

# Credit Strategy - Europe

## Credit market liquidity – 2019 edition

Bank of America  
Merrill Lynch



Credit Analysis

12 September 2019

### Assessing credit market liquidity

This note constitutes our fourth update of our annual work on the state of liquidity in credit. We shed light on the state of credit market liquidity, by employing different approaches: from bid/offer analysis, trading volumes trends and frequency of bond trading in the euro high-grade and high-yield and sterling credit markets.

We also put under our microscope the synthetics market: the CDS index and options market, the ETF and TRS space but also single-name CDS.

### The buyer of last resort stepped away: pros and cons

Over the past twelve months markets have been more volatile than before. During the first two years of CSPP the credit market enjoyed a goldilocks backdrop: strong technicals and improving macro. However H2 2018 was very challenging on both of these fronts. Macro was deteriorating rapidly, while the ECB was on its way out of the corporate QE program.

Our work shows that as the ECB was stepping away, idiosyncratic risk increased and weaker capital structures were exposed. At the same time investors were able to source more bonds, as the ECB was not a “competitor” any more. Our work shows that liquidity has not deteriorated and possibly improved in places, especially in high-grade space.

### What do you think about liquidity?

Lots of ink has been used to describe the declining bond market liquidity. To shed more light on the state of credit market liquidity, we have asked credit investors how they feel the liquidity backdrop has changed. Interestingly, we find that this year investors are a bit more upbeat regarding liquidity trends, especially in the high-grade market. In the previous two years majority of investors was saying that liquidity was deteriorating. This year more investors said that liquidity remained unchanged. The trend was more positive for smaller size tickets.

### Pockets of liquidity in the corporate bond market

Our analysis shows that for the first time in four years, more bonds trade on a daily basis than a year ago. Liquidity remains concentrated in benchmark bonds; 5y and 10y bonds exhibit better liquidity both in terms of tighter bid/offer spreads and also higher turnover. More interesting takeaways in the note.

### CDS indices – your liquidity hedge

Adding CDS indices into credit portfolios for risk management purposes allows investors to turn the boat faster and more efficiently amid rising volatility in markets; both on the upside and on the downside. Liquidity has improved for another year both in the CDS index market, but also in the CDS index options market.

Additionally thanks to rising idiosyncratic risk (recession fears and challenging business cycle), liquidity in the single name CDS market has become less concentrated, as volumes are more widespread across more single-names.

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Refer to important disclosures on page 27 to 28.

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# Credit market liquidity

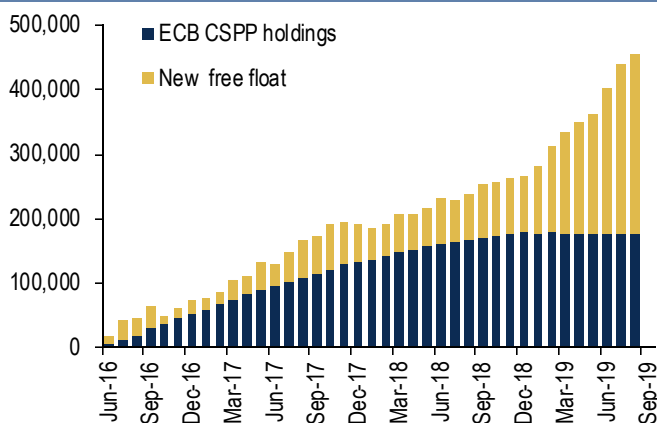
The ECB has stayed out of the credit market so far this year. We have seen signs of improved liquidity during these months for the first time in years. Market participants have more bonds available to buy and markets remain supported by the dovish central bank backdrop, which has allowed credit investors to trade more frequently than before.

Over the years, credit market liquidity has become more challenging, with market participants seeing fewer bids when they need them. The ECB was simply a “competitor” to traditional credit investors, which has helped risk appetite, but reduced liquidity in the market, we think. We note that data we gathered show that liquidity metrics have improved over the past months. Both volumes and market sentiment towards the liquidity backdrop have improved.

CDS has always been the liquidity hedge during periods of challenging bond market liquidity. The CDS market has always been the vehicle to manage risk when it is difficult to move risk around in the bond market. Over the past few years, trading volumes in the CDS market have been rising rapidly, both in the index and the options market.

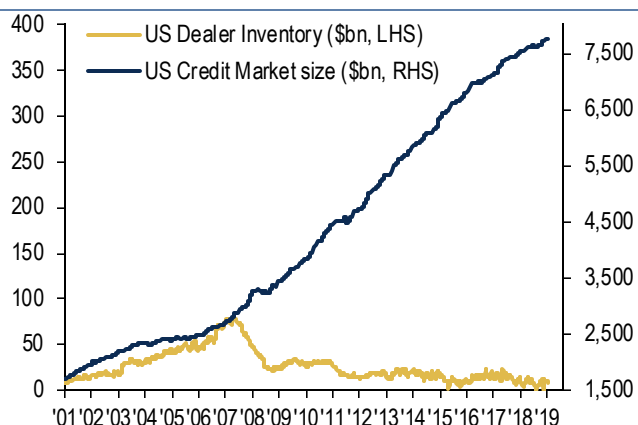
**Chart 1: The end of CSPP meant that market free float increased materially. We think this was pivotal improving liquidity**

Net supply since CSPP started, split by CSPP buying vs available for credit investors



Source: BofA Merrill Lynch Global Research; ECB. For the market growth we use the ENSO index as a proxy for the CSPP eligible bonds universe

**Chart 2: The “buy-side” vs. “sell-side” imbalance after the global financial crisis**



Source: BofA Merrill Lynch Global Research; Bloomberg. The US market size is the sum of the \$ IG (COAO) and HY (HQA0) cash indices face value

**The “buy-side” vs. “sell-side” imbalance is the largest it has ever been. In a world of growing buy-side assets but lower street liquidity, sharp corrections are more common. Dealer inventories of corporate bonds are clearly way down on where they were in '07, but banks also appear more nimble in managing their mark-to-market risks and overall exposures on their securities portfolios.**

Liquidity trends seem to have stabilised and liquidity metrics have bottomed out. Stellar fund flows so far this year and tighter spreads have improved participation and confidence in the market. Liquidity metrics over the past years deteriorated partly because investors had to compete with the ECB to find bonds, but also due to market dynamics and fund outflows (in 2018) that did not help either. 2019 has been a U-turn for credit investors on these fronts, which has improved the liquidity backdrop.

However we find that liquidity typically deteriorates when market volatility returns. With cash balances in decline over the past few months, a further macro deterioration might push investors to de-risk. This will be a headwind for market liquidity.

## Credit liquidity in one chart

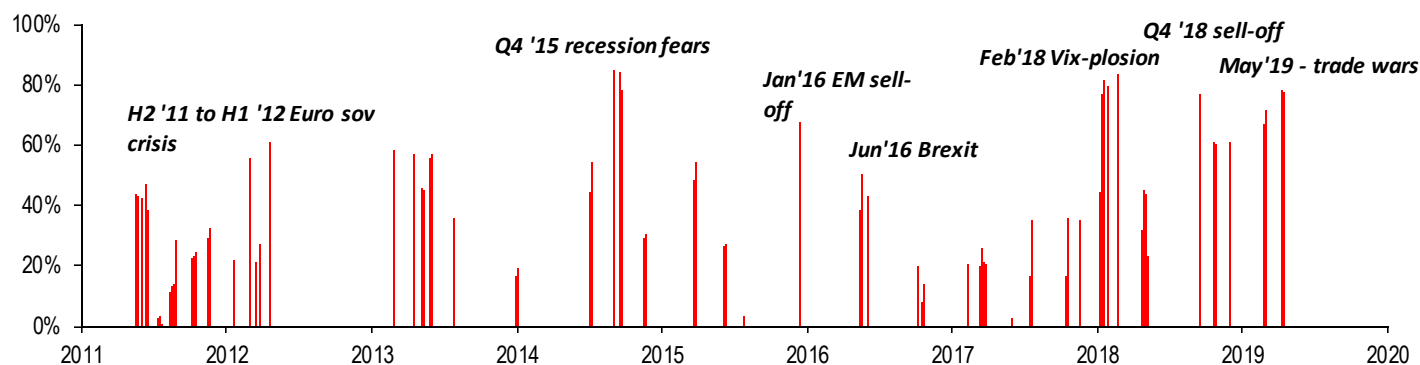
**We think an interesting way to measure fragility in the credit market should focus on a credit investor's worst nightmare: an illiquidity shock. The sharp market moves in Q4 last year had a common factor: lack of liquidity.**

Arguably, it is difficult to quantify liquidity. So many metrics (b/o, turnover, volumes and trade counts), but none of these have the ability to measure "illiquidity aversion" and credit market fragility. We think the volatility market is providing unique and eye-opening insight on the current state of the "illiquidity scare" for market participants and credit market "fragility" in general.

We think the credit index options market could shed some light on that front, as the option market can be the way to measure tail-risk hedging demand. Typically when the credit market feels unsupported, hedging demand increases. As a result, implied vols tend to move higher while implied vol skews are steepening too. Typically credit investors prefer to position for mean-reversion: they prefer to buy payers (downside hedging) in a rallying market and prefer to own receivers (upside exposure) in a widening market. This kind of behaviour effectively exhibits low or negative correlation.

Thus, rarely we find a case where a significant move wider in spreads and higher in vols would keep investors interested in owning tail hedges (and thus steepening the put-call skew further) as bearish risk reversals become increasingly expensive both in absolute and vol terms.

**Chart 3: Liquidity shocks as defined by our framework**



Source: BofA Merrill Lynch Global Research

We measure 5-day moves for the 3m ATM vol vs. moves over the same 5-day period for the put-call skew (120-80% of the Fwd). We then calculate the 50-day rolling correlation between these two time series. We only present correlations when 5-day vol moves are higher than 5 vol points.

This approach effectively identifies the periods when credit risk managers need to hedge downside risk at any cost. Chart 2 attempts to depict such a phenomenon. In simple terms, the higher the correlation is, the stronger the need for tail hedging, amid a vol shock in credit.

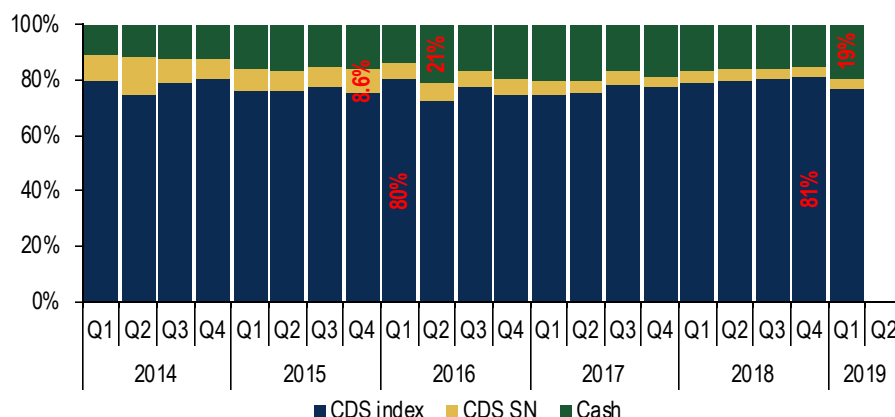
In our opinion, this clearly reflects the high levels of risk aversion and illiquidity fears over the past couple of years and especially during Vix-plosion in February 2018, the sell-off in Q4 2018 and this year's periods of trade war escalation. It seems that investors have been hitting the "panic" button harder and harder over the past few years than at any other time in history.

# The price of liquidity

There are four different ways to trade credit. Investors can either use cash or synthetics in a single-name (stock-picking) format or via macro plays. So the key pillars of trading credit can be split between corporate bonds and single-name CDS on a name-by-name basis, and ETFs and CDS indices on the macro side. The TRS market on cash indices is also another vehicle for trading corporate bonds in a macro format.

**Chart 4: Pick and choose**

Trading volumes per product as a % of the total volumes



Source: DTCC, BofA Merrill Lynch Global Research, DTCC, Trax; Cash = corporate bonds

In chart 3 we present the relative volumes traded via CDS indices, CDS single names and the underlying corporate bond market. Below we highlight the key takeaways:

- Over the past years, we have found that an even larger proportion of volumes go through the CDS index market at the expense of single-names CDS and the corporate bond market. This can be attributed primarily to the need to trade more liquid and “cheaper” (in terms of transaction costs) instruments. Note that the figures for Q4 2018 show that the CDS index market (relative) volumes have set new highs amid rising macro risks and the need to use more liquid instruments to express their credit view.
- Corporate bond volumes – as a percentage of the overall credit market trading volume – peaked in Q2 2016, when the ECB announced its intention to buy corporate bonds, but before started buying corporate bonds via the CSPP program. Note that since then volumes have declined compared with those going through the CDS index market.

