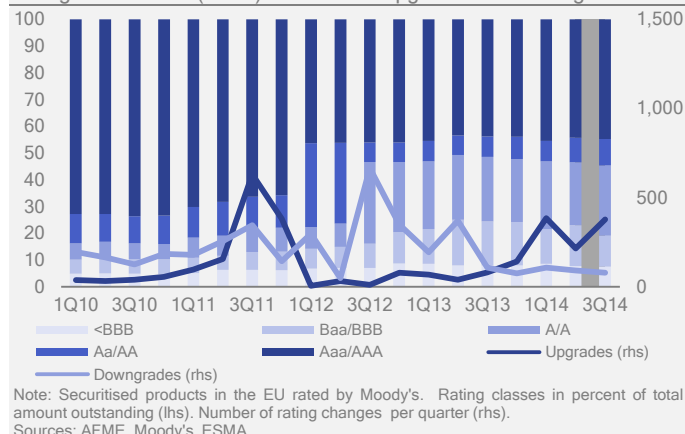
Securitisation volumes: According to AFME data, issuance of securitised products fell to EUR 35bn in 3Q14 from its EUR 95bn 2Q14 peak. Despite that, the value outstanding of securitised products in the EU marginally increased from EUR 1,389bn in 2Q14 to EUR 1,405bn in 3Q14 as issuance exceeded redemptions. Furthermore, while the amount of issuance placed remained flat and relatively low, the significant spike of 2Q14 was due to retained issuance, accounting for eighty per cent of 2Q14 issuance. The continued reliance on retained issuance remained significant and may be indicative of diverging views of the underlying collateral by markets and banks. Banks also value the liquidity aspect of retained securitised products, notably if it allows them to generate collateral.

Ratings distribution (percentage of issues): Broadly stable T.30



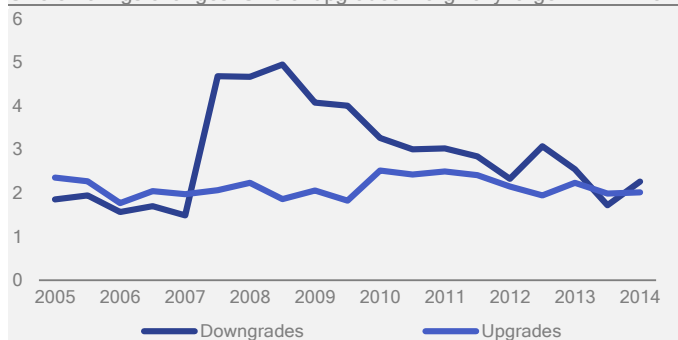
Securitized asset spreads: Spreads of EA AAA-rated securitised products continued to fall in early 2H14, dropping below 12bps end-October, before rebounding slightly in December to 15bps. This compares with a 5Y-average in excess of 93bps. Spreads for US-originated products ranged between 75bps and just over 100bps, with a spike registered in mid-October. This development underscores the different market perceptions of the products traded on each market. Consideration must also be given to the impact that selection bias can play, including the role that central banks play in this market and expectations about their future conduct in this area. Overall, however, policymakers seeking to promote the ABS market in the EU would welcome this narrowing of spreads.

Ratings distribution (value): Stable with upgrades rebounding T.31



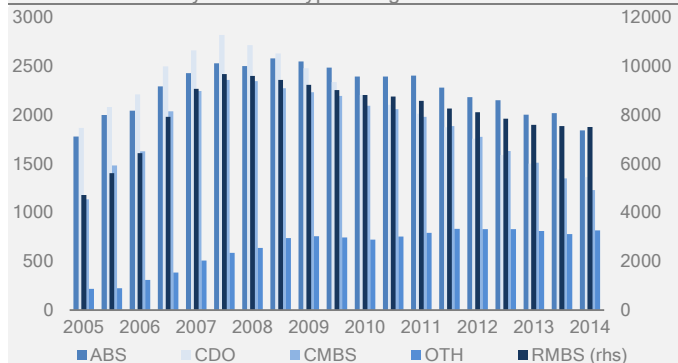
Ratings distribution: The distribution of securitisations issued remained broadly stable across rating classes in 1H14. This followed continuous deterioration since 2007. The percentage of AAA-rated securitised assets stayed steady at around 20% in 1H14 after having deteriorated progressively from over 40% in 2008 through 2012. However, the share of securitised assets rated sub-investment grade approached 30%, exhibiting some marginal growth. AA was the ratings category to lose out most, while the others remained relatively stable. According to AFME data, in value terms the average credit quality of outstanding securitised products in the EU held broadly stable during 3Q14. The upward shift was most pronounced between BBB-rated and A-rated products, while the overall shares of the rating categories at the higher or lower end of the scale remained broadly stable.

Size of ratings changes: Size of upgrades marginally larger T.32



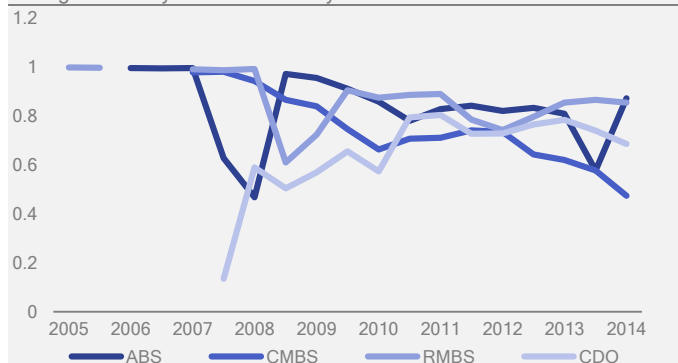
Note: Provides the average size of downgrades and upgrades when CRAs took rating actions on securitised assets, number of buckets traversed.
Sources: CEREP, ESMA.

Number of issues by collateral type: Marginal decline T.33



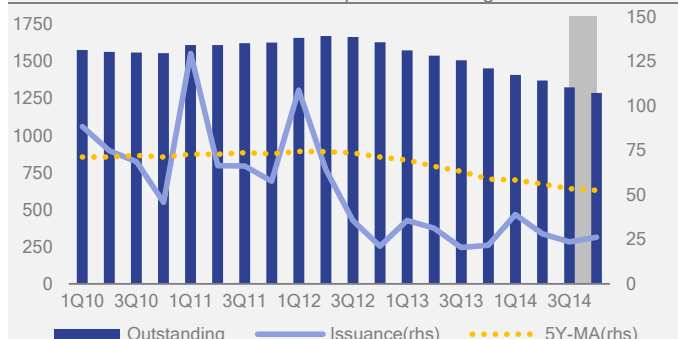
Note: Number of rated securitised products outstanding.
Sources: CEREP, ESMA.

Ratings accuracy: CMBS accuracy continued to deteriorate T.34



Note: Ratings accuracy by type of collateral.
Sources: CEREP, ESMA.

Covered bond volumes: Further drop in outstanding volumes T.35



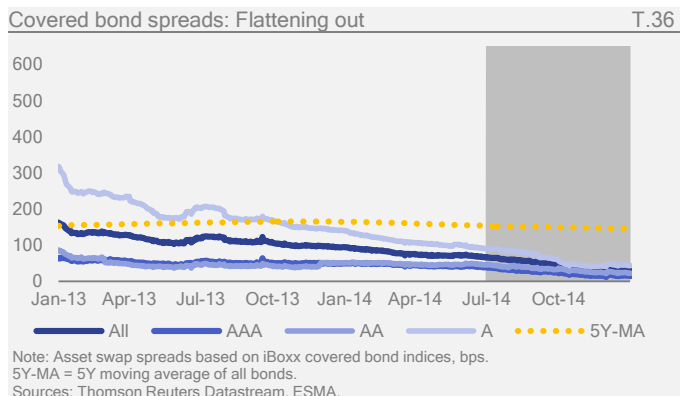
Note: The outstanding amount is the historical cumulated sum of the difference between issuance and maturity of covered bonds. EUR bn.
Sources: Dealogic, ESMA.

Size of ratings changes: Though the gap between the average size of ratings upgrades and downgrades that suddenly emerged in 2007 has largely closed, the average size of downgrades reversed trend to exceed upgrades in 1H14. The gap was closed as a result of a reduction in the size of downgrades, while the average size of upgrades remained broadly stable. Even though the average size of downgrades remained relatively volatile, this comparatively balanced size of ratings changes has not been observed since before the crisis. The credit quality of securitised issues would thus appear to have stabilised somewhat.

Number of issues by collateral type: The number of rated securitised assets declined marginally in a manner consistent with a degree of stabilisation in activity. The support derives from RMBS, which comprise nearly 60% of the number of issuances outstanding and whose decline was merely marginal as the number of issues approached 7,500. This development compares favourably with the decline since 2008. Nonetheless, a drop of nearly nine per cent in the number of both ABS and CMBS outstanding indicated that certain segments remained challenged. The number of CDO also continued to recede, falling by nearly 5%. On the other hand, there was a near-5% rise in non-categorised securitisations, potentially pointing to the exploration of new collateral pools.

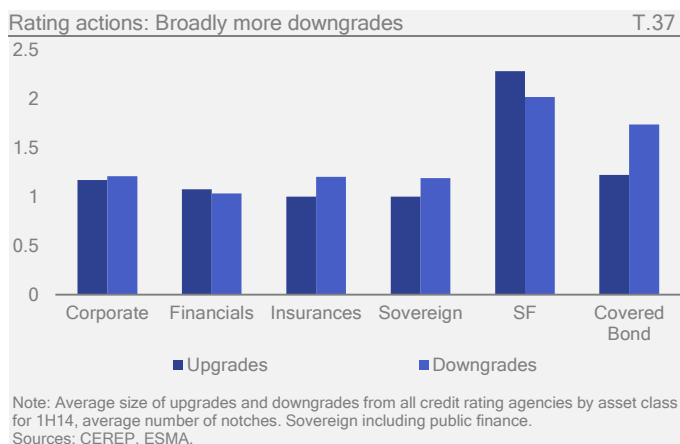
Ratings accuracy by collateral type: Generally speaking, the accuracy of ratings measured over the previous 12 months fell in 1H14, though that of ABS improved considerably to levels not seen since 2010. This class thus more than recovered from the sudden drop seen in 2H13. Consequently, the measured accuracy of ratings in 1H14 was highest for ABS and RMBS. The accuracy of rating for the latter remained broadly stable. On the other hand, CDOs more than surrendered their 2H13 improvement. The worst performer in terms of ratings accuracy was still CMBS, whose performance deteriorated further in 1H14, continuing a trend that had begun in 2012. While this may be related partly to the challenging macroeconomic environment, due to which the performance of the underlying collateral may potentially continue to suffer, it is also the case that a few single incidences of low accuracy can dominate results.

Covered bond volumes: In 2H14, the amount of covered bonds outstanding in the EU shrank further by EUR 82bn, reaching EUR 1,287bn in 4Q14. At the same time, covered bond issuance in 2H14 fell to EUR 50bn, in comparison to EUR 67bn in 1H14. Moreover, there has been a substantial decline in new issuance since 2011, when volumes were larger by a factor of three. Issuance activity continued to vary between the EU countries along with differences in credit growth, economic and housing market prospects. Due to national specificities, markets in covered bonds are more fragmented than other bond market segments.

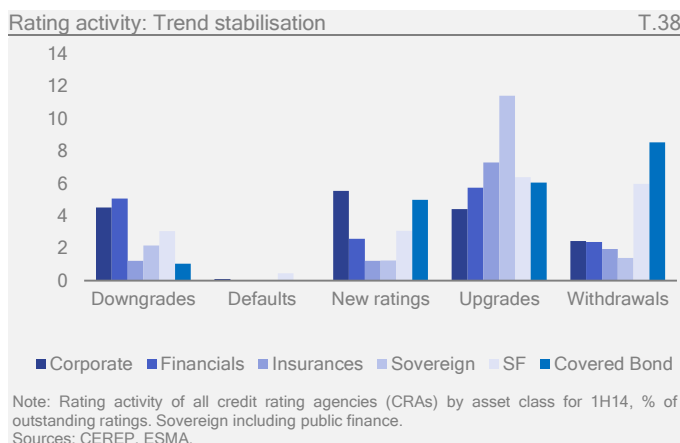


Covered bond spreads: Average covered bond spreads (across all rating categories) fell from 70bps in June 2014 to below 33bps in December 2014, continuing their long-term decline. The drop in average spreads was more evenly distributed across the rating spectrum than in 1H14, when it was due mainly to lower-rated issues. At the end of December AAA-rated securities traded as low as at a 15.2bps spread, AA at 22bps, and A-rated at a 44bps discount. Over the reporting period spreads between AAA- and A-rated covered bonds halved from 52bps to 28bps. Yield compression thus accelerated versus 1H14, when spreads were 91bps. The downward trend in covered bond spreads should be contextualised within generally subdued issuance activity.

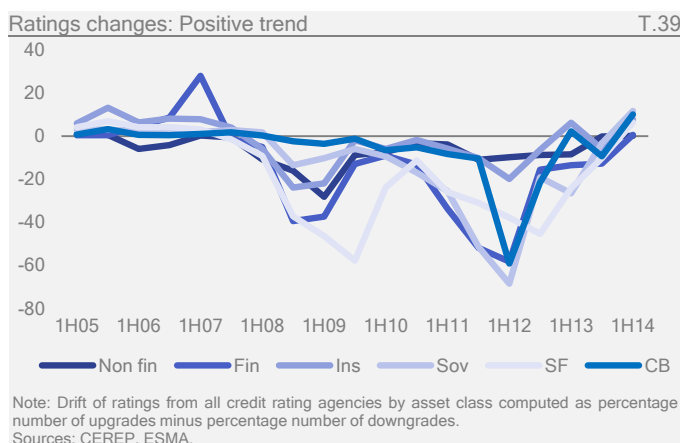
Credit quality



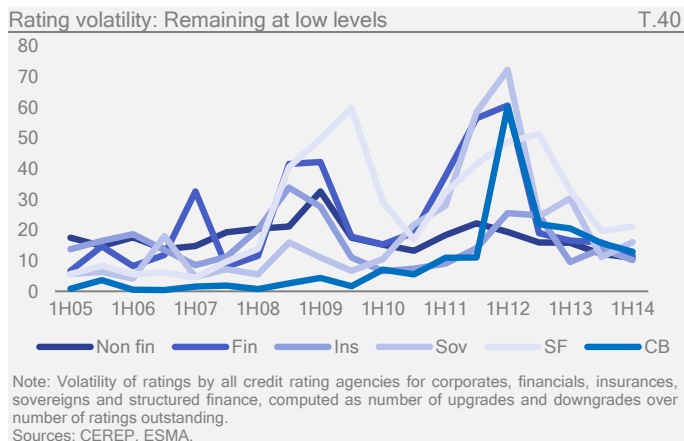
Overall, trends observed since 2H13 have continued. While volatility has slightly increased for structured finance ratings and sovereigns, rating drift has been positive for all asset classes. The occurrence of upgrades (on a non notch-weighted basis) was more pronounced for sovereign and insurance ratings, while downgrades slightly outweighed upgrades for corporates and financials. Average rating change severity has lessened for corporates (financial, non-financial and insurance) and sovereigns but increased for structured finance (upgrades and downgrades) and covered bond ratings (downgrades). Defaults were rare, occurring only in non-financial corporate and structured finance asset classes.



Rating actions: In 1H14, the severity (average size) of rating actions was greater for downgrades than upgrades. This was the case across all asset classes with the exception of financials and SF products. The average rating change severity for upgrades or downgrades stabilised for corporate (financial, non-financial and insurance) and sovereign ratings. This stabilisation trend was especially noticeable in sovereign ratings, where upgrade severity declined by 1.4 notches and is now equal to 1. Adjustments in corporate ratings are all around or slightly above 1 notch. On the other hand, rating severity increased for structured finance ratings (both upgrades and downgrades) and covered bond ratings (downgrades). The elevated severity of adjustments to structured finance and covered bond ratings is a result of changes in sovereign rating caps (i.e. ratings changes induced by rules setting the maximum achievable rating of an instrument depending on the rating of the underlying sovereign). Also, especially for covered bonds, rating agencies have been revising their methodologies, which in turn has put pressure on ratings.



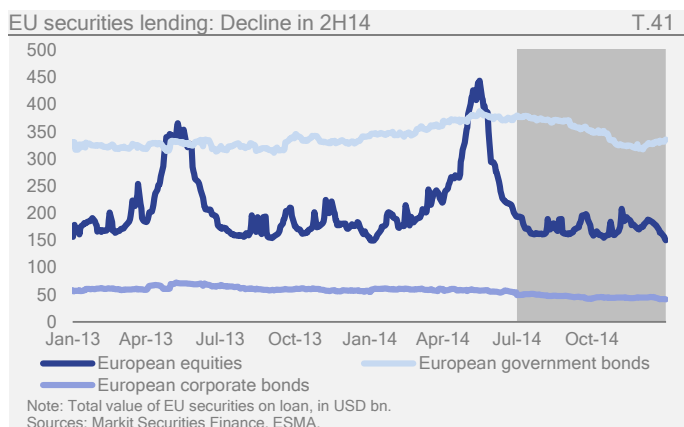
Rating activity: Overall, the net assignment of new ratings (new ratings less withdrawals) slowed, while remaining positive for corporate (3.10%) and financials (0.19%). All other asset classes experienced a net negative new rating assignment, with covered bonds (-3.56%) and structured finance (-2.19%) seeing the most significant changes. Defaults occurred only in two asset classes – non-financial corporate (0.1%) and structured finance ratings (0.46%).



Rating changes: As in 2H13, the direction of ratings changes (notch-weighted drift) was positive across asset classes in 1H14. The best performers were sovereign ratings (12%), covered bond (10%), insurance (8%) and structured finance ratings (6%). These trends also reflect the “mechanistic” changes in credit rating agency assessments (e.g. sovereign rating caps).

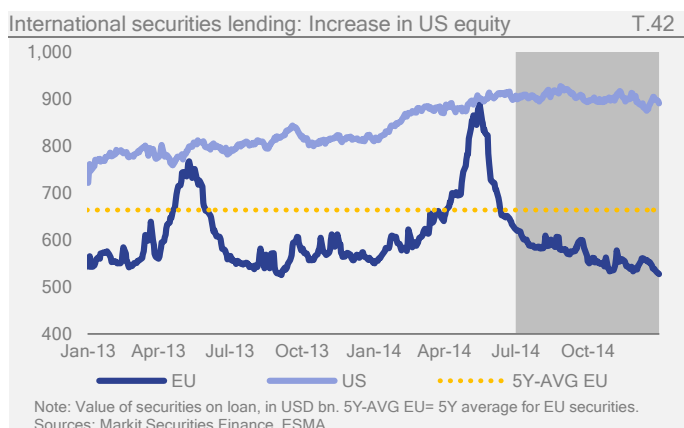
Volatility: Improving credit quality (rating drift) typically translates to diminishing rating volatility (number of rating changes). Overall rating volatility has continued to decrease across asset classes, remaining at pre-crisis levels for non-financial corporate ratings (11%), financials (11%) and insurance (10%). Rating volatility increased slightly for sovereigns and structured finance ratings to 21% and 16%, from 20% and 11% respectively.

Securities finance and collateral

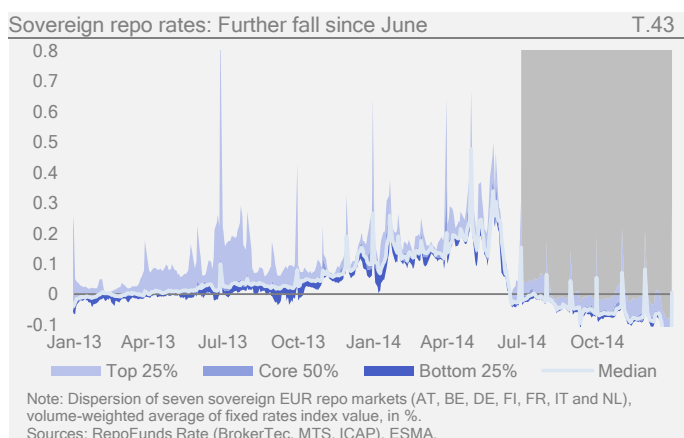


In 2H14 the value of EU securities on loan declined, mainly as a result of the reduction in bonds and equity loans, the latter typically being characterised by high levels of seasonality. The value of US securities on loan increased slightly, reflecting a combination of increased securities lending activity and higher asset valuation. Sovereign repo rates continued to decrease, remaining in negative territory since June 2014. In this context repo trading volumes remained broadly stable for most of the reporting period. The total supply of collateral in the EU increased by around EUR 389bn in 2014.

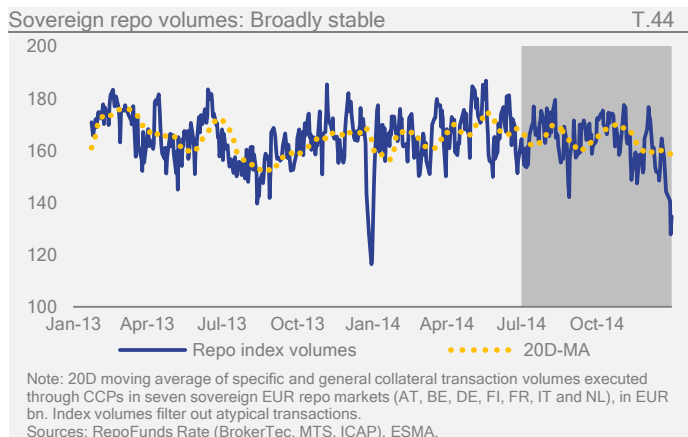
EU securities lending: EU securities lending markets shrank in 2H14. The average value of EU securities on loan amounted to USD 527bn at the end of December, compared with USD 623bn in 1H14. This was due mainly to a significant decrease in both the quantity and value of EU equity loans, which averaged USD 193bn in 1H14 and fell to USD 150bn in 2H14. EU equity loans typically show strong seasonality as corporate action trading (in this case lending for cross-country tax arbitrage on dividends) boosts volumes during the second quarter of each year. The value of government bonds and corporate bonds on loan declined in the reporting period, contracting from USD 380bn to USD 335bn and USD 49.5bn to USD 41.5bn respectively between the beginning of July and the end of December.



International securities lending: The total value of US securities on loan declined by 1.8% between July and end-December, reflecting reductions in loans of government bonds (-3.4%), equities (-0.5%) and corporate bonds (-0.7%). The value of US securities on loan averaged USD 891bn in the reporting period, compared to USD 908bn in 1H14. The total value of US equities on loan in November 2014 increased by more than 15% from December 2013 to USD 406bn, reflecting higher asset valuation, while the value of US Treasuries on loan rose to around USD 400bn. The value of EU securities on loan was around 60% of the value of US securities on loan, a slight drop versus the previous period.

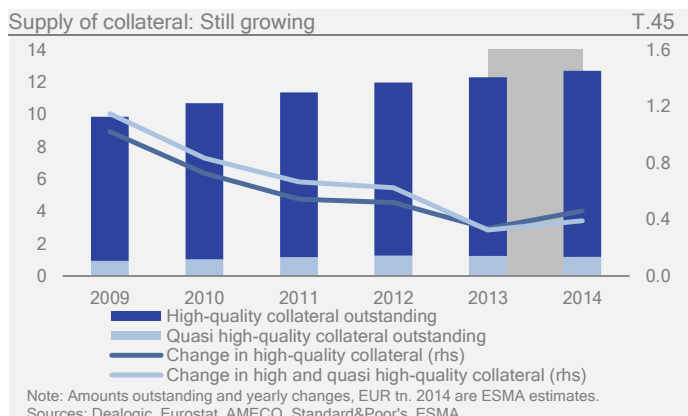


Sovereign repo rates: Interest rates for repos using EUR sovereign debt as collateral and executed through CCPs continued to fall between July and December 2014. The median repo rate remained in negative territory following its June 2014 drop. This dynamic reflected exogenous changes in the money market yield curve. The regular peaks observed during the reporting period reflected end-of-month demand



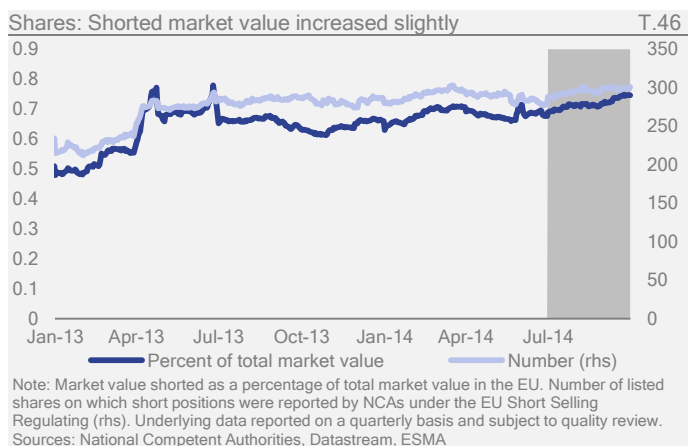
for liquidity but were less pronounced than in previous periods. Overall, repo rate dispersion decreased through 2H14.

Sovereign repo volumes: Daily volumes of EUR sovereign repo trades executed through CCPs remained broadly stable for most of 2H14 before contracting in December. Average volumes decreased slightly from EUR 167bn per day in 1H14 to 134bn in 2H14. The latest ECB *Euro Money Market Survey* in October 2014 showed bilateral repos with CCPs amounting to 71% of all bilateral repos, up from 46% in 2009.



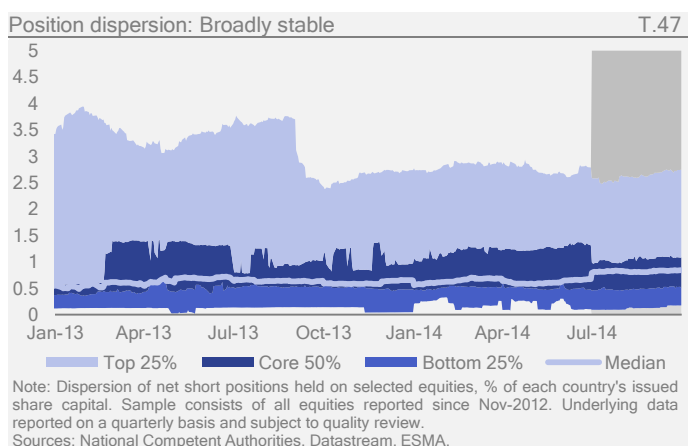
Supply of collateral: The supply of high-quality collateral in the EU, proxied by outstanding EU sovereign debt rated investment grade or higher, is expected to increase by around EUR 460bn in 2014, following a EUR 337bn increase in 2013 and EUR 521bn in 2012. The 2014 estimate is based on the European Commission's 2014 Autumn forecast for EU outstanding general government debt. The supply of quasi high-quality collateral, defined as the net amounts of EU covered bonds and corporate bonds outstanding rated AA- or higher, is expected to decline by EUR 70.6bn following a EUR 12bn reduction last year. Overall, the supply of high- and quasi-high-quality collateral in the EU increased further by EUR 389bn in 2014, having grown by EUR 324bn in 2013.

Short selling



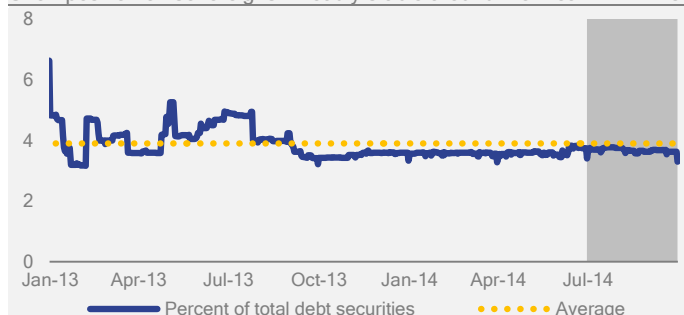
In 2H14 the number of listed shares on which short positions were reported and the shorted market value as a percentage of total market value in the EU edged up slightly, following weak performance and increased volatility in EU equity markets. In 3Q14 the median short position on EU shares increased, while dispersion within the core 50% decreased significantly. Average net shorts on EU MS sovereign debts rose a little over the past two quarters from 3.6% to 3.7% of outstanding general government debt securities, with the median also increasing, possibly reflecting slower growth in the government debt stock relative to short positions.

Shares: The daily number of listed shares in EU benchmark equity indices on which short positions were reported to NCAs increased from an average of 287 in 2Q14 to an average of 296 in 3Q14. The shorted market value as a percentage of total market value in the EU also rose in the reporting period, by 8.4% to 0.75%. The increase in shorted market value is possibly related to the weak performance and increased volatility that characterised equity markets in the reporting period. However, equity securities lending activity in the EU decreased slightly during the same period (cf. T.40).



Position dispersion: Dispersion in the size of short positions on EU shares, as a percentage of each country's market value, remained broadly stable in the reporting period. In 3Q14 the average median short position, as a percentage of each country's issuer share capital, equalled 0.8%, up from 0.6% in 1H14, while dispersion in the core 50% decreased from 0.7% to 0.6%. Dispersion edged up for the bottom 25% from an average of 0.3% in 1H14 to 0.4% in 3Q14, while remaining broadly stable for the top 25% at around 1.6%.

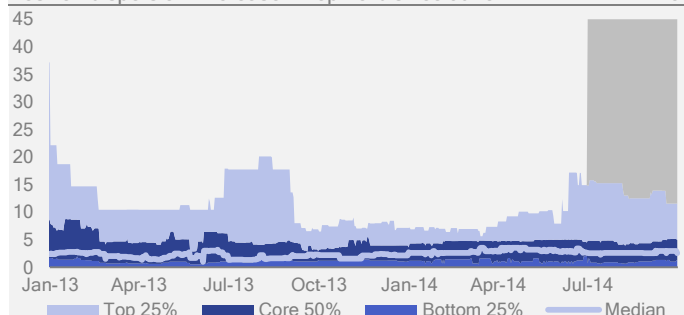
Short position on sovereigns: Broadly stable around the mean T.48



Note: Net short position held on sovereigns, % of total debt securities in EU. Sample consists of all EU Member States that reported since 1/11/2012. Debt data for 3Q14 extrapolated from AMECO 2014 forecast. Underlying data reported on a quarterly basis and subject to quality review.
Sources: National Competent Authorities, Eurostat, AMECO, ESMA.

Sovereigns: Net short positions held on sovereigns, as a percentage of total general government debt securities in the EU, increased slightly in 3Q14. Average shorts were equal to 3.6% of MS sovereign debt securities in 1H14 and 3.7% in 3Q14. This may be explained partly by slower sovereign debt growth in the EU, with the European Commission expecting general government debt outstanding to be around 88% of GDP in 2014 and 2015. However, uneven reporting across MS due to current thresholds regardless of the size of the sovereign debt may explain or exaggerate some of the movements observed since the beginning of the reporting period.

Position dispersion: Increase in top 25% since June T.49

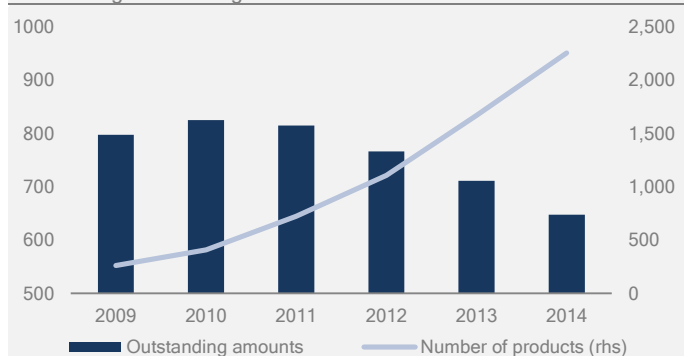


Note: Dispersion of net short positions held on selected sovereigns, % of each country's total debt securities. Sample consists of all EU Member States that reported since 1/11/2012. Debt data for 3Q14 extrapolated from AMECO 2014 forecast. Underlying data reported on a quarterly basis and subject to quality review.
Sources: National Competent Authorities, Eurostat, AMECO, ESMA

Position dispersion: The median dispersion of net short positions held on sovereign, as a percentage of each country's total general government debt securities, remained broadly stable in 2Q14 and 3Q14. The dispersion of short positions within the top 25% (i.e. short positions that were the largest as a percentage of each country's total debt securities) increased significantly from June 2014 and then fell slightly in September, although this was down significantly from 2Q13. On the other hand, core 50% increased slightly in the reporting period, from an average of 3.5% in 1H14 to an average of 3.6% in 3Q14. Also, dispersion within the bottom 25% decreased slightly, from 1.2% to 1.0%, reflecting marginally smaller short positions on several MS sovereigns.