**However, in Q1 this year we saw a notable increase in the bond market share of volumes, as the ECB stopped CSPP.** We think investors were able to find more paper to add risk especially amid a risk-on environment.

- Amid lower idiosyncratic risk, we have seen smaller volumes going through the single-name CDS market. SN CDS trading volumes peaked in Q4 2015, amid rising risks in the energy space and the need to hedge against specific stories. However, we think that rising idiosyncratic risks, as CSPP has now ended, will improve single-name CDS liquidity as investors need to hedge single-name stories.

**We expect this trend to continue with investors owning bonds for longer, hedging short-term market volatility via macro products (mainly via CDS indices and options). This is predominantly because of the notable cost benefit of trading macro instruments vs. single-name ones, and CDS vs. cash products. Investors will increasingly own bonds for alpha and hedge beta via liquid instruments. Single-name CDS liquidity will pick up again, amid rising idiosyncratic risks.**

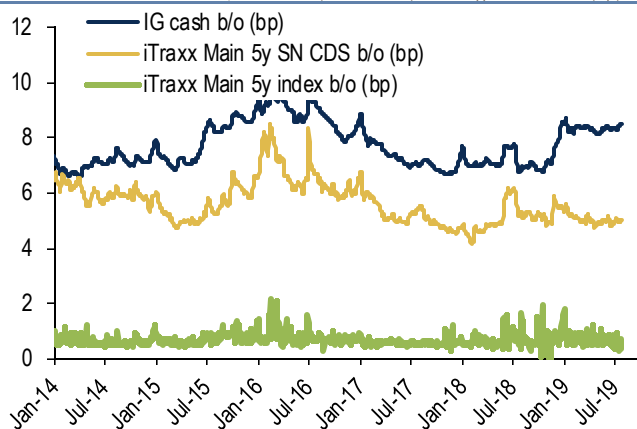
## Investment grade credit market

**Synthetics – Macro vs. Micro:** While single-name CDS in high-grade space trade at ~5bp of b/o cost, the IG CDS index (iTraxx Main) trading cost has been below 0.75bp for most days so far this year (chart 4). While both instruments b/o costs are impacted by market shocks, we find that bid/offers tend to normalise to previous levels more quickly in the CDS index but take longer on a single-name CDS level.

However, so far this year, amid a rising idiosyncratic risk backdrop, b/o costs have slightly increased in single-name CDS ending two years of improving b/o costs.

**Chart 5: The different layers of credit market liquidity**

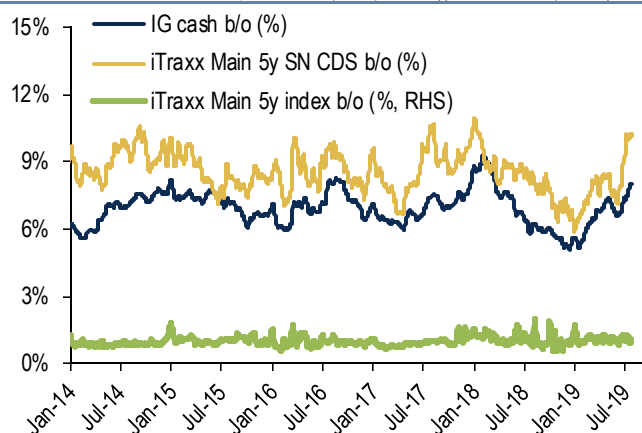
Bid/offer cost for IG cash bonds, CDS index (iTraxx Main) and single-name CDS (bp)



Source: BofA Merrill Lynch Global Research; Bloomberg

**Chart 6: The different layers of credit market liquidity**

Bid/offer cost for IG cash bonds, CDS index (Main) and single-name CDS (% of spread)



Source: BofA Merrill Lynch Global Research; Bloomberg; normalised vs. index level

**Cash bonds vs. single name CDS:** Moving in the cash market, corporate bonds tend to trade at higher b/o cost (on average) in the IG space than their SN CDS counterparts. This is predominantly on the back of broadly wider OAS spreads (for ER00 index) vs. the SN CDS market (iTraxx Main constituents). Just like single-name CDS, cash bond b/o (absolute) costs have deteriorated YTD amid higher idiosyncratic risk.

However when we look at the b/o cost per unit of spread (normalised to the underlying broad market spread level), we find that the b/o cost is slightly higher in the SN CDS space vs. that of the corporate bond market (chart 5). Trends are almost identical.

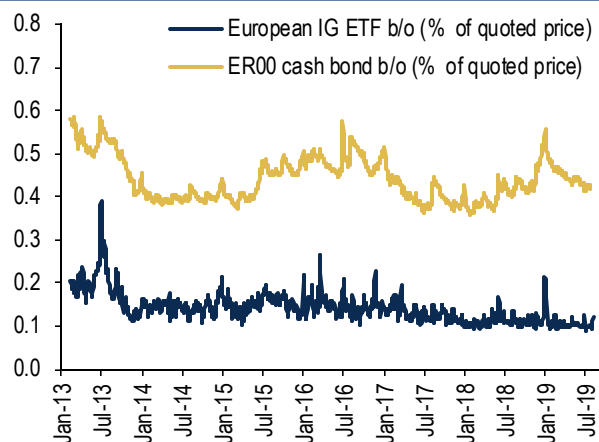
We also note that due to the recent rally in spreads, b/o costs have failed to retrace at similar pace and thus the b/o cost adjusted for the level of spreads has increased; this shows that the transaction costs are struggling to compress further and in line with market strength.

**Bonds – Macro vs. Micro:** We witness similar trends in the cash market (chart 6).

Macro cash instruments like ETFs are much more liquid and their trading b/o costs can be much lower than those of the underlying corporate bonds. Transaction cost spikes occur in both markets, but those in macro products do not last long.

**Chart 7: The price of liquidity**

Average IG cash bond b/o vs that of European focused high-grade ETF funds



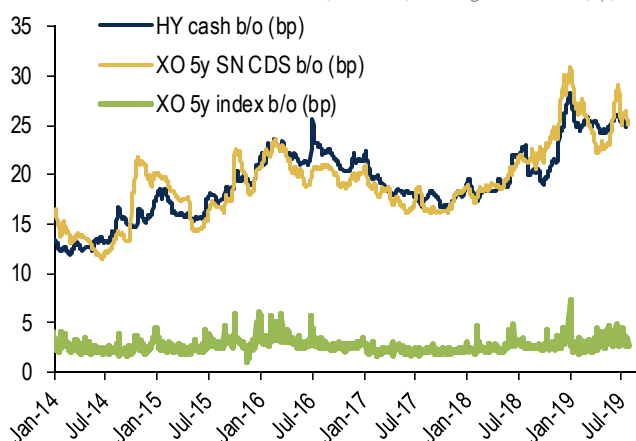
Source: BofA Merrill Lynch Global Research; Bloomberg, Reuters. We pool a large sample of European focused high-grade credit ETFs to get the median bid/ask price differential at noon time.

## High-yield credit market

**Cash bonds vs. single name CDS:** Looking at the trading costs (b/o) across the high-yield market, we find that the bid/offer cost in the corporate bond and the single-name CDS market is broadly similar (chart 7). However, when looking at the same metric normalised vs. the underlying spread level (b/o per unit of the underlying spread) we found that the CDS market b/o is more punitive (chart 8). This has been the case over the past year as the b/o cost increase – on the back of rising idiosyncratic risk – has been met with tighter spread levels across the CDS market. We think this has been the direct impact of a synthetic market that has outperformed the bond market.

**Chart 8: The different layers of credit market liquidity**

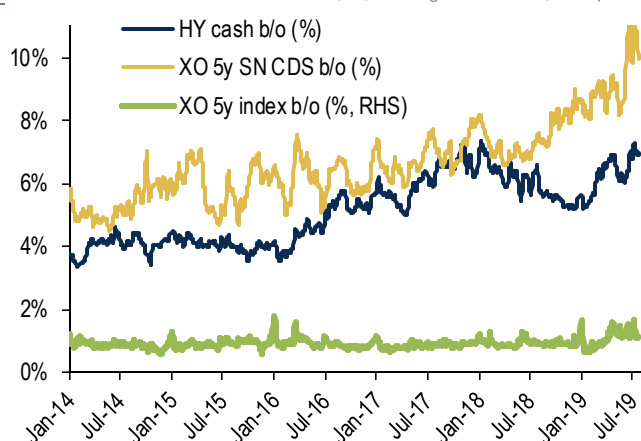
Bid/offer cost for HY cash bonds, CDS index (Crossover) and single-name CDS (bp)



Source: BofA Merrill Lynch Global Research; Bloomberg

**Chart 9: The different layers of credit market liquidity**

Bid/offer cost for HY cash bonds, CDS index (XO) and single-name CDS (% of spread)



Source: BofA Merrill Lynch Global Research; Bloomberg; normalised vs. index level

**Synthetics – Macro vs. Micro:** Similarly to our analysis in the high-grade market, we find that there is significant cost benefit using the CDS index market (Crossover index) as the b/o cost to trade the XO index is substantially lower than in the single-name (bond or CDS) space.

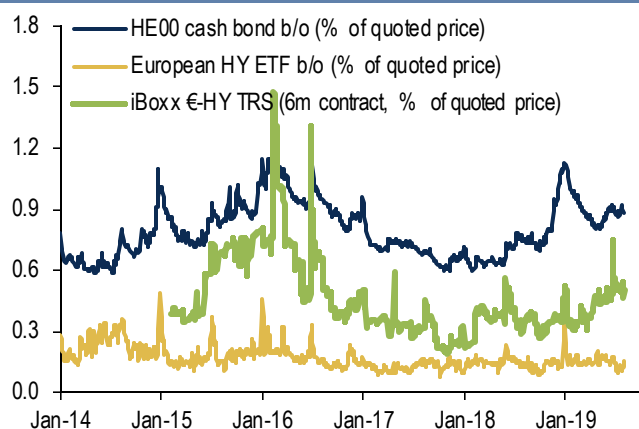
**Bonds – Macro vs. Micro:** There are two different ways to trade cash bonds in the high-yield market. Investors can either buy corporate bonds, or trade the market on a macro basis. This can be done either via the ETF market or the TRS market. The former is physical, the latter is synthetic.

Similarly to the CDS market, we find that macro cash instruments like ETFs and TRS typically exhibit better liquidity and their trading costs are on average lower than the underlying corporate bonds (chart 9).

- The ETF market is trading at lower b/o cost than the TRS market.
- Additionally it feels that the TRS market is more closely impacted by underlying bond liquidity, as the trend seen in b/o costs in the TRS space is more closely correlated to b/o trends in the bond market. ETF costs do exhibit similar spikes but tend to normalise quicker.

**Chart 10: The price of liquidity**

Average HY cash bond b/o vs. that of European focused high-yield ETF funds and the HY TRS market



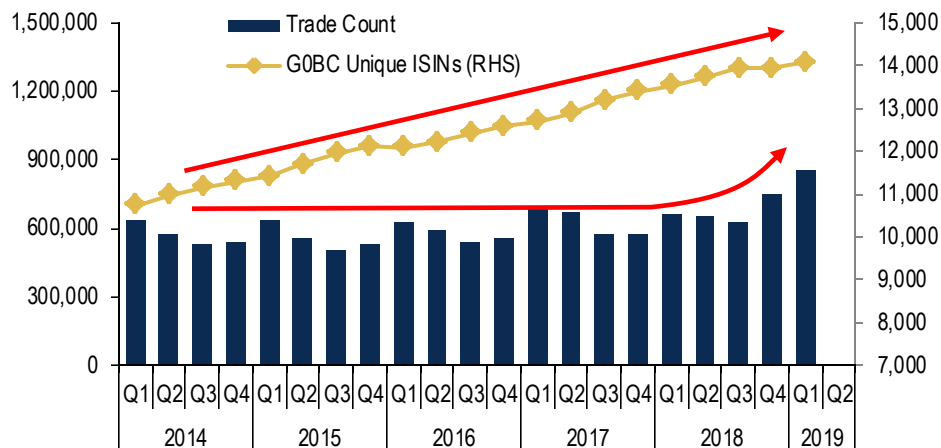
Source: BofA Merrill Lynch Global Research; Bloomberg; Reuters, We pool eight European focused high-yield credit ETFs to get the median bid/ask price differential at noon time.

# The state of credit bond market liquidity

Bond market liquidity has been deteriorating for years. However, over the past couple of quarters, it seems that liquidity trends have not only stabilised but we see signs of improvement in some places. Turnover metrics have not improved but they have not deteriorated either.

**Chart 11: The number of trades has moved higher lately**

# of trades (captured by TRAX) vs. total # of global IG ISINs

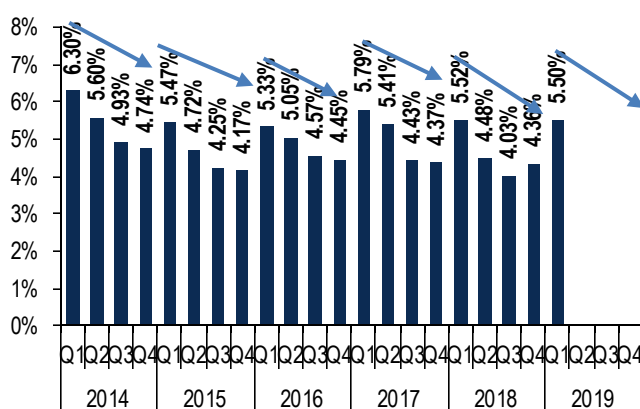


Source: BofA Merrill Lynch Global Research; according to Trax, a MarketAxess subsidiary

Lots of ink has been used to explain declining bond market liquidity. In this section we demystify corporate bond market liquidity and delve into how it has evolved in recent years. We provide a deep dive in liquidity analysis regarding the frequency bonds trade across (i) the euro-denominated IG, (ii) the euro-denominated HY, but also (iii) the sterling (IG) corporate bond market, employing different liquidity metrics. We use data from Trax that capture corporate bonds' trading frequencies out of Europe.

**Chart 12: Declining turnover in the corporate bond market over the year**

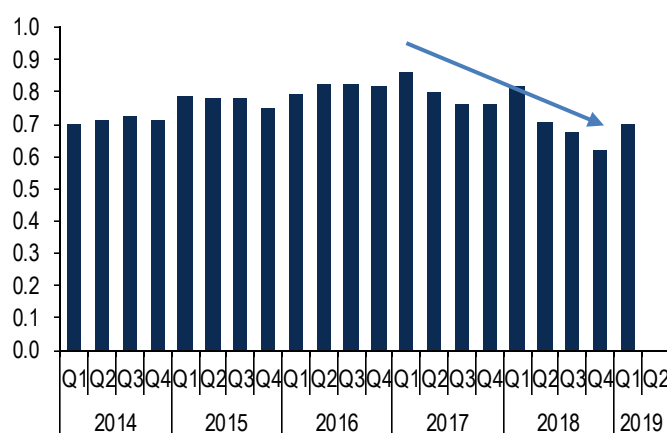
Ratio of corporate trading volumes (captured by Trax) vs size of IG & HY credit market



Source: BofA Merrill Lynch Global Research; according to Trax, a MarketAxess subsidiary; Based on GBOC and HW00 IG and HY global cash indices

**Chart 13: Smaller ticket size in 2018. Small improvement in 2019**

Ratio of Traded Volume over Trade count (in EUR million)



Source: BofA Merrill Lynch Global Research; according to Trax, a MarketAxess subsidiary

Chart 10 shows that the number of trades going through every quarter has inched higher over the past couple of quarters. The number of trades in the corporate bond market has remained relatively stable in the past five years, despite a steadily growing universe of available bonds to trade. However, in Q4 2018 and Q1 2019 we have seen a positive trend.



On the flip side, we find that turnover metrics have continued to be challenged (chart 11). We find that corporate bonds trading volumes have deteriorated and H2 2018 was the worst in terms of bond turnover metrics (trading volumes over size of market), as a lower and lower proportion of the available stock was trading. This was the direct consequence of a material market stress that hit credit markets in Q4 last year.

Our work also shows that liquidity tends to deteriorate during the course of the year (chart 11). This has been consistent since 2014, where Q1 exhibits stronger turnover metrics, while every quarter thereafter sees a smaller proportion of the market trading.

We also find that average ticket size in credit space (IG and HY) has moved lower in 2017 and 2018 (chart 12). However so far this year we can see some positive signs according to Trax data.

Finally, we present the results of our survey across high-grade and high-yield investors, specifically regarding liquidity conditions for the European credit market (conducted alongside our credit investor survey earlier this month).

## What do market participants think of liquidity?

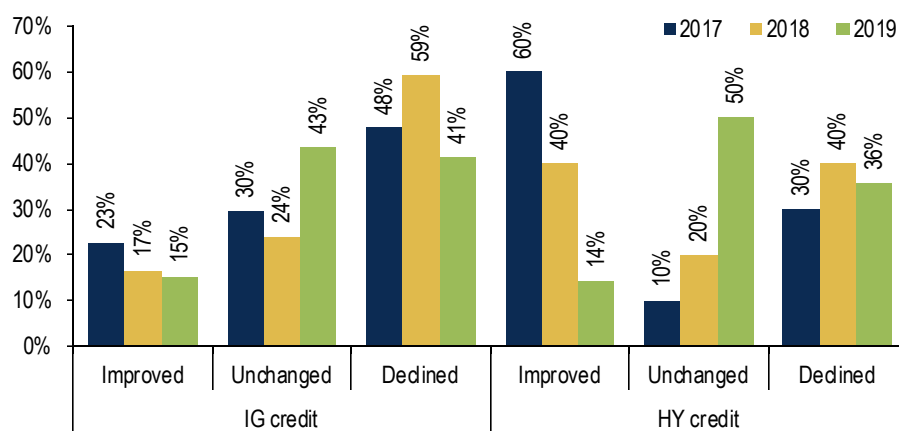
To shed more light on the state of credit market liquidity, as part of our most recent credit investor survey, we asked investors how they think the liquidity backdrop has changed.

**In summary, even though European credit investors still think that liquidity has on balance deteriorated, trends have improved somewhat since our previous Credit Market Liquidity update.**

### What is your perception of credit market liquidity over the past 12 months?

In 2017, 48% of high-grade and 30% of high-yield investors said that credit market liquidity had deteriorated over the previous 12 months. In our 2018 survey, we found that 59% of high-grade and 40% of high-yield investors had seen deterioration. These figures have improved though over the past year with 41% of IG and 36% of HY respondents of our 2019 survey saying that liquidity has deteriorated.

**Chart 14: What is your perception of credit market liquidity over the past 12 months?**

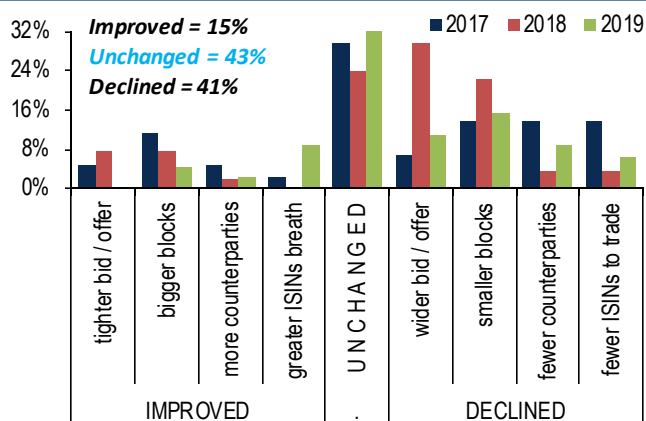


Source: BofA Merrill Lynch Global Research. Percentage of investors

We find that the balance has shifted over the past years. In 2017 and 2018, HY investors were less downbeat on the liquidity front than their high-grade counterparts (in relative terms). This year we find that fewer high-yield accounts think that liquidity has improved (down to 14% in 2019 vs. 40% in 2018 and 60% in 2017).

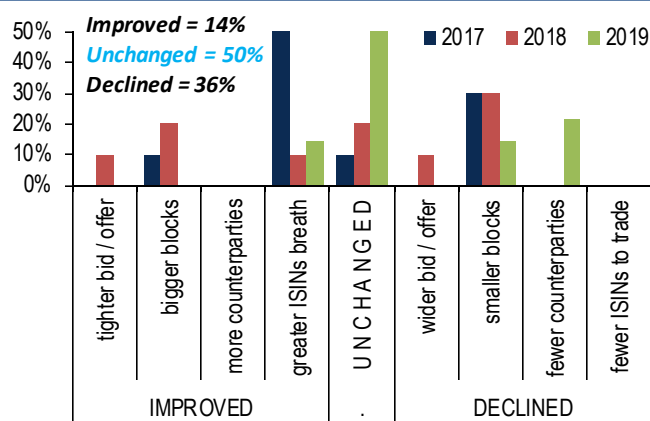
On the flip side, the balance in the high-grade investors' camp has become a bit more balanced (but still negative); most investors think that liquidity has not changed, while fewer think that it has deteriorated (YoY).

**Chart 15: What is your perception of credit market liquidity over the past 12 months? IG investors**



Source: BofA Merrill Lynch Global Research. Percentage of investors

**Chart 16: What is your perception of credit market liquidity over the past 12 months? HY investors**



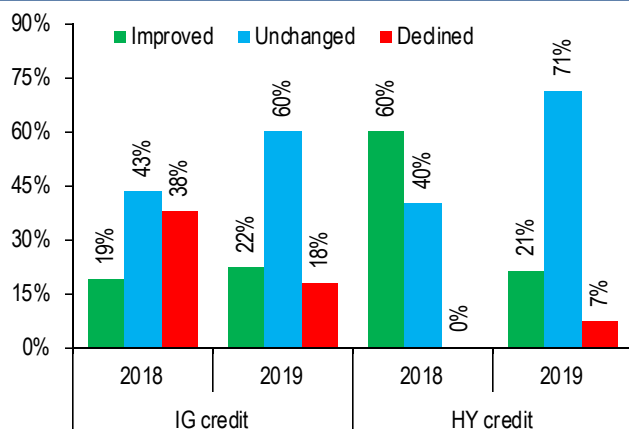
Source: BofA Merrill Lynch Global Research. Percentage of investors

In our 2017 and 2018 surveys, high-yield investors were more upbeat on the liquidity backdrop, amid a significant beta rally and strong reach for yield. However, the Q4 2018 sell-off and rising idiosyncratic risk have negatively impacted their assessment towards liquidity more than what we have seen in the high-grade space. As CSPP has ended, high-grade investors have been able to source more bonds without having to compete against the central bank (great ISINs breath has improved on a net basis, chart 14).

#### Market liquidity for small (<€1 mn) or large transactions (>€10mn) has...

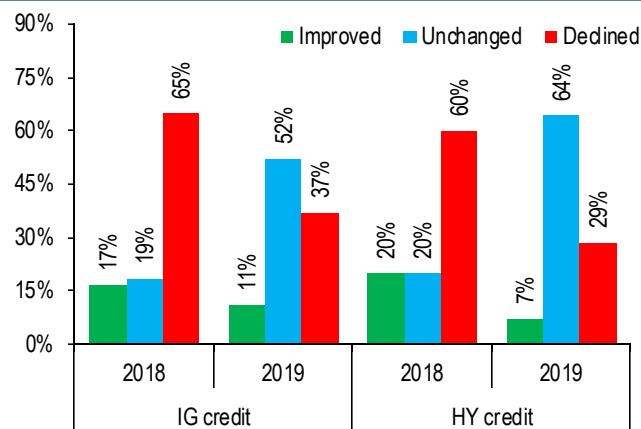
IG investors expressed their view that liquidity trends have bottomed out and actually improved in places over the past year. HY investors even though they still see net improvement (more than they IG counterparties) have been less upbeat.

**Chart 17: Market liquidity conditions over past twelve months for smaller transactions (<€1 million equivalent)?**



Source: BofA Merrill Lynch Global Research. Percentage of investors

**Chart 18: Market liquidity conditions over past twelve months for larger tickets (>€10mm equivalent)?**



Source: BofA Merrill Lynch Global Research. Percentage of investors

- **In small tickets**, it seems that the balance is that liquidity has improved over the past year, as a larger proportion of market participants either think that the liquidity has improved (22%) or remained unchanged (60%). In 2018 38% of IG investors said that small-ticket liquidity had declined. On the other hand, “only” 21% of HY investors think that small deals liquidity has improved, vs. 60% in 2018.
- More importantly, for **big-size transactions**, we find similarly positive trends. Most respondents see an unchanged liquidity backdrop (52% for IG and 64% for HY investors), while the proportion that sees a worsening backdrop has declined from 65% in 2018 to 37% in 2019.