Structured retail products

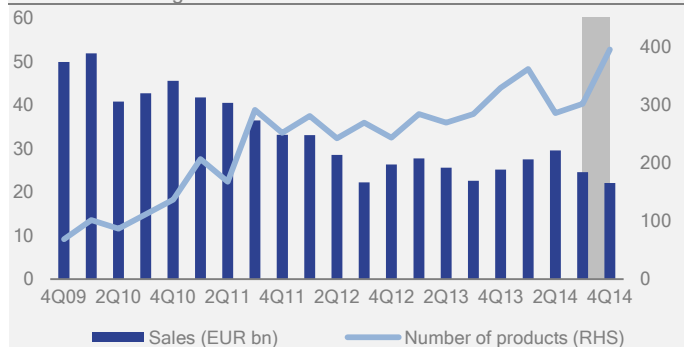
Outstanding: Decreasing trend in volumes T.50



Note: Outstanding amounts, EUR bn. Number of products, thousand.
Sources: StructuredRetailProducts.com, ESMA.

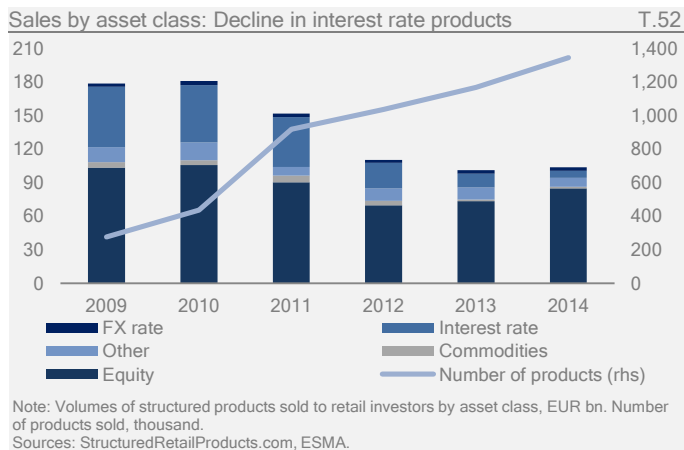
The volume and number of structured products sold to retail investors declined in 2014 versus 2013, with a persisting trend featuring a higher number of products but small sizes. Products with equity instruments as their underlying continued to constitute the bulk of sales volumes and numbers, while most of the other product types were unchanged or lower. The largest downturn was observed in products with interest rates and FX products as their underlyings. In 2014, sales volumes increased at retail banks and savings institutions, which remain the main providers of structured retail products, while falling at universal banks. Asset managers, even though still far below the above-mentioned institutions, saw their share increase. Over the course of 2014, the largest proportion of capital-protected products sold featured protection levels below 100%, reflecting the low-interest rate environment in Europe and market demand for yield.

Sales: Diminishing volumes T.51



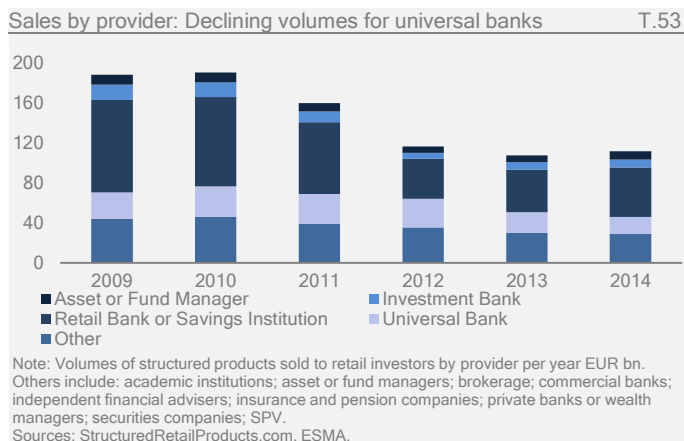
Note: Volumes of structured retail products issued by quarter, EUR bn. Number of products, thousand.
Sources: StructuredRetailProducts.com, ESMA.

Outstanding: Following the downtrend that began in 2011, the outstanding volume of structured retail products in Europe contracted further by EUR 63.7bn, falling from EUR 711.1bn end-2013 to EUR 647.4bn end-2014. However, the number of products outstanding continued to rise, reaching 2.26mn in 4Q14. The year-on-year increase in the number of products between 2013 and 2014 was 35%, down from 51% in the previous year. It should be noted, however, that while the database used covers most of the EU market, it may not be fully representative of domestic markets within all EU Member States.

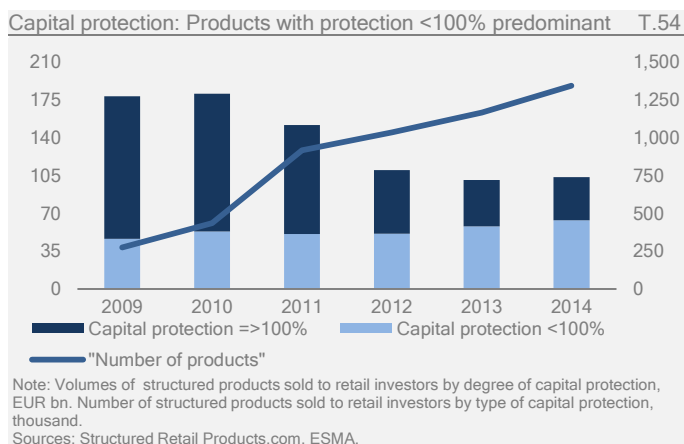


Sales: The volume of structured products bought by retail investors in 2014 hovered around the 2012 and 2013 levels, but on a slightly declining trend. In December 2014, the volume of structured retail products fell to EUR 6.7bn, 1.6bn less than in the same year-earlier period. The number of products striking in December 2014 increased by 12% to 115,374, up from 103,063 in December 2013.

Sales by asset class: As of end 2014, the largest proportion of sales consisted of equity products (EUR 84.9bn). This category refers to products taking one or more equity indices or one or more shares as their underlying. Overall, volumes of products sold increased by just 2.5%, of which 15% were equity-linked. Conversely, there was a significant drop in products with interest rate or bond underlyings: the contraction from EUR 12.3bn to EUR 6.3bn represented a decline of 50%. Around 1.3mn products were issued in 2014.



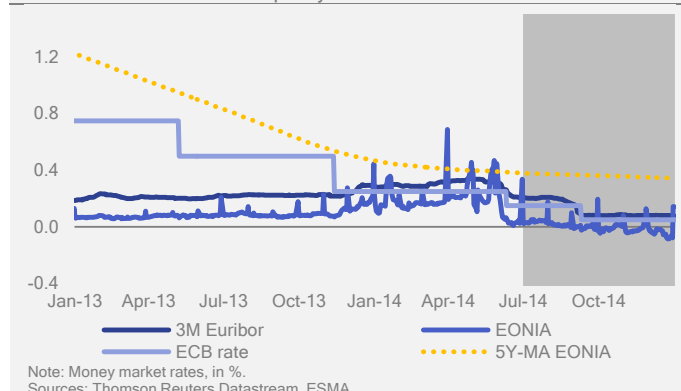
Sales by provider: Retail banks and savings institutions were the main providers of structured retail products, with EUR 49.5bn of sales at the end of December 2014, up from EUR 42.6bn (year-on-year). Universal banks remained among the major suppliers in this market segment, albeit still at a much lower level than retail banks. The product volumes sold by universal banks over the past year declined (-18.7%). Marginal growth in sales of retail structured products was observed for asset or fund managers, increasing from EUR 6.6bn in 2013 to EUR 8.3bn in 2014.



Capital protection: A capital-protected type of structured product is one that provides for a minimum return at maturity at least equal to the original sum invested. It should be noted, though, that such products provide this minimum return only on condition that the product provider itself or the underlying assets purchased to provide the return do not default. The volumes of capital-protected products sold in 2014 increased slightly, with products featuring capital protection lower than 100% accounting for the largest share: EUR 63.8bn of sales against EUR 39.9bn for products with 100% or more of the capital protected. As regards the number of products sold, this remained high and indeed continued to expand, reaching 1.35mn end-2014.

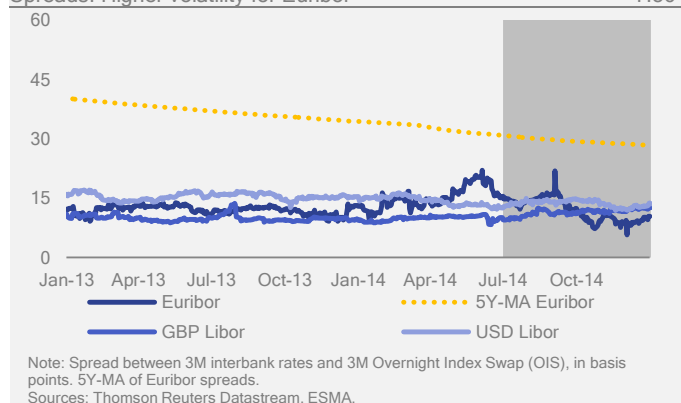
Money markets

Rates: Market rates around policy rate T.55



2H14 was marked by a cut in the ECB’s main refinancing rate from 0.15% to 0.05% in September. Interbank borrowing rates decreased in the EA, with 3M Euribor and EONIA reaching historically low levels. The three-month Euribor remained above the policy rate, whereas the overnight rate EONIA stayed below it, showing lower volatility than in the previous period. Interbank spreads remained at very low levels, with Euribor spreads more volatile than spreads in USD Libor and GBP Libor. Activity in EONIA markets revived during 2H14 but decreased in GBP markets.

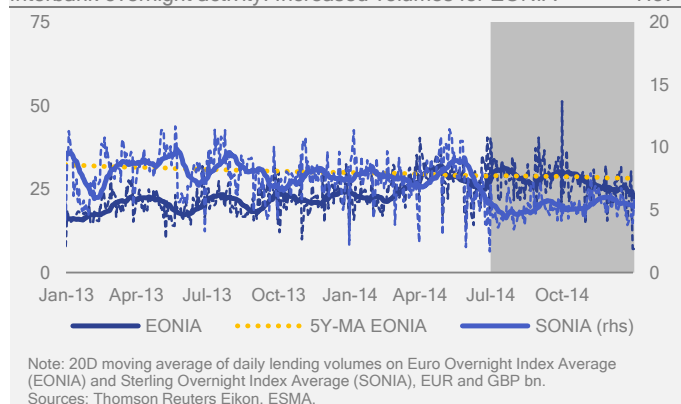
Spreads: Higher volatility for Euribor T.56



Rates: In the second half of 2014 the three-month Euribor continued to exceed the ECB’s main policy rate. The gap between the overnight rate EONIA and the policy rate narrowed. Following the ECB’s rate cut in September, three-month Euribor and EONIA reached historically low rates. Overall, the EONIA exhibited lower volatility than in the previous period, fluctuating within a narrow range around 0%, except for regular end-of-month spikes.

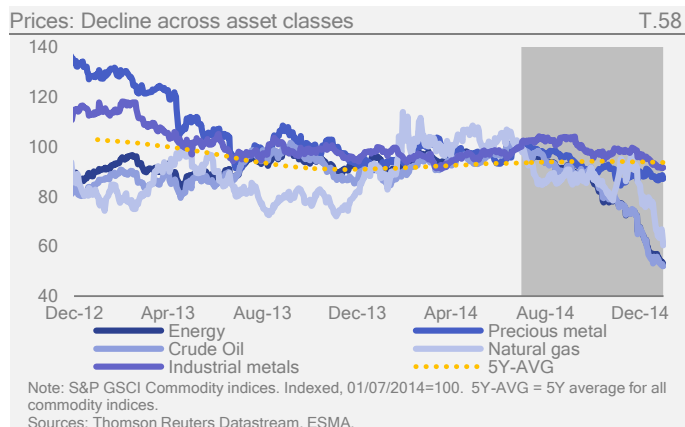
Spreads: Interbank spreads remained low for GBP and USD in the second half of 2014. The three-month Euribor displayed higher volatility, rising to 21bps above the respective OIS rate at the beginning of September, but then decreasing to 10bps above the OIS rate. Libor spreads were more stable, with Libor around 10bps above the OIS rate. As in the previous reporting periods, spread levels in the interbank market should be interpreted with caution, as premia on bank-to-bank lending may not be representative of the general risk premia in bank funding. Some institutions still need to resort to alternative funding sources, including ECB refinancing or other wholesale sources.

Interbank overnight activity: Increased volumes for EONIA T.57

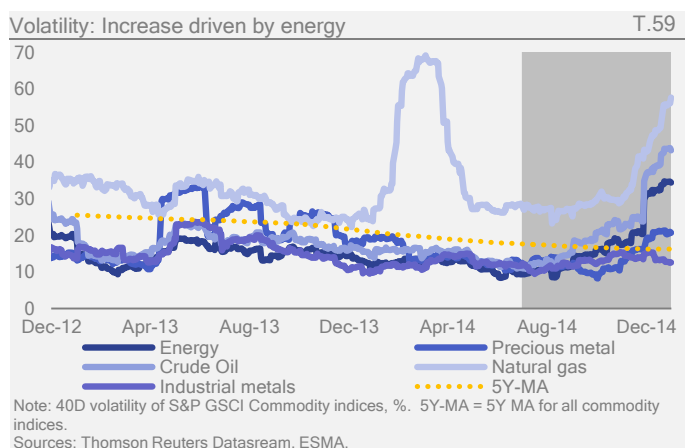


Volumes: During 2H14, daily averages of turnover volumes for EONIA were around their five-year average of EUR 28bn, (compared to 26bn in 1H14). The increase observed during 2H14 may signal a tentative return to pre-crisis behaviour, especially in the case of EONIA. In the GBP interbank markets, volumes trended downwards in the second half of 2014 after the increase registered in 1H14. Average daily interbank market volumes in GBP fell to around 5bn in the reporting period, well below the last 2Y-average (around 8bn).

Commodity markets

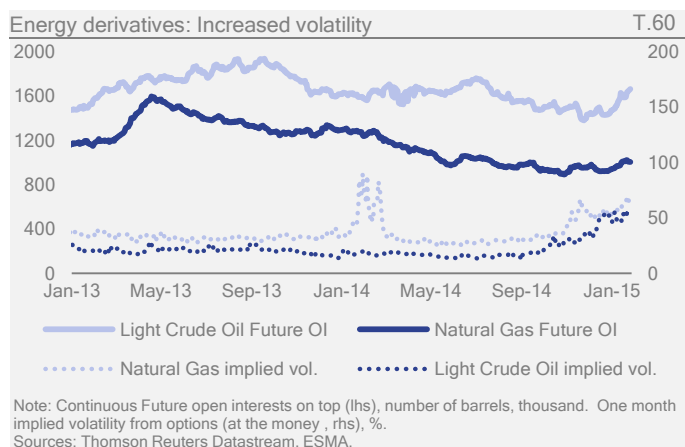


Commodity prices fell by almost 30% over the reporting period, with the steepest drop of almost 47% seen in energy prices. Having held quite stable since 2Q13, prices headed down as a result of rising supply in key markets and lower demand. Concerns over weaker-than-expected economic growth prospects and a strengthening US dollar added to the sharp drop in prices. Overall volatility surged, especially in the energy sector. Open interests on future contracts, usually used to confirm trends and trend reversals for futures and options contracts, increased for selected highly liquid futures on natural gas and light crude oil, confirming the downward trend.



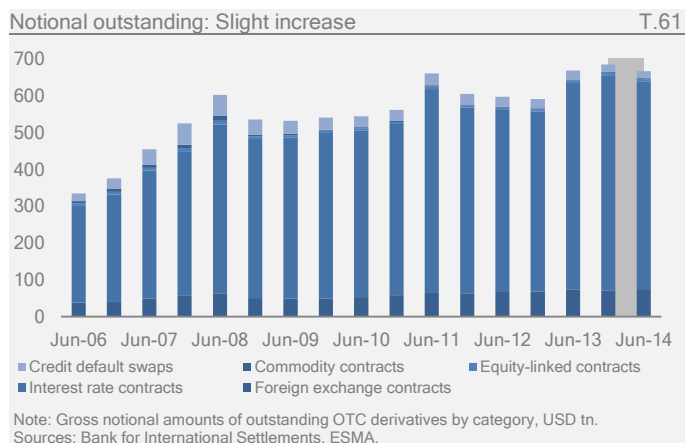
Prices: Commodity prices fell steadily, by almost 30% over the reporting period, with the largest decrease observed in energy prices. Precious metals, such as gold and silver, were subject to falling demand from foreign investors, potentially as a result of strengthening in the US currency. Energy prices were driven by the weakening in oil prices since June 2014 as a consequence of falling demand in both Asia and Europe, a strong dollar, and booming US oil production that caused the energy index to sink by 47%. Notably, Brent lost 50% of its value over the reporting period. Finally, industrial metal prices also softened by more than 8%.

Volatility: Overall commodity price volatility surged during the reporting period, starting at 7% and ending at around 24%, well above its five-year average. Volatility was highest in the energy sector, ending the period at 34%. Natural gas and crude oil were the most volatile, at 58% and 43% respectively end-December. Volatility in precious metal prices dropped below that in energy commodities and industrial metals in October for the first time since April 2013. Implied volatility derived from options on light crude oil and natural gas followed exactly the same trend as actually realised.



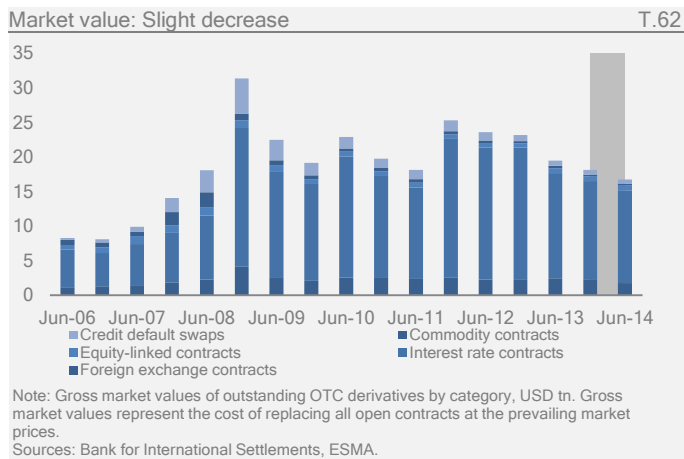
Energy futures: Open interests and implied volatility are often used to confirm trends and trend reversals for futures and options contracts. Usually, an increase in open interest along with a decrease in price is indicative of a downward trend. In December we saw an increase in open interest in two very liquid future contracts on light crude oil and natural gas together with a sharp drop in spot prices, which tallies with the correlation described.

Derivatives markets



In 1H14 there was a 2.7% decrease in notional amounts outstanding, to USD 667tn, and in the gross market value of these outstandings (-7.4%), to USD 17tn. This was driven mainly by interest rate contracts, which represent the bulk of the OTC world. Central clearing increased further, with 27% of the contracts cleared, up from 23% last year.

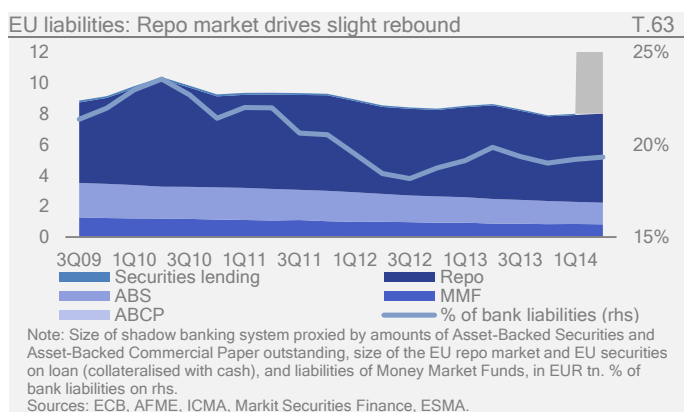
Notional values outstanding: The global OTC derivatives market shrank slightly in 1H14, with notional outstanding volumes decreasing by 2.7% to USD 667tn following two consecutive increases. For interest rate contracts, which make up the bulk of the OTC world (85% of total OTC volumes), notional volumes decreased by 3.6% from 2H13 to USD 563tn in 1H14. Notional volumes of CDS also dropped, by 7.4%, on a trend that got underway in 2H11, while foreign exchange and equity-linked contracts rose by 6.0% and 5.8% respectively.



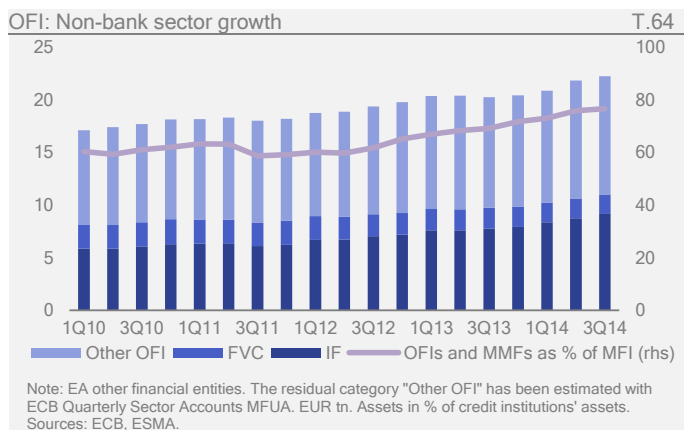
Outstanding volumes for commodity contracts remained broadly stable at USD 2.2tn.

Gross market values outstanding: The declining trend in the gross market value of derivatives outstanding that began in 2H11 continued into 1H14, with values contracting by 7.4%. Again, the decline was driven mainly by interest rate derivatives and reported in most major currencies, but foreign exchange contract volumes also fell sharply. On CDS markets, as central clearing made further inroads (27% of other contracts cleared, up from 23% last year), bilateral netting agreements reduced the net market value of outstanding CDS contracts, which can serve as a proxy for exposures to counterparty credit risk, to 23% of their gross market value.

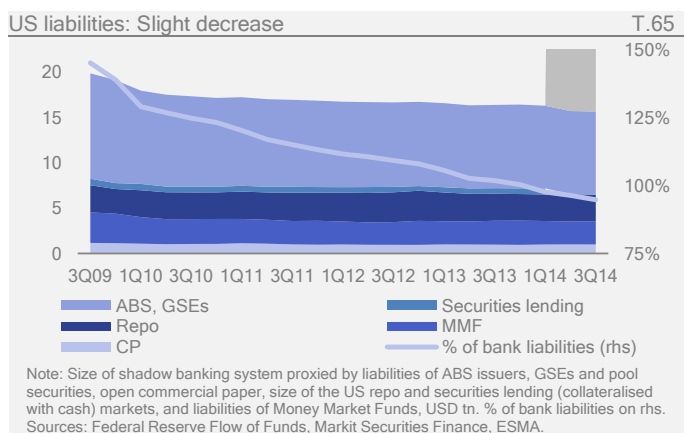
Shadow banking



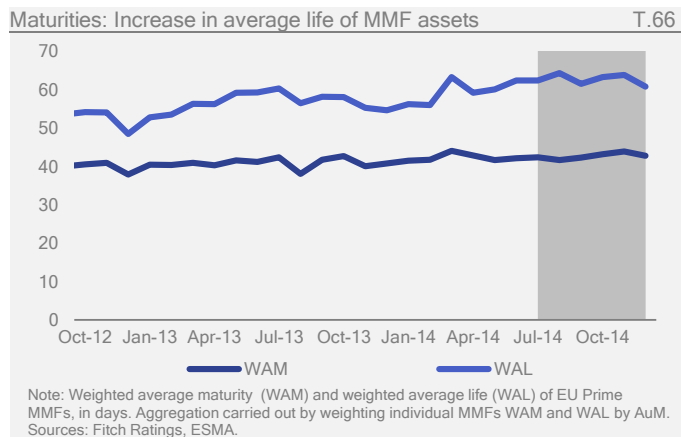
EU shadow banking liabilities, measured using an activity approach, stood at EUR 8.2tn in 3Q14, up EUR 285bn since the beginning of the year. They represent the equivalent of 19.2% of EU bank liabilities, compared with 95% for the US shadow banking system, although the latter has shrunk slightly over the past quarters. Regarding the entities involved in shadow banking activities, the size of MMFs and Financial Vehicle Corporations has been declining. The liquidity of assets held by EU MMFs waned in 2H14, possibly due to their attempt to restore profitability by marginally accepting more liquidity risk within the sector's portfolio. Its interconnection with the banking sector increased as from April, with loans and debt securities vis-à-vis credit institutions in October accounting for 74% of MMF assets.



EU shadow banking sector: EU shadow banking liabilities measured using an activity approach increased by around EUR 285bn in 2014 to reach EUR 8.1tn in 3Q14. Developments were driven mainly by changes in the size of repo markets, which increased by EUR 283bn and accounted for 71% of EU shadow banking liabilities. On the other hand, ABS markets declined by EUR 98bn. EU shadow banking liabilities amounted to 19.2% of EU banking sector liabilities, up from 19.0% at the end of 2013 even though bank balance sheets expanded in parallel. There are several ways to measure the EU shadow banking system; the approach used here is activity-based, which may be comparatively smaller than other estimates based on entities.

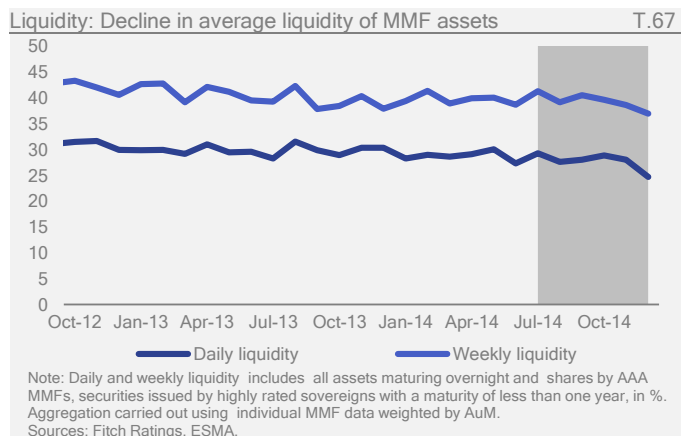


EA shadow banking entities and Other Financial Institutions: Shadow banking entities are financial institutions that are not regulated as banks although their operations are similar to those of banks, e.g. securitisation, securities lending and repurchase transactions. They may include ad hoc entities such as financial vehicle corporations (FVC) engaged in securitisation transactions, MMFs and investment funds that provide credit or are leveraged. The size of Other Financial Institutions (OFIs, i.e. the financial sector outside banks, insurance corporations and pension funds) can therefore provide information on the evolution of the shadow banking system. However, since investment funds cannot be subsumed under shadow banks in a generalised way, this approach should be seen as a complementary indicator to the activity-based measure of shadow banking. As of 3Q14 OFIs represented EUR 22.2tn in the EA, up 3% year-on-year. This increase was driven mainly by the fund sector, while MMF and FVC have been in reverse (the other OFIs are a heterogeneous category including some financial holding

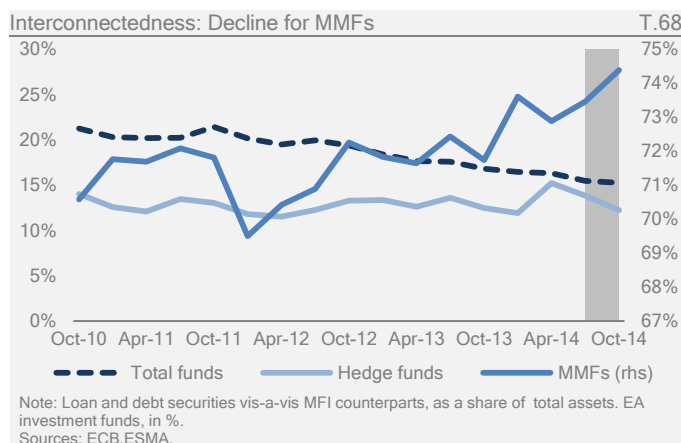


companies, for example). In comparison to the banking sector OFIs represent 77% of credit institutions’ balance sheet, a proportion that has been constantly increasing since 2011.

International comparison: US shadow banking liabilities measured using an activity approach declined slightly in 2014. As of 3Q14 shadow banking liabilities stood at USD 16.3tn, down USD 89bn from the end of 2013 and USD 6tn from a peak of USD 22.7tn in 1Q08. Liabilities of ABS issuers and Government Sponsored Enterprises accounted for 56% of the total, followed by repos (18%) and MMFs (16%), while commercial paper markets and securities lending made up a combined 10%. As of 2Q14, US shadow banking liabilities were equivalent to about 95% of US banking sector liabilities, down from a peak of 170% in 2008.



MMFs’ maturity and liquidity transformation: MMFs perform banking-like activities, e.g. maturity and liquidity transformation: MMF shares can be redeemed on a daily basis, while their assets carry short-term maturities greater than those of their liabilities. As from June 2014, the average life of EU prime MMF assets hiked downwards (-2.7%) and the average maturity of these funds increased by 1.5%. On the other hand, from June the daily and weekly liquidity levels decreased by 9.5% and 4.5%. These developments in average MMF liquidity may reflect efforts by MMFs to restore profitability by accepting marginally more liquidity risks within their portfolios. MMFs are generally more exposed to the risk of an investor run than other mutual funds. Indeed, some MMFs promise to redeem shares at a Constant NAV (CNAV), independently of the fluctuation in the value of their assets, placing the first mover in the event of a run at an advantage. The European Commission has proposed a Regulation to address some of these concerns, including specific rules for CNAV funds.

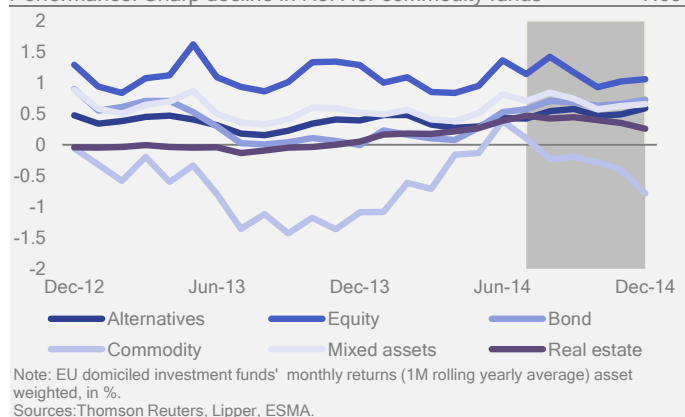


MMF interconnectedness: MMFs are an important source of short-term financing for financial institutions. As a result, they are highly interconnected with both EA and non-EA credit institutions since loans and debt securities issued by these entities increased to 74% of EA MMF total assets in 3Q14, up from 60% in 2006. By way of comparison, loans and debt securities issued by credit institutions amounted to 15% of total assets of other types of EA investment funds, including 12% for hedge funds.

Investors

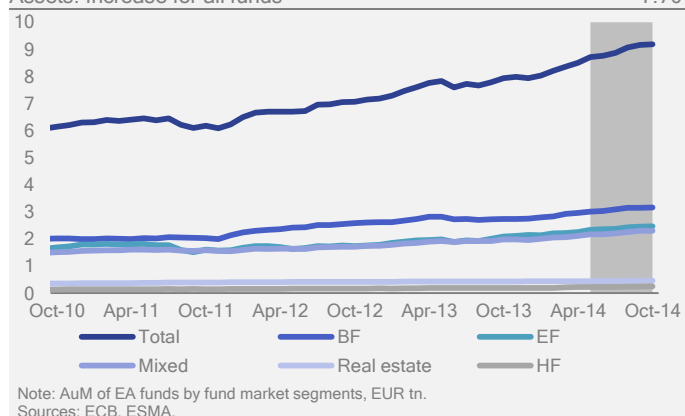
Funds industry

Performance: Sharp decline in RoR for commodity funds T.69



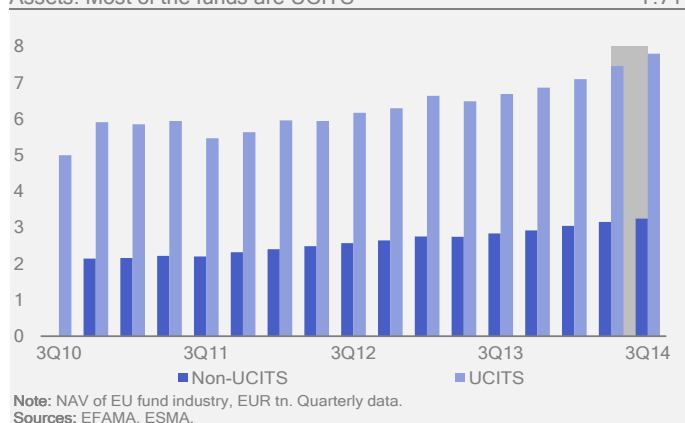
RoR were stable or lower for most types of funds during 2H14, suffering from the reversal in equity and commodity markets. More generally, the low RoR levels reconfirmed the persistent tempering effects of the low interest rate environment on the fund industry. Capital inflows slowed to EUR 83.9bn and were concentrated on mixed (EUR 72.8bn) and bond funds (EUR 15.3bn). The industry continued to expand, experiencing total growth of 8.1% in AuM (EUR 0.69tn) since April 2014, driven partly by positive valuation effects, while leverage continued to decrease.

Assets: Increase for all funds T.70



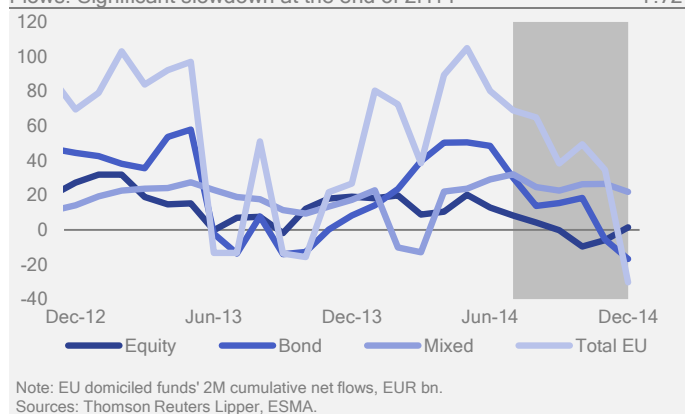
Performance: Rates of return were stable for most fund types in 2H14, although they suffered from the recent reversal in equity markets and remained at low levels. After peaking at around 1.4% in August 2014, equity fund returns fell to 1.06% in December 2014, given the higher volatility in stock markets during 3Q14 and the dismal performance of stock markets in October 2014. Nevertheless, equity funds are still outperforming the rest of the industry. Bond and mixed funds performed second and third with RoRs around 0.7% and 0.6%, experiencing only a small increase relative to June 2014. In contrast, the RoR on commodity funds returned to negative values in August 2014, falling sharply to -0.7% in December 2014 following the slump in oil and gold prices. Generally speaking, the levels of performance in the investment fund industry match the widespread decline in yields in other asset markets, sustaining the environment for hunt-for-yield behaviour.

Assets: Most of the funds are UCITS T.71



EA assets: Total assets managed by EA funds stood at EUR 9.2tn in December 2014, up 8.1% from EUR 8.5tn since April. This was caused mainly by valuation effects. The industry's growth was due to bond (EUR 3.2tn, +6.6%), equity (EUR 2.5tn, +9%) and mixed funds (EUR 2.3tn, +9.4%) in particular. Hedge funds also experienced growth in assets of 12.5%, while real estate funds increased at a slower rate of +4.1%, managing assets of EUR 0.46tn in December 2014.

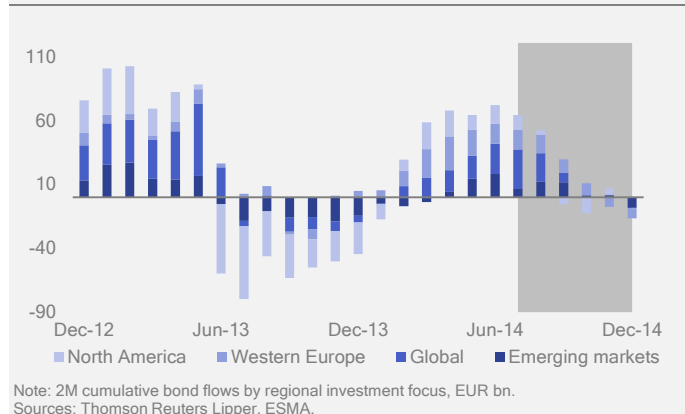
Flows: Significant slowdown at the end of 2H14 T.72



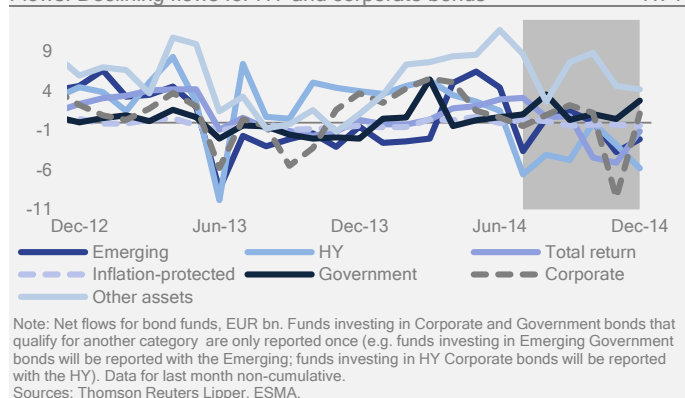
EU assets: In terms of funds' legal form, UCITS funds continued to dominate the EU industry, holding some 70% of all assets, equivalent to EUR 7.8tn, leaving about EUR 3.2tn of assets to non-UCITS funds. In the closing three months, the industry composition remained roughly stable. Overall, UCITS funds grew their assets by 10% in 2H14, while non-UCITS increased by 5%.

Flows: Net flows into EU investment funds remained positive in 2HQ14 (EUR 83.9bn) but slowed significantly. The overall flow pattern was driven in particular by high inflows into mixed funds (EUR 72.8bn) and, to a lesser extent, into bond funds (EUR 15.3bn), although the latter lost EUR 15bn in November 2014. With the exception of real estate funds, the other fund types contributed negatively to net flows. Equity funds in particular experienced EUR 4bn of net outflows. Following the stark change in the pattern of flows observed in 1H14, when net inflows focused on equity funds, in 2H14 net inflows thus remained concentrated in the fixed income and mixed segments. Mutual funds continued to increase their holdings of bonds at a time when banks reduced their participation in the sector due chiefly to changes in business models and

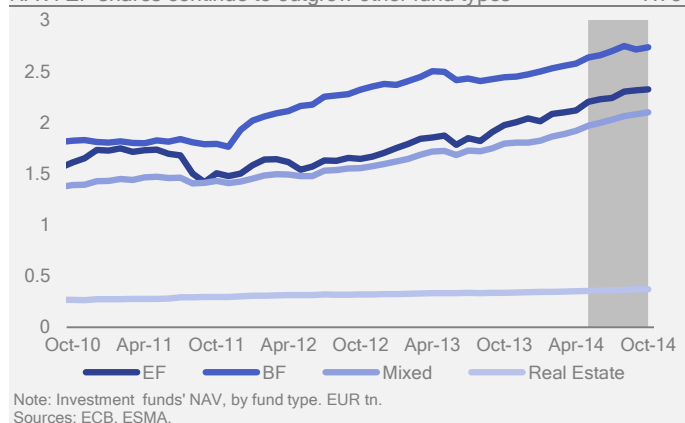
Flows: Decline in inflows into EU bond funds T.73



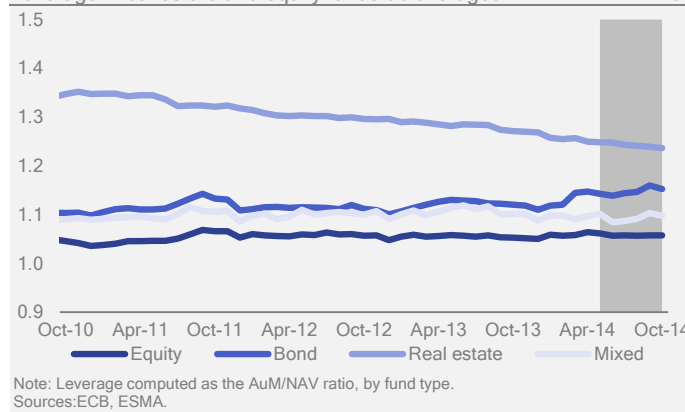
Flows: Declining flows for HY and corporate bonds T.74



NAV: EF shares continue to outgrow other fund types T.75



Leverage: Real estate and equity funds deleveraged T.76



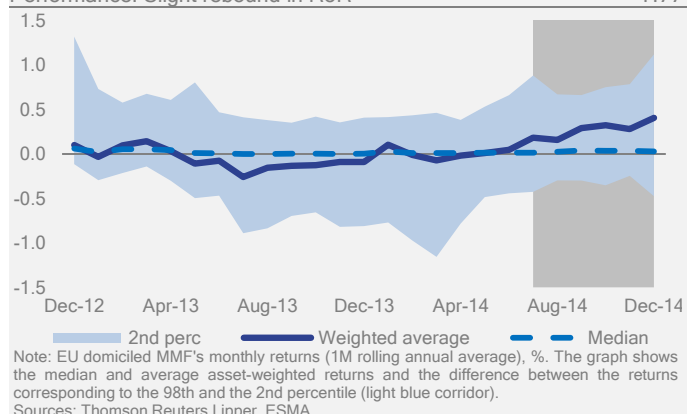
regulation. This trend has the potential to impose new risk on the mutual fund industry: Within a context of booming primary bond markets, a shrinking pool of market makers may, in the event of massive market reversals, limit the functionality of secondary bond markets. This suggests that the market may be becoming more vulnerable to episodes of illiquidity.

Investments: Investments into bond funds (BF) were concentrated in Europe or allocated globally. Investors thus followed the same patterns as in 1H14 with respect to their geographical preferences, although along 2H14 European bond fund inflows declined and outflows into North American bond funds became apparent at the end of the year. In 2H14 investors were also rethinking their exposure to EM in equity: Funds have seen six straight months of net inflows, reversing the 2013 and 1Q14 trend. In the same period, globally allocated funds gained EUR 82.5bn, while European equity funds saw hefty net outflows (EUR -42.70bn). This investment choice may be associated not only with greater market uncertainty, as reflected in increased equity market volatility during recent months, but also with the improvement in the US economy, which sustained manufacturing export demand from the EM. As regards asset classes, most BF continued to benefit from the general investor preference for fixed income funds. However, net flows into HY bonds and corporate debt funds fell following the Fed's warning on "stretched" valuations for HY bonds in July and the adverse effect on energy corporates from falling oil prices in late 2014. Overall, given that AuM growth in EA was the fastest since 2010, this trend can be seen as a sign of heightened risk aversion generated by mounting concerns over the global economy and the outlook for the EA.

NAV and leverage: The NAV of European investment funds continued to grow in 3Q14. As of October 2014 the NAV of BF stood at EUR 2.74tn (+6.1%), followed by EF (2.33tn; +9.7%), mixed funds (2.1tn; +9.3%) and real estate funds (370bn; +5.2%). EF and real estate funds continued a process of slow deleveraging (-0.6% and -1.1%) as NAV increased slightly more than AuM. However, after the temporary reduction in 4Q13, BF leverage ratios increased (+0.5%), due chiefly to strong valuation effects in underlying asset markets (cf. T.1). The level of balance sheet risks taken on by the bond fund industry continued on the upward path that began in October 2011. In terms of the structure of the EU investment fund sector's liability side, its other liabilities (including financial derivatives) increased from April 2014 to October 2014 by 11%, while its NAV increased at a rate of 8%. On the asset side derivatives/other assets (+14.1%) and equity holdings (+3.9%) growth in 3Q14 was higher than growth in loan and deposit claims (2.9%) (all investment fund figures include hedge funds).

Money market funds

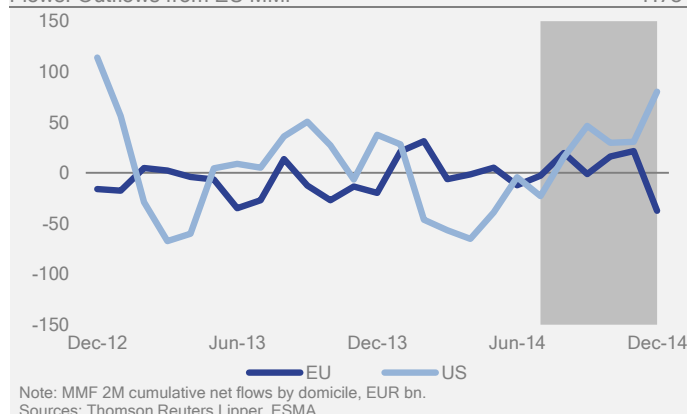
Performance: Slight rebound in RoR T.77



EU MMF returns rebounded in 2H14, driven by funds investing in US assets. Since July 2014 EU MMF experienced net outflows of EUR 1.6bn as the positive flows concentrated in October only partly compensated the outflows registered at the very end of 2014. The industry's leverage increased while the average duration of EU prime MMF assets rose, supporting the theory of greater risk appetite as a consequence of the low-interest-rate environment.

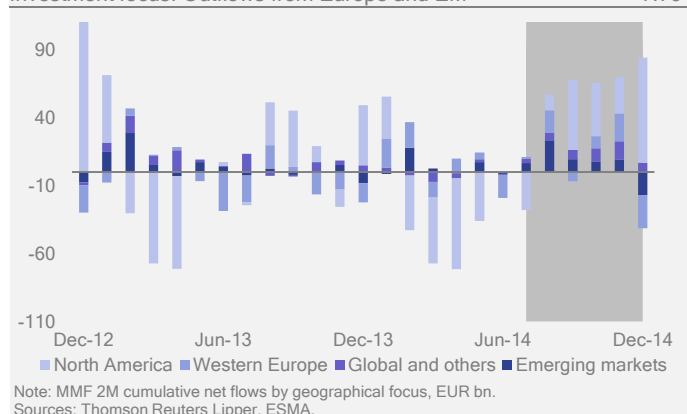
Performance: In December 2014 MMF returns rebounded perceptibly from close to 0% to 0.4% and dispersion around industry average returns increased. This was prompted by EU funds investing in US assets, which benefited from appreciation of the dollar. Conversely, funds holding EU assets recorded low performance and 50% of the industry continued to experience negative RoR. The weak performance of these funds reflected the stability of money market yields at very low levels and high demand for liquid investment forms.

Flows: Outflows from EU MMF T.78



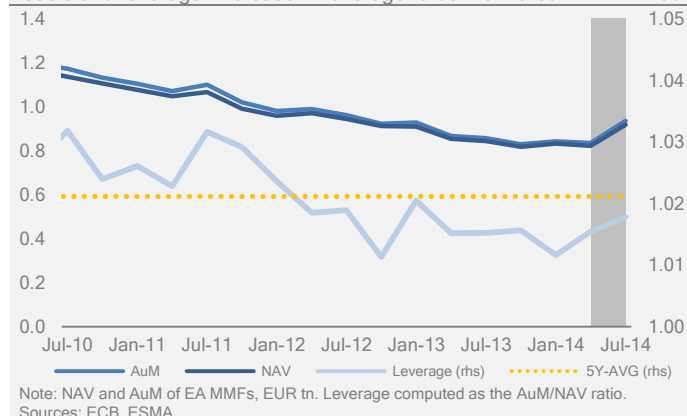
Flows: After the inflows registered in 1H14, EU MMF ended the year in negative territory. In 2H14, EU MMF funds saw accumulated small outflows of EUR 1.6bn, losing EUR 37.5bn in the last two months of 2014 after recording positive flows in October 2014. During the same period the US industry enjoyed inflows of EUR 125.9bn. In particular, funds focusing on US assets benefited from newly allocated capital, gaining EUR 128.5bn. Funds investing primarily in global asset markets and EM likewise received new capital, but to a lesser extent, and were able to expand their share base with a total net inflow of EUR 22bn and EUR 14.4bn respectively. However, in December 2014 the positive inflows into EM MMF funds reversed, probably due to the outlook for slower growth in emerging economies and a surging dollar. Funds whose investment strategy centred on Western European markets realised net inflows of EUR 25bn. EU MMFs were mainly invested in unsecured financial debt, although the allocation to repos increased in 3Q14.

Investment focus: Outflows from Europe and EM T.79



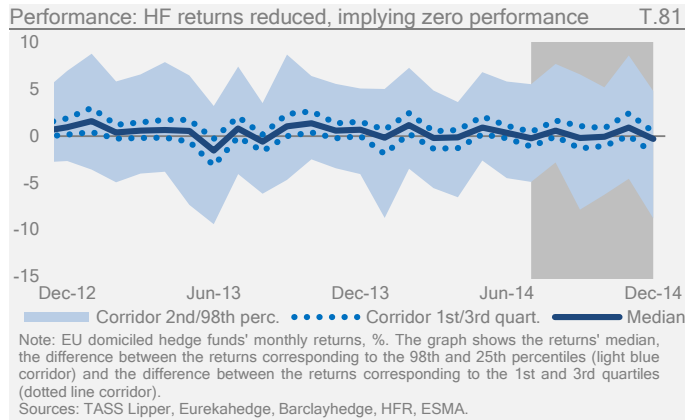
Assets: In 3Q14 the AuM of EA MMFs stood at EUR 0.9tn, up 11% compared to January 2014. After continuing its long-term downward trend until 2Q14, the sector thus experienced a trend reversal driven mainly by increasing valuation. Similarly, the NAV increased by 10.3%, returning to its level of October 2013 (EUR 0.92tn).

Assets and leverage: Increase in leverage to be monitored T.80

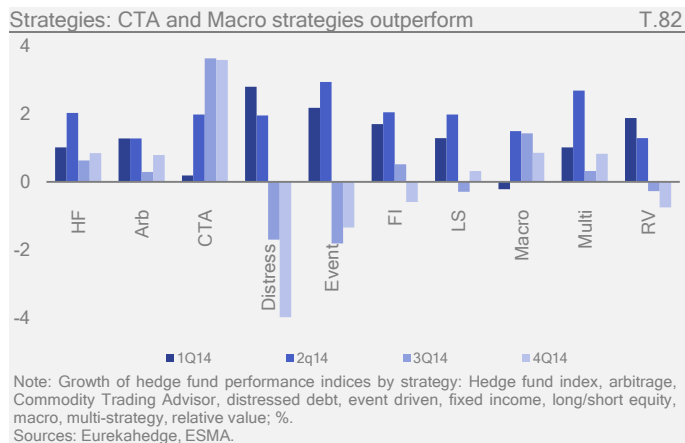


Leverage: The changes in AuM and NAV during 1H14 drove leverage 0.6% higher than its January 2014 value. The slightly higher increase in AuM compared to NAV observed in 2Q14 led to a higher leverage ratio of 1.02. As the valuation risk remained high, this trend and potential upward movements in MMF leverage should be monitored carefully by the industry and supervisors. Currently, these concerns are somewhat accentuated by the recently reduced liquidity of EU MMF assets (cf. T.67).

Alternative funds

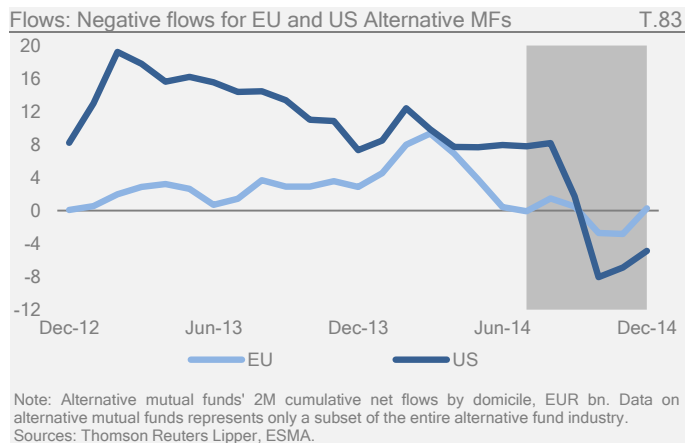


In 2H14 the alternative fund industry flatlined. Contrary to their risk profile, alternative funds were the fund type with the lowest RoR of all fund classes. However performance also varied widely across strategies: Funds following Commodity Trading Advisor (CTA) and Macro strategies outperformed their peers, inter alia by taking advantage of their exposure to the USD. In contrast, in 2H14 distressed debt funds reported their largest loss since 2011. These valuation effects were sufficient to increase the size of the EU alternative funds industry by EUR 1bn in 2H14 despite net outflows. The increase in AuM also boosted the increase in leverage to its highest level since 2009.

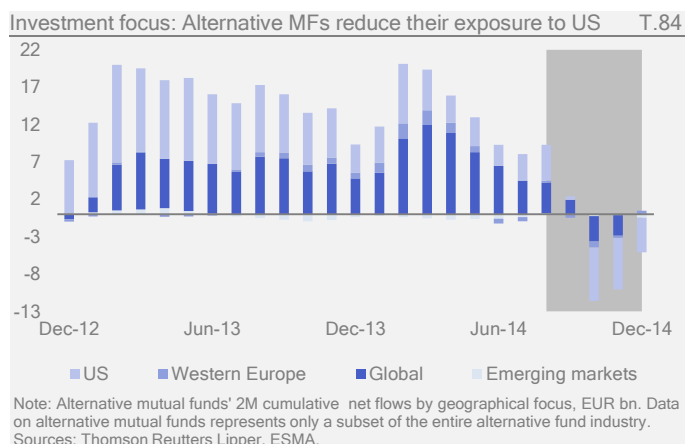


Performance: On average the EU hedge fund industry performed with monthly RoRs between -0.2 and 0.6% in 3Q14, implying a downward shift in distribution compared to 1H14. Annualising these figures implies an average yearly growth rate of 0% of the median for 3Q14. In 3Q14 the dispersion of EU hedge fund RoR started to increase again, reaching dispersion levels last seen in January 2014 but still well below the maximum dispersions observed within the last four years.

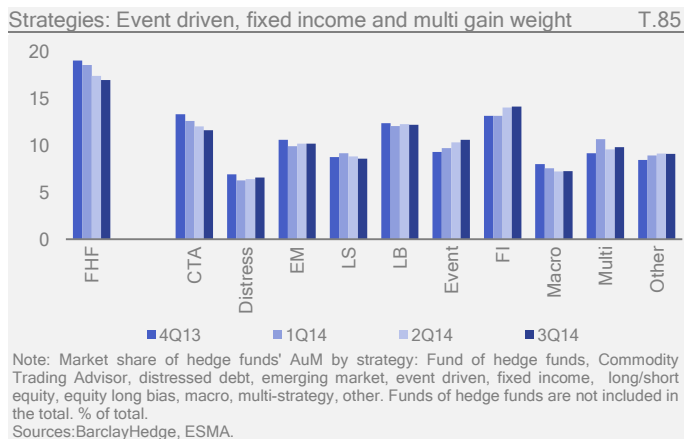
Strategies: Mixed in 2H14, even if the industry-wide index did experience positive growth (1.48%). Some strategies outperformed, in particular CTA funds, which achieved returns of 7.4%, followed by macro strategies (2.3%). While both strategies benefited inter alia from long exposure to the USD against other currencies, CTA funds also took advantage of short positions on oil. In contrast, in September distressed debt funds reported their largest loss since 2011. They shed 5.6% in 2H14, followed by event-driven funds (-3.14%). Both strategies suffered from long exposures to negative general market trends, respectively to fixed income securities and equity.



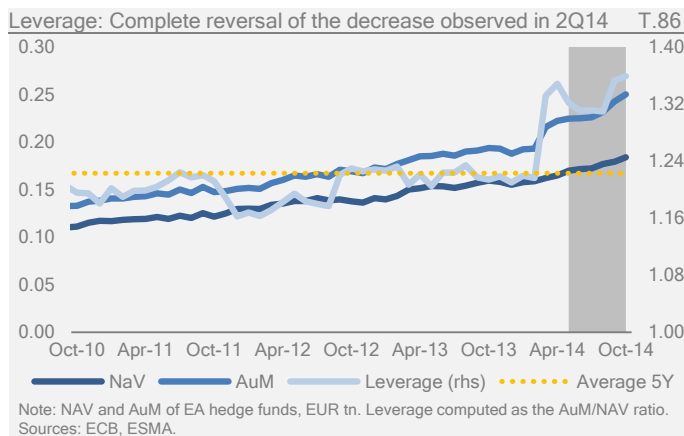
Flows: In 2H14, the EU alternative mutual fund industry suffered fund outflows of EUR 1.0bn following reduction in the share base. US alternative mutual funds compensated the inflows registered at the beginning of 2H14 with larger outflows in September and October 2014 (EUR -4.8bn in 2H14). Slower inflows in the EU and US may be due to poor performance. It is worth noting, however, that alternative mutual funds only represent a minor share of the entire AF sector.



Investment focus: The global alternative mutual fund industry experienced EUR 6.9bn of net outflows since June 2014, concentrated in the US. At the same time, the alternative fund industry pursuing a globally focused investment strategy or dedicated to EM and Western European markets suffered only slight net outflows, probably due to their limited attractiveness to investors.

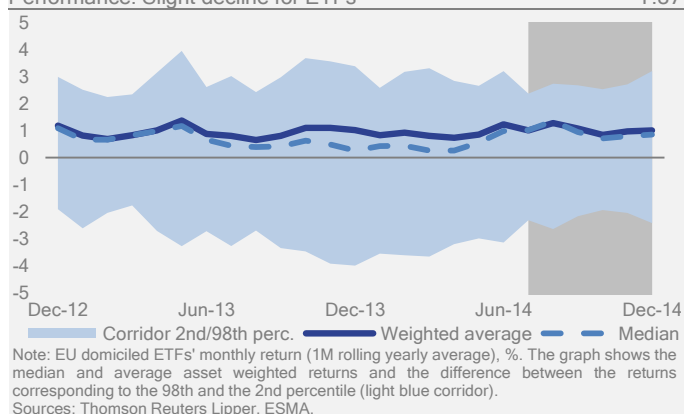


Assets: As of December 2014 assets managed by EA AF accounted for EUR 250bn, up from 223bn (+12.5%) at the end of 1Q14, while NAV climbed to EUR 184.2bn (+11.7%). The EA hedge fund industry thus continued on a strong growth path driven mainly by valuation effects. EA hedge funds experienced some fluctuation in their leverage level, starting with slight deleveraging in 2Q14, but later building up additional leverage again to reach their highest leverage since 2009 at the end of 3Q14. However this figure does not account for off-balance-sheet techniques that AF may use to increase their leverage, e.g. derivatives. Observing recent high asset price volatilities, respective fluctuations in synthetic leverage can therefore also be assumed. It is worth mentioning that AIFMD increases the disclosure obligations of the AF stipulated and their reporting duties to supervisory authorities, which will make information available on the leverage embedded in financial derivatives. At the global industry level, distressed debt funds, event-driven funds, fixed income funds and multistrategy funds benefited most from the asset growth reported between 2Q14 and 3Q14 and were therefore able to increase their respective shares of the industry's AuM further in that period. Generally, this growth was not correlated with the performance of the respective strategies. Moreover, fixed income and equity long bias funds have the highest market shares, 14.1% and 12.2% respectively. Following hedge funds' past strategic reorientation to market segments supported by macroeconomic trends and the low interest rate environment, investors apparently tended to focus on more industry-specific strategies in 2H14.



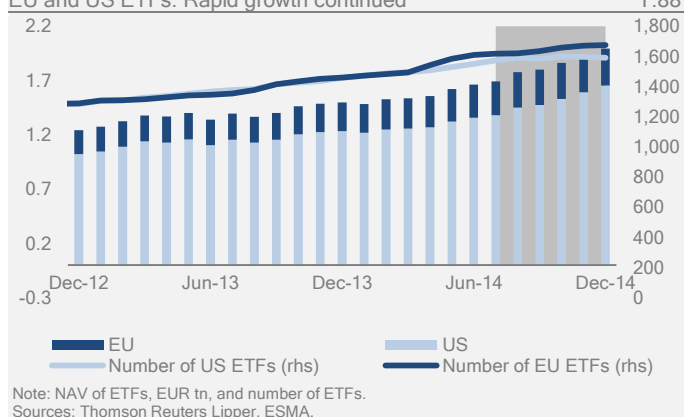
Exchange-traded funds

Performance: Slight decline for ETFs T.87



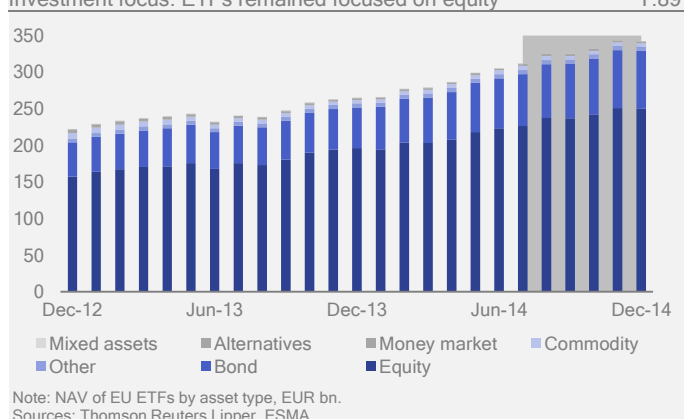
In 2H14 the ETF industry continued to grow, confirming its current popularity with investors. ETFs' returns declined moderately, with better performance by funds tracking equity benchmarks. At the individual level both the best and the worst performances are associated with leveraged vehicles. ETFs nevertheless maintained their strong tracking accuracy. The market value of EU ETF shares increased by around EUR 37bn to EUR 343bn. Equity funds (EF) continued to dominate the industry, accounting for 73% of NAV.

EU and US ETFs: Rapid growth continued T.88



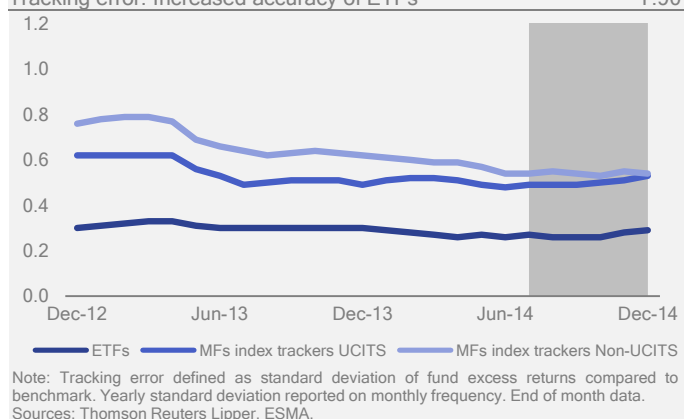
Performance: Rates of return on EU ETFs, i.e. funds which commit to tracking individually pre-specified financial indices and are traded on secondary markets, slipped to 1.02% (asset weighted) in December 2014, a 22bps decline compared to June. EU ETFs also exhibit considerable heterogeneity in average monthly returns, although these disparities have lessened since June: The returns of the best and worst performing ETFs range between 3.2% and -2.43%. To a large extent, this pattern is due to performance differences in the various benchmarks tracked, with equity ETFs outperforming their peers on average. To a lesser extent it is also due to different strategies and risk profiles, with some leveraged funds recording performance well above average. On the other hand, the worst performers are also to be found within leveraged funds and funds exposed to Russia.

Investment focus: ETFs remained focused on equity T.89



Assets: The ETF industry continued to grow consistently: Since June 2014 assets under management in EU and US ETFs rose by EUR 37bn and EUR 295bn respectively. In December 2014 EU ETF sector size totalled EUR 343bn for 1,675 funds. The average size of European ETFs is small compared to those in the US, where 1,590 ETFs managed almost EUR 1.65tn assets. The upward growth trajectory of US ETF is probably sustained by the more attractive yields in the US, where the gap between short- and long-term Treasury yields narrowed. It is worth recalling that only 30% of the US market is owned by institutional investors, such as sponsors of defined benefit and defined contribution plans, whereas on average in Europe retail investors hold only 10% to 20% of the shares of ETFs.

Tracking error: Increased accuracy of ETFs T.90

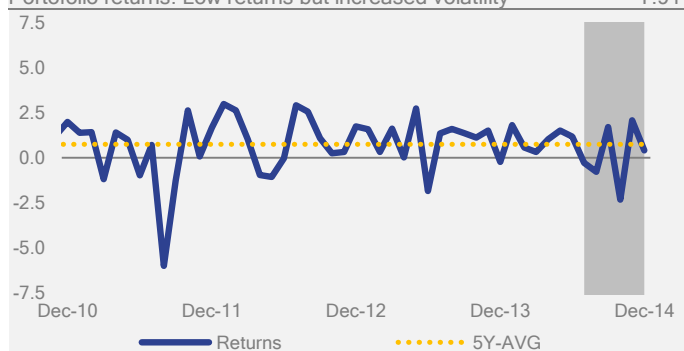


Investment focus: In 2H14 ETFs tracking equity market benchmarks captured the highest share of total capital inflows to the industry, gaining EUR 26.6bn in size. In the same period, fixed income funds increased by EUR 10.9bn, while ETFs' pursuing other investment strategies saw only modest inflows. The NAV of the EU ETF industry remained concentrated predominantly in funds investing in equities (73%). The inflows into ETFs tracking fixed income benchmarks led to an increase in their market share from 20.8% at the end of 2013 to 23.1% in December 2014.

Tracking accuracy: In 2H14 the tracking accuracy of ETFs improved from an already high level. They continued to perform comparatively better in tracking their respective benchmarks compared to both UCITS and Non-UCITS index funds. Index trackers in the alternative fund universe also bettered their relative tracking accuracy. It is worth noting that in the same reference period the number of index funds not registered as UCITS fell.

Retail investor trends

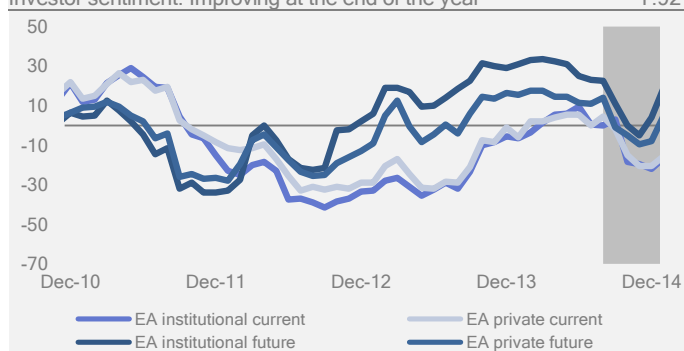
Portfolio returns: Low returns but increased volatility T.91



Note: Monthly returns on a portfolio composed of 47% stocks (Stoxx600), 42% deposits (1Y Euribor) and 11% bonds (Barclays Euro Aggregate 7-10Y).
Sources: Thomson Reuters Datastream, EIOPA, ESMA.