For high-yield investors, we find that the ticket size matters in terms of the liquidity that can be sourced from the market.

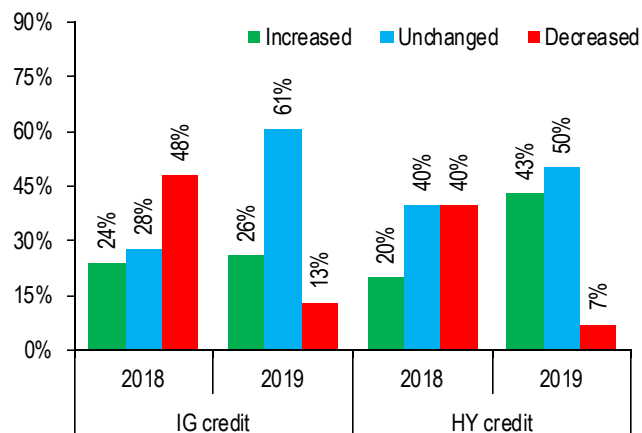
- In **small tickets**, it seems the balance is that liquidity has either improved (21%) or remained the same (71%). Only 7% of HY investors replied that liquidity has deteriorated in the high-yield space for small tickets.
- For **larger transactions**, the majority of respondents see a worsening liquidity backdrop (29%). While only 7% think the liquidity on 10mn+ clips has increased.

#### Average ticket size over past 12 months?

We also asked our pool of investors how the average ticket size has changed over the past 12 months.

- We broadly see that credit investors have seen a turn to the positive side on this front. Over the past year, fewer IG accounts think that the average ticket size has declined (down to 13% from 48%). The majority either see larger or same size tickets going through.
- In the HY space, only 7% think the average ticket size has declined. There was a considerable jump in the proportion of HY survey respondents that think the average ticket size has increased over the past 12 months.

**Chart 19: Average ticket size over the past 12 months?**



Source: BofA Merrill Lynch Global Research. Percentage of investors

## European IG corporate bond market (ER00 index)

### Bond velocity

In our analysis of data from Trax that captures the last date a bond traded, we calculate the (average) number of days it takes to trade one. Our sample includes ~2900 €-denominated IG corporate bonds. We use data from the beginning of 2016 to capture the ECB CSPP impact. We rebalance our sample every time we run our annual liquidity report – based on the current bond universe at that time. Below we highlight our key observations.

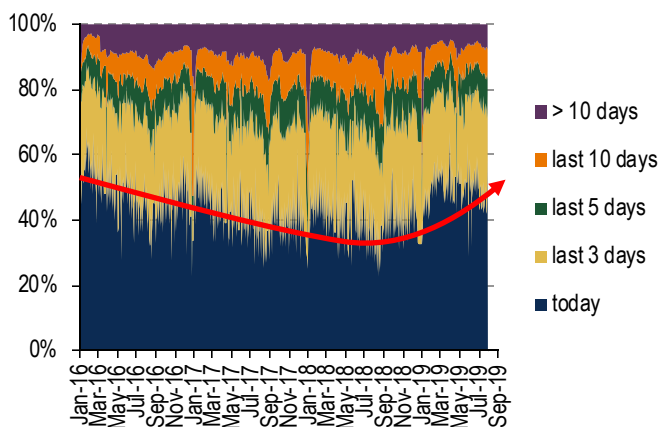
**Chart 19 shows that from 2016 to mid-2018 the number of bonds that trade on a daily basis has declined from as high as 60% to ~35% of the sample. The trend seems to have stabilised over the past year. Our works shows that there are actually signs of improvement as the proportion of the IG market that trades on a daily basis has increased so far this year to ~50%.**

CSPP has been pivotal for the European credit market technicals for the past few years. With the programme having accumulated ~€180bn, it is no wonder that bonds have been harder to source. **It seems that the end of CSPP has allowed more bonds to trade freely in the market as credit managers have less competition to source bonds. In 2019, for the first year since 2016, CSPP-eligible bonds of more than €450mn in size trade more often than before.**

- In 2016, 2017 and 2018 CSPP-eligible bonds with notional of more than €450mn (to exclude small issues), have traded less frequently (chart 20 shows the number of business days it takes a bond to trade on average has increased, red upward sloping arrow). Refreshing our work based on 2019 available data, we found that over the past year, CSPP-eligible bonds with notional of more than €450mn are trading more frequently than before.

**Chart 20: It now takes longer to move a bond**

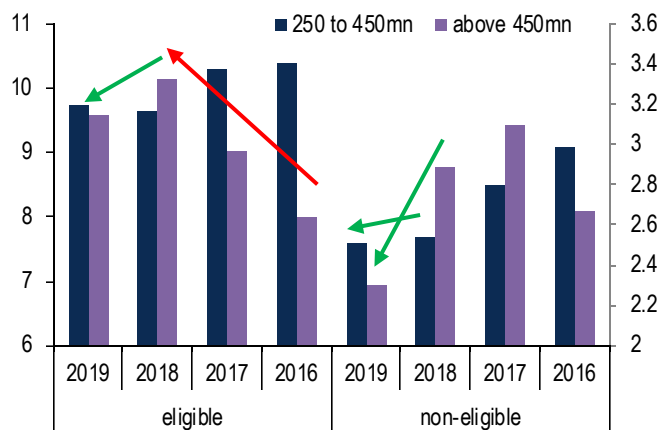
Percentage of the market that trades on different frequency buckets



Source: BofA Merrill Lynch Global Research; according to Trax, a MarketAxess subsidiary

**Chart 21: CSPP eligible bonds tend to trade less often**

Number of business days it takes a bond to trade



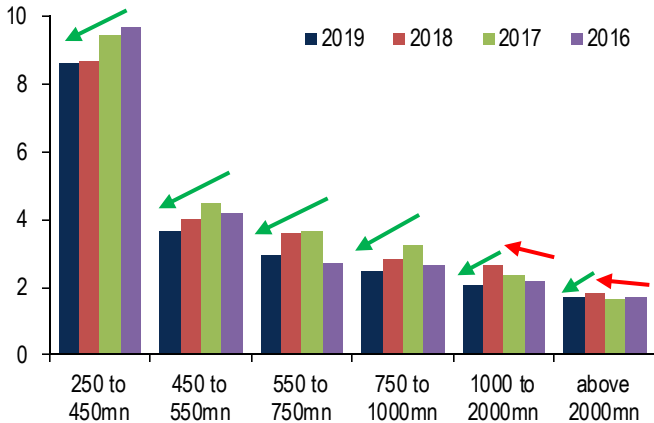
Source: BofA ML Global Research; according to Trax, a MarketAxess subsidiary; above €450mn is RHS

- We also find that QE non-eligible bonds, irrespective of their issue notional, have seen their liquidity metrics (number of days to trade) improving further this year. Note that larger size issues have seen their metrics improving more meaningfully vs. smaller size issues.

In charts 21 to 24 we slice and dice our sample based on our liquidity measure (number of days it takes on average to trade a bond) based on ISIN's notional, time to maturity (or next call), effective yield and OAS level.

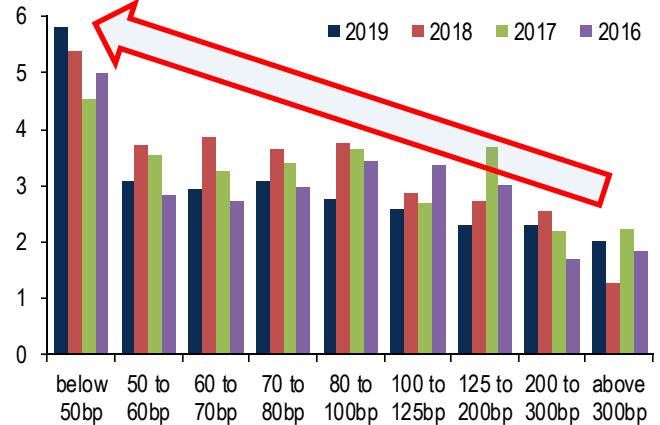
- We find that smaller (larger) size deals exhibit lower (higher) liquidity (takes longer to trade the bond) as the smaller (larger) the deal the more (less) difficult it is to source bonds (chart 21). However, over the past year, we have seen a small improvement in smaller size deals, as the number of days to trade a bond has reduced slightly. It's the same story for larger deals (€1-2bn notional), where these bonds tend to trade more often than in previous years reversing the negative trend seen between 2016 and 2018.

**Chart 22: # of days to trade an IG bond split per ISIN's notional**



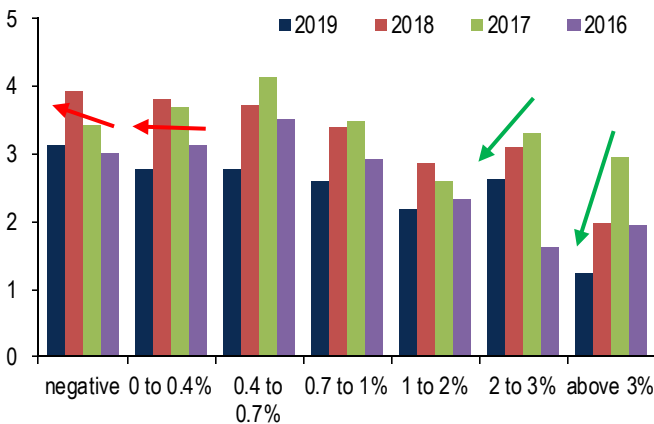
Source: BofA ML Global Research; according to Trax, a MarketAxess subsidiary; notional weighted

**Chart 23: # of days to trade an IG bond split per ISIN's years to maturity**



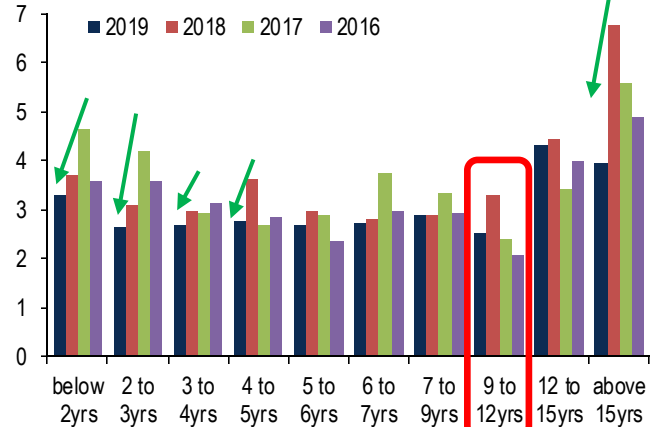
Source: BofA ML Global Research; according to Trax, a MarketAxess subsidiary; notional weighted

**Chart 24: # of days to trade an IG bond split per ISIN's effective yield**



Source: BofA Merrill Lynch Global Research; according to Trax, a MarketAxess subsidiary; notional weighted

**Chart 25: # of days to trade an IG bond split per ISIN's OAS**



Source: BofA Merrill Lynch Global Research; according to Trax, a MarketAxess subsidiary; notional weighted

- Longer-dated bonds (12yr+) tend to trade less frequently. This seems logical as long-duration bonds tend to sit in "steady hands" (investors tend to hold these bonds for longer periods - see chart 24). However, so far in 2019, we have seen improved trading frequency metrics on longer duration paper too.

**The reach for duration (as highlighted in our latest survey) has been pivotal, positively affecting the liquidity on the back-end of the credit market, we think.**

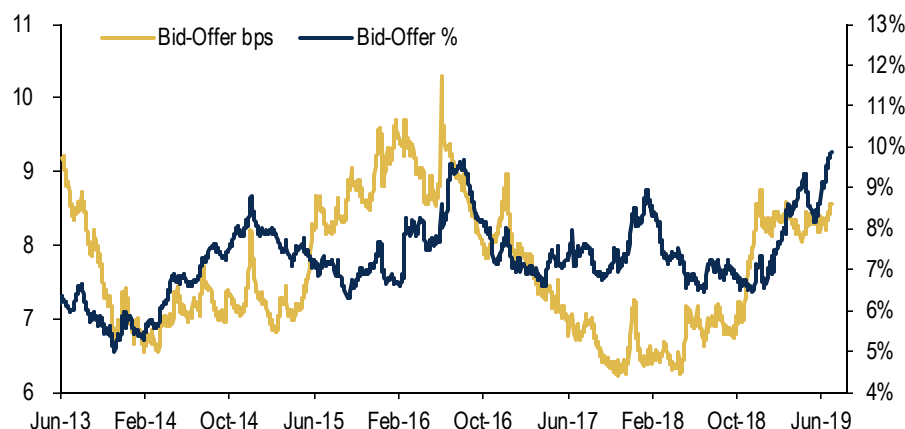
- We also note the better liquidity (trade more frequently) "benchmark" deals (5y and 10y buckets) exhibit compared with bonds with longer or shorter maturity.

- Also we note the improvement of our liquidity metric (# of days to trade) for front-end bonds (<5yrs). **The steepness in the front end, with the depo rate at -40bp has pushed more investors in the front-end of the curve for better roll-down.**
- Finally, lower spread/yield bonds tend to trade less frequently than high spread/yield ones (chart 22 and 23). This again shows the impact of declining bond market liquidity, which makes investors hold tight spread/low yield bonds for longer to recoup the cost of trading. **In simple terms it takes even longer from a pure “buy-and-hold” basis to cover bid/offer costs.** As we discuss in the next section, tighter spread bonds tend to trade at wider bid/offer costs than the underlying spread level.

### The price to pay to move a €-IG bond

Away from using the trading frequency as a liquidity measure we also expand our analysis to touch on bid/offer costs across the corporate bond market. Our universe spans euro-denominated bonds that feature in our EROO corporate bond index.

**Chart 26: The price to pay to move a bond in the € high-grade market**



Source: BofA Merrill Lynch Global Research; Bloomberg; notional weighted, EROO

In chart 25 we present both the absolute level of b/o cost across the euro IG market, but also that cost normalised by the underlying bond spread (b/o per unit of spread).

We find that even though spreads have rallied, the average bid/offer cost (in absolute spread terms) has moved sideways so far this year. On balance, it seems that bid/offers have found a “resistance” level, although broader spread levels have compressed. Since early 2016, average b/o spreads have compressed notably, while b/o as a percentage of the spread of the market has not improved and probably is back to the wides.

### In the detail

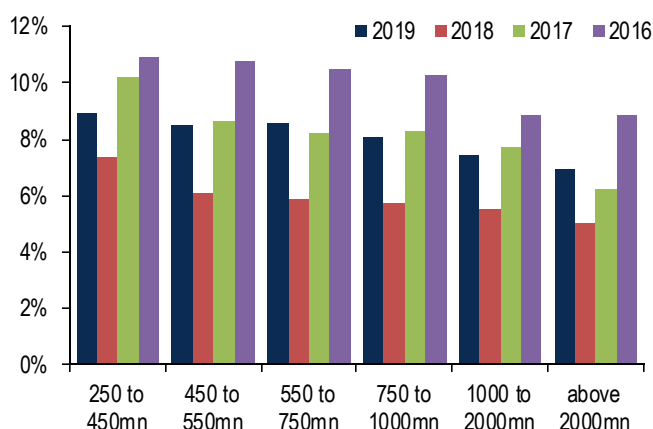
Our liquidity metric is the average bid/offer cost (*observed in the past 12 months*) normalised vs. the underlying spread level. For that purpose we divide the basis-point bid/offer cost vs. the bond’s spread. We only use bonds where we have managed to source bid/offer levels for more than 70% of days so far this year, when they have been issued more than 12 months ago. For those that have been issued over the past 12 months, we take into account only those for which we are able to source b/o data for more than 70% of days since issue date.

We slice and dice our sample’s (~2750 euro-denominated high-grade bonds) bid/offer measure based on the deal’s notional, time to maturity, effective yield and OAS. In charts 26 to 29 we present the bid/offer cost as a percentage of the spread level. Our results are presented on a notional weighted basis. We compare these with our results from last year’s Liquidity report.

We find that:

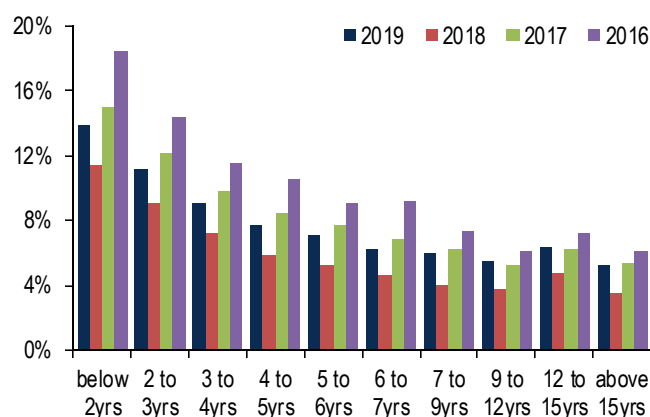
- **Smaller size deals exhibit lower liquidity** (higher b/o cost normalised to the spread level, chart 26).
- Shorter-dated bonds trade at higher b/o levels. We think this is also a function of average tighter spreads and thus the tighter the average bond spread, the higher the b/o in percentage terms.
- We find that bonds of ~10y to maturity (chart 27) exhibit marginally better liquidity (tighter b/o cost measure). We think this reflects the better liquidity for benchmark bonds and worse for longer-dated ones.
- Finally, we find that tighter spread/lower-yield bonds tend to demand higher bid/offer costs to trade (chart 28 and 29). This is most likely a function of a low bound for cost to trade, and thus the lower the spread the higher the b/o per unit of underlying spread.

**Chart 27: Bid/offer divided by spread split per deal's notional**



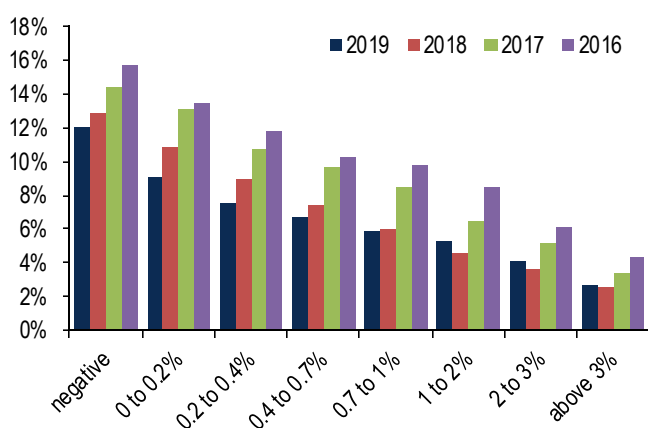
Source: BofA Merrill Lynch Global Research; Bloomberg; notional weighted

**Chart 28: Bid/offer divided by spread split per deal's years to maturity**



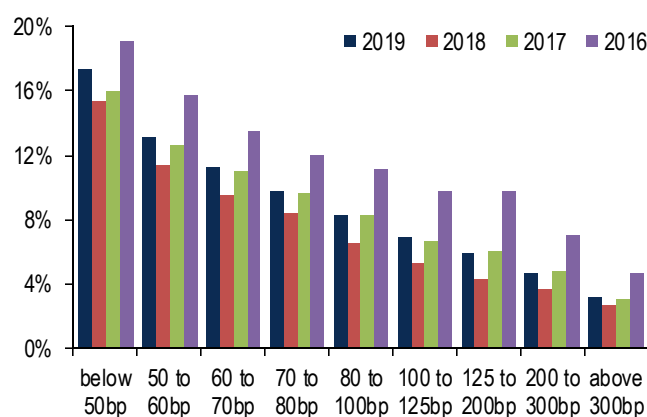
Source: BofA Merrill Lynch Global Research; Bloomberg; notional weighted

**Chart 29: Bid/offer divided by spread split per deal's effective yield**



Source: BofA Merrill Lynch Global Research; Bloomberg; notional weighted

**Chart 30: Bid/offer divided by spread split per deal's OAS**



Source: BofA Merrill Lynch Global Research; Bloomberg; notional weighted

## European HY corporate bond market (HE00 index)

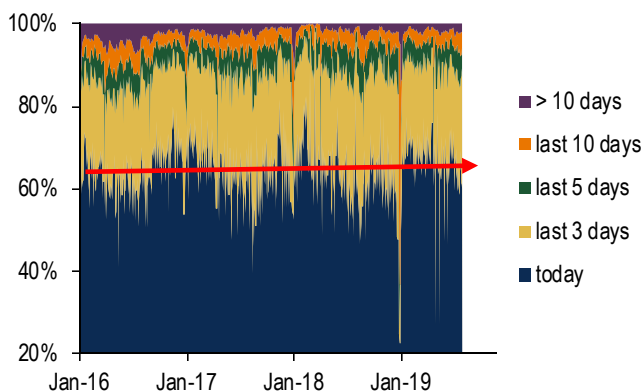
In this section we replicate our turnover and bid/offer cost liquidity assessment in the €-denominated HY corporate bond market.

### Bond velocity

We use data from Trax that captures the last date a bond has traded, and we calculate the (average) number of days it takes to trade a bond. Our sample includes almost 500 €-denominated high-yield bonds. We use data from the beginning of 2016. We rebalance our sample every time we run our annual liquidity report – based on the current bond universe at that time.

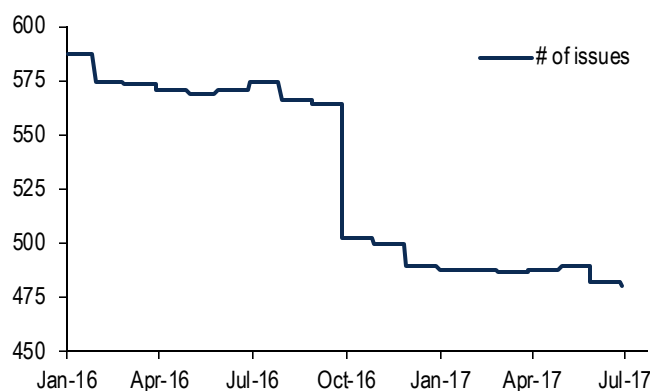
**Chart 31: Liquidity improved post the increase of minimum size**

Percentage of the market that trades on different frequency buckets



Source: BofA Merrill Lynch Global Research; according to Trax, a MarketAxess subsidiary

**Chart 32: Market liquidity now concentrated into a smaller universe**

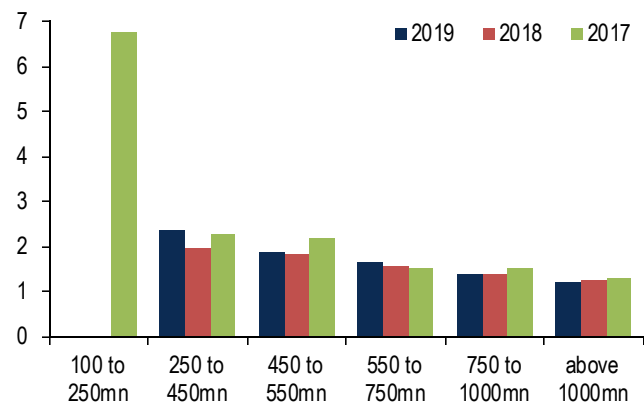


Source: BofA Merrill Lynch Global Research, HE00 index

**The view from above:** Chart 30 shows that liquidity has been relatively stable over the past few years (in terms of trading frequency). More broadly, we find that liquidity in high-yield has remained unchanged, in contrast to what we have been witnessing in the high-grade market, where our similar liquidity measure declined during 2016-2018.

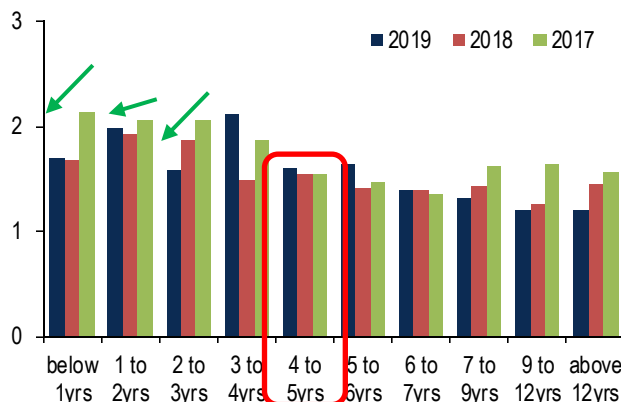
We think the decision to increase the minimum size of issue for index inclusion purposes has been key to improving (in relative terms) liquidity and allowing market participants to concentrate on fewer issues/names. Note that in fall 2016, and due to the index inclusion changes smaller than €250mn size issues were excluded (chart 31). Broader market shrinkage on the back of refinancing via the loans market has also reduced the available HY bond universe and thus high-yield investors have focused on lesser bonds to trade.