In 2H14, returns on a representative retail investment portfolio were extremely volatile. At the same time investor sentiment regarding the current economic situation started to deteriorate in July and turned negative in October. Disposable income growth slowed in 2Q14 compared to the end of 2013. In turn, real assets increased slightly in value for the first time in two years and households' financial assets grew more strongly than their liabilities, due mainly to growth in shares, mutual funds and private pensions. The share of dividend taxes paid by retail investors increased from 31% to 40% between 2000 and 2014 due to their higher participation in securities markets and slightly higher tax rates. Numeracy seems to have an impact on participation rates, with countries exhibiting higher numeracy also showing higher participation rates. General trust in providers and satisfaction with services and providers increased year-on-year. However, a quarter of retail investors do not complain when they experience a problem.

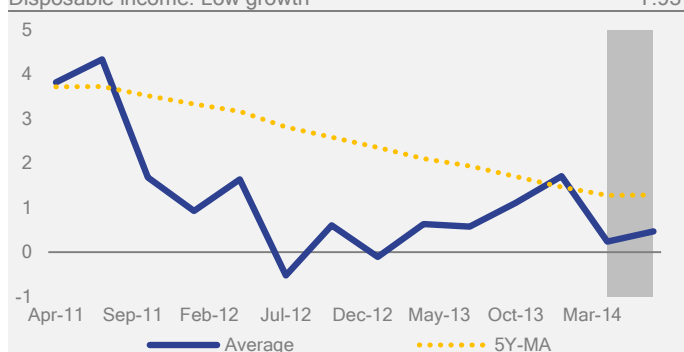
Investor sentiment: Improving at the end of the year T.92



Note: Sentix Sentiment Indicators for Euro Area private and institutional investors for a 10Y horizon. The zero benchmark marks a risk-neutral position. Monthly frequency.
Sources: Thomson Reuters Datastream, ESMA.

Portfolio returns: In 2H14, the monthly returns on a representative portfolio of retail investors' financial wealth were volatile, fluctuating from positive to negative values, with annual peaks in October (-2.3%) and November 2014 (+2.1%). In December 2014 returns on the representative portfolio fell to 0.4%, below the 0.75% 5Y-average. This behaviour might have been driven by equity market uncertainty and the worse-than-expected economic outlook. The weights used for each component of the portfolio are based on averages computed over 2007-2010 and kept constant for the whole period. Currency and deposits accounted for 33% of the average household's financial wealth, insurance and pension fund technical reserves 29%, shares 27% and other instruments 11%. The insurance and pension fund technical reserves can be decomposed into 50% shares, 35% bonds with an average maturity of 7 to 10 years and 15% deposits. Accordingly, shares represent 47% of total household financial wealth, currency and deposits account for 42% and bonds for 11%.

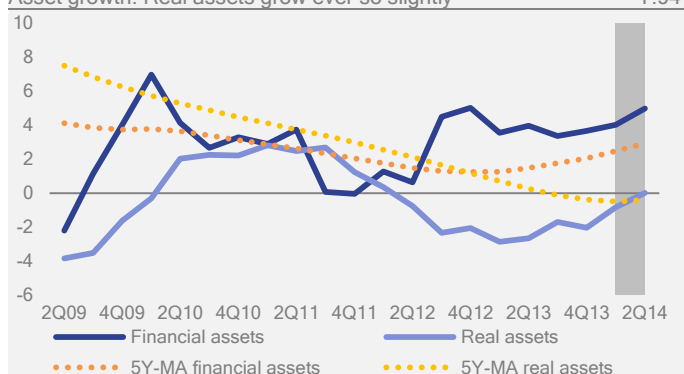
Disposable income: Low growth T.93



Note: Annualised growth rates of average gross disposable income in 11 EU countries (CZ, DK, DE, ES, FR, IT, NL, PT, FI, SE, SI), %.
Sources: Eurostat, ESMA.

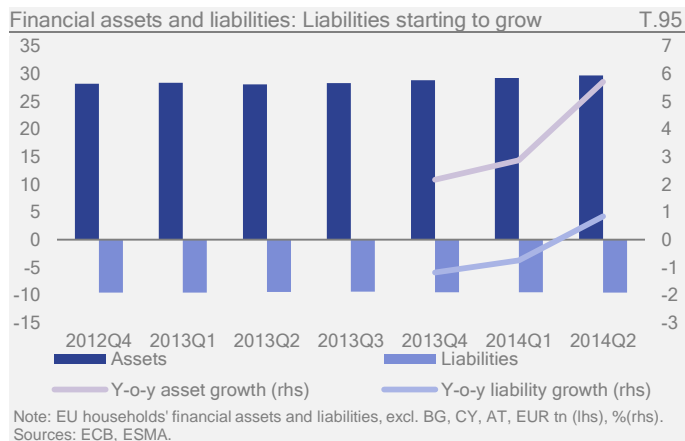
Investor sentiment: In 2H14, private and institutional investor sentiment regarding the current economic situation hovered mainly in negative territory. Various factors may have contributed to this, including the economic outlook, increased volatility in equity, fixed income and foreign exchange markets, and continued valuation risks in asset markets. While current and future investor sentiment is still roughly aligned, both private and institutional investors' long-term expectations recently figured some optimism.

Asset growth: Real assets grow ever so slightly T.94

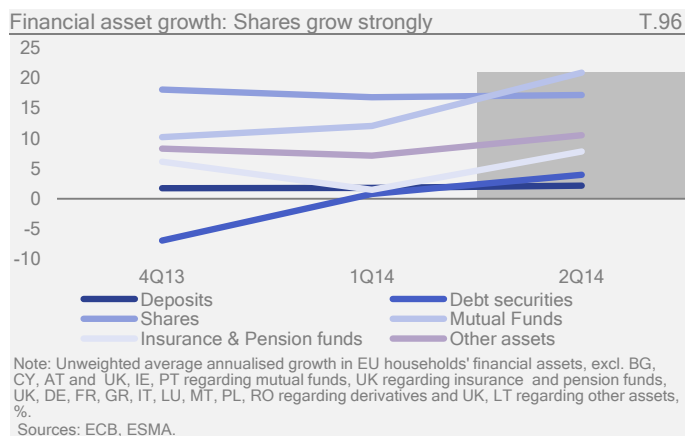


Note: Annualised growth rates of EA-18 households' real and financial assets, %.
Sources: ECB, ESMA.

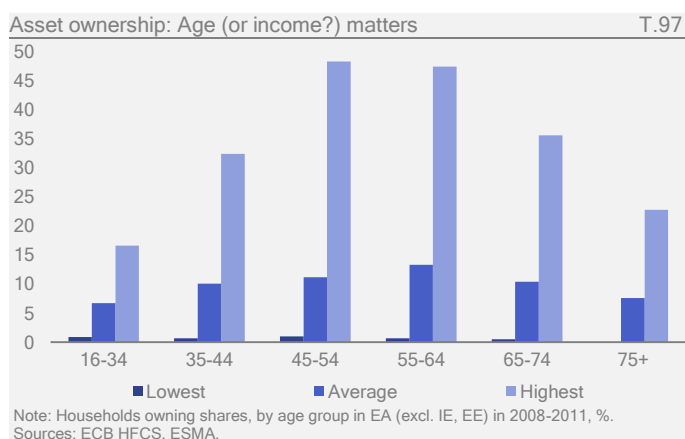
Disposable income: Disposable income grew in 2Q14, but significantly less than at the end of 2013, with year-on-year growth at 0.4% in 2Q14 compared to 1.7% in 4Q13. Disposable income growth was higher in the EA (1.6%) than in the EU. Weighted average growth was 0.9% (in the 11 EU countries observable in 2Q14). Income growth was negative in 5 out of the 11 countries observed in 2Q14. Compensation of employees increased on average in the EA, but taxes, net negative social benefits and still slightly negative property income and other transfers reduced growth in disposable income.



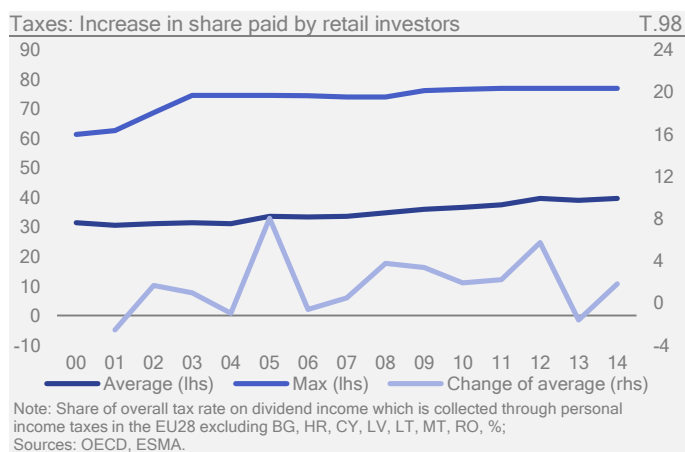
Asset growth: For the first time since 1Q12 the value of EA households' real assets increased slightly year-on-year in 2Q14. Households' real assets consist mainly of property, and their growth reflects an increase in house prices across Europe. Financial assets grew faster year-on-year in 2Q14 compared to the previous four quarters, at a solid 4.9%. However, part of this growth may be due to greater participation by households in higher-yield asset classes. With interest rates and insurance returns hardly changed over the past year and growth resulting mainly from the strong equity sector, this points to increased participation in securities markets by retail investors.



Financial assets and liabilities: EU households held EUR 29.7tn in financial assets and EUR 9.5tn in financial liabilities in 2Q14. For the first time, households' liabilities increased slightly year-on-year after 2 years of flat or negative growth. The average liabilities-assets ratio in the EU fell to 37% in 2Q14 from 40% in 4Q12. This was because, on average, households' aggregate liabilities grew more slowly than their financial assets. Banks' credit standards remain historically tight, even though they eased in 2Q14. In turn, household demand for loans was seen increasing well above historical averages in 2H14.

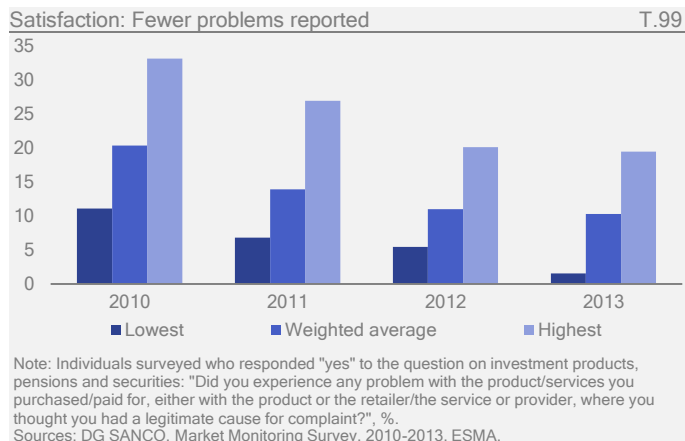


Financial asset growth: EU households' mutual fund and share assets grew 21% and 17% year-on-year in 2Q14. This was due to a combination of favourable market conditions and greater household participation. Households' holdings of debt securities rose 4% year-on-year in 2Q14, comparing favourably with 4Q13 (-7%). However, the average growth in debt securities held by EU households masks significant variation across EU countries. EU household deposits grew at a rate of 2% year-on-year.

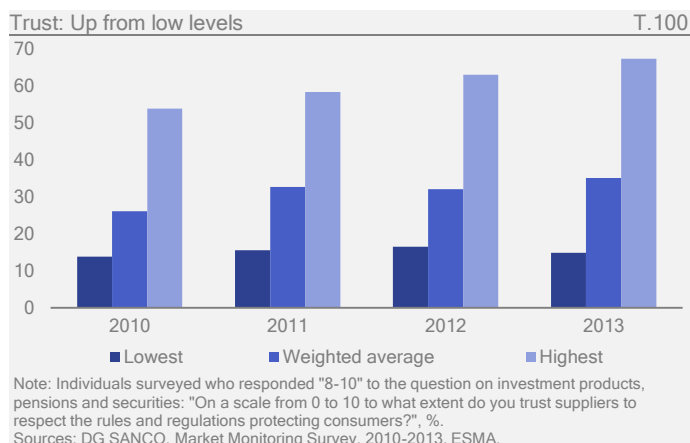


Asset ownership: Not surprisingly, participation in investment vehicles increases with age. Between the age of 16 and 34, on average 6.7% of EA households own shares, though dispersion across the EA is high: In SK participation is as low as 0.9%, in CY as high as 16.6% within that age group. Average participation peaks at age 55-64 with 13.3% of households owning shares. In BE, LU, NL, SI and FI the highest participation rate is recorded in the age group 65-74. The most popular and plausible explanation of increasing participation with age is rising income and wealth. Most countries exhibit hump-shaped development: Participation rises until retirement age and declines thereafter, as investors liquidate assets for spending during retirement. However, some countries exhibit W- or M-shaped development, indicating shocks or circumstances affecting whole age cohorts.

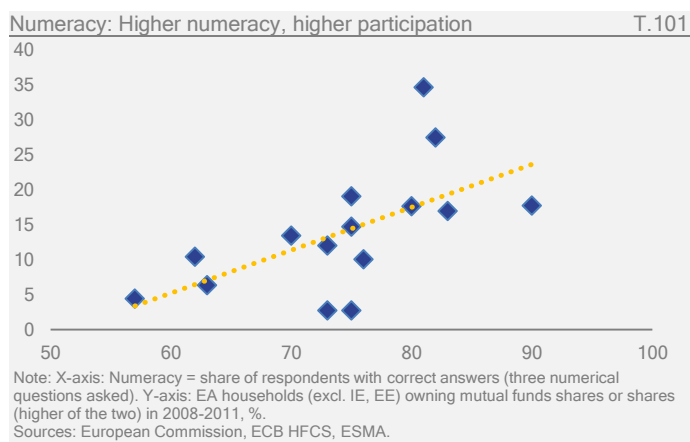
Taxes: The share of dividend taxes paid by retail investors averaged 40% in the EU in 2014, while that of corporates was 60%. In 2000 the share accounted for by retail investors was 31% and subsequently increased in almost all countries except HU and SK. The share is highest in IE (77%), followed by DK (56%) and the UK (53%). Those countries are among the EU members with a relatively high retail participation rate, which may explain the level. The average tax rate for retail investors worked out at 24% in 2014, up slightly from 21% in 2004. Overall, the higher share of dividend taxes paid by retail investors likely stems from a combination of higher retail participation rates and higher tax rates.



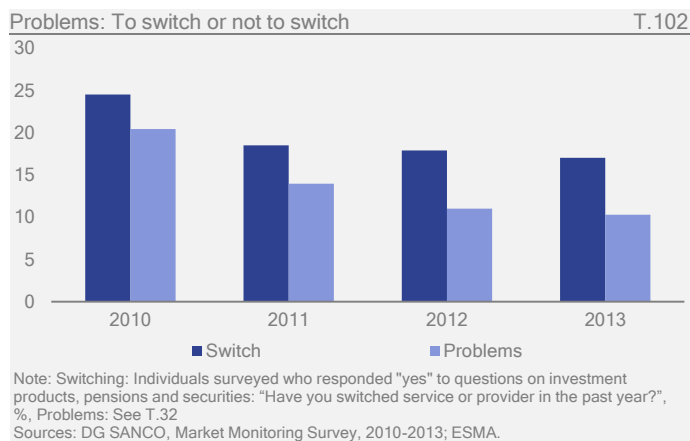
Satisfaction: The percentage of individuals dissatisfied with investment products or services in the EU27 decreased substantially between 2010 and 2013. While in 2010 20% of survey respondents said they had experienced a problem with an investment product or provider, this figure fell to 10% in 2013. The share of individuals experiencing problems was lowest in MT (1.5%) and highest in ES (19.5%), closely followed by HU (19.4%) and CY (19.3%) in 2013. The highest rates of improvement between 2010 and 2013 were recorded in MT, GR and LU. In ES and SI the proportion of individuals experiencing problems rose slightly during the same period. One explanation for the overall reduction in individuals' reporting problems could be a return to normal levels after the financial crisis.



Trust: Retail investor trust in EU financial services providers increased between 2010 and 2013. In 2010, 26% of individuals surveyed in the EU27 said they trusted investment services providers to respect consumer protection rules. In 2013, that number had increased to 35%. The range between the top and bottom values across MS also increased, but almost exclusively at the upper end: In 2010 the lowest and highest proportion of respondents trusting providers in a country was 14% and 54%. In 2013, those figures stood at 15% and 67%. The proportion of respondents experiencing problems was negatively correlated with the proportion of respondents trusting investment services providers.

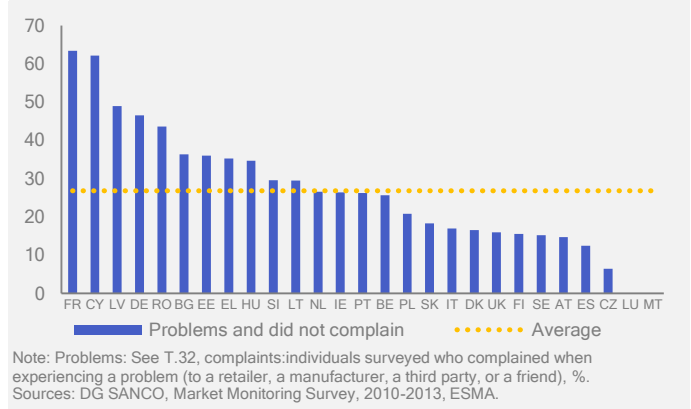


Numeracy: Where respondents exhibited higher numeracy, more households owned mutual funds or shares. Numeracy, the ability to reason and apply basic numerical concepts, is an essential ingredient for sound financial decision making. Approximately 45% of Europeans correctly answered basic arithmetic questions. Share or mutual fund ownership is particularly low in GR and SI compared to the level of numeracy and particularly high in CY and FI. However, participation in financial assets depends on other factors as well, including income, wealth and age. The effects of numeracy or financial literacy are difficult to isolate from other factors such as income, wealth and age effects. Nevertheless, there is evidence to suggest that early age numeracy is a good predictor of savings and wealth later in life.



Problems and switching: Experiencing problems with a product or provider seems to have an effect on whether individuals switch providers or not. However, figures covering the last four years indicate that problems are not the only reason for switching. While the number of individuals reporting problems fell by 50% between 2010 and 2013, switching rates only decreased by 30% over the same time period. In some MS switching rates even increased slightly while reported problems decreased. The range between the top and bottom switching rates across MS increased as well, but almost exclusively at the lower end: In 2010 the lowest and highest proportion of respondents in a country switching providers were 14% (MT) and 38% (SE). In 2013, those figures stood at 2% (MT) and 32% (SE).

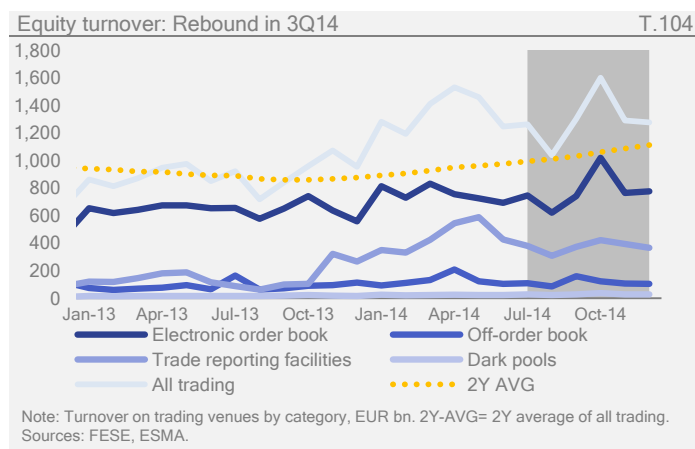
Complaints: 27% of individuals with problems do not complain T.103



Problems and complaints: In 2013 correlation between problems and complaints was positive, i.e. where investors had more problems they also complained more. However, many problems do not result in a complaint: On average 27% of all individuals reporting problems did not lodge a complaint. The range between top and bottom was high: In LU and MT all individuals who had problems complained about them in one way or another (complaining to family and friends also counted), while in FR 63% of individuals experiencing problems did not complain. One reason could be that the nature of the problems was not deemed sufficiently material to file a complaint. Other reasons could be that there are significant barriers to complaints in some MS, for example time and effort involved in lodging a complaint, complaint resolution times or the likelihood of success of a complaint.

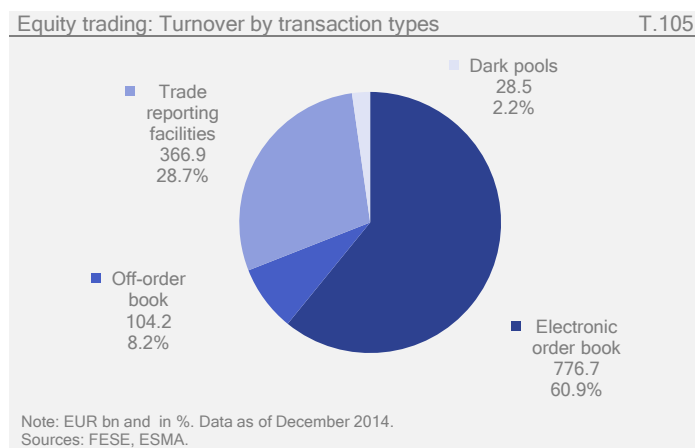
Market infrastructures

Trading venues



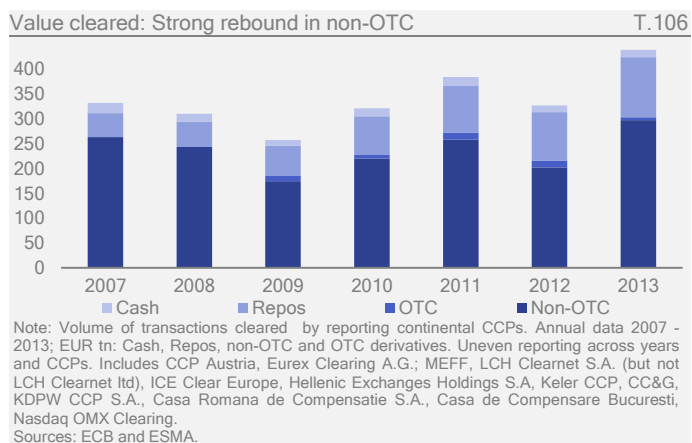
In 2H14, EU trading venue turnover rebounded, reaching an eight-year high by 3Q14 before settling back at end-2013 levels. This rebound occurred following a fall, from May through July, to the two-year average. While cyclical components appear to be an important factor driving volumes, an upward trend has established itself since end-2012. Most trading took place via electronic order book, and this was also the conduit of the changes in the level of trading during the reporting period.

Equity turnover: Trading activity rebounded strongly in 3Q14, easily surpassing the high reached in mid-2Q14. By end-2014, it had settled back to the levels recorded in June 2014 of just under EUR 1.3tn. The initial rebound followed a decline over the summer through July to the level of the two-year average. In October turnover volumes reached in excess of EUR 1.6tn, an eight-year high. The overall movement was dominated by a jump and subsequent decline in electronic order book trades. On the other hand, off-order book trading surrendered virtually all of its September gains. Trades via trade-reporting facilities increased slightly, remaining well below the high of May 2014, however. In percentage terms, dark pool trades increased significantly, but from a small base.



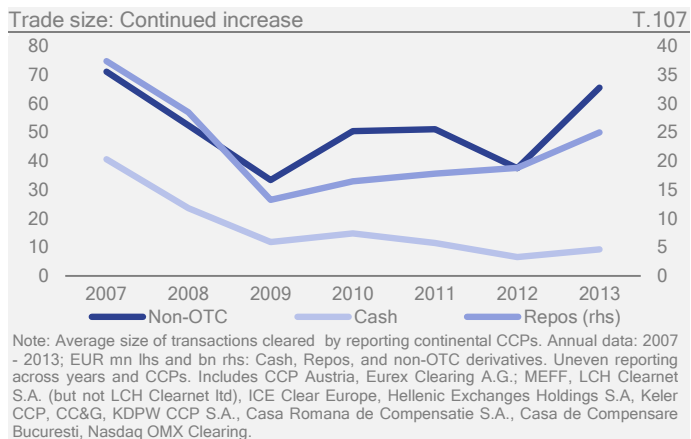
Transactions: In December 2014, 61% of equity trading was transacted through electronic order book. In October, the share had risen to nearly 64%, having dropped below 50% in April. Conversely, the share of trades via Trade Reporting Facilities continued to fall, dipping from over 40% in May to 29% in December. This followed a strong increase in this area from early-2013. Off-order book trading remained volatile, fluctuating between above 12% and below 8%. Trading in dark pools retained its small share of 2% of total turnover; the figure refers only to exchanges and some MTF-operated dark pools.

Central counterparties



In 2013 the cumulative value of trades cleared through continental EU CCPs increased, surpassing its 2011 high. Growth was led by non-OTC derivatives, underscoring the continued importance of this asset class through end-2013, which is dominated by IRS. Developments in 2H14 tempered this somewhat as the cumulative notional value of IRS continued to fall at a global level. Nevertheless the share of centrally cleared IRS started to climb again. For 2013, the average trade size of centrally cleared products grew across asset classes, with repos accelerating ahead of trend growth while non-OTC trade-size rebounded strongly and cash transactions grew marginally.

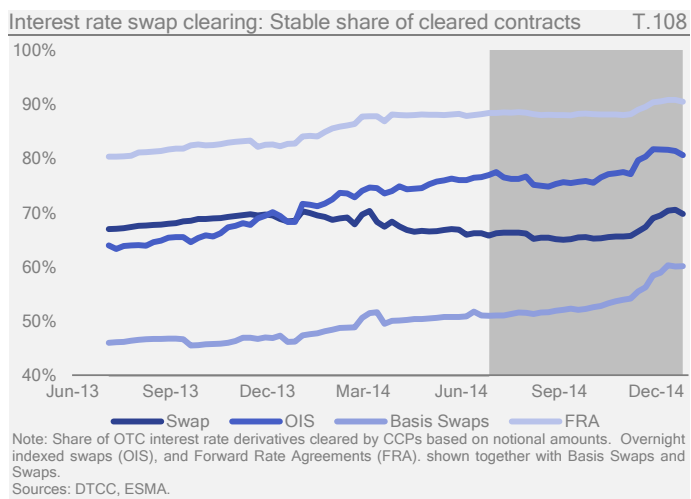
Value cleared: According to annual ECB data, the cumulative value of transactions cleared by Continental CCPs operating in the EU grew by over EUR 100tn in 2013, more



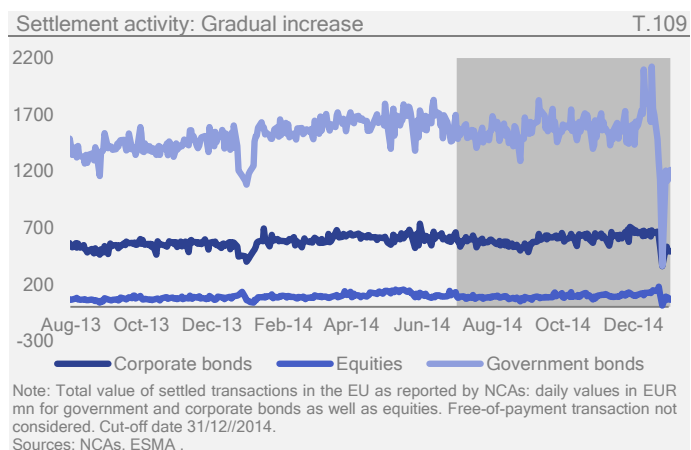
than offsetting the 2012 drop. The proportion of non-OTC derivatives, which constitute the largest part of values cleared, drove this rebound as their share recovered from 62% in 2012 to 68% in 2013. Meanwhile, the share of repos fell from nearly 30% to 27%, while that of cash products dropped marginally to just over three per cent.

Trade size: The average size of centrally cleared transactions grew across most asset classes. Repos – the asset class displaying by far the largest average transaction size – increased ahead of their recent trend. Non-OTC derivatives trade sizes also grew significantly, attaining levels not seen since 2007. The average size of cash trades remained small, however, although the trend decline was arrested.

Interest Rate Swap clearing: Overall IRS volumes reported in Depository Trust and Clearing Corporation’s Global Trade Repository grew by 9% to around USD 464tn gross notional through December 2014. Over the same period the share of centrally cleared IRS contracts increased by four percentage points to 65%, culminating in just over USD 300tn. Centrally cleared volumes surged in November and steadied in December. The biggest change was recorded in the Basis Swaps market, where the share of cleared contracts increased from 51% to over 60%. The share of OIS cleared remained volatile, but recovered initial losses to settle around 81%. Volumes of swaps cleared dropped initially before recovering to 70%. FRA volumes cleared centrally increased marginally to over 90%.

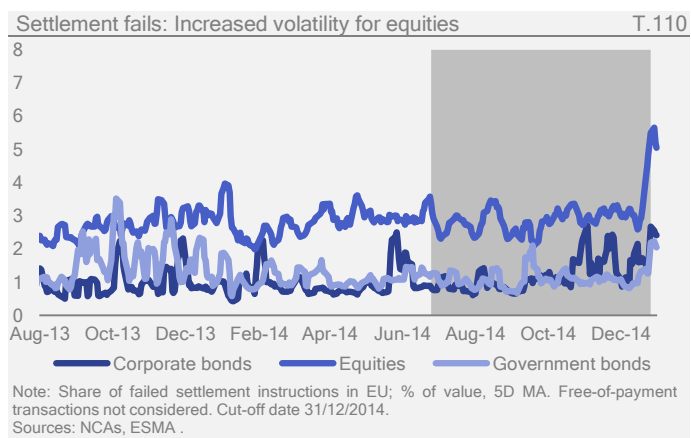


Central securities depositories

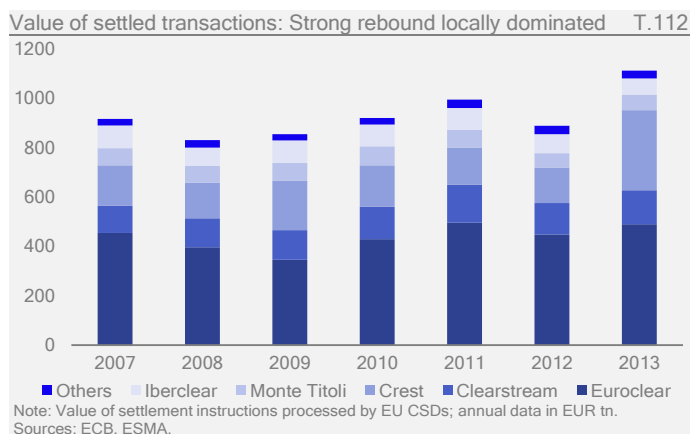
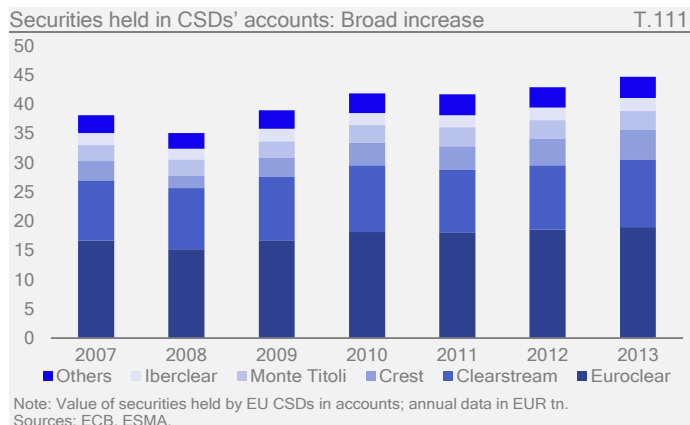


Over 2H14, EU settlement activity remained near end-1H14 levels after initially falling during the summer. End-of year volatility was relatively high in government bonds. The occurrence of settlement fails remained low, notwithstanding repeated spikes for government bonds. For corporate bonds, volatility and average level of settlement failures increased in 4Q14. End-December saw a general rise in fails across asset classes among lower liquidity at the Member State level.

Settled transactions: NCA-provided settlement data indicate that 2H14 activity developed flat relative to 1H14, with an initial decrease being compensated by a later rise. Across asset classes, punctuated troughs were registered end-August and early-October. End-December, there was elevated volatility linked to low liquidity and probably on seasonal grounds. The largest volatility in settlement activity was exhibited by government bonds, while corporate bond settlement developed more flatly and calmly. Settlement activity related to equities increased substantially through mid-December, before regressing.