**Chart 33: # of days to trade an HY bond split per ISIN's notional**



Source: BofAML Global Research; according to Trax, a MarketAxess subsidiary; notional weighted

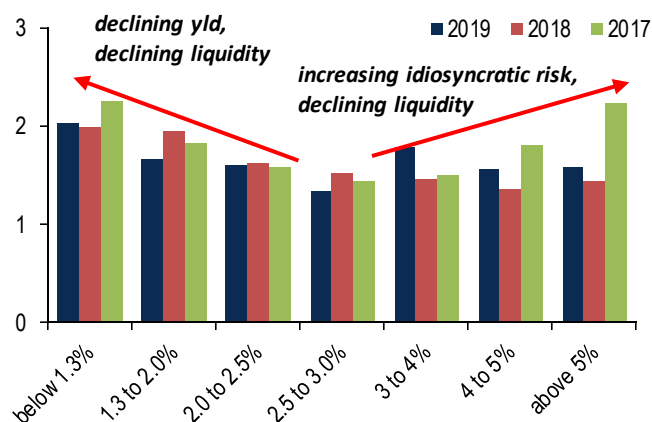
**Chart 34: # of days to trade an HY bond split per ISIN's years to maturity**



Source: BofAML Global Research; according to Trax, a MarketAxess subsidiary; notional weighted

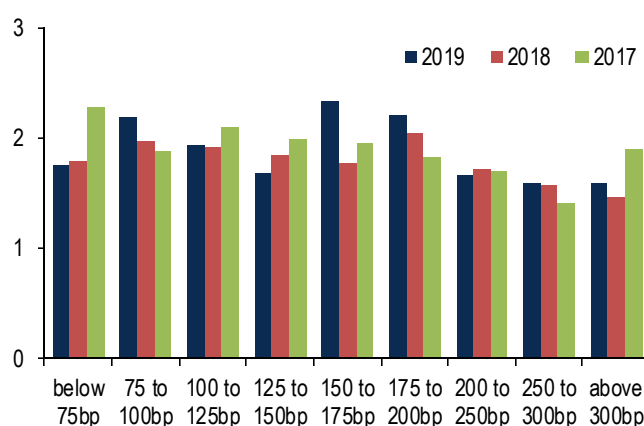


**Chart 35: # of days to trade an HY bond split per ISIN's effective yield**



Source: BofAML Global Research; according to Trax, a MarketAxess subsidiary; notional weighted

**Chart 36: # of days to trade an HY bond split per ISIN's OAS**



Source: BofAML Global Research; according to Trax, a MarketAxess subsidiary; notional weighted

In charts 32 to 35 we slice and dice our turnover metric (number of days to trade a bond on average) by a number of different factors. We run our analysis based on data over the past 12 months.

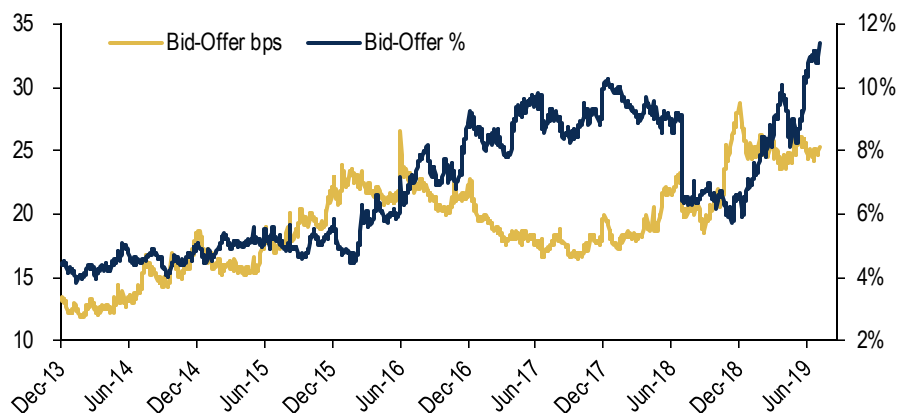
We find that:

- Small size deals (chart 32) tend to exhibit lower liquidity.
- There is better liquidity and more frequent trading for deals of around 5y. Benchmark deals (chart 33) tend to exhibit higher liquidity (more frequent turnover).
- In terms of yield level splits (charts 34), we find that liquidity improved in the belly of the yield on offer. The lower the yield, the longer it takes to move a bond around, but also the higher the yield, the higher the idiosyncratic risk embedded in the bond, and thus negatively impacting trading frequencies.

### The price to pay to move a €-HY bond

Our universe spans euro-denominated bonds that feature in our HE00 corporate bond index. In chart 36 we present both the absolute level of b/o cost across the euro HY market and the cost normalised by the underlying bond spread.

**Chart 37: The price to pay to move a bond in the € high-yield market**



Source: BofA Merrill Lynch Global Research; Bloomberg; notional weighted, HE00

We find that over the past 24 months b/o metrics have broadly deteriorated both in absolute, but more notably, per unit of spread. We think this trend has been the result of a rising dispersion backdrop, where increasingly more and more single names and bonds are prone to event risks and thus severe price downward adjustments. We note that this deteriorating trend for b/o liquidity metrics has been consistent over the past years and clearly reflects the lower appetite for sell-side firms to own idiosyncratic stories for risk management purposes.

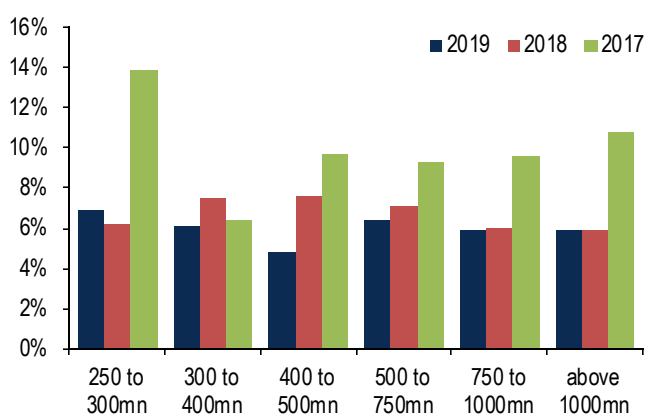
### In the detail

In charts 37 to 40 we present the bid/offer cost as a percentage of the spread level. We use the same methodology as in the high-grade euro-denominated market. Our liquidity metric is the average bid/offer cost (*observed in the past 12 months*) normalised vs. the underlying spread level. For that purpose we divide the basis-point bid/offer cost vs. the bond's spread.

We only use bonds where we have managed to source bid/offer levels for more than 70% of days so far this year, when they have been issued more than 12 months ago. For those that have been issued over the past 12m, we take into account only those for which we are able to source b/o data for more than 70% of days since issue date.

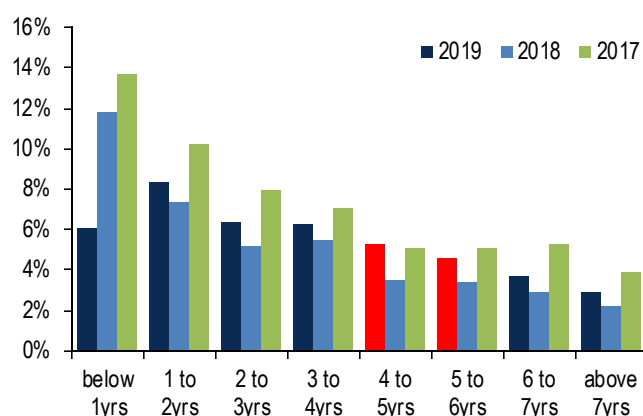
We slice and dice our sample's (more than 370 €-denominated high-yield bonds) bid/offer measure based on the deal's notional, time to maturity, effective yield and OAS. Our results are presented on a notional weighted basis.

**Chart 38: Bid/offer divided by spread split per deal's notional**



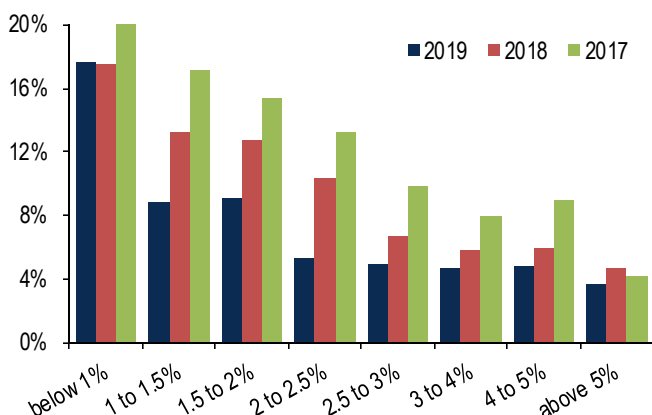
Source: BofA Merrill Lynch Global Research; Bloomberg; notional weighted, data since August 2016

**Chart 39: Bid/offer divided by spread split per deal's years to maturity**



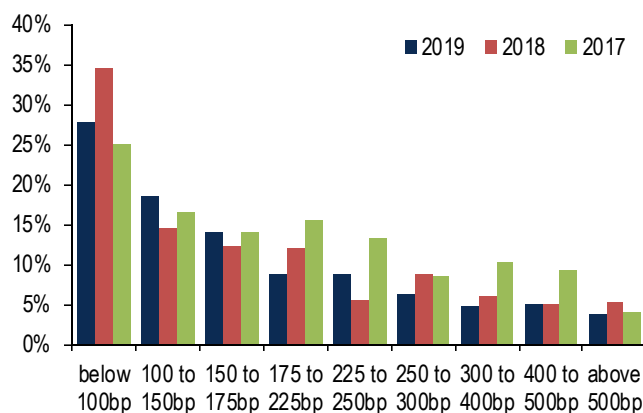
Source: BofA Merrill Lynch Global Research; Bloomberg; notional weighted; years to next call or maturity, data since August 2016

**Chart 40: Bid/offer divided by spread split per deal's effective yield**



Source: BofA Merrill Lynch Global Research; Bloomberg; notional weighted, data since August 2016

**Chart 41: Bid/offer divided by spread split per deal's OAS**



Source: BofA Merrill Lynch Global Research; Bloomberg; notional weighted, data since August 2016

## Sterling IG corporate bond market (UR00 index)

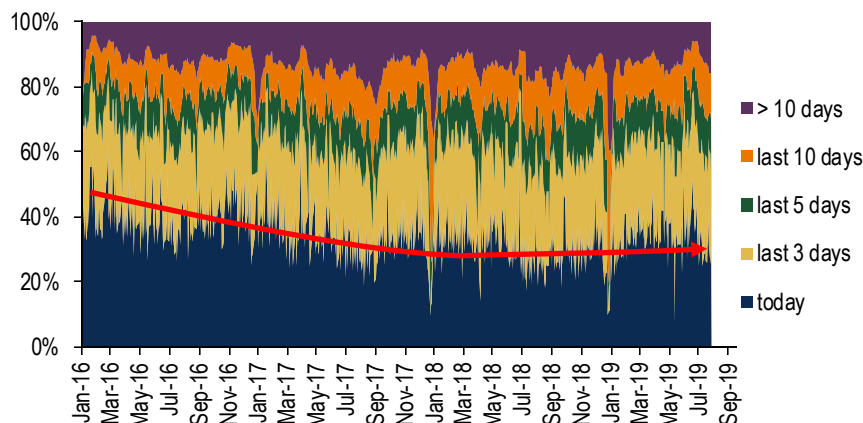
In this section we replicate our turnover and bid/offer cost liquidity assessment in the sterling corporate bond market.

### Bond velocity

We use data from Trax that captures the last date a bond traded, and we calculate the (average) number of days it takes to trade a bond. Our sample includes ~700 £-denominated high-grade bonds. We use data from the beginning of 2016. We rebalance our sample every time we run our annual liquidity report – based on the current bond universe at that time.