Settlement fails: Overall, the occurrence and volatility of settlement fails across MS increased over the reporting period. Fails were reported most frequently in equities, with significant spikes occurring early-2H14, end-August and finally end-October. In the government bond market there were large spikes end-September and end-December. Otherwise, fails for government bonds remained at the

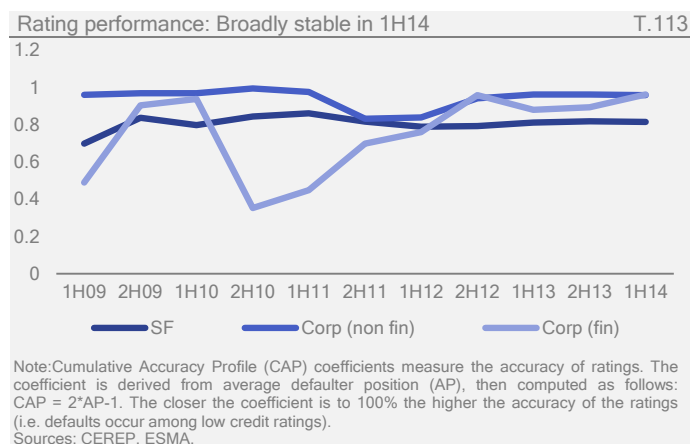


relatively low levels of 1H14. Initially, fails of corporate bonds reverted back to the low levels seen early 1H14. From end-October on, however, volatility increased substantially, with spikes observed repeatedly in both November and December. This was largely due to fails in one MS amid low volumes. Size and frequency of settlement fails can provide information about market volatility, discipline, and liquidity.

Securities held in CSDs' accounts: The value of securities held in custodial accounts by CSDs increased by roughly EUR 1.8tn to just under EUR 45tn in 2013. This represented a continued upward trend established following the marked contraction in 2008, which paused briefly in 2011. While the relative shares did not change, there was some concentration in major economic and financial centres, even as some smaller players showed considerable dynamism.

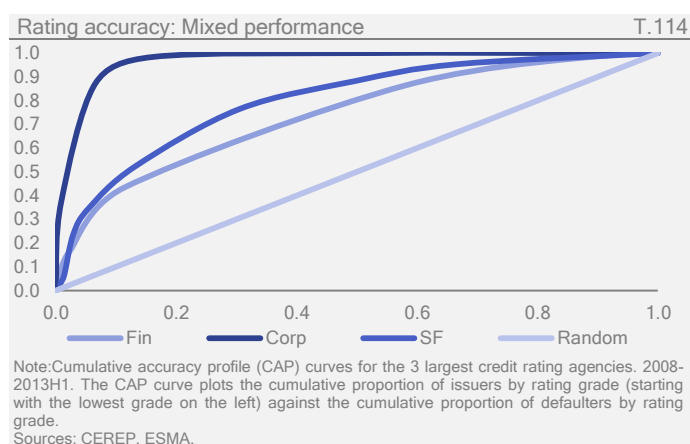
Value of settled transactions: In 2013, the value of settlement instructions processed by CSDs in the EU rose by around 200tn and exceeded EUR 1,000 tn. This re-established the prevailing trend rise since 2009 that was broken by the 2012 drop. In terms of relative shares, the two largest CSDs concentrate around 75% of transactions, measured in value. The value of transactions processed in a large MS with a large financial sector marked the greatest gains, with its market share nearly doubling. Meanwhile, the value of transactions in two large and vulnerable MS continued to decline. As with the value, the number of annual transactions settled by EU CSDs increased in 2013. A rise of over 20m transactions was recorded, leaving over 350m transactions settled in the EU.

Credit rating agencies



Both the accuracy ratio (AR) and the cumulative accuracy profile (CAP) measures of operating efficiency indicate a relatively solid rating performance. Rating performance for financials converged towards the strong performance of non-financial corporate (NFC) ratings, while structured finance (SF) ratings remained stable at slightly lower levels.

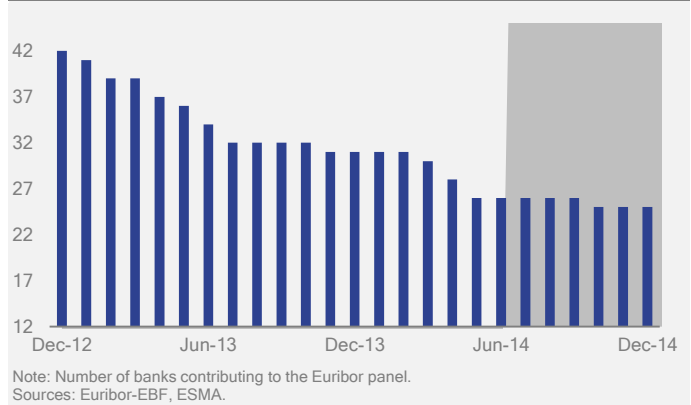
Rating performance: Overall, rating performance was solid in 1H14, with the AR above 80% for all three asset classes. For the first time since 2H12 the AR of financials was higher than that of non-financial corporates. The AR of financials and non-financials now stands at 96.2% and 95.6%, respectively. SF remained the relatively poorest performer with an AR of 81.4%. Taking a five-year horizon for the AR and also the CAP curve, the heterogeneity between respective asset classes is even more marked – non-financial corporates clearly outpace financial and SF ratings. The difference between the respective asset classes has, however, been narrowing as years with a higher incidence of defaults in higher rating classes slowly exit the sample.



Rating accuracy: The shape of the CAP curve and the value of the AR depend on the relative incidence of defaults on the rating scale. The higher the rating in which the defaults occur (e.g. AAA, AA) the closer the CAP curve is to the random curve and the lower the AR. The shape of the financials CAP curve has been impacted largely by defaults in AA and A categories, while the shape of the SF rating CAP curve has been influenced by defaults occurring across the rating scale.

Financial benchmarks

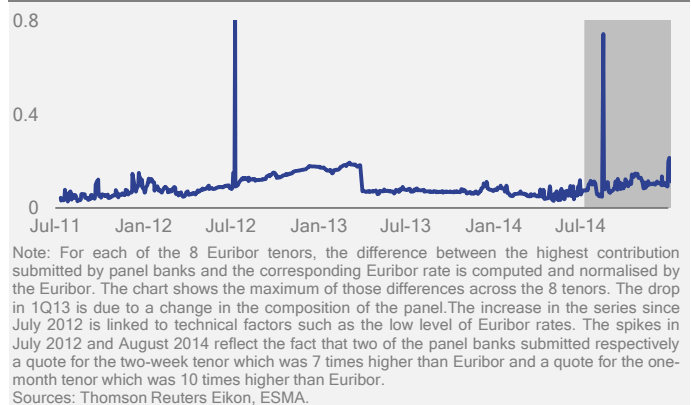
Euribor panel: Broadly stable T.115



The continuity of financial benchmarks in the EU remained a key concern in 2H14. Withdrawals by submitting banks from the interbank offered rate panel declined, as administrators of key interest reference rates have made significant progress in enhancing the governance, quality, methodology and accountability of their benchmarks. The IOSCO published a review of implementation of the IOSCO Principles for Financial Benchmarks for foreign exchange rates, and the Financial Stability Board released a report on foreign exchange benchmarks. Benchmark reforms are still ongoing, along with the conduct of reviews aimed at informing the regulators on the risks posed by benchmarks.

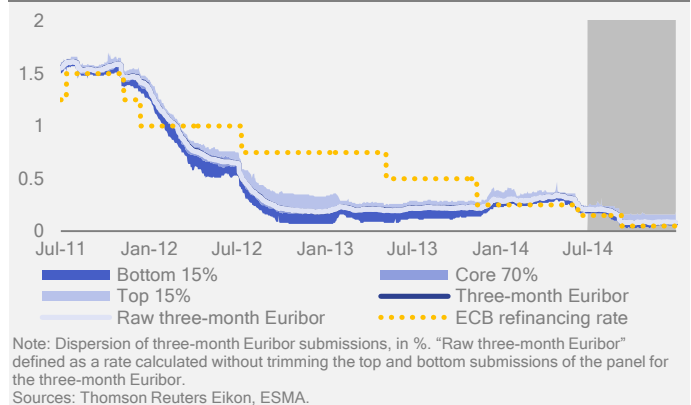
Benchmark continuity: The continuity of key financial benchmarks in the EU remained a major concern in 2H14, as a benchmark panel bank decided to discontinue its contribution to Euribor during the reporting period. The number of contributors to the Euribor panel dropped from 26 to 25 banks. Reforms continued with the implementation of enhanced principles for panel banks through which the administrator seeks to ensure a minimum level of quality and reliability for individual contributions to the benchmark. Following continued panel deterioration, the administrator announced discontinuation of the less widely used Eurepo index as of 2 January 2015.

Euribor contributions: Dispersion measure more volatile T.116



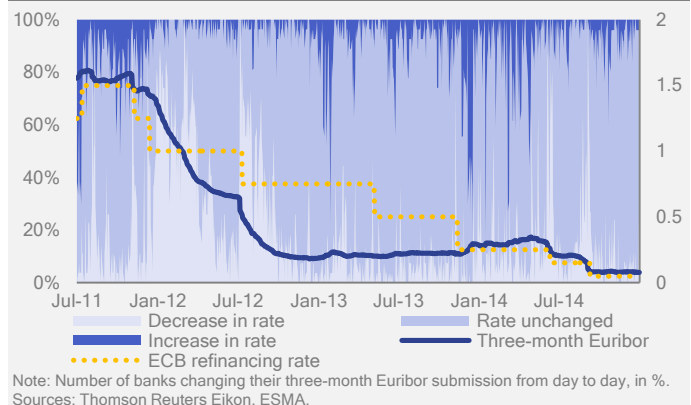
Quality of contributions: Dispersion of submitted quotes has increased since July 2014. Potential explanations are the fall in the level of the inter-bank offered rates and increased volatility in money markets in latter months. The recent increase in the volatility of dispersion during the reporting period is due to higher levels of spreads in the panel banks' contributions to the one-week and two-week tenors. While most banks were reporting negative rates, a few continued reporting positive figures, further increasing the dispersion. Enhanced governance and submission rules at administrator and panel bank level offer some assurance that the quality and reliability of contributions has nevertheless improved. The submission of an erroneous price by one bank during the reporting period demonstrates the urgent need to improve quality, controls of administrators and submitters, as required by ESMA and IOSCO principles.

Dispersion in submission levels: Stable through 2H14 T.117

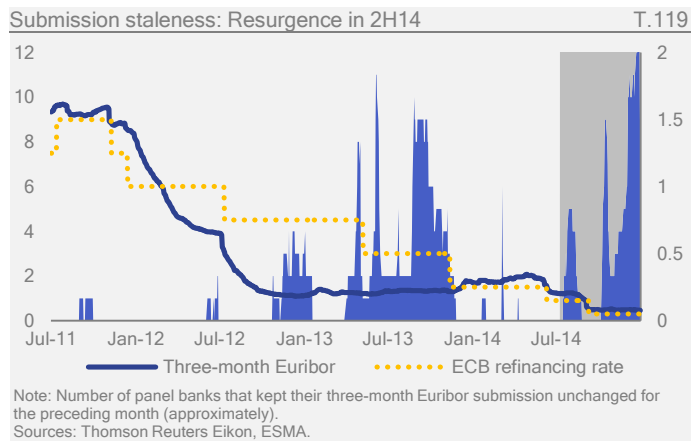


Dispersion of submission levels: Dispersion of submitted rates for the three-month tenor remained stable in 2H14 among panel banks, with a slight increase towards the end of the reporting period. Reported dispersion had fallen markedly by the second half of 2013, both at the high and low end of the distribution, and remained muted. For the calculation of Euribor, the calculation agent eliminates the top and bottom 15% of submitted rates in order to exclude outliers from the final calculation. This process is meant to prevent any individual panel contributor from influencing the calculation and affecting the Euribor. The gap between the actual Euribor and the non-trimmed average rate for the three-month tenor has narrowed continuously since 2H12. Low volatility in the underlying rates tends to reduce the dispersion in individual quote submissions and hence the gap between Euribor and its non-trimmed counterfactual.

Variation in daily changes: Fewer rate changes T.118



Variation in daily changes: During 2H14, an average of 82% of banks decided to keep to their previous day's submission, while 6% decided to raise their quote and 12%



chose to lower it. This compares with 1H14 figures of 70% of banks not changing their submitted quotes, 13% increasing and 17% reducing them. Overall, the reporting of lower rates from day to day in August 2014 translated into a marked drop in the levels of the three-month Euribor in 2H14.

Stale reporting: Following high levels of stale reporting throughout 2H13 and very low levels during 1H14, the phenomenon resurfaced in 2H14. At the end of the reporting period staleness increased markedly with more than 10 banks reporting the same rate for a month. Stale reporting can signal a lack in the responsiveness of submitted quotes to market movements. In the previous low volatility environment it was also due to banks adhering to their previous judgment of the level of rates over a number of days.

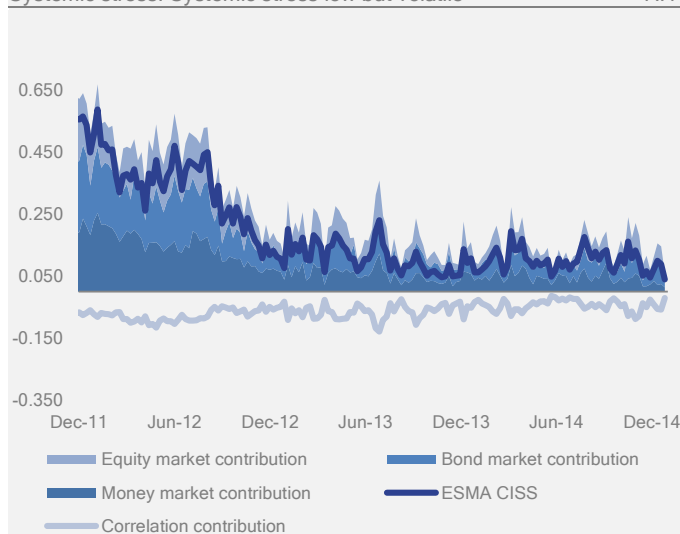
Trends

Risks

Vulnerabilities

ESMA Risk Dashboard

Systemic stress: Systemic stress low but volatile R.1



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.

In 4Q14, EU systemic stress increased slightly, showing higher volatility than in the previous period. Contagion risk remained broadly stable at sustained levels. Liquidity and market risk held persistently high levels, with market risk partially materialising in the reporting period. The release of lower-than-expected macroeconomic data at the beginning of 4Q14 was followed by significant price swings and increased volatility in both EU and US markets. Increasing risk perception raised the pressure on market liquidity in the EU. Credit risk is high but may ease in the near future as major steps to ensure and increase soundness and stability in the banking system were taken in 2014 with the AQR and stress test exercise.

Systemic stress: Following its 3Q14 increase, systemic stress displayed higher volatility than in the previous reporting period, though remaining at relatively low levels, in line with continued monetary support. The rise in volatility was due mainly to equity markets first falling in October and then recovering at the end of the year. At the beginning of the quarter increased implied volatilities, the downturn in equity prices and lower P/E ratios signalled that valuation concerns were beginning to materialise in the markets, although they continued to fluctuate over the quarter. In fixed income markets prices remained high, even if they did differ more across asset classes, while risk premia were low, pointing to persistent valuation risks. The higher implied fixed income volatilities suggest that the potential for market corrections is high. Drivers possibly include weaker-than-expected economic recovery, persisting downside influences including geopolitical tensions, local pockets of stress in debt markets, expectations of divergent monetary policies, commodity price and exchange rate dynamics, and the increasing emergence of vulnerabilities in market functioning.

Main risks: Sources R.2

	Change since 3Q14
Economic environment	
Macroeconomic conditions	➔
Interest-rate environment	➔
Sovereign-bank nexus	➔
Securities markets conditions	
Risks in EU sovereign debt markets	➔
Market clustering	➔
Funding risk	➔
Valuation risk	➔
Market functioning	➔

Note: Assessment of main risk sources under ESMA's remit: change since the last assessment. Upward arrows indicate an increase in the contribution to risks, downward arrows indicate a decrease in the contribution to risks.

Economic environment

Macroeconomic conditions: The release of lower-than-expected macroeconomic data at the beginning of 4Q14 was followed by significant price swings and increases in volatility in both EU and US markets. The persisting economic weakness and low inflation outlook in EU, uncertainty over the commitment to further structural reforms by some Member States and subdued global economic growth have raised concerns in financial markets, with valuations in riskier assets softening while increasing for safer assets. External risk factors stemming from emerging markets, including Russia, Ukraine and China, further complicated the macroeconomic context for markets. Yet in November, better-than-expected performance statistics released on the two largest EU economies contributed to a recovery in EU financial markets.

Main risks: Categories R.3

Risk category	Risk level	Change since 3Q14	Outlook for 1Q15
Liquidity risk	●	➔	➔
Market risk	●	➔	➔
Contagion risk	●	➔	➔
Credit risk	●	➔	➔

Note: Assessment of main risk categories for markets under ESMA's remit since last quarter and outlook for the following quarter. Risk Heat Map measures current risk intensity. Upward arrows indicate a risk increase; downward arrows indicate a risk decrease. Risk assessment based on categorisation of ESMA Risk Heat Map.
● green=low, ● yellow=moderate, ● orange=high, ● red=very high.

Interest-rate environment: Monetary policy support remained strong, as interest rates persisted at record lows, having crossed the zero bound, and the ECB decided on additional measures to bolster credit, namely TLTRO, ABS and covered bond purchases by the central bank. Within the sustained low-interest rate environment there were signs of search-for-yield behaviour slowing amid a revived appetite for safer assets, and yield compression in government and corporate bond markets came to a halt. This is potentially associated with heightened uncertainty surrounding the future economic outlook and interest rate expectations across major economic areas.

Main risks: Summary assessment R.4

Risk category	Summary
Liquidity risk	Intensified pressures on market liquidity were observed in 4Q14, with growing risk perception a significant driver. Even if liquidity was still ample, signs of augmented market stress were observed, especially at shorter maturities. Increased equity and bond price fluctuations were evident, with greater divergence across countries, related to recent economic developments as well as uncertainty surrounding national reforms. Implied interest rate volatility remained high, confirming mounting uncertainties regarding future macroeconomic risks and the effectiveness of policy measures. These cyclical changes were accompanied by growing market concerns over a structural deterioration in market liquidity.
Market risk	Market risk partially materialised in 4Q14. Heightened market uncertainty was reflected in volatile stock market performance and increased dispersion in corporate bond spreads, with spreads for higher-rated bonds narrowing while those for lower-rated bonds partially increased. Aggregate equity PE ratios fell further below their long-term average, as stock valuations in the EU largely fluctuated in 4Q14. Heightened risk perceptions, especially for short-term maturities, as observed in increased implied volatilities, may explain the divergence in yields across rating classes, indicating a revival in demand for safer assets. As in previous quarters, high-yield issuance remained subdued in 4Q14 and continued to shrink, as concerns regarding EU and global growth perspectives grew. Market outflows continued in US and global markets focused on bond funds as well as in EU equity funds.
Contagion risk	In 4Q14, contagion risk remained broadly stable at high levels, with several countries facing increasing sovereign bond spreads. Improvements for some vulnerable countries were reflected in declining CDS exposures. However, a few larger sovereigns saw their exposure increase, indicating an increase in demand for insurance against default risk. Dispersion in sovereign bond markets rose, mirroring risk repricing in the light of the current macroeconomic uncertainty. Conversely, corporate-sovereign bond yield correlations remained stable at high levels, signalling low dispersion within countries.
Credit risk	Credit risk remained high in 4Q14 but may start to recede. Major steps to ensure and reinforce soundness and stability in the banking system were taken during 2014. These include the AQR and stress test exercise in the banking sector and the launch of SSM in November 2014. Net sovereign debt issuance declined in most countries, due partly to seasonality, but increased in two large economies. More activity is seen in the MBS segment, driven mainly by one big economy. Debt maturity remained broadly constant across sectors, with a reduction observed in the industrial sector in peripheral countries and in the banking sector in both peripheral and core countries. Developments in redemption profiles were varied, increasing in the short to medium term for banks while decreasing for financials.
Note: Qualitative summary of assessment of main risk categories in markets under ESMA's remit.	

Market functioning: Risk summary R.5

Risk	Summary
Benchmarks	Investigations into potential benchmark manipulations continued. They extended to foreign exchange fixing, oil and precious metal indices. In 4Q14, the European Parliament continued its work on amendments to the benchmark rules in response to the manipulation of interest rate benchmarks. The continuity of interest rate benchmarks remains a concern: one bank left the Euribor panel, which remained roughly stable at 25 banks. IOSCO published a review of the implementation of the IOSCO Principles for Financial Benchmarks for foreign exchange rates alongside a FSB report on foreign exchange benchmarks.
Market infra-structures	No major events threatening operational stability have been observed so far in 4Q14 in the EU. The market structure continued to evolve, partly in response to regulation. Risks are carefully monitored, including with respect to interest rate volatility and potential resultant liquidity constraints and collateral scarcity. Scrutiny on cyber security, jointly from supervisors and the industry, has been intensified, as cyber attacks are becoming one of the principal concerns for the financial services industry.
Conduct risks	Risks stemming from inappropriate business conduct and business practices are growing, as evidenced by more frequent fines, increases in redress costs and growing regulatory awareness. In November six major banks were fined a total of USD 4.3bn over their role in foreign exchange rate manipulation.
Note: Qualitative summary of assessment of main risks to the functioning of markets under ESMA's remit.	

Sovereign-bank nexus: The AQR and stress-test results were published in 4Q14. The EBA EU-wide stress test saw 24 banks out of 123 falling below the required capital thresholds, with a total capital shortfall of EUR 24.6bn. During 2014, important actions were taken on capital, reducing capital requirements to EUR 9.5bn and the number of banks with a shortfall to 14. The Joint Supervisors Team will supervise plans to address the capital shortfalls identified. Major steps were thus taken in 2014 in the banking sector to ensure and increase soundness and stability in the system and reduce the risks of spill-overs from the real economy and sovereigns to the banks.

Conditions in securities markets

Risks in EU sovereign debt markets: The recent negative economic news and mounting uncertainty concerning the effectiveness of policy measures depressed market confidence and was reflected in increased yields and higher variability, particularly in some more vulnerable economies. Pricing of risk remained low, as reflected by the still relatively high sovereign bond valuation, although this became increasingly volatile and fluctuated sharply, especially for two more vulnerable countries, signalling increasing market uncertainty.

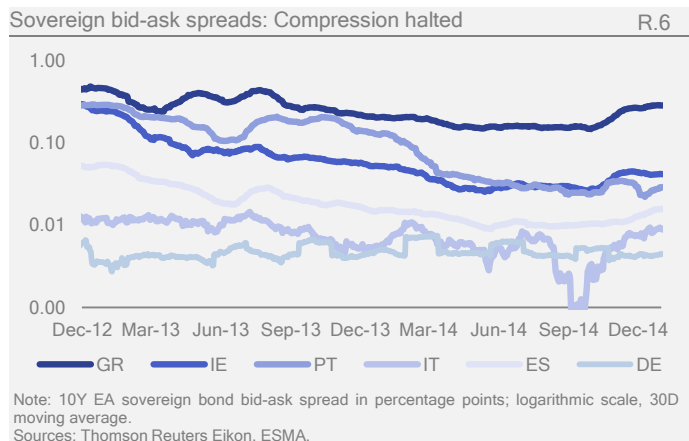
Market clustering: Bond yield correlation between sovereigns and corporates in the same jurisdiction continued to be broadly stable at high levels. Correlation among sovereigns declined a little, especially for some weaker economies, within a higher-dispersion context.

Funding risk: Short-term funding requirements appear to have fallen across sectors (cf. R.21), with maturities remaining broadly constant. The important supervisory changes characterising the banking sector could improve the stability and soundness of the system. It should be noted, however, that liquidity risks may arise from country-specific differences, potential market imbalances and reduced incentives for market-makers in providing liquidity.

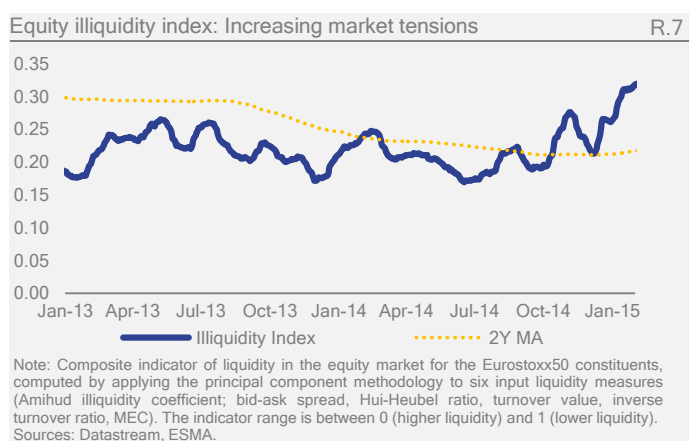
Valuation risk: Low interest rates persisted in the EU, with yields lingering at very low levels. However, risk perception increased. Potential drivers include increasing concerns surrounding economic growth and the risk of low inflation in EU as well as increased global uncertainty – uncertainty over US future monetary policy stance, worsened global economic outlook, low oil price and more volatile exchange rate dynamics. The sudden stock and bond price swings observed at the beginning of 4Q14 seemed to reflect a materialisation of market risk, expected to remain high in the light of persistent uncertainty regarding economic fundamentals.

Market functioning: Issues around financial market abuse, including benchmark manipulation and conduct risk, continued to be a concern. Important steps have been taken across jurisdictions to reduce vulnerabilities in market functioning and restore confidence and trust in the market. Moves include increasing transparency and putting in place supervisory practices and tools to better assess and identify conduct risk and risks affecting market structure, including benchmark manipulation and predatory trading strategies. For a more detailed summary risk assessment see textbox R.5.

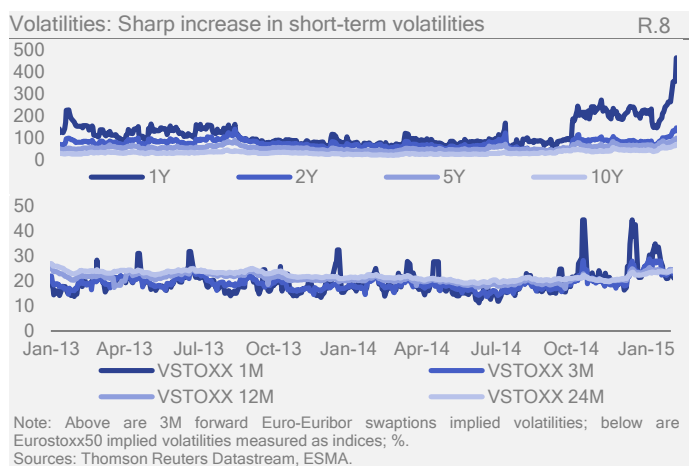
Liquidity risk



Intensified pressures on market liquidity were observed in 4Q14, with increasing risk perception acting as a significant driver. Even if liquidity did remain ample, signs of augmented market stress surfaced, especially at shorter maturities. Increased equity and bond price fluctuations were observed, with greater divergence across countries, related to more recent economic developments and uncertainty surrounding national reforms. Implied interest rate volatility remained high, confirming mounting uncertainties regarding future macroeconomic risks and the effectiveness of policy measures. These cyclical changes were accompanied by growing market concerns over structural deterioration in market liquidity.

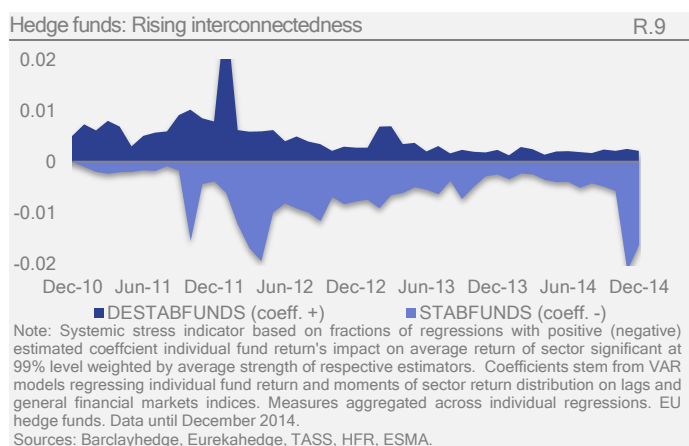


Sovereign bond bid-ask spreads: In 4Q14, the narrowing in bid-ask spreads came to an end, particularly for more vulnerable countries. Lingering market uncertainty and heightened risk perception negatively affected market confidence and resulted in wider fluctuations, especially in one more vulnerable country, while holding generally stable for core economies. Even though the more recent monetary policy measures continued to support liquidity, divergence in liquidity conditions across countries persisted. This may reflect increasing market attention to country-specific differences related in particular to the on-going uncertainty surrounding the latest economic developments and the effectiveness of national reforms. Thin liquidity is also of growing concern, as structural market changes may have modified costs and incentives for market makers in the provision of liquidity services.



Equity illiquidity index: Tensions in equity markets during 4Q14 were reflected in fluctuations in the equity illiquidity index which, after easing briefly end-November, rose again in December. The liquidity components driving this increase were those that measure the width and depth of market liquidity, namely the bid-ask spread and Hui-Heubel liquidity ratio, and the Amihud price impact measure associated with stock price and volatility movements.

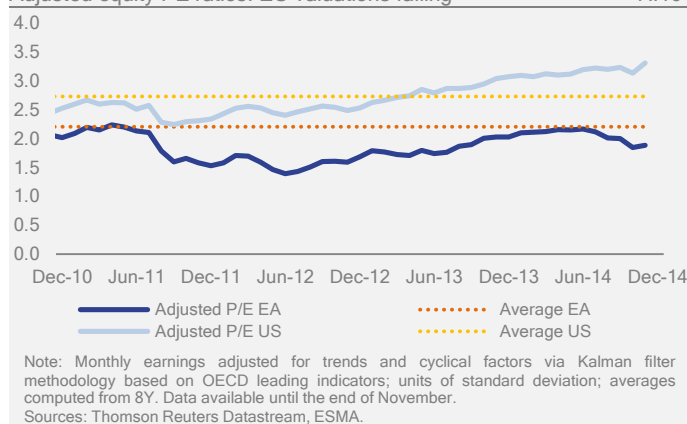
Volatility: Implied interest rate volatility at short maturities continued to increase, followed by abrupt movements in the equity market, as VSTOXX1M jumped to record highs. Such developments mirror a broad increase in market uncertainty and tensions across market segments, as observed in sudden price swings in both equity and bond prices as well as recent oil prices and exchange rate dynamics. The current high implied volatilities of interest rates at short horizons can be explained by the combined effect of different forces, including a low interest rate environment causing even slight changes in prices to have a huge impact on volatility, and rising concerns over the near-term economic outlook, along with commodity prices and exchange rate dynamics, as well as inflation dynamics, particularly in the EU.



Hedge funds: In 2H14 rising interconnectivity within the hedge fund sector, albeit starting from a moderate level, called for cautious monitoring. Intra-sectoral contagion risks heightened. The degree to which funds followed sector trends fluctuated along a declining trend, while funds hedged against sector trends remained well insulated. The unusual negative impact of individual fund profitability on inter-sectoral return dispersion observed since late 2013 remained present, implying some form of risk hedging by hedge funds. This coincided with a strong increase in observed market volatility.

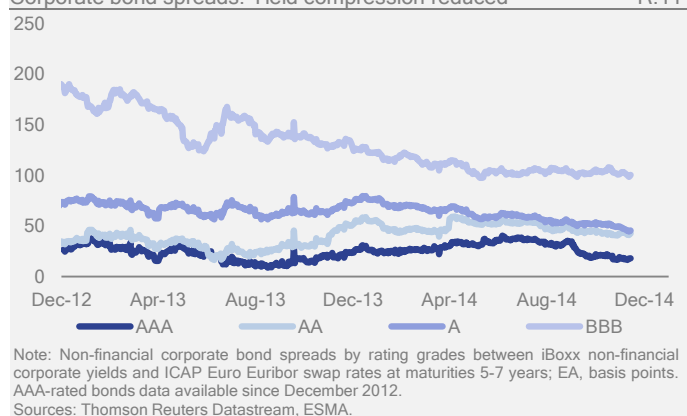
Market risk

Adjusted equity PE ratios: EU valuations falling R.10



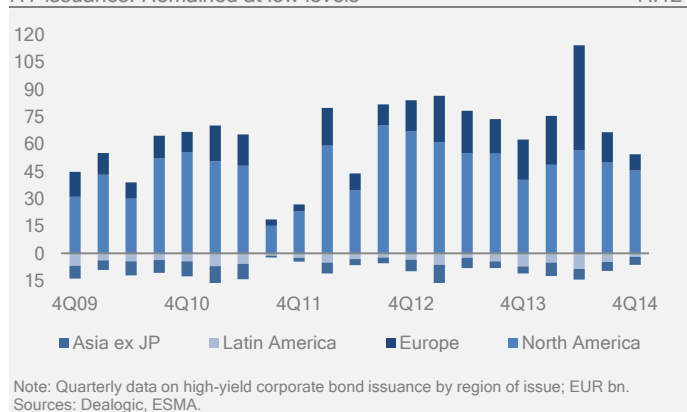
Market risk partially materialised in 4Q14. Increased market uncertainty was reflected in volatile stock market performance and in greater dispersion in corporate bond spreads, with spreads for higher-rated bonds narrowing while some of those for lower-rated bonds increased. Aggregate equity PE ratios dipped further below their long-term average, as stock valuations in the EU largely fluctuated in 4Q14. Heightened risk perceptions, especially for short-term maturities, as observed in increased implied volatilities, may explain the divergence in yields across rating classes, indicating revived demand for safer assets. As in previous quarters, high-yield issuance remained subdued in 4Q14 and continued to decrease as concerns regarding EU and global growth perspectives grew. Market outflows continued in US and global markets-focused bond funds as well as in EU equity funds.