#### Chart 42: It now takes longer to move a bond

Percentage of the market that trades on different frequency buckets



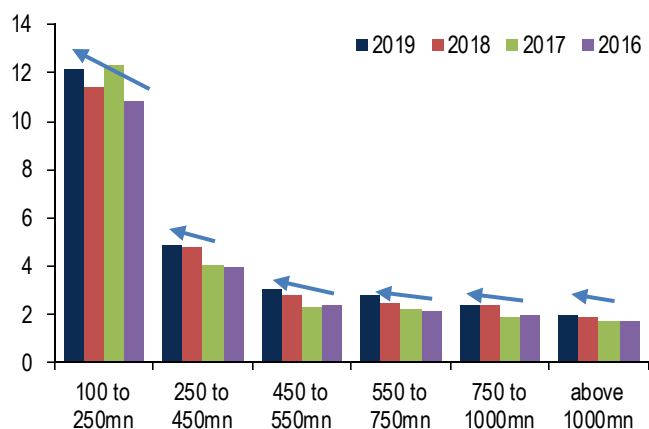
Source: BofA Merrill Lynch Global Research; according to Trax, a MarketAxess subsidiary

**The view from above:** Chart 41 shows that the number of bonds that trade on a daily basis has declined from as high as 55% at the beginning of 2016 to ~30% of the sample over the past year or so. Thus we find that the sterling market is exhibiting lower liquidity than the euro-denominated IG market. We think this is a feature of a more “held-by-steady-hands” market, especially when compared with the euro-denominated IG market.

In charts 42 to 45 we slice and dice our turnover metric (number of days to trade a bond on average) by a number of different factors. We find that:

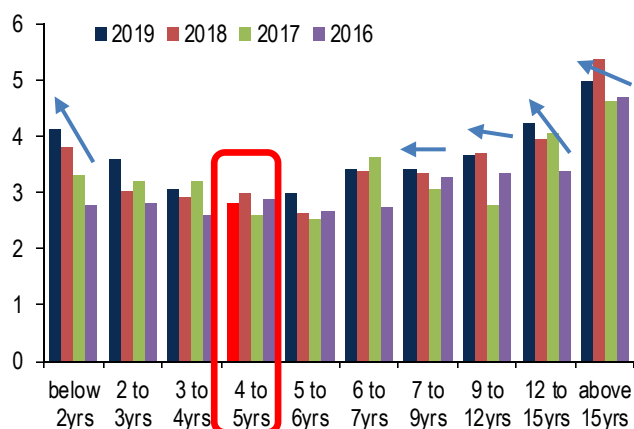
- Small size deals (chart 42) tend to exhibit lower liquidity. Turnover metrics (# of days to trade) has been deteriorating over the past years. We actually find that there is a broader deteriorating trend across all buckets, with small size deals (less than £250mn) being the ones that have underperformed the most (in liquidity terms).
- Benchmark deals (4-5y bucket, chart 43) tend to exhibit higher liquidity (more frequent turnover). While trading frequency has declined slightly for benchmark deals, non-benchmark deals have on average been impacted much more by the overall declining liquidity in the market.
- In terms of yield and spread level splits, we find that liquidity has been negatively affected predominantly in lower-yielding/spread pick-up pockets (charts 44 and 45). The pockets that offer more yield/spread have seen a more modest deterioration of our liquidity metrics.

**Chart 43: # of days to trade an IG bond split per ISIN's notional**



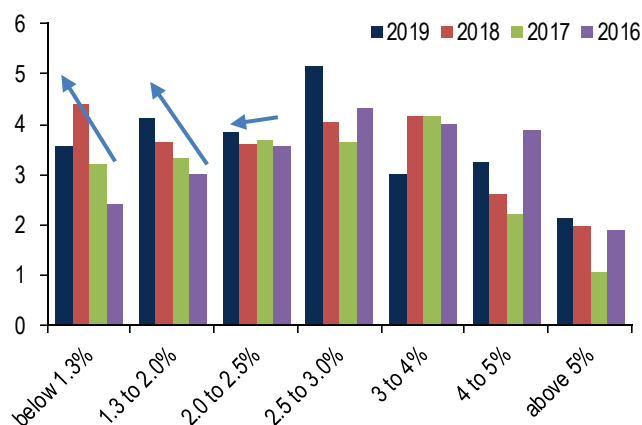
Source: BofA Merrill Lynch Global Research; according to Trax, a MarketAxess subsidiary; notional weighted

**Chart 44: # of days to trade an IG bond split per ISIN's years to maturity**



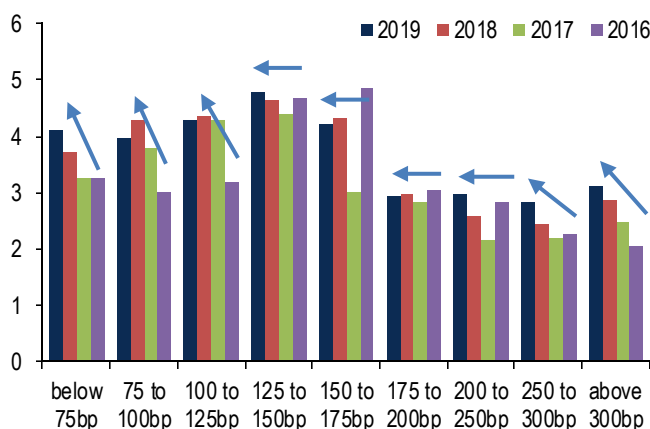
Source: BofA Merrill Lynch Global Research; according to Trax, a MarketAxess subsidiary; notional weighted

**Chart 45: # of days to trade an IG bond split per ISIN's effective yield**



Source: BofA Merrill Lynch Global Research; according to Trax, a MarketAxess subsidiary; notional weighted

**Chart 46: # of days to trade an IG bond split per ISIN's OAS**



Source: BofA Merrill Lynch Global Research; according to Trax, a MarketAxess subsidiary; notional weighted

### The price to pay to move a sterling bond

We also replicate our bid/offer analysis for the £-market. Our universe spans sterling-denominated bonds that feature in our UR00 corporate bond index. In chart 46 we present both the absolute level of b/o cost across the sterling market, but also the cost normalised by the underlying bond spread.

**We find that the average bid/offer cost has been rising relatively steadily over the past months. However, the b/o per unit of spread has started to increase more notably, as the spread rally has not been met with a proportional reduction in b/o costs.**

Rising market volatility has contributed to higher transaction costs per unit of risk, we think. Absolute b/o costs have a “low” bound that cannot be reduced further in line and proportional to the market spread, irrespective of the broader market spread levels. As a result, b/o costs per unit of spread naturally increase at tight spread level regimes. So far, this has been consistent across euro and sterling credit markets.

**Chart 47: The price to pay to move a bond in the sterling market**



Source: BofA Merrill Lynch Global Research; Bloomberg; notional weighted, UR00

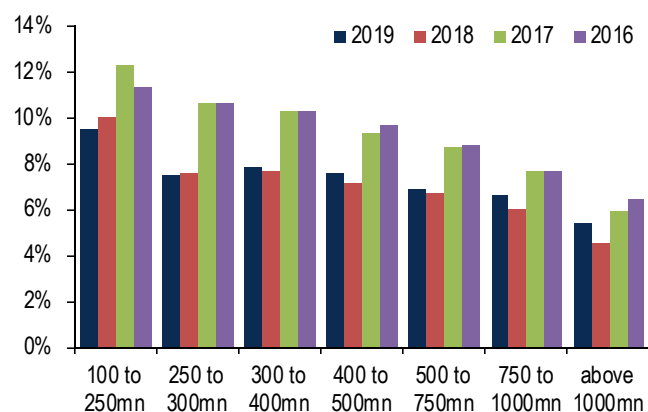
### In the detail

In charts 47 to 50, we present the bid/offer cost as a percentage of the spread level. We use the same methodology as in the euro-denominated market. Our liquidity metric is the average bid/offer cost (observed in the past 12 months) normalised vs. the underlying spread level. For that purpose, we divide the basis-point bid/offer cost vs. the bond's spread.

We only use bonds where we have managed to source bid/offer levels for more than 70% of days so far this year, should they have been issued more than 12 months ago. For those that have been issued over the past 12 months, we take them into account only if we have managed to source b/o data for more than 70% of days since the issue date.

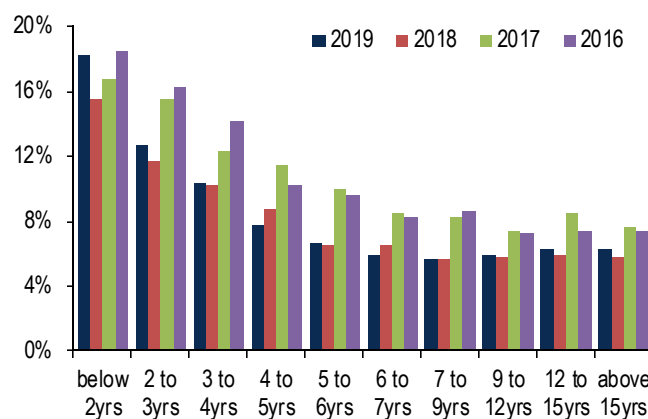
We slice and dice our sample's (more than 800 £-denominated high-grade bonds) bid/offer measure based on the deal's notional, time to maturity, effective yield and OAS. Our results are presented on a notional weighted basis. We compare our 2019 results vs. the results presented in our previous Liquidity reports.

**Chart 48: Bid/offer divided by spread split per deal's notional**



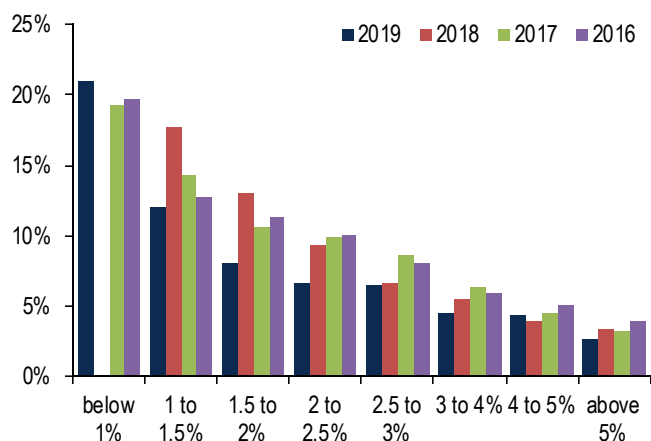
Source: BofA Merrill Lynch Global Research; Bloomberg; notional weighted; data since August 2016

**Chart 49: Bid/offer divided by spread split per deal's years to maturity**



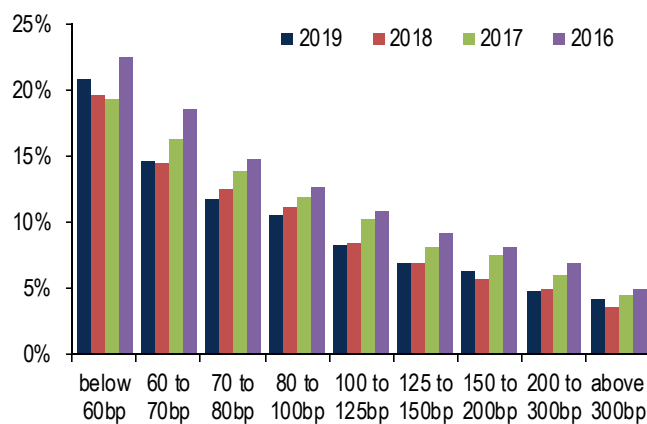
Source: BofA Merrill Lynch Global Research; Bloomberg; notional weighted; data since August 2016

**Chart 50: Bid/offer divided by spread split per deal's effective yield**



Source: BofA Merrill Lynch Global Research; Bloomberg; notional weighted; data since August 2016

**Chart 51: Bid/offer divided by spread split per deal's OAS**



Source: BofA Merrill Lynch Global Research; Bloomberg; notional weighted; data since August 2016

# Synthetics – top-down or bottom-up?

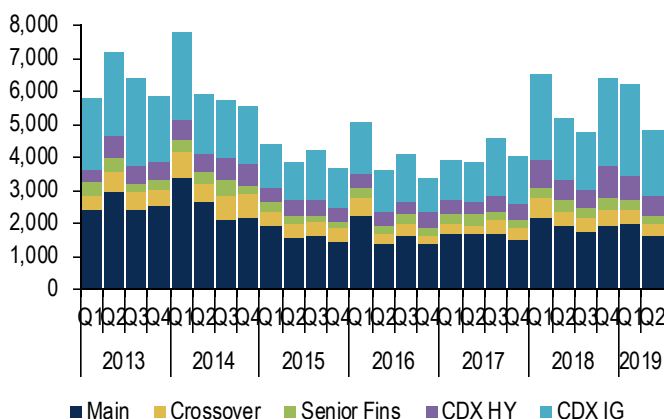
Away from the cash market, synthetics have been another way of gaining exposure to trade credit risk. With macro still the key driver of risk assets, CDS indices have benefited in terms of traded volumes. This clearly reflects credit investors' preference for liquid and scalable instruments to manage risk both on the downside and the upside.