Corporate bond spreads: Yield compression reduced R.11



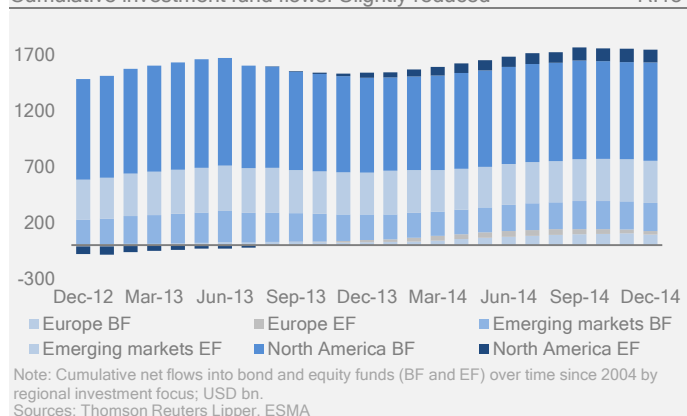
Adjusted equity PE ratios: The reduction in PE ratios in the EA already seen at the end of the previous quarter continued as equity prices largely fluctuated in 4Q14. Stock market performance was weak across countries in October, with stronger economies also experiencing significant declines in price valuations, but then recovered later on in the quarter. Noteworthy is the subdued performance across different commodity markets since the first half of the year, as reflected in the poor performance of composite commodity indices, and related currency dynamics. Concerns about persisting economic weakness and the low inflation outlook in the EU as well as subdued global economic growth seem to have partially materialised, impacting market confidence and pushing volatility upwards.

HY issuance: Remained at low levels R.12



Corporate bond spreads: In 4Q14, yield compression in corporate bonds was reduced. Spreads for higher rated bonds narrowed and lower rated bond spreads marginally widened. This reversal had already begun at the end of 3Q14, reflecting intensified uncertainty and heightened risk perceptions among investors. While investors continued to look for profitable opportunities in a persistently low interest environment, the recent weaker macroeconomic growth prospects together with deflationary concerns may have increased the appetite for low-risk investment opportunities and safer assets.

Cumulative investment fund flows: Slightly reduced R.13

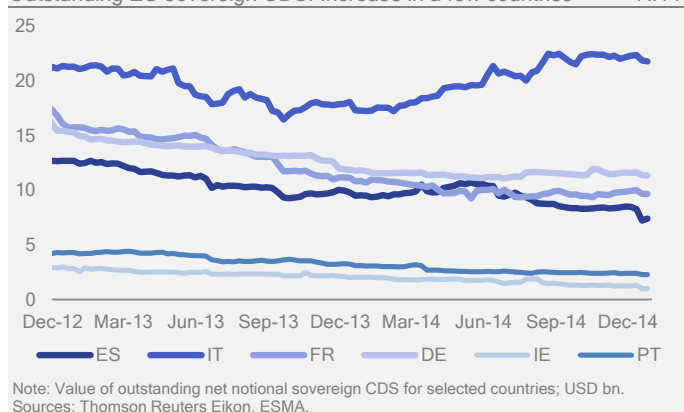


High-yield corporate bond issuance: High-yield corporate bond issuance in the EU, already low in 3Q14, declined further. High-yield debt issuance in the EU fell by 60% in 4Q14 compared to 4Q13. Even more significant is the drop in issuance in Latin America (-73%). A drop of this magnitude would seem to confirm higher risk sensitivity across markets. By way of contrast, in the US the level of High-yield issuance was broadly in line with same period of 2013.

Investment fund flows: In 4Q14, negative flows of EUR -11.3bn and EUR -3bn respectively were observed for bond and equity funds focused on EU. A similar trend was also apparent for funds concentrated on EM (EUR -3bn and EUR -6bn respectively). This may mirror the increased risk sensitivity and intensified investor concerns regarding the macroeconomic outlook in both the EU and globally. Conversely, positive fund flows were registered for US bond-focused funds (EUR 10.8bn).

Contagion risk

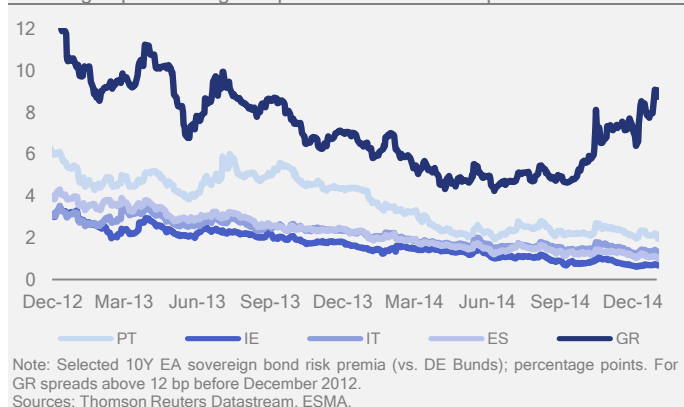
Outstanding EU sovereign CDS: Increase in a few countries R.14



In 4Q14, contagion risk remained broadly stable at high levels, with several countries facing increasing sovereign bond spreads. Improvements for some vulnerable countries were reflected in declining CDS exposures. A few larger sovereigns, however, saw their exposure increase, indicating an increase in demand for insurance against default risk. Dispersion in sovereign bond markets rose, mirroring risk repricing in view of the current macroeconomic uncertainty. Conversely, the corporate-sovereign bond yield correlations remained stable at high levels, signalling low dispersion within countries.

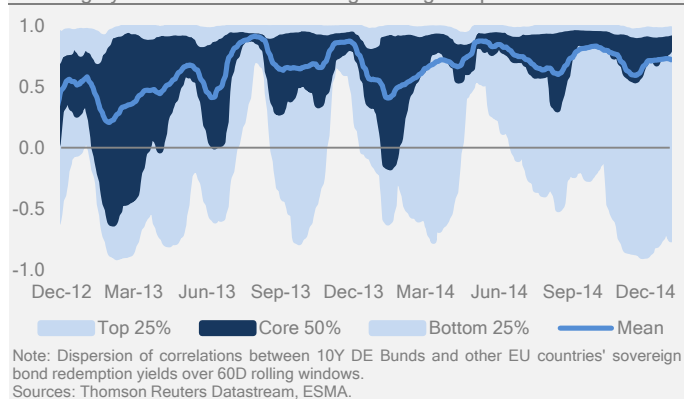
Outstanding EU sovereign CDS: Net volumes held stable or decreased for most member states in 4Q14, with the exception of one large country, probably in association with the continued negative economic outlook and increasing concerns over the commitment to additional structural reforms. This was also reflected in increased CDS spreads. Such movements should be closely monitored in an environment of increasing uncertainty and declining market confidence.

Sovereign spreads: Higher spreads and lower compression R.15



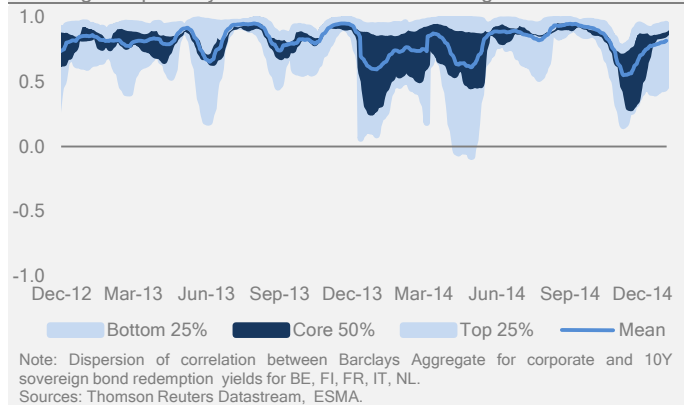
Sovereign spreads: Spreads of several vulnerable EU sovereigns' 10Y bonds relative to Bunds widened at the start of 4Q14, mirroring greater apprehension in the market, which was also borne out by increased volatility in market valuations. This was particularly marked in the case of one vulnerable sovereign, which saw significant increases in both spreads and volatilities at the beginning of the current quarter. Yield compression seems to have come to a halt, indicating that increased uncertainty and risk repricing are prompting investors to seek safer investment opportunities.

Sovereign yield correlation: Declining and high dispersion R.16



Sovereign yield correlation: Sovereign bond yield correlations fluctuated in 4Q14, remaining positive but declining and, indeed, reaching negative territory in two weaker countries that drove dispersion in the bottom 25% of the distribution. Differences like this reflected increasing variance in sovereign bond yields and risk repricing. Possible drivers include the weaker macroeconomic outlook in both the EU and globally, and recent increases in perceived risks for some Member States, particularly with regard to their commitment to pursuing national structural reforms.

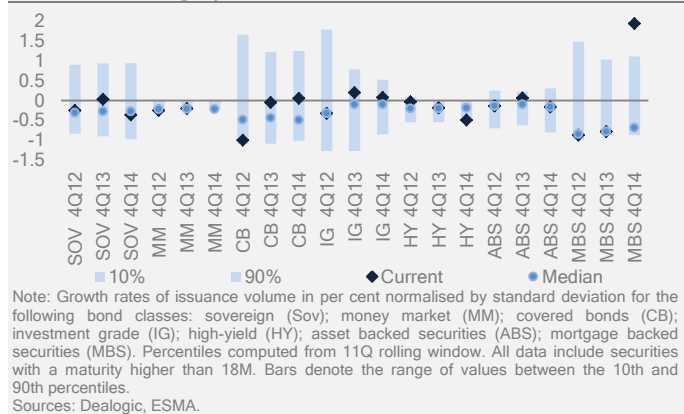
Sovereign-corporate yield correlation: Stable on high levels R.17



Sovereign-corporate yield correlation: In 4Q14, correlation between corporate bond yields and sovereign yields of the respective jurisdictions remained stable at high levels, with reduced fluctuation among the top 25% of the distribution. Although lower among the bottom 25% driven by two large countries, correlation remained largely positive. However, fluctuations were relatively more subdued compared to the end of 3Q14. As already observed in previous quarters, national differences between corporate and sovereign bond segments remained in check, probably reflecting existing fragmentation along geographical lines but not within countries.

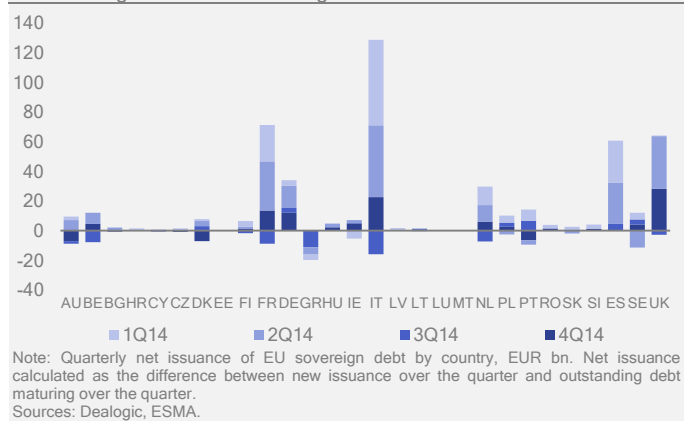
Credit risk

Debt issuance: Slightly lower R.18



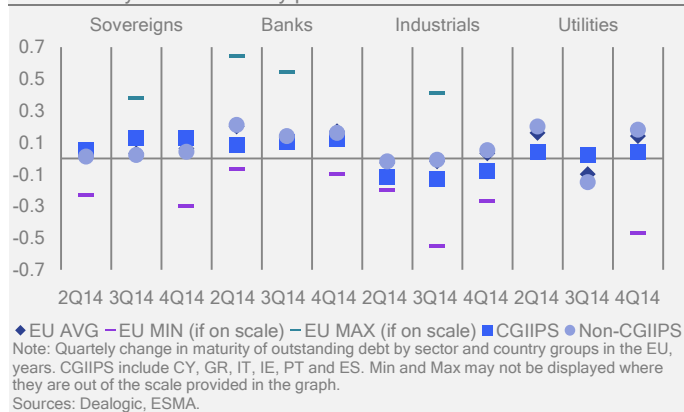
Credit risk remained at high levels in 4Q14 but may start to recede. Major steps to ensure and enhance soundness and stability in the banking system were taken during 2014. These include the AQR and stress test exercise in the banking sector. Net sovereign debt issuance declined in most countries, partly due to seasonality, but increased in two large economies. More activity is seen in the MBS segment, driven mainly by one big economy. Debt maturity remained broadly constant across sectors, with a reduction observed in the industrial sector for peripheral countries and in the banking sector in both peripheral and core countries. Developments in redemption profiles were varied, increasing in the short to medium term for banks while decreasing for financials.

Net sovereign debt issuance: Negative or subdued R.19



Debt issuance: Issuance remained subdued in 4Q14 across market segments, with the exception of MBS, where it increased on a year-on-year basis, reaching EUR 10.3bn in 4Q14, 6.5bn more than in 4Q13, driven chiefly by one large economy. CB issuance also increased, albeit only marginally, standing at around EUR 26.3bn in 4Q14 (against EUR 23.7bn in 4Q13). But more significant changes will probably be observed in the future in the light of recent monetary policy interventions.

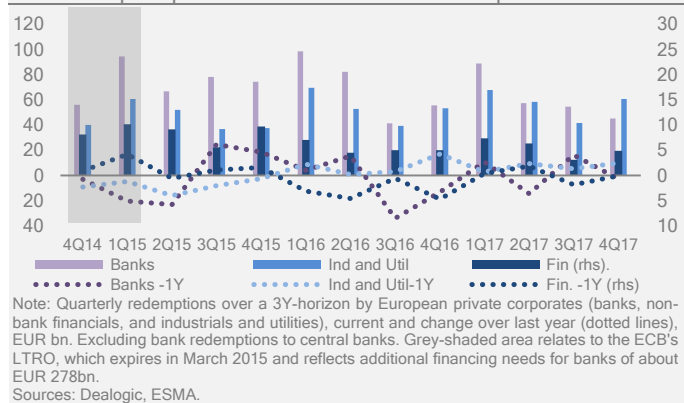
Debt maturity: Stable maturity profile across sectors R.20



Net sovereign debt issuance: As in 3Q14 with negative net issuance dominating throughout the EU, net issuance was negative or subdued in 4Q14 with the exception of four large countries. Potential explanations are the deterioration in market sentiment, worsened economic outlook, re-pricing of risks and seasonal patterns, with subdued issuance following higher activity in the first half of the year.

Debt maturity: Maturity profiles in 4Q14 remained broadly constant across sectors and countries. Although the maturity profile for industrials remained stable on average, a marked reduction in maturities was observed in peripheral countries, partly mirroring increasing concerns over economic prospects. While the debt maturity profile for utilities remained constant in peripheral countries, it increased significantly in core countries.

Debt redemption profile: Reduced short-term redemption needs R.21



Debt redemption profile: Redemption activity in 4Q14 was low, confirming the 3Q14 pattern. Compared to last year's bank debt redemption profile, redemption needs were lower at short term maturities while rising for maturities up to 18 months then falling again at the longer end. Industrials and utilities reduced their reliance on medium-term external funding, remaining constant over the longer term. As of end 2014, the outstanding LTRO balance to be repaid by the end of March 2015 stood at EUR 278bn. Another EUR 213bn allotted from the TLTRO facility in the two tranches in September and December 2014 will need to be repaid by September 2016 or 2018, contingent on benchmarks.

Trends
Risks
Vulnerabilities

Fund investments in loan participation and loan origination - nascent market, big risks?

Contact: Jean-Baptiste Haquin (jean-baptiste.haquin@esma.europa.eu)

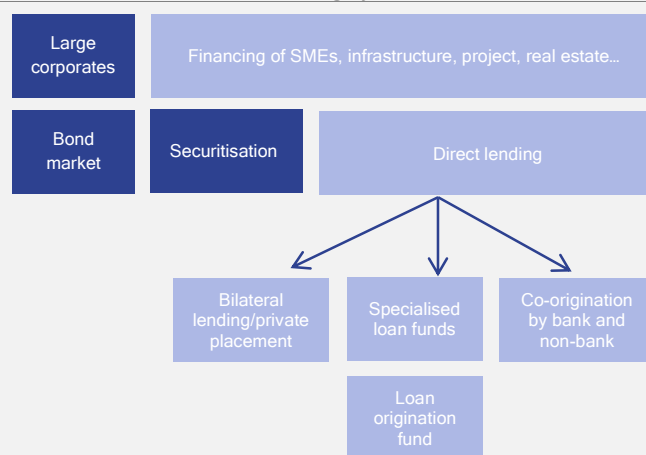
The growth of funds investing (or “participating”) in loans is one of the most consistent latter-year trends in the EU fund industry, with AuM multiplied by five in the past two years, albeit from a low base. These “loan funds” offer higher returns for investors in search of yield and an opportunity to diversify their portfolio. On the other hand they expose them to credit and liquidity risk. EU loan funds are mostly invested in US assets, which means they make only a small contribution to funding for EU companies. Such funding could, however, come from a new type of fund directly originating loans rather than just investing in them. Although data is scarce, there is evidence that these “loan origination funds” are developing in several EU jurisdictions. From an economic policy perspective loan origination funds could thus contribute directly to the financing of SMEs. While acknowledging the potential benefits, loan origination funds could also introduce new sources of financial stability risk if not subject to adequate macro- and micro-prudential regulation. Indeed, they could create regulatory arbitrage opportunities between the banking and non-banking lending sector. They could also increase the financial system’s vulnerability to runs, contagion, excessive credit growth and pro-cyclicality. If loan origination funds develop, it is therefore necessary to make sure that they are treated within a harmonised framework and that risk mitigants are available to supervisors.

Introduction

Financing in many advanced economies, notably EU Member States, remains subdued as traditional sources of financing - banks - are still undergoing a necessary process of structural change. Although the latter will enhance market efficiency and financial stability in the long run, it has the potential to restrict financing in the short term. Large companies have diversified their sources of financing and should generally be able to compensate for the tightening of bank loans through additional corporate bond issuance in particular. In contrast, SMEs in the EU rely on bank lending (including both term loans and credit facilities) as their main source of finance. For these companies non-bank funding can be seen as an alternative to bank funding. Specialised loan funds are one of the market structures that could provide lending to the real economy, either indirectly via loan assignments or loan participations or directly by originating loans (V.1). While the sector is still in its infancy, it is important to assess whether loan origination could pose systemic risks in the EU.

The different models of direct lending by funds

V.1



A distinction can be made between loan origination and loan participation. Loan origination funds directly originate loans, while loan participation funds buy all or a portion of a loan originated elsewhere. Loan participation is a long established investment option for investment funds (especially in the US since the early 90’s), while loan origination is a new phenomenon. In such instances the investment fund is the original lender of record and lending is part of the fund investment strategy. The fund investment manager’s responsibilities include credit assessment, selection, pricing, documentation, monitoring, servicing and provisioning.

There is a big difference between loan participation and loan origination, with the latter requiring a more complete set of skills in the field of industry, market and management risks, financial statement analysis, borrowing structures, sources of repayment, collateral valuation, loan negotiation, loan documentation, problem loans, and workout of problem loans. Loan origination also assumes an underlying back office to monitor coupon and principal repayment and amortisation, covenant violations and cures, periodic interest rate resets and other routine but critical tasks needed to service the loan.

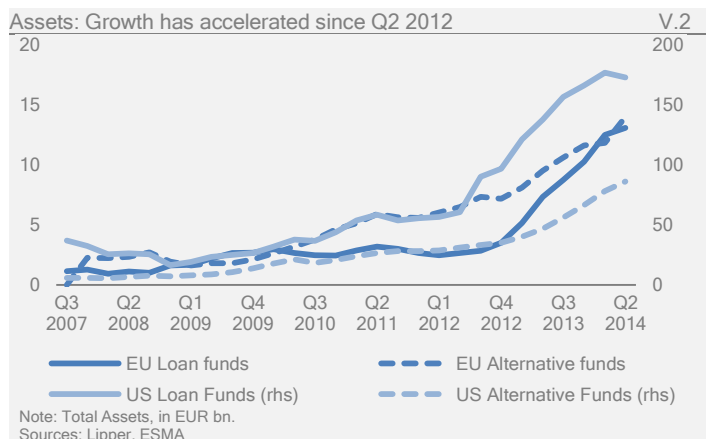
On occasion, the distinction between loan origination and loan participation can become blurred, for example when a bank originates a loan, all or part of which it has previously arranged, to immediately sell on to a fund. There is thus potential for ‘loan participation’ by funds to mimic loan origination where a bank acting as loan arranger adopts an ‘originate and distribute’ model.

Funds participating in loans are growing rapidly

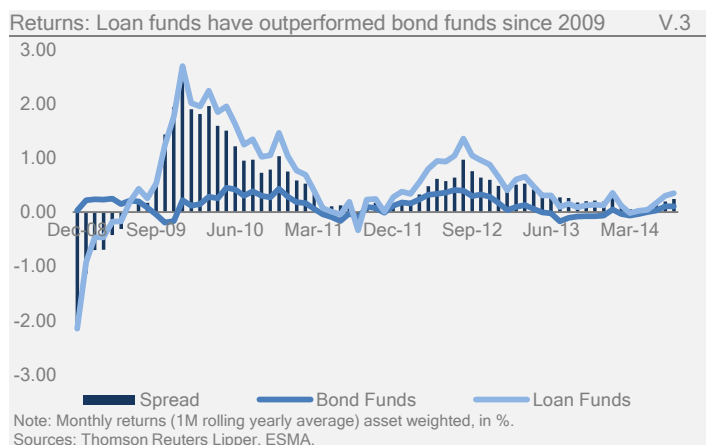
The growth of “loan funds” participating in loans is one of the most consistent trends of recent years in the fund industry. The AuM of US loan funds have tripled since June 2012, amounting to EUR 172.7bn in June 2014, despite some outflows in 2Q14. Growth has been even faster in the EU with AuM rising fivefold over the same period, albeit from a low base (EUR 13bn). We observe similar trends for alternative funds with a focus on credit products, including loans, debt and structured credit products¹. Together loan funds and alternative funds hold

¹ Credit focus refers to either single- or multi-manager funds investing primarily in bank loans, high-yield debt, leveraged loans, syndicated loans, investment-grade debt, CDOs (Collateralised Debt Obligations), CLOs (Collateralised Loan Obligations), CPDOs (Constant Proportion Debt Obligations), CDS (Credit Default Swap), ABS (Asset-Backed Security), CMBS (Commercial Mortgage-Backed Security), RMBS (Residential Mortgage-Backed Security), MBS (Mortgage-backed Security), or any other structured credit vehicles (Source: Lipper).

approximately 38% of the investable US bank loans that are not held by banks².



Their performance alone does not explain the attractiveness of loan funds compared to other bond funds. Loan funds already exhibited higher returns than bond funds in 2009 (0.43 bp on average since 2009), while the bulk of inflows only occurred after 2012.



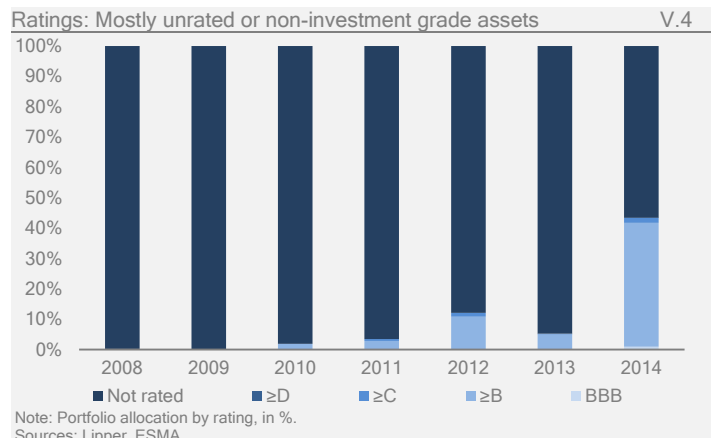
In fact, the low interest rate environment created specific incentives that led to a shift in risk taking after 2012, generally referred to as “search for yield”. Since yields of relatively safe fixed-income assets like sovereign bonds have reached historically low levels, investors may find it difficult to achieve their return targets (predetermined or implicit) and thus pay more attention to the potential extra return from loan funds. However, this outperformance has declined by 58 bp since June 2012, from 0.93 bp to 0.35 bp, in line with the general trend of yield compression between risky and safer assets.

A potential benefit from a financial stability perspective is additional diversification which loan funds may provide for investors willing to commit to these assets. In particular, expectation of a rise in interest rates in the medium term explains the growing demand for floating rate assets (see below). Their payments increase as interest rates rise, thus offering protection against interest rate risk, and their

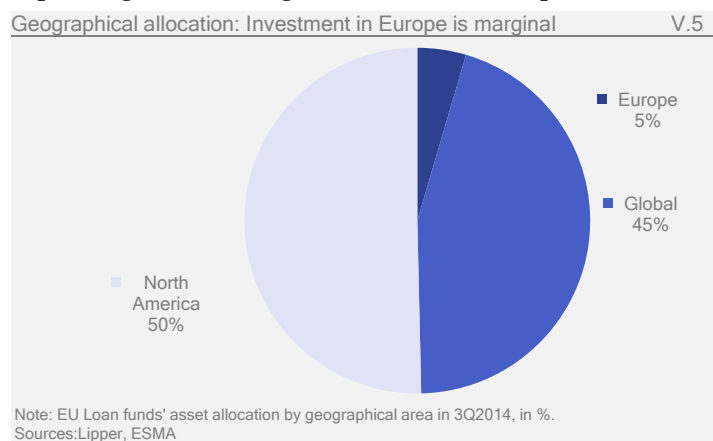
performance has been weakly correlated with other asset classes over the past years (except high-yield bonds) thus providing diversification.

Assets are mostly US loans rated below investment grade or unrated

Loan funds invest in secured and unsecured loans and other debt instruments issued by corporates. The higher risks these assets carry are rewarded by higher yields, which in turn explain the high returns achieved by loan funds. Assets include to a large extent floating rate notes whose payments are reset regularly, generally on a quarterly basis.



The proportion of rated assets in loan fund portfolios increased markedly in 2014 to 43%, mostly with ratings between B and BB. In contrast, the proportion of unrated assets typically ranged between 88% and 98% until 2013. Although this change may be due to better reporting by the funds, it could also indicate that the market is becoming more mature. Indeed, investors interested in investing in non-listed companies still face a lack of financial information. In response to these concerns, some CRAs are expanding their coverage of mid-market companies.



EU loan fund assets are mostly invested in North America (50%) or globally (45%) and only marginally specifically in Europe³ (5%). From an investor perspective these funds allow EU investors to access credit exposures of smaller and unlisted foreign companies, thus contributing to the

² Other investors include CLO (45%), pension funds and insurance funds (17%) (Source: WHO OWNS THE ASSETS? A Closer Look at Bank Loans, High Yield Bonds and Emerging Markets Debt, Blackrock, September 2014).

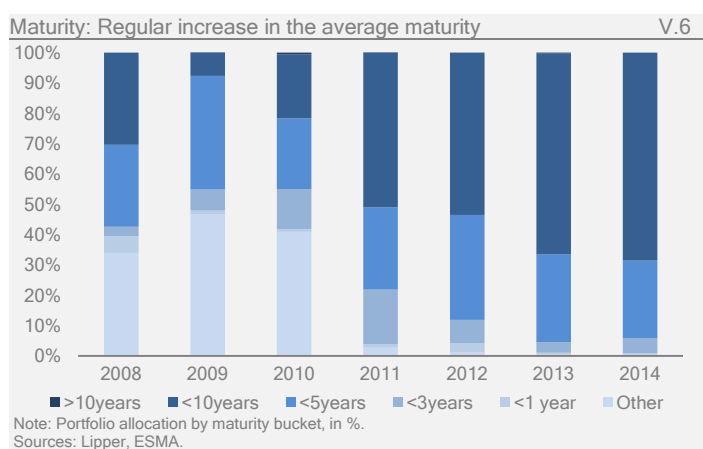
³ Europe in this context refers to the EU, EEA countries and Switzerland.

diversification of their investments. But from a policy perspective it also means that loan funds currently do not help channel EU funding into EU companies.

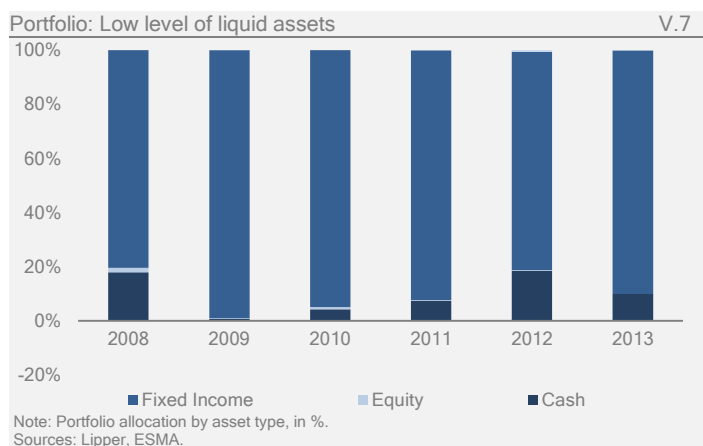
Loan funds have higher exposure to liquidity risk

Loan funds' assets are typically less liquid than other bond fund assets. Firstly, they are not generally traded on secondary markets. Additionally, they are invested in assets not rated or rated below investment grade.

Moreover, loan funds hold long-term assets. The average maturity of their holdings has regularly increased, with 68.5% of assets featuring maturities between 5 and 10 years, compared to 51.0% in 2011. The fact that all EU loan funds are open-ended (92% at the global level) underlines that this maturity mismatch between assets and liabilities may be problematic since the fund shares can be redeemed at any time.

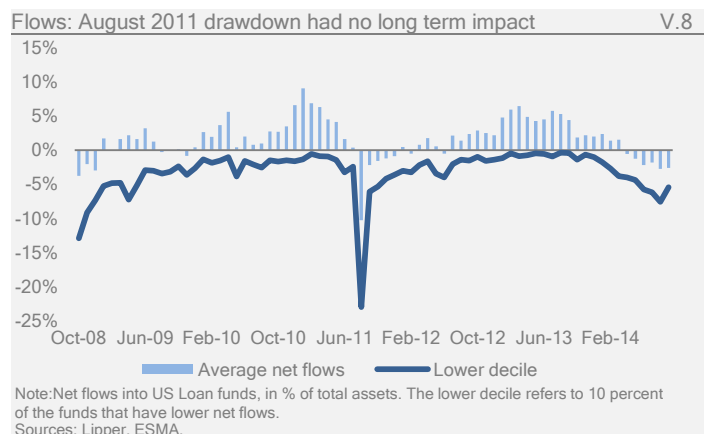


Consequently loan funds must manage their liquidity risk so as to be able to face important withdrawals. Against this risk EU loan funds hold liquid assets in their portfolio, including 9.8% in cash at the end of 2013. However this proportion is significantly lower than other bond funds. If necessary loan funds also have the possibility of borrowing to meet redemptions, although the ability to access external funding may decline during periods of market stress.



However, past experience from US funds qualifies this liquidity risk. Indeed, US loan funds already experienced a massive drawdown in August 2011, with 10% of the funds facing redemptions of more than 23% of their shares, without significant consequences for the industry.

Nevertheless, loan funds may still be more suitable for well-informed investors. Accordingly, a significant proportion of EU loan funds (45%) are targeted at institutional investors and are likely to require a large minimum investment.



The relative illiquidity of their assets also makes loans less suitable for ETFs. They represent less than 5% of the loan funds at the global level, and none of them is domiciled in the EU. Most importantly they cannot be used for in-kind redemption with an authorised participant, thus undermining the arbitrage mechanism of the ETF⁴. Moreover, this inability to redeem ETF shares in-kind and the need to hold cash balances make it challenging to minimise the tracking error of the fund.

Loan origination by funds is a nascent activity

Allowing funds to originate loans could be beneficial to investors and the real economy

Loan funds are bond funds that invest in a specific asset class, although the management of loans may differ from the management of other types of assets. In comparison loan origination funds represent a different type of institution since they contribute directly to the origination of the loan.

Unlike loan funds, which depend on loans already existing and are so far mostly invested in the US, loan origination funds could contribute directly to financing the economy, especially SMEs, when traditional banking or market channels become temporarily impaired, as at present. In the long run loan funds and loan origination funds also represent a possible source of funding diversification for EU borrowers, given the reliance of non-financial corporations on bank financing compared to other economies such as the US.

For investors, loans are an alternative asset class to invest in and diversify their portfolio, although they already have access to loan funds. The possibility to invest more widely in loans could also improve innovation and competition in financial markets, which may bring benefits in the form of more efficient credit allocation and cost-cutting.

⁴ See Performance and Risks of Exchange-Traded Funds, TRV No. 2, 2014, ESMA.

National initiatives have created different national frameworks for loan origination funds

Data on loan origination funds is scant, since loans are mostly unlisted products and funds can be restricted to selected investors. In addition, markets and national legislation remain fragmented in the EU, making it difficult to obtain an EU-wide overview.

However, anecdotal evidence shows that some loan origination funds have already been created in the EU (V.9). In particular, the Central Bank of Ireland (CBI) released a framework for loan origination fund structures in September 2014. Funds will operate under the EU's Alternative Investment Fund Managers Directive (AIFMD). Managers who are authorised AIFMs and satisfy the additional conditions under the Central Bank's AIF Rulebook will be able to use the new structure to market loan origination funds within the EU under the AIFMD passport. The funds will be open to qualifying investors, including pension funds, insurers, banks and high net worth individuals, that put up an initial minimum investment of EUR 100,000.

Loan origination by investment funds in selected EU jurisdictions V.9

Luxembourg: Loan origination is in principle permissible by non-UCITS, even if the CSSF is not aware of any funds having loan origination as their principal activity. Funds providing loans on an ancillary basis are subject to specific requirements regarding i) risk management procedures, ii) existence of liquidity management plans, iii) the analysis of specific risks from an economic perspective and iv) financing of the loans (equity only). Some of those funds can only be marketed to "well-informed" investors, while others are also open to retail investors.

Malta: Loan origination by funds is permissible for non-UCITS under the Investment Services Act. Recently there has been increased interest in setting up this type of fund, which would be regulated under the MSFA Rules for targeting professional investors. The MFSA is currently developing a set of Standard Licence Conditions to address potential risks those funds could pose.

Latvia: Loan origination is allowed under the Law on Alternative Investment Funds and Managers. Funds should disclose the assets they intend to invest in, the techniques the fund is authorised to perform, and related risks. Loans granted by the funds with a view to making investments into immovable property are to be secured with mortgages on behalf of the manager, by making a reference that the respective immovable property is the collateral of the loan granted from the funds of the particular fund and that it may not be encumbered and disposed of without the consent of the manager.

France: The French authorities created a "Fonds de prêt à l'économie" (loan-to-real economy fund, FPE) in 2013 which allows insurance groups to grant loans directly to non-listed companies such as SMEs. The first fund set up under this new framework puts together 18 insurance companies and three pension funds. It targets a volume of €1 billion of 5 to 7-year loans to be distributed among 30-40 companies. FPE may take the form of a Financial Vehicle Corporation -FVC- or an investment fund. They may invest only in loans or debt securities issued by local authorities or public institutions from within the European Union, or European non-financial companies. FPE are especially designed to be sold to insurance firms. These have been allowed to invest up to 5% of their regulated liabilities in loans to unlisted companies (only listed bonds were previously permitted), which represent a maximum of EUR 90bn.

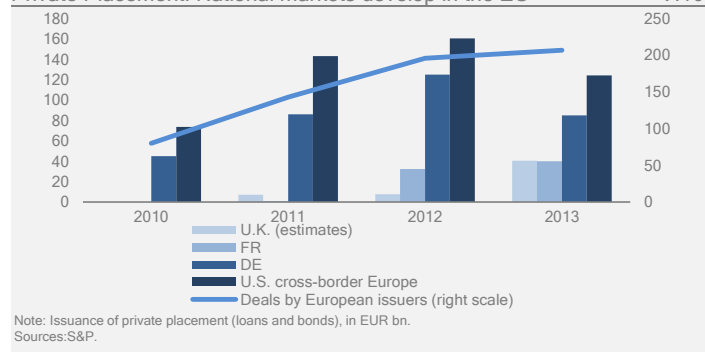
UK: In November 2011 the UK Government announced the launch of the Business Finance Partnership (BFP) to invest GBP 1.2bn in increasing lending to small and medium-sized businesses from sources other than banks. Money comes from both private and public sources, with a ratio of 5 GBP of lending for every GBP of public money invested (official figures).

Loan origination funds may benefit from the development of private placement markets in several EU Member States

The development of private placement is a way to promote the market funding of small and medium-size companies that may not otherwise have access to debt markets. Recently this form of direct lending has therefore been promoted in several EU Member States. Private placement in the EU typically take the form of corporate bonds or loans sold to institutional investors who buy them either directly or within fund structures. It facilitates loan participation and loan origination for two reasons: first, it

allows an "originate-to-distribute" model whereby banks underwrite debt using their credit expertise and their close relationships with companies and distribute this debt to investors through the fund structure. Consequently, partnerships between banks and funds have increased, the role of the latter ranging from simple vehicle to co-origination. Secondly, private placement helps the standardisation of loans and their documentation, thus making them a more investable and liquid product for both loan participation and loan origination funds.

Private Placement: National markets develop in the EU V.10



Data from various sources estimate private placement issuance at EUR 16,7bn in 2013 in the EU, up from EUR 9.5bn in 2011 (+76%). It now exceeds the issuance of EU companies in the US private placement market, which represents EUR 12.4bn:

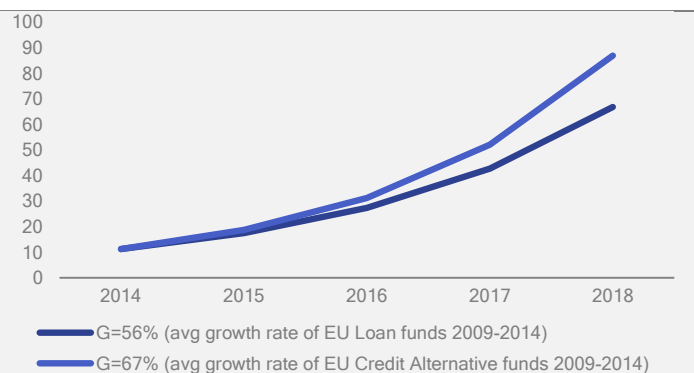
- **Germany:** The *Schuldschein* market is the most standardised and mature in Europe. The debt takes the form of loans above EUR 25mn, mainly issued by investment-grade borrowers. Access to these instruments is consequently easier for SMEs.
- **France:** Investments in the French Euro Private Placement (Euro PP) market primarily take the form of listed bonds (77%) and increasingly also unlisted securities (10.9%), while the share of loans remains more limited (6.7%). They focus on companies with implied ratings of 'BB' or above with an expanding share of SME issuers, up from 4% in 2012 to 16% in 2013.
- **UK :** Private placement mainly takes the form of unlisted direct loans above GBP 20mn.

Since these markets are governed by different laws, the role of funds in origination can differ substantially. We can thus only make a rough estimate of loan origination funds' current market share (V.11).

Potential growth of EU loan origination funds V.11

Assuming that the AuM of loan origination funds is around EUR 11bn as of 2Q14 and using an annual growth rate of 56% and 67%, similar to respectively EU loan funds and EU Credit Alternative funds in 2009-2014, the loan fund industry could account between EUR 66.7bn and EUR 86.9bn by mid 2018. Although these estimates are ambitious, it would not be sufficient to fill the funding gap of EU corporate, which could increase by USD 1.2 trillion by 2018 according to some estimates^[1].

[1] "Global Bank Disintermediation Continues As Corporate Borrowing Needs Outpace Banks' Capacity", S&P, June 2014.



Note: Projected AuM of loan origination funds, EUR bn
Sources: Lipper, ESMA.

Note: Due to the lack of data we are only able to make rough estimates of the current size of loan origination funds. The figure of EUR 11bn is based on the following: The size of investable loans in the private placement regime is around EUR 40bn (3 years cumulated issuance for DE, FR and UK; assumption that the share of loans in the private placement issuance volume is 6.7% in FR, 100% in DE and UK). Funds capture 38% of investable loans (US figure), i.e. EUR 15.2bn, in which loan participation funds have a share of EUR 4bn (according to chart V5). The difference (EUR 15.2bn - EUR 4bn = EUR 11.2bn) includes EU loan origination funds. Thus we use the figure of EUR 11bn as a rough estimate of the size of the EU loan origination funds.

Regulatory framework

The UCITS Directive does not permit funds to engage in loan origination. Some Member States allow funds to originate loans under national legislation, but those funds cannot be marketed to retail investors on a cross-border basis by means of a passport.

Funds originating loans marketed on a cross-border basis could therefore fall under the definition of Alternative Investment Funds. In that case the AIFMD provides a harmonised framework for the managers of alternative funds, on condition that they are above the relevant size thresholds in terms of AuM stipulated in the Directive. AIFs can then be marketed throughout the European Union to professional investors only.

However, specific financial stability aspects of loan origination funds may deserve specific rules. For example, the CBI has introduced such rules for AIF originating loans (cf. below). The Commission has also submitted a proposal for an EU regulatory framework for this type of activity; either under AIFMD or another regulatory regime (V. 12). On the other hand, if loan-origination funds were to be allowed under national legislation, this would create challenges for the integrity of financial markets in the EU.

EU initiatives

V.12

There is currently a wide range of EU initiatives aimed at improving the funding of SMEs by non-banks such as i) new rules on European Venture Capital Funds and European Social Entrepreneurship Funds, ii) the EU agreement on a Commission proposal to set up European Long Term Investment Funds (ELTIF) which could invest in listed or unlisted units or shares issued by SMEs and iii) an EU Private Placement regime, building on existing domestic regimes, that could help to further develop the market for midcap bonds and transferable loans in the EU.

Managers are authorised to grant secured or unsecured loans under the so-called European Venture Capital Fund (EuVECA) regulation and European Social Entrepreneurship Fund (EuSEF) regulation, on condition that these loans are fully backed by capital commitments received by the regulated funds. The regulations apply to managers below the thresholds of the AIFMD (less than €500 million of assets under management).

Finally, it is worth mentioning that closed-end loan origination funds could also be covered by the Prospectus Directive, which provides for disclosure requirements towards investors (such as investment policy and

objectives, restrictions etc.) if fund units are admitted to trading or if there is a public offer.

Potential systemic risks

On 31 March 2014 the ESRB General Board approved a response to a public consultation by the Central Bank of Ireland entitled 'Loan Origination by Investment Funds'. While acknowledging the potential benefits of this activity, it also considered that activity of this kind could introduce new sources of financial stability risk if not subject to adequate macro- and micro-prudential regulation. It was noted that this activity could increase regulatory arbitrage opportunities between the banking and non-banking lending sector. It could also raise the financial system's vulnerability to runs, contagion, excessive credit growth and pro-cyclicality.

Risk of Runs

As for other funds investing in non-listed assets that are intrinsically illiquid, a loan origination fund that is open-ended is exposed to investor runs. These could lead to a fire sale of illiquid assets in the market potentially spilling over to other funds and/or the banking system. Closed-end funds are less exposed to maturity and liquidity risks as investors cannot redeem their shares on demand.

Flawed credit risk transfer

Originating a loan requires undertaking a thorough credit assessment of the entity receiving the loan. Due to their long presence in the private equity sector investment funds have recognised expertise and experience in selecting investment targets in order to acquire equity participations. Granting a loan may nevertheless require additional skills. While funds also have experience in credit investments, loans are not bonds and originating loans is yet another step, which requires not only screening the loans but also 'administering' them (especially recovering payments or managing delinquencies). Investment funds' potential lack of experience in underwriting loans could imply potential undervaluation of risk and insufficient due diligence.

Pro-cyclicality risk

As for any type of investment fund, the use of leverage is a magnifying factor for the overall risk attached to the fund. High leverage would imply potential contagion effects for financial institutions through debt financing, especially if capital were insufficient to cover losses. If such funds become a significant part of the supply of credit within an economy, falling asset prices could mean they withdraw from providing credit to the economy and thus amplify an economic downturn.

Interconnectedness: cross border linkages

The cross border impact of loan origination by investment funds should be considered, given that a small number of countries within the EU are centres for the single market for funds. As such, funds may be investing in loans that are not originated in their domicile country and may be sold across the EU through passporting (where possible). Therefore, systemic risks could have a significant effect on

other Member States. Due to the lack of granularity in the data collected for investment funds and the lack of knowledge on the size of loan origination within the EU, it is unlikely these cross border linkages are currently being considered by prudential regulators.

Interconnectedness: interlinkages with the banking sector and regulatory arbitrage

A key area of risk is the potential interplay between the loan origination sector and the banking sector, potentially leading to regulatory arbitrage. In particular, banks could establish loan origination (or loan participation) funds in a manner linked to their own balance sheet management, similarly to the way in which securitisation was used before the financial crisis, to reduce their regulatory (and especially capital) requirements.

This problem is even more acute in the loan participation segment since banks can transfer the non-performing loans they have on their balance sheets to loan participation funds they are managing, thereby transferring their credit risk to the investor. It could, of course, be argued that this might be the case with other fund types (e.g. private equity funds) and not just loan origination funds.

Risks to the integrity of the EU financial market

The potential lack of a harmonised EU framework for loan origination by investment funds could jeopardise the integrity of EU financial markets if those funds were to grow significantly within national frameworks. This could also lead to regulatory arbitrage across countries by fund managers.

Risk mitigants

Loan origination by funds can provide benefits but also lead to significant risks. Therefore, risk mitigants should be available to supervisors. In this respect, tools applied to equivalent activities in the banking and investment fund sectors can be considered to inform the current debate. V.13 summarises the main tools and the type of risks against which they can be used.

For AIFs managed by AIFMs authorised under the AIFMD, authorities already have the possibility to limit the use of leverage, and there are reporting obligations towards investors. At the national level the CBI, for example, will only permit loan origination funds to lend subject to specific investor protections and risk management safeguards covering credit assessment, diversification, liquidity limitations, investor due diligence, leverage, disclosure, stress testing and reporting. Particularly at the EU level, loan origination funds registered as ELTIF will be subject to additional rules; most importantly, they will not have the right to borrow money (i.e. to use leverage) to originate loans. To mitigate liquidity risk, ELTIF will generally be closed-end so that investors are not able to request redemption of their units or shares before the end of the fund's life. By way of derogation, early redemption will only be possible under strict rules and limited to a percentage of the assets of the ELTIF that are eligible for the portfolio of a UCITS.

Main risks and potential mitigants		V.13
Main risk	Possible risk mitigants	
Interlinkage with banks	Diversification requirements	
Run risk	Liquidity requirements, closed-end structures	
Procyclicality	Limits on leverage	
Flawed credit risk transfer	Credit assessment standards, skin in the game	
Opacity	Reporting and disclosure requirements to NCAs and investors	

In addition specific product type mitigants such as principal-agent alignment could also be used. By requiring the Loan Origination Fund Manager to retain some form of risk arising from the performance of the fund, the issuer could be incentivised to carefully scrutinise the risks attached to a loan.

Macroprudential instruments such as a cap on loan-to-value ratios could be used to prevent excessive credit growth where the loans are backed by a physical asset (e.g. real estate for mortgage loans).

Finally, loan origination by investment funds that are not managed by an AIFM are not subject to data reporting. More generally, there is a lack of data that limits the above analysis. Any future assessments of risks and potential policies are therefore constrained by the lack of information. The opacity of this growing industry will therefore need to be addressed going forward.

Conclusion

There is growing interest in developing loan origination in the fund industry. For policymakers it is one instrument that could be used to provide long term financing to SMEs while banks are still adapting their balance sheets. It would also be part of a potential structural change towards more market funding in the EU, where banks have played a predominant role so far. For investors it offers a new investment opportunity - with special relevance in terms of risks and rewards in a period of low interest rates. In this context of converging interests it is important to pay attention to the potential risks for financial stability and integrity of the single market. Most significantly, this fledgling activity should develop within a harmonised EU framework that has appropriate risk mitigants in place.

Alternative indices – smart beta strategies and what they mean for investors¹

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Alternative index products have grown rapidly since the financial crisis. While they minimise certain weaknesses of traditional market cap indices, they expose investors to different potential risks. For example, in order to construct an index that seeks to minimise risk, index providers may weight securities according to their volatility instead of weighting them according to market capitalisation. This can have the side effect of a more concentrated sector exposure, which may introduce other risks. While alternative index products are not necessarily more risky than traditional index products, they are frequently more opaque. A low level of transparency around construction methodology and simulation makes it difficult for investors to understand the risk and return profile of alternative indices.

Background

Since the financial crisis steady growth has arisen in what have been called alternative indices. Also termed ‘smart beta’, ‘strategic beta’ or ‘advanced beta’ strategies, these alternatives are structured differently from traditional indices and investment strategies. While the implementation of alternatives reflects systematic rules-based passive management investing, the pre-implementation decision to pursue a certain return or risk objective reflects an active choice.

Traditional Indices

Traditional rules-based indices are designed to represent a target market profile and in turn the risk and return characteristics of that target market. The target market may be defined broadly or narrowly. It may be based on asset class, investment style, geographic region or the exchange on which the securities are traded, and/or other characteristics (e.g., economic sector, company size, duration, or credit quality). The rules-based index should be transparent, replicable and investable.² The investment manager then employs the index as its benchmark when managing a strategy that seeks to provide the return of the index when managed passively or to outperform the index when managed actively.

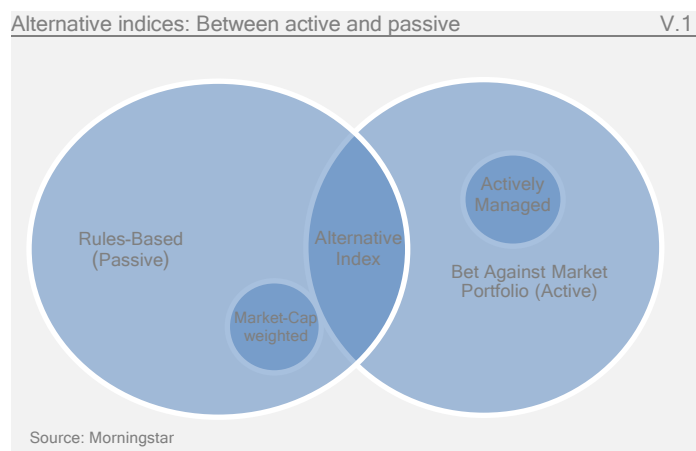
Some indices, such as the S&P 500 Index and the CAC 40, fix the number of securities included in the index. Other indices allow the number of securities or issues to vary to reflect changes in the target market or to maintain a certain percentage of the target market, such as the fixed income index, the Barclays Aggregate. Market

capitalisation (‘cap’) weighting is the predominant weighting methodology within the traditional index space.

For equity indices the market cap method takes the number of shares outstanding multiplied by market price to arrive at the capitalisation. Equity indices are typically rebalanced annually. For fixed income indices, the typical measure is the amount of outstanding debt for a given entity multiplied by its price. In turn, the Euro Corporate Aggregate is an index of outstanding Euro denominated debt above a certain paramount. Fixed income indices are typically rebalanced monthly. Employing these indices as a benchmark provides the investor with a return stream that reflects the equity or bond performance of the target market. These traditional indices remain the dominant choice for most investment strategy benchmarks as they best reflect the generally accepted measure of performance, price appreciation/depreciation.

Critique of Traditional Indices

However, traditional indices are not without critics, who argue they may introduce unwanted risk exposure. Proponents of alternative indexing methodologies argue that weighting according to market cap is at times an inefficient and ineffective way to build an index and portfolio. They maintain that the market cap system may overweight stocks that are overvalued or mispriced and underweight the undervalued firms, exposing investors to potentially lower returns and greater risk. For example, in most equity indices the market capitalisation methodology invariably leaves investors with predominant exposure to the largest capitalisation names, as their presence drives the return of the overall index.



¹ This article was authored by Patrick Armstrong and Sophie Ahlswede.

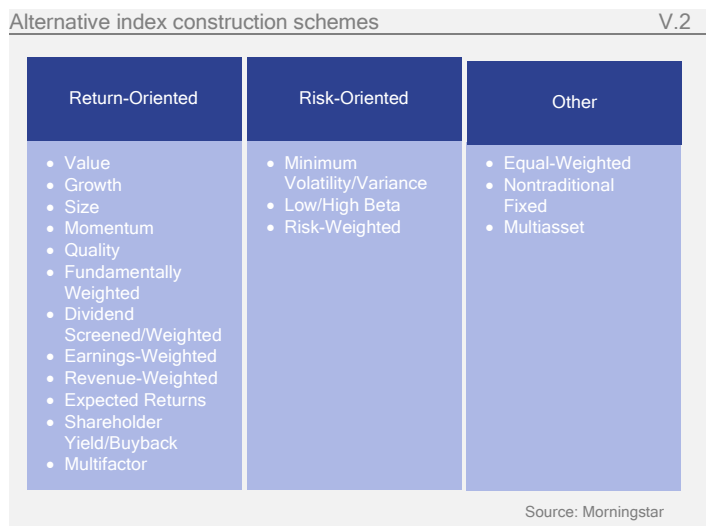
² AIMR Benchmarks and Performance Attribution Subcommittee Report August 1998, p. 4.

In active space, investment managers can underweight/overweight the dominant names, but at their peril. A major price move of those names will create return deviation between the benchmark and the managed

portfolio. In the fixed income space, the traditional market cap indices mean that the biggest names are those with the largest amount of outstanding debt. This leaves the investor tracking a benchmark that may be populated by highly leveraged issuers. Alternative indexing redesigns the index so that allocation does not reward the larger stocks or more leveraged issues and better represents the undervalued and less leveraged ones.

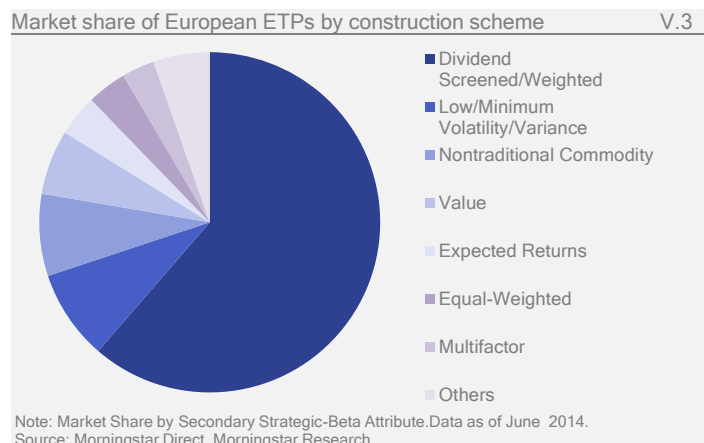
Rise of Alternative Indices

In response to the presumed weaknesses of the traditional indices, industry participants designed a range of alternative indices to overcome those flaws. Alternative indices seek to improve the return profile or alter the risk profile of traditional market benchmarks or create completely new benchmarks. To do this, alternative indices may weight stocks by fundamental metrics such as sales, earnings, book value or GDP rather than market capitalisation, i.e. use a “representativeness” construction scheme. Alternatively, they may weight securities using risk factors such as value, volatility and momentum, i.e. use an “efficiency” construction scheme.³



In terms of fixed income, traditional market capitalisation approaches leave investors with exposure to the most leveraged corporates or sovereigns. As a means of reducing this risk, alternative indices are instead weighted by factors such as their fundamental financial strength (e.g. GDP). Furthermore, so called alternative multi-strategy indices have emerged that combine several strategies.⁴ Some researchers propose differentiating between simple, heuristic-based construction methods and more complex optimisation-based methods. Equal-weight and fundamental strategies would fall into the simple category and most efficiency strategies into the more complex category.⁵

³ EDHEC-Risk Institute (2011), EDHEC-Risk European Index Survey, October 2011.
⁴ For example, the [JP Morgan Alternative Index Multi-Strategy 5](#).
⁵ Chow, Tzee-man, Hsu, Jason, Kalesnik, Vitali and Bryce Little (2011), A survey of alternative equity index strategies, Financial Analysts Journal, Vol. 67, No. 5, 2011.



While alternative index weighting schemes are not new⁶, they have grown rapidly since the financial crisis. It is difficult to determine the AuM of Alternatives as there is no “standard” or legal definition and not all data providers have created a comprehensive standard classification yet.⁷ Exposure to alternative indices is offered through a variety of product wrappers. These range from exchange traded products (ETPs) to open and closed-end mutual funds, privately managed funds, and structured retail products (certificates, warrants, options). However, in Europe UCITS-based exchange traded funds and institutional funds seem to be the most prevalent.

According to Morningstar, European “strategic beta ETPs” had AuM of 19.3 bn EUR (26.3 bn USD) in June 2014. Strong growth in this market over the last 5 years has increased the share of alternative index ETPs relative to all ETPs in Europe, from 2.1% in 2009 to 5.6% in June 2014. Dividend-weighted indices are by far the most popular in the alternative index space, accounting for 61% of AuM in Europe (ca. 30% in the US).

Globally, in mid-2014, non-market cap weighted index products had AuM of 290 bn EUR (396 bn USD)⁸ and a share of approx. 15% in the US exchange traded products market.⁹ Compared to the investment fund industry as a whole (global mutual fund AuM: 22 tr EUR/30 tr USD¹⁰), Alternatives are still a comparatively small sector, but a rapidly growing one.

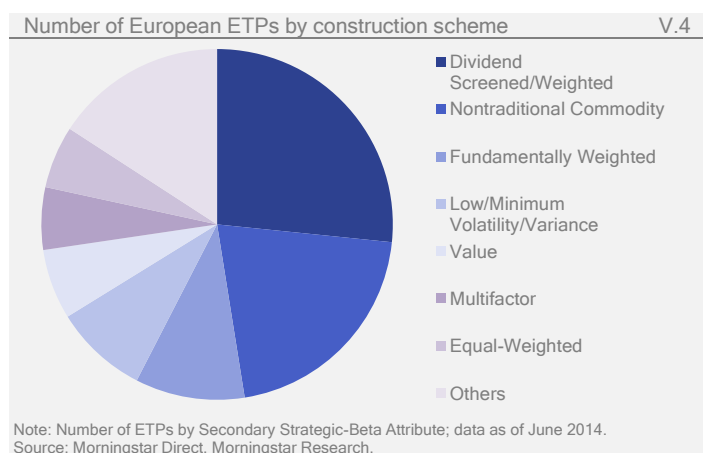
⁶ For example the S&P500 equal weighted index was launched in January 2003.

⁷ Lipper introduced a flag for “managed volatility” which flags “funds that by prospectus language utilize a managed volatility strategy within their primary investment strategy. Managed volatility strategies include but are not limited to risk parity, minimum volatility and fundamental.” Morningstar offers a more detailed classification.

⁸ Morningstar (2014), ‘A Global Guide to Strategic Beta ETPs’.

⁹ <http://www.blackrockblog.com/2014/01/15/strategic-beta/>

¹⁰ [ICI \(2014\). Investment Company Fact Book 2014.](#)



The primary driver of the increased supply of indices has been improvements in investment technology that have allowed investment managers to efficiently manage more complex index strategies and package them in comparatively low cost investment vehicles such as ETPs. Other drivers on the supply side may be cost considerations and increased competition that led to a rise in self-indexing, where asset managers create and administer alternative index strategies in-house. On the demand side, reasons given for their growth are threefold. First, investors are disappointed with the relatively poor performance of active fund managers to deliver alpha consistently. Second, they are concerned with the costs of active management relative to the performance they deliver.¹¹ Third, the greater use of ETPs as a fund vehicle has increased interest in and use of alternative indices.¹² For example, about 32% of net inflows into European ETPs went into alternative index products in 2013.¹³

Alternative indices are provided by a number of different market participants such as traditional index providers, stock exchanges, asset managers and investment banks.¹⁴ Expense ratios of alternative index ETPs tend to be much lower (weighted average total expense ratio (TER) of 0.46%¹⁵) relative to actively managed funds (TERs of around 1.5%¹⁶) and slightly higher than traditional passive indices (weighted average TER of 0.33%).¹⁷

The indices are typically structured in one of two ways; first, as a simple specified subset of an existing traditional index;¹⁸ or, second, with greater complexity using

optimisation-based methods, through the selection of an independent set of securities or issuers that reflect the desired exposure.

In the former case, an index manager may seek to create a low-volatility version of an existing index such as the FTSE 100 by gathering a subset of the index and weight the holdings by the inverse of their volatility so that the least volatile stocks receive the greatest weightings in the index. If it does not anchor its sector weighting to the parent index the new alternative index may expose investors to large security and sector bets, and if it does not consider the correlations across securities when constructing the new index it may enhance portfolio level volatility.

In the latter case, the manager may take a universe of stocks to create a given index. Frequently, this is done under an optimisation model in which the objective function may be to minimise volatility and the constraints may impose limits on size, sector diversification and correlation.¹⁹

Are Alternative Indices an Active or Passive Investment?

The key difference between alternative indices and traditional active management is that for creators of alternative indices, the decision to deviate from a market-cap-weighted index occurs before rather than during implementation, as is customary with traditional active managers. But like market cap indices, alternative indices are rules-based and therefore may be passively managed against. Some argue that although not active in terms of on-going management, the decision to reweight the benchmark's securities, by definition, reflects a primary component of active risk.²⁰ In short, alternatives blur the distinction between active and passive and represent a third approach. In terms of users, a recent survey found that the majority of investment managers more often saw alternative indices as a substitute for active strategies rather than passive.²¹

Who invests in alternative indices?

Given that it is difficult to determine the AuM of alternative index products, it is not easy to deduce who invests in alternative indices. For example, it is unclear to what extent retail investors have invested in alternative index products. An estimated 58% of ETF assets were held by retail investors in the US at the end of 2012.²² Estimations for Europe are significantly lower, ranging around 15%.²³ Some proportion of that will have invested in alternative index ETFs. So far, it would seem that alternative index products are being used mostly by

¹¹ [State Street Global Advisors \(2014\), Beyond active and passive – Advanced Beta comes of age](#), p. 9.

¹² Alternative indices accounted for some 5.6% of assets in European exchange traded products, amounting to €20.8 billion at the end of June 2014. This compares to 2.1% of total assets in European ETPs and €2.2 billion in assets in 2009, see Morningstar (2014), p. 23.

¹³ Morningstar (2014), p. 24.

¹⁴ EDHEC-Risk Institute (2011).

¹⁵ Morningstar (2014), p. 29.

¹⁶ [Strategic Insight \(2011\), Fund fees in Europe: Analyzing investment management fees, distribution fees and operating expenses](#), p. 7.

¹⁷ Morningstar (2014), pp. 7, 29.

¹⁸ See Power Shares S&P500 Low Volatility (SPLV).

¹⁹ See iShares MSCI USA Minimum Volatility (USMV).

²⁰ [ESMA Financial Innovation Day, April 2014, Alternative Index Panel, SSgA, Amundi, EDHEC](#).

²¹ State Street Global Advisors (2014), Beyond active and passive – Advanced Beta comes of age, p. 4.

²² http://media.broadridge.com/documents/Broadridge_Strategic_Insight_ETF_Trends_2012.pdf

²³ [http://www.ev.com/Publication/vwLUAssets/European-ETF-survey-2013/\\$FILE/European ETF_survey_2013.pdf](http://www.ev.com/Publication/vwLUAssets/European-ETF-survey-2013/$FILE/European ETF_survey_2013.pdf)

institutional investors, but the extent in terms of AuM is unknown. Some 42% of institutional investors surveyed said they had already invested in alternative index products.²⁴ Another 24% intended to invest in the future.

Risks to alternative indices

Alternative index strategies may introduce factor biases and potential concentration risk in the portfolio.²⁵ For instance, when pursuing a minimum volatility strategy, the portfolio may exhibit sectoral exposure, e.g. concentration in utilities, or risk factor exposure, e.g. value exposure. Similarly, in fixed income sovereign space, weighting according to some fundamental factors rather than market cap introduces persistent country biases.²⁶ These biases or unintended risk exposures can be overcome, but typically at the cost of increased complexity in the construction of the alternative index.

Alternative index products do not necessarily embed more investment risk for investors than traditional index products. Instead, risks to investors are more likely to result from inadequate disclosure and transparency. For example, one risk is limited scrutiny of retail investors due to misleading branding. Some alternative indices are named “XYZ low risk” when in fact they only minimise volatility but not total investment risk.

For those financial advisors with limited experience in these products mis-selling may result from inadequate training. While simple alternative indices would not likely pose much of a problem, multi-strategy index products may.

As many of the alternative strategies are new, they lack historical track records which investors can analyse prior to investing. Instead they typically use simulation-based track records as a proxy for historical. However, the simulated data may not be a reliable indicator of how the index will perform once launched.^{27,28} A common problem

is so called “backtest overfitting”, which makes it possible for simulated past performance to look good on paper.²⁹ “Backtest overfitting” means that too many variations of an investment strategy are tried using limited historical data. Since there are no rules on disclosing the number of variations tried, investment firms may advertise good simulated backtests that do not necessarily perform well in practice. In an event study, Vanguard showed that positive backtested performance seems to be used successfully for marketing purposes, leading to higher inflows into index products.³⁰ One remedy could be for index providers and asset managers to fully disclose when and how backtested data is employed and provide investors with the full time series, weightings and constituents, so that the results may be independently verified. The adage that ‘past performance may not be an indicator of future results’ is especially true when the performance is simulated.