## CDS indices – your liquidity hedge

Credit investors (that have the ability to use CDS in their portfolios) prefer to manage part of their risk via CDS indices. This is predominately due to better liquidity (vs. single-names CDS and bonds) that is reflected in tighter bid/offer spreads.

**Chart 52: CDS indices are back! Volumes for CDS indices have increased materially over the past year amid rising macro risks, central banks' interventions and rising geopolitical risks**

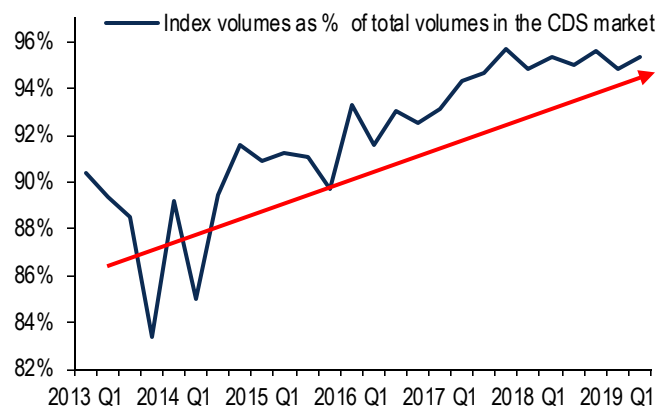
Trading volume notionals in \$billions



Source: BofA Merrill Lynch Global Research; DTCC

**Chart 53: Credit CDS indices have become the product of choice to trade in macro-driven markets**

% of risk (notional) traded via CDS indices vs. the entire CDS market (index and single-name CDS market volumes combined)



Source: BofA Merrill Lynch Global Research; DTCC  
Excluding roll-week impact and end of year drop in liquidity

Chart 52 highlights investors' increasing preference to use CDS indices instead of single-name indices in a macro-driven market with the CSPP in the driving seat over the past years. However, since Q3 2018 we have seen – marginally – more interest in trading single-name CDS amid rising idiosyncratic risk in the market as CSPP is now behind us.

Investors have been embracing CDS indices as a market risk management tool, managing beta. CDS indices benefit from higher liquidity, both in the form of higher notionals traded but also tighter bid/offer spreads. Currently 95% of the total risk traded in the CDS market is via CDS indices.

The benefit of adding CDS indices into credit portfolios for risk management purposes is significant in our view. Adding CDS indices to the tool box allows investors to turn the boat faster and more efficiently amid rising volatility in markets - both on the upside and on the downside.

Remember the February 2016 sell-off and the subsequent March rally, and similarly the Q4 2018 sell-off and the Q1 2019 rally. In both cases CDS volumes increased materially as the product became the tool to add/reduce risk in size.

CDS indices exhibit two key characteristics:

- Even though bid/offers (iTraxx Main for instance) tend to follow and be broadly impacted by market volatility, they **normalise much faster than single-name CDS b/o spread** (chart 4 and 5).
- Credit accounts are looking for liquidity and scalability via CDS indices as the cash bond market tends to exhibit less liquidity when volatility rises. **We could say that CDS indices nicely complement the cash bond market, as CDS indices liquidity is actually countercyclical.**

We find that liquidity in CDS indices is actually positively correlated to market volatility. When the market becomes more volatile, credit accounts resort to trading CDS indices to manage risk and betas, increasing volumes traded via the product. In chart 54 we present the countercyclical relationship between CDS index trading volumes vs. market volatility.

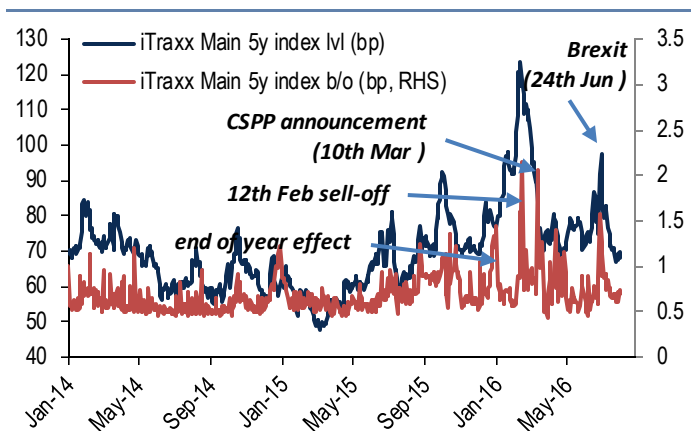
In more detail we present the weekly volumes across the CDS index market (beta-adjusted across European indices) vs. the 3M implied vol ranges (over six weeks) as a measure of vol-of-vol in the market.

We find that the higher (lower) the vol-of-vol is (irrespective of the direction - both on the upside and the downside) the higher (lower) the volumes traded in the CDS index market. When volatility increases credit investors are, in effect, resorting to trading risk via the CDS index market.

**Countercyclical liquidity is a key feature for a hedging instrument**, we think.

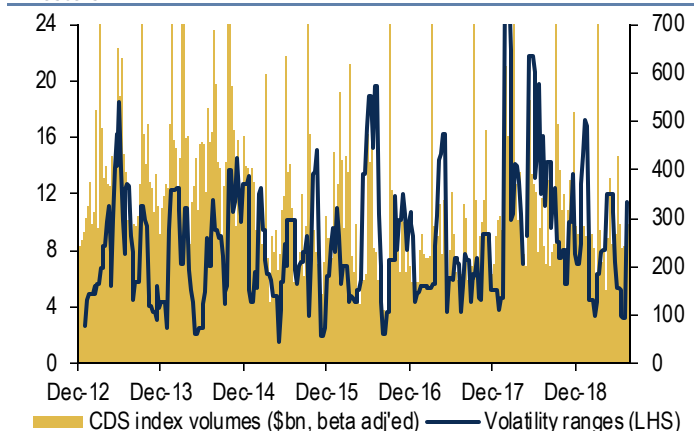
When liquidity becomes more challenging in cash bonds both in sharp upside or downside market moves, it is highly benefiting when another product can be a “liquidity hedge”. In simple terms market depth improves when credit investors really need it the most.

**Chart 54: Bid/offer cost increases temporality around big spikes of the underlying markets, only to retrace quickly afterwards**



Source: BofA Merrill Lynch Global Research; Bloomberg

**Chart 55: CDS index trading volumes multiply when there is a significant rise in market volatility, providing a trading “safe haven” for credit investors**



Source: BofA Merrill Lynch Global Research; DTCC  
CDS index volumes refer to iTraxx Main, XO and Senior Fins (all series) CDS indices, on a weekly basis. We aggregate based on the respective index spread level vs that of iTraxx Main; i.e. beta adjusted.

## CDS index options – the next generation of a hedge

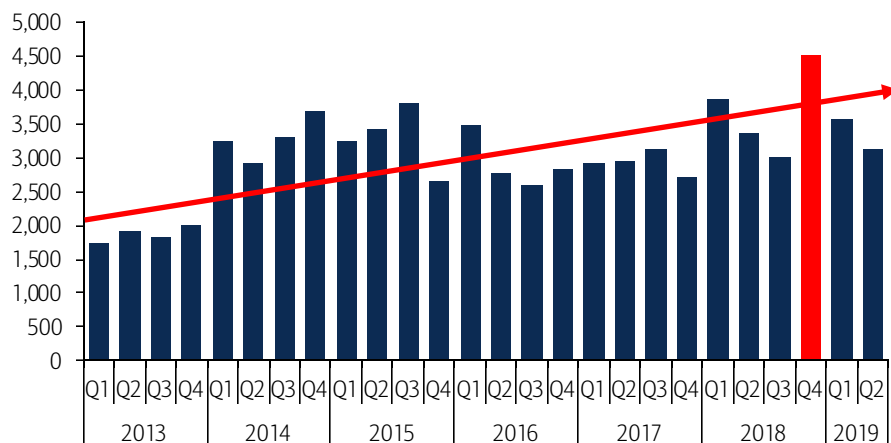
Against a challenging liquidity backdrop of wider bid/offers and declining dealer inventories, investors will be after liquid instruments to manage risk when volatility



returns to the fore. Over the past years, the credit index options market has strengthened primarily due to an increasing number of risk managers, looking for convex hedges.

This trend has intensified amid tighter spreads and more liquidity drain fears, and we think this will persist as investors keep looking for liquid and convex downside protection. Note the significant rise in trading during the Q4 2018 sell-off. The number of trades increased markedly amid increased appetite to source tail risk hedges, in line with our liquidity indicator (chart 2)

**Chart 56: Credit index options market has grown significantly over the past years**



Source: DTCC, Bloomberg SDR page; Number of unique options trades across five CDS indices (iTraxx Main, XO, Senior Fins, CDX IG and CDX HY). Note the over analysis is underestimating the overall market counts as it is not capturing trades where a non US counter is involved

## SN CDS liquidity – concentrated in a handful of names

For years, the ever-increasing impact of the macro backdrop in credit markets has shifted the focus of credit investors mainly to the CDS index rather than the single-name market. With pairwise correlations across single names remaining elevated during the CSPP years (chart 56), more investors were using macro plays than idiosyncratic ones to trade the market.

However over the past 6-9 months, we have seen rising idiosyncratic risks as the ECB has ended CSPP. Dispersion has dropped and pairwise correlations among credits have decreased (chart 56). This has given some relief to the single-name CDS market which was becoming more and more concentrated among just a handful of names. Chart 57 shows that the single-name CDS market is slightly less concentrated, thanks to rising dispersion and jump-to-default risk.

Investors predominantly trade CDS in a single-name format when:

- either the entity has a specific idiosyncratic risk story,
- or the name/sector is the vehicle to trade a specific theme for instance, the sell-off in commodity prices in late 2015-early 2016, shorting metals/miners and energy names. The trade war saga and risk of tariffs imposed on European automakers has seen increased interest in buying (of protection) for these names.

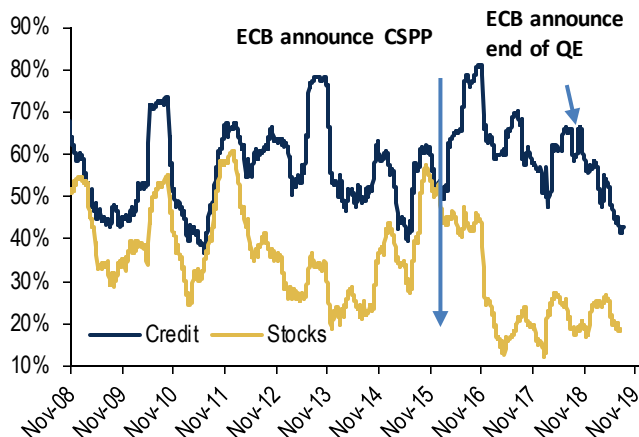
### How concentrated is the single-name CDS market?

In order to determine the concentration of single-name CDS trading activity we use the market risk activity data (Section IV) from DTCC. We analyse the name-by-name CDS trading volumes (on a weekly basis) to calculate the concentration in the SN CDS market.

We calculate the percentage of trading volumes that are generated via the top-50 names based on weekly trading volumes vs. the aggregate trading volumes across the entire European single-name CDS market (we use data from ~270 entities CDS contracts).

**Chart 57: Pairwise correlation at record highs, amid CSPP**

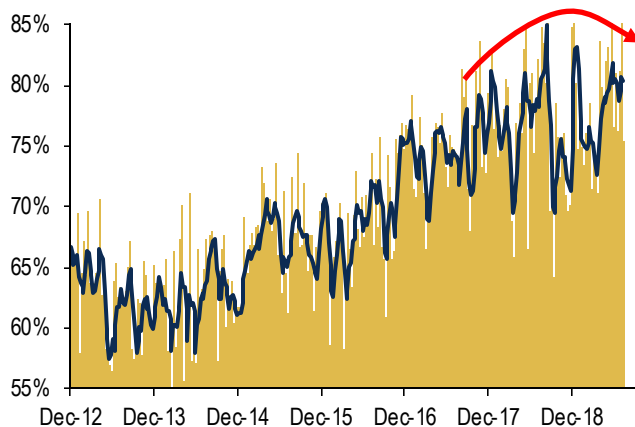
Pairwise correlations across 125 high-grade single-name CDS 5y contracts



Source: BofA Merrill Lynch Global Research

**Chart 58: Concentration in the single-name CDS market is rising**

% of volumes concentrated in the top 50 names out of ~270 SN European entities CDS contracts (blue line is the 4 week average)



Source: BofA Merrill Lynch Global Research; DTCC

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