Another risk lies in the complexity of the methodology employed in constructing certain alternative strategies. Many employ comparatively complex regression and optimisation-based modelling. Ideally, the methodology should be made freely available and detailed, providing the investor with sufficient information to fully replicate the index construction.

Certain alternative indices can be comparatively opaque when compared to traditional cap-weighted indices. The question is whether the information provided is proportionate to the risks associated with alternative indices in terms of detail and ease of the information. Current legislation requires risks of indices to be disclosed. However, the disclosure requirements regarding risks and simulated past performance differ depending on the wrapper. UCITS requirements are the most extensive. As to other wrapper instruments, the rules on risk disclosure and backtested performance are less extensive, e.g. in the Prospectus Directive. Increased risk due to information opaqueness could arise especially from multi-strategy alternative indices.

Conclusion

Alternative investment strategies have the potential to provide investors with a promising alternative to the limitations of traditional passive management and the expense of active management. By adjusting the return or risk profile of a given index, or through the creation of a

²⁴ [State Street Global Advisors \(2014\). Beyond active and passive – Advanced Beta comes of age.](#)

²⁵ Noel Amenc, Felix Goltz, and Ashish Lodh, “Choose Your Betas: Benchmarking Alternative Equity Index Strategies,” *The Journal of Portfolio Management*, (Volume 39 Number 1, Fall 2012): While recognising that naïve alternative strategy selection schemes introduce factor exposure, they argue that factor biases can be mitigated through avoiding stocks with the most pronounced factor characteristics. The study shows that the control, or even the removal, of systematic risk factors by restricting the universe is not an obstacle to the performance of smart beta indices.

²⁶ This is typically seen in underweighting to Japan and overweighting to sovereigns of emerging market countries; see Vanguard, ‘A review of alternative approaches to fixed income investing, page 6, July 2012.

²⁷ See Vanguard: ‘Joined at the hip: ETF and index development’ July 2012, page 6. ETFs have been launched using new indexes based on narrow market segments and alternative weighting methods that often lack “live” performance history. Among the indexes being created for use in ETFs, more than half include back-filled or “back-tested” data from before the date the indexes were first publicly available, and it is often difficult for investors to discern which data are hypothetical and which are live. The Vanguard study found that back-tested performance does not persist past the live-index date.

²⁸ (FINRA Case #2009018186201) FINRA in 2012 brought an enforcement action against an ETF distributor that depicted the performance of certain indexes without disclosing that it included back-tested index performance history which was unwarranted because it purported to indicate that the index had a performance history that was longer than the actual existence of the index. The inclusion of undisclosed backtested index performance history and the failure to identify the source of that backtested index performance history did not provide potential investors a sound basis for evaluating the index performance history presented in the ETF advertising and sales literature.

²⁹ [Bailey et al. \(2014\). Pseudo Mathematics and Financial Charlatanism: The effects of backtest overfitting on out-of-sample performance.](#)

³⁰ Vanguard: ‘Joined at the hip: ETF and index development’ July 2012

new index, alternatives provide a relatively inexpensive targeted return. While successfully addressing some of the known weaknesses of traditional market cap indices, alternatives introduce other risks that the index provider should make fully clear to potential investors. They should also provide investors with a full toolbox of method, data, constituents and weightings to allow the investor to replicate both the index construction but also the simulated or historical performance. For their part, investors should firmly understand the risk or return target exposure the alternative is seeking to achieve as well as the methodology employed in the index construction

Moreover, investors should understand that alternatives are not a panacea for market underperformance. No investment strategy will work in every market environment and alternatives may underperform traditional market cap indices in certain market settings. We expect that alternatives will co-exist with traditional market cap indices as a complementary alternative.

Monitoring systemic risk in the Hedge Funds Industry

Contact: Frank Hespeler (frank.hespeler@esma.europa.eu)

This contribution proposes indicators suitable for monitoring systemic risk in the hedge fund industry. The proposed measures are based on aggregate sector-wide individual interdependencies of performance rates between individual hedge funds and the industry as a whole. The information relevant for this purpose is extracted from a large set of fund-individual regressions by aggregating significant coefficients found across the industry. The results produced demonstrate that the indicators proposed can successfully identify almost all financial crises included in the reporting sample (January 1995 to October 2013). In addition, the results prove quite robust with respect to variations in model specification, increasing the econometric reliability of the proposed measures. The methodology works for the entire global hedge fund industry as well as for the hedge fund industry of the EU, even if minor qualitative differences cannot be ruled out. One of the main advantages of the methodology proposed is its versatility: It can be applied to other parts of the fund industry with only limited adjustment effort, making comparable indicators available for systemic risks in different fund sectors.

Systemic risk measures for hedge funds

Hedge funds are a central element of the financial system. Their investment strategies include the use of derivatives and various debt forms, both contributing to leverage. In addition, hedge funds are prone to potential herding in their strategy universe. Due to both features, hedge funds are often seen as carriers of substantial risk, also of a systemic kind. Systemic risk in financial markets appears frequently in the form of externalities not reflected in the pricing of financial products and/or risks. These externalities can be proxied by observable contagion effects, exposures or similar measures. Data availability issues, however, limit the choice of appropriate measures in the hedge fund industry, as so far only data on return rates are available. Taking this data, cross-effects in the profitability of different funds can be used as proxies for contagion or spillover effects.

Exploiting the idea set out above, a set of simple multivariate vector autoregression (VAR) models is used to regress the returns of each individual fund and a vector of different moments of the return distribution across the hedge fund sector on the lags of those variables and possible control variables. Such analysis yields coefficient estimates for:

- the effect of funds on the hedge fund sector;
- the effects of the sector on funds;
- the serial correlation effect of the sector on itself.

Testing the associated coefficients for significant variance from zero permits the classification of funds as 1) relevant

funds, 2) vulnerable funds and 3) funds supporting the persistence of average performance and its intra-sectoral dispersion in the hedge fund sector. In addition, for the first two groups the signs of significant coefficients are used to differentiate between interdependencies destabilising the hedge fund sector by driving it further away from an alleged equilibrium and those pushing the sector's performance back to a more stable situation. Obviously, these properties are particularly relevant during periods of over- or undervaluation. With respect to relevant funds, this differentiation leads to destabilising and stabilising relevant funds, while for vulnerable funds it results in the subgroups of exposed vulnerable funds and hedged vulnerable funds.

We aggregate individual results across all funds by computing fractions of funds belonging to the described groups as well as averages of their respective estimated coefficient values. Finally, multiplying fractions and average coefficients for each fund group generates the aggregate proxies for systemic risks transmitted within the hedge fund sector. Dynamic profiling of these proxies over time provides insights into the evolution of systemic risks within the industry. We monitor in particular three specific effects: 1) transmission of systemic risks by systemically relevant funds, 2) absorbance of systemic risks by systemically vulnerable funds and 3) the persistence of systemic risks within the hedge sector.

Our main result is a proposal for two complementary indicators of systemic risk or stress in the hedge fund sector: 1) the fraction of funds with significant positive coefficients for the impact on the next period's mean industry return, weighted by the average size of their respective coefficients (DESTABFUNDS) and 2) the equivalent measure for funds with a significant negative coefficient (STABFUNDS). Both measures display temporary amplitudes just before and during almost all periods in our reporting sample ranging from January 1995 to October 2013 that are commonly identified as stress periods in financial markets (cf. V.01).¹ Thus, the two measures seem to perform well as indicators of systemic risk or stress.

In addition to these main results, the paper provides some evidence that during the financial crisis of 2007 both speculative and hedged hedge fund strategies were of particular relevance. Funds exposed to sector trends, be it due to market-directional strategies, high leverage ratios, the use of implicit sector benchmarks, similar quantitative investment models or other reasons, are quite vulnerable to sector trends and therefore contribute to the persistence of sector trends over time. On the other hand, we find strong evidence that some 10 percent of hedge funds that hedged against market trends benefited from the

¹ For the sake of simplicity, this list has been compiled by exploiting and combining different internet sources on the topic.

increasing level of hidden risks within the industry in the years before the financial crisis of 2007. Finally, we find that for both the mean level and the cross-sectional variance of hedge fund returns episodes of positive serial correlation can be isolated, even if unusually strong performance persistence seems to be rather short-lived, fading out again after a couple of months.

The results presented are tested for their robustness using relevant test statistics as well as general statistical reliability measures. The main results are supported by these and turn out to be quite robust in terms of changes in model specifications involving features such as the specified significance level for choice of funds with significant coefficients, lag lengths, the length of the rolling windows used for the construction of the indicators, the maximum number of missing observations accepted and the choice of endogenous variables. This robustness affirms the reliability of the proposed indicators and their ability to pick up systemic risks.

Database of proposed risk indicators

Due to the current lack of consistent and comprehensive high-quality data on hedge funds (see Joenväärä et al. (2014) and Patton et al. (2013) for a detailed discussion) any measure of risks in this industry needs to be based on data available from commercial vendors. This data is collected on a voluntary basis from hedge funds, which potentially base their reporting on strategic considerations. The resulting limitations in data availability will be resolved, at least in the EU, by the data collection under AIFMD which has already begun. However, the generation of samples sufficiently long enough to employ time series, or even panel analysis, will take time. For the near future, analytical work in this field will therefore still have to resort to commercial data as well.

Consequently, our data on hedge-fund returns is derived from four different commercial databases: Barclay Hedge, Eurekahedge, HFR and TASS. We employ several databases because hedge funds often choose to provide such information to one or several particular private data providers, but not necessarily to all of them. Hence, individual databases potentially cover only part of the entire hedge fund universe. There is thus a need to merge data from different sources and, at the same time, to spot and delete any duplicates resulting from a fund being covered by several databases. Deduplication is achieved by an algorithm, using a combination of qualitative and quantitative data comparisons in order to identify duplicates and performing statistical criteria to test for their identity.² Having established a unified database free of duplicated funds, we extracted monthly returns for 21,985 different funds ranging from December 1956 to December 2013. From this universe, we chose all returns available for any sub-period between January 1990 and

December 2013 as the base sample for our analysis. For each of these periods, moments of the respective cross-sectional distribution were computed for subsequent use as representatives of the entire industry.

As indicated by the inclusion of all hedge funds for which data are available, we focus in our analysis on the entire global hedge fund industry. This is done in order to depict the properties of a market segment which has traditionally been seen as particularly internationalised, also due to low regulatory requirements. But from the perspective of a regulator, the fund universe domiciled or active in its own jurisdiction is of particular interest. Hence, we also reproduce the analysis for the universe of EU hedge funds, i.e. funds domiciled within the EU. This results in a sample size for the EU of roughly one-fifth of the entire hedge fund industry. Results for this sample form the basis of the proposed stress indicator for EU hedge funds in R.9.

Aggregate data on financial markets complement our data on hedge fund returns. The performance of equity markets is represented by monthly returns from the Dow Jones Index. Equity volatility is measured by a proxy for equity price volatility, which is presented in detail below. We gauge liquidity risk as the difference between the 3-month LIBOR and the 3-month T-bill rate. Interest rate risk is proxied by the change in the 3-month T-bill rate. Term structure risk is denoted by the change in the slope of the yield curve, i.e. the yield spread between the ten-year bond rate and the 3-month T-bill rate. Default risk is proxied by the credit spread between the 10-year BAA corporate bond and the 10-year T-bond rate. Finally, real estate returns are proxied by the S&P Case-Shiller home price index. We employ aggregate financial market data for the US in order to capture the strong focus of the hedge fund sector on this particular market.

The set of variables selected above is characterised by multicollinearity. To resolve this issue, we first recompute an alternative equity volatility proxy as the residual of a GARCH(1,1) model in equity prices.³ This proxy, by construction orthogonal to equity prices, is used as equity price volatility. Any residual multicollinearity among the other exogenous variables is eliminated by the application of a principal component analysis. The resulting orthogonal components are used, together with the equity volatility proxy just presented, as exogenous regressors in our econometric model.

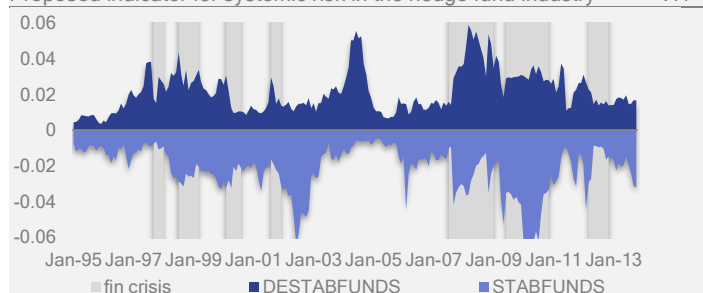
² The four data bases were merged using externally provided dedicated software. In spirit the merging methodology is close to Joenväärä et al. (2014).

³ The generalised autoregressive conditional heteroskedasticity (GARCH) model was developed by Bollerslev (1986) in order to account for the possibility of heteroskedasticity following an autoregressive moving average (ARMA) pattern in economic time series data. A GARCH(1,1) model represents the variance of a process as an ARMA(1,1) process implying that the variance is governed by its past estimates and realisations. In our case this essentially boils down to assuming that the variance in equity prices is an outcome of a kind of adaptive learning process for market participants, putting more weight on recent expectational errors in variance estimation than on more distant past ones. As the model is used as a filtering device and allows time-varying variances to be taken into account while obtaining efficient regressions in a relatively sparse model, it seems a fair representation of past data.

Empirical evidence for systemic risk

Employing the econometric methodology presented in detail in box V.01 for various model specifications produces two indicators, DESTABFUNDS and STABFUNDS, characterised by values increasing shortly before or during all major financial crises since 1995. During the crisis with the most severe impact, i.e. the financial crisis of 2007 and thereafter, the share of regressions reporting persistence in cross-sectional performance dispersion in the hedge fund sector also ticked up sharply in most of the estimated models. Our econometric evidence selects the baseline model including the sector average, the variance, the kurtosis and the skewness of cross-sectional returns as sector moments. However, we can also reconfirm the time series result of Bali et al. (2012) that neither the skewness nor kurtosis of the hedge fund returns have a significant impact on individual hedge fund returns to the cross-sectional dimension. Thus, while we keep these two variables in order to improve the model fit, we neglect them in interpretation of the econometric results.

Proposed indicator for systemic risk in the hedge fund industry V.1



Note: Fraction of regressions with estimators reported as significant at a 99% level multiplied by average strength of respective estimators. Areas for financial crises report the Asian crisis, the Russian default crisis (also LTCM), the dotcom crisis of 2000, the crisis following September 9-11, the great recession starting in 2007, the EU debt crisis starting in 2009 and its continuation in 2012.

Sources: Barclayhedge, Eurekahedge, TASS, HFR, ESMA.

The indicator DESTABFUNDS matches all financial crisis periods observed, with either a sharp upward jump when they began or before they actually started. The indicator STABFUNDS reacts either simultaneously or with a slight time lag and exhibits marginally higher persistence. Fluctuations in both measures are mainly driven by respective fractions of funds with significant estimators, while the strength of these estimators is the main force behind level increases for both indicators in the second half of the sample period. The only period showing higher levels in our measures not occurring during any financial crisis, i.e. the period between 2002 and 2005, fits with the period of increased likelihood of hedge funds experiencing poor performance rates reported in Chan et al. (2005). While the qualitative features of the results remain broadly unchanged, if the length of the rolling window is increased from 36 to 48 or 60, the measures' reactivity and their fluctuation levels are reduced. Hence, we did not find any evidence to support objections to the chosen specification of 36 observations as an adequate length for the rolling window regressions.

Econometric Model

V.01

The systemic stress measure proposed in the main text is built on a set of Vector Autoregressive (VAR) models linking individual fund performance with measures characterising the cross-sectional distribution of rates of return in the hedge fund industry. The model takes the form

$$\begin{pmatrix} IFR_t \\ SM_t \end{pmatrix} = \sum_{j=1}^n \begin{pmatrix} b_{11t-j} & b_{12t-j} \\ b_{21t-j} & b_{22t-j} \end{pmatrix} \begin{pmatrix} IFR_{t-j} \\ SM_{t-j} \end{pmatrix} + AX_t + \begin{pmatrix} e_{1t} \\ e_{2t} \end{pmatrix}$$

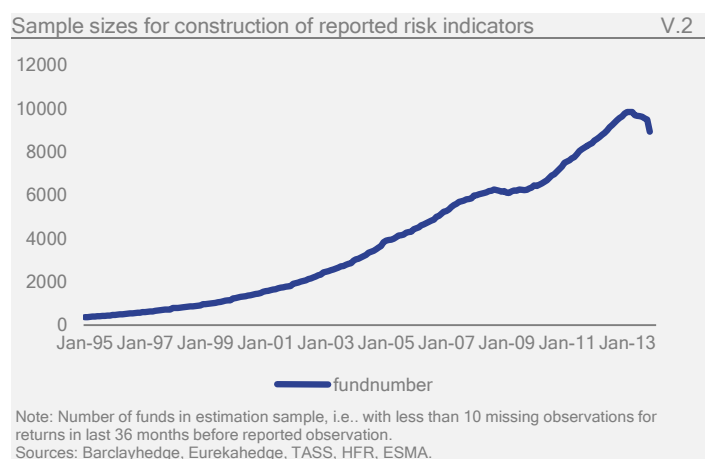
where IFR denotes individual fund returns, SM is the vector of moments of industry returns, X is the vector of exogenous control variables and e_t are scalars and vectors of iid shocks of appropriate dimensions. As regards the coefficients, b_j denotes appropriately dimensioned coefficient matrices/scalars, while A is the coefficient matrix for the vector of control variables. Finally, n denotes the length of the lag structure, while the subscript t refers to the sequence number of the observation.

We employ the following econometric strategy to construct aggregate measures for intra-sectoral interdependencies. We estimate the model using least square estimation for each individual fund for which maximally k observations are missing within the preceding m months over a sample of $t-m$ to t , where t denotes the current month. We then construct for t several aggregate measures: 1) We compute the fractions of regressions for which we found positive (negative) estimators for the first two elements of b_{12} that are significant on a level of 1%. 2) We compute the same fractions for the first two elements of b_{21} , and 3) we replicate this computation for the first two diagonal elements of b_{22} . In addition, we compute 4) the average strength across all significant estimators b_{12} found in 1), and replicate this analysis for 5) all significant estimators b_{21} found in 2) and for 6) all significant estimators b_{22} found in 3). We also compute, in steps 7) - 9), the products between the measures found in 1) and 4), 2) and 5) and 3) and 6). Finally, we repeat this entire procedure by rolling our samples used for the regressions over a period from $t = 1M1995$ to $10M2013$. This method produces 18 different time series. The first six represent the fractions of funds for which positive or negative significant estimators for the cross-effects between individual funds and the entire sector as well as for the serial correlations in the two first moments of the hedge funds sector's returns have been identified. The next six series report the average strength of the significant estimators detected for the respective fractions identified. Finally, the last six series report the products between fractions of funds with significant estimators and the average strengths of the latter for the respective group of funds. Hence, the results depict the dynamics of these 18 measures over time.

In order to obtain reliability for the results, we provide a few test statistics including: 1) four time series reporting the (adjusted) maximum (minimum) R^2 found across the set of endogenous variables averaged across the entire fund universe at a given point in time; 2) three series containing the ratios of funds which failed the tests for no serial correlation, homoscedasticity and normality of the residuals; 3) three series reporting the average values across all funds for three statistical tests mentioned under 3); and 4) two time series reporting the average lag length chosen by the Lagrange Multiplier test or, alternatively, the average of an equally weighted mix of the lag lengths chosen by the log likelihood, the Lagrange multiplier, the forecast error and the Akaike, Schwartz and Hannan-Quinn versions of the information criterion. Using these measures, several alternative models are compared in order to guarantee reliable model selection. The model is varied using different sets for SM : the first 2 moments of hedge funds' cross-sectional return distribution, the 3 middle quartiles, the first four moments, the percentiles 99%, 75%, 50%, 25%, 1%, the percentiles 99%, 95%, 90%, 75%, 50% and the percentiles 99%, 95%, 90%, 75%, 50%, 25%, 10%, 5%, 1%. In addition, the individual VAR models are run for different parameters including the number of lags, $n \in \{1, 2, 3\}$, the length of the rolling windows used, $m \in \{36, 48, 12\}$, and the maximum number of missing observations allowed to miss in each regression sample before the associated fund is excluded from the cross-sectional sample, $k \in \{0, 5, 10\}$. Finally, different levels of significance are applied for the identification of significant estimators, $SIG \in \{90, 95, 99\}$.

Employing those different parameters, while following the idea of a sparse model structure, our test statistics suggest selection of the model using the first 4 moments with one lag ($n=1$), a rolling window length of 36 months ($m=36$) and a maximum of 10 observations missing ($k=10$). Compared to other models using the moments of the distributions of the hedge fund sector we found: 1) lower fractions with serial correlation, heteroskedasticity or non-normality issues in residuals for models with shorter rolling windows, 2) fewer issues with serial correlation, heteroskedasticity or non-normality of residuals in models with fewer lags and 3) higher R^2 's and fewer non-normality issues for models with less strict requirements on missing observations. With respect to the latter feature in particular, average values for estimators and fractions of significant estimators seem to behave very robustly. The average number of chosen lags identified by alternative criteria reconfirms a lag length of one as a proper choice. Varying the model specification with respect to the set SM , does not produce any changes in the measures' dynamic patterns that are deemed a threat to the model's robustness. Models in which the cross-sectional distribution of the hedge fund sector is represented by a set of percentiles tend to produce less volatile and less reactive indicators, while models using a smaller set of moments or percentiles display similar, but less volatile indicator patterns than their bigger counterparts. The model chosen thus seems superior in terms of signalling power, while its main message remains quite robust with respect to changes in the representation of the hedge fund sector cross-sectional heterogeneity. Finally, the variation in the significance levels does not alter the quality of any result, but merely scales up the level of indicators, the lower the specified significance level. Using the strictest parameter, a significance level of 99% is chosen.

Destabilising funds reinforce sector movements and therefore represent strategies which reconfirm the prevailing pattern of returns in the hedge fund industry. Stabilising funds, on the other hand, form the complement with strategies performing against the trend. While our model does not provide specific determinants behind this classification, an intuitive interpretation is still of value. Thus, particularly at times of market distress, margin spirals, default chains and liquidity discrimination are able to reinforce the influence of relevant destabilising funds on the entire hedge fund sector. The potential use of correlated implicit or explicit benchmarks adds another explanatory element. The mitigating influence of relevant stabilising funds is most likely due to successful exploitation of strategies speculating synthetically against the market direction. Examples of such strategies are global macro, commodity trading advisors/managed futures and relative value strategies, which go along with high leverage and dynamic trading strategies in particular. This interpretation intuitively lends some credence to the evidence that the dynamic profile flags up increases in the influence of destabilising funds earlier than of stabilising funds: destabilising funds lead the general downturn in markets by taking a trigger or early propagation position, while stabilising funds react to the materialisation of stress by decoupling from weak asset market segments.

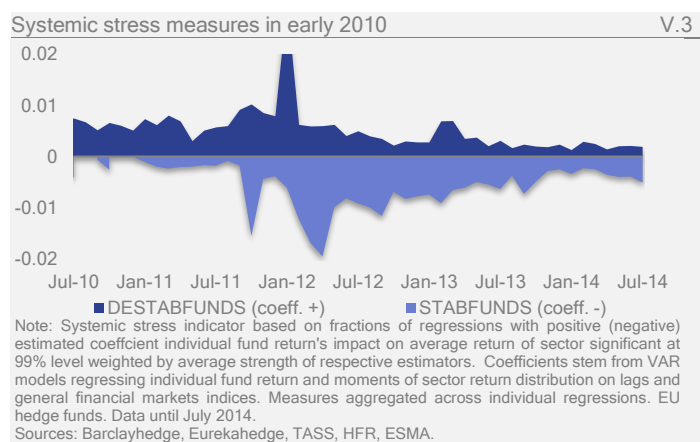


The relative increase in the number of destabilising funds observed since 2003 points to stronger homogenisation of the hedge fund sector. This trend goes hand in hand with the industry's tremendous growth in recent years (cf. T.64 and T.65 for the EA industry and V.2). Such homogenisation might be driven by older and bigger hedge funds' decreasing capacity to generate excess returns. Reasons for this include the effects of decreasing marginal returns for bigger portfolios and increasing dependency on market risk factors discussed in more detail in Joenväärä et al. (2014).

The latter notion is also supported by abrupt level changes in similarly computed indicators for the impact of both stabilising and destabilising funds on cross-sectoral variation in fund returns occurring mainly in periods of financial crisis post-2007. As the respective fractions of identified relevant funds do not experience such changes, these results are driven entirely by the average sizes of significant coefficients. Obviously, an intuitive explanation of these results is that increased opportunities for

speculative strategies led funds to start speculating more heavily on volatility in asset markets and performing abnormally. In so doing, they exerted greater influence on performance variation within the entire sector. As speculators profit most by running against the main market, unsurprisingly funds with a negative impact on sector variation appear to react more strongly to increased stress than those bolstering the industry trend. The indicators based on the coefficients for individual funds' impact on the second moment of hedge fund industry performance thus lend themselves as additional measures of systemic risk. They illustrate the sector's dependence on funds particularly loading on risks associated with higher asset price volatilities and reflect non-linear interdependencies in the hedge fund sector.

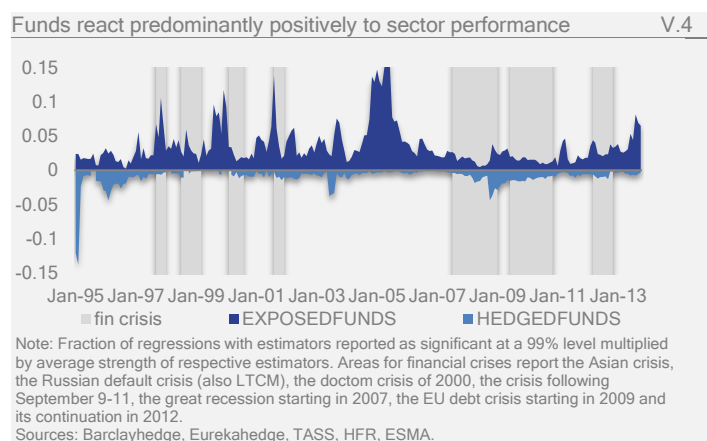
Zooming in on the last four years of our sample, we can observe a peak in both of our proposed indicators just before the second EU debt crisis. Since then systemic risks in the hedge fund industry have remained moderate, although an increase was apparent again in late 2013. Comparison with R.9, which reports on EU funds, illustrates that shortly before and during the latest crisis systemic risks were considerably higher in the EU hedge fund industry. However, stabilising EU hedge funds seem to have benefited particularly from this crisis, thereby somewhat cushioning the hedge fund industry's dependence on exogenous market factors. In addition, the assumption of new risk within the sector appears less pronounced in the EU than in the global market. This may also be a reflection of the pronounced swings in general investment flows into and out of the EM and global market generally observed in the asset management industry in 2013 (cf. T. 68).



Turning to funds vulnerable to sector trends, the respective indicator of the influence of the sector's average return on exposed funds shows some spikes at the start of all financial crises, but they remain quite weak. On the other hand, the equivalent indicator for hedged funds does not show any systematic pattern at the beginning of financial crises. The systematic pattern observed for vulnerable exposed funds seems rather to be driven by the fractions of those funds, while the average strength of their estimators appears to scale the level of this indicator.

Vulnerable funds which are hedged against market stress do not display any specific reaction to market stress, as their behaviour is hardly separable between crisis- and

non-crisis periods. They appear to react only slightly negatively to the remaining sector, demonstrating their successful hedging against one-sided developments within the hedge fund sector. However, vulnerable funds exposed to the hedge fund sector exhibit spikes in their respective measure in the early stage of, or shortly before, all crisis periods. Evidently, these funds follow market directional strategies involving speculative leverage or high risk concentration, implicit benchmarks or similar quantitative investment models that render them quite sensitive to market events. However, in the build-up to the crisis unfolding after summer 2007, vulnerable funds hedged against sector trends did play an important role, as indicated by a pronounced spike in their reaction to the sector's increased performance dispersion. This increase occurred despite a marked reduction in the average strength of the sector's cross-sectional return variation on a vulnerable hedge fund. It was therefore driven entirely by an increase in the share of vulnerable hedge funds within the industry, which jumped temporarily to levels of more than 10 percent of all funds. In this instance, a growing number of funds thus seem to have benefited from the increasing level of hidden risks within the hedge fund sector.



The two indicators depicting the serial positive and negative correlation in the hedge fund sector's average return are both characterised by several marked peaks driven by massive fluctuations in the fractions of regressions with significant estimators. Average levels of respective significant estimators are remarkably stable over time and hover around the value of 1. However, the ratios of funds for which the model detects positive serial autocorrelations for the average return of the hedge fund sector far exceed those with negative coefficients. Positive autocorrelation is thus predominant, despite periods of pure negative autocorrelation. While the sparseness of reactions in the two indicators does not suggest any particular role in the identification of systemic risk, the prevalence of positive autocorrelation patterns reconfirms several studies which report performance persistence in the hedge fund sector at the industry or strategy level.

Indicators of the persistence of individual fund risk, expressed by the cross-sectional dispersion of fund returns, show hardly any amplitude at all, since for most periods either none or only a tiny fraction of significant coefficients are found. There are two noteworthy exceptions, however: In early 1997 almost all fund regressions indicate negative

autocorrelation of return variances within the hedge fund sector, implying high levels of volatility. This pattern holds throughout the first 3 quarters of 1997. In September 2007, almost 70% of all fund regressions confirm a positive autocorrelation in the sector's return variance, which fades almost completely after only one month. While episodes of serial correlation in the sector-wide variation of hedge fund returns do therefore exist, they are relatively rare and do not last long. The findings of Akkay et al. (2013) that so-called crash states, i.e. occurrences of negative mean returns and high volatilities, are rare and not normally persistent, are thus borne out by our results.

Conclusions

This contribution aims at identifying systemic risks and/or stress within the hedge fund industry. Based on the proposition that intra-sectoral interdependencies should be observable in the cross-sectional distribution of hedge fund returns, we propose two particular indicators for this task. For this purpose we construct a large set of Vector Autoregressive (VAR) models regressing individual hedge fund returns and measures for their cross-sectional distribution on previous materialisations for the same variables and a set of exogenous variables. We use sector-wide aggregations of significant coefficients obtained from these regressions to construct proxy measures for the impact of individual funds on other funds and vice versa.

Our proposed measures for the impact of individual funds on the entire hedge fund industry (cf. V.01 for global industry and R.9 for EU industry) appear to be sensitive to all identified stress periods for the hedge fund sector. Hence, we argue that together the two indicators DESTABFUNDS and STABFUNDS may be adequate for monitoring measures for systemic risk and/or stress in the hedge fund industry. These results are qualitatively robust to various changes in the underlying regression models. The changes include modifications of lag lengths, variations in sample sizes for the individual regressions, application of different significance levels for coefficients identified as significant, and alterations in the set of the model's endogenous variables. We interpret this evidence as demonstrating the proposed indicators' strength, since marginal changes in the underlying methodologies do not affect their capacity to indicate the level of systemic risk. The proposed indicators are part of our regular risk monitoring and have already been included in the ESMA Risk Dashboard.

We complement this main result with alternative measures delivering additional information on intra-sectoral risk transmission and preservation. These measures support the evidence obtained from the main indicators mentioned. Hence, we conclude that the proposed tools constitute an improvement to the still fledgling methodology for monitoring systemic risks and/or stress in the hedge fund industry.

We would like to emphasise a few methodological strengths, which feature in our proposed measures. First, the underlying methodology is quite versatile, allowing e.g. for future rollout of the same measure to different segments of the fund industry such as mutual funds or money market funds. Secondly, the use of second and

higher moments in our baseline model, or alternatively of quantiles in other model versions, factors in non-linear relationships stemming from fat-tailed return distributions, leveraged investment positions and the widespread use of derivatives within the industry. Thirdly, we separate spillover effects and sector-trend effects from persistence in individual fund returns, which is frequently interpreted as an expression of managerial alpha, as well as from other individual fund effects reflecting institutional properties lumped together in the individual fixed effect of the fund. Finally, as with rolling network analysis, we allow for dynamic profiling of systemic risk contribution over time, thereby explicitly acknowledging the potential for compositional and structural changes in the fund industry, such as the surge and abatement of individual entities' systemic impact.

We acknowledge that for the time being our proposed measures do not fully reflect any inter-sectoral systemic risks as discussed e.g. in Billio et al. (2012). However, as the econometric strategy employed checks for risk factors associated with several asset markets and risk categories, we plan to work on complementary measures for this area in the future. Similarly, as also pointed out above, we will be in a position to exploit individual performance persistence for measures of managerial alpha on an individual fund basis, as also provided in Avramov et al. (2008).

As a natural by-product of our analysis, we can provide respective regulators and supervisors with tools for the identification of entities which, according to our proposed measures, may be inclined to contribute to systemic risk within the hedge fund sector.

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