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#liquiditysqueeze

Behavior Modification

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- **Realized bid-offer is a metric some commentators have cited as evidence that corporate bond liquidity has not worsened. We use TRACE data to estimate the round-trip transaction cost on block trades in investment grade bonds. Realized transaction costs decreased about 10% between 2010 and 2015, in line with other research indicating that realized bid-offer has not increased through the period of supposedly declining liquidity.**

- **However, aggregate statistics combine trades in on- and off-the-run issues, as well as principal and agent trades. The bid-offer charged depends on the type of trade, and breaking down the aggregate statistics into the component parts tells a more complete story of how liquidity has evolved.**

- **The average bid/ask spread for agent and principal trades and across different vintage buckets has remained largely unchanged between 2010 and 2015. The decrease in realized transaction costs can be explained by a change in trading behavior to favor lower transaction cost trades.**

- **Trading volumes have become increasingly concentrated in recently issued bonds. The number of block trades per bond has increased for recent vintage securities, while it has declined for older vintage bonds.**

- **Agent trades have increased significantly, indicating that a much higher proportion of trading now happens on order. Block trades with an almost immediate offset (within 15 minutes) have increased almost 50% since 2010. On the other hand, the fraction of block trades without an offset in five days – one where the risk stays on dealer inventories for a longer time – has declined significantly.**

- **Trades involving highly liquid securities, as well as those done on order, carry the lowest bid/ask spread; therefore, concentration of volumes in these trades has resulted in lower realized transaction costs. While realized transaction costs are lower now, we do not believe that they imply liquidity is better. The change in trading behavior comes with other less measurable but equally important costs. The time between the desire to trade and execution is likely much higher today. Limiting trading to more newly issued securities (to minimize transaction costs) lowers portfolio flexibility and could lead to higher tracking error.**

- **Finally, our analysis captures only trades that were executed. There have likely been many instances when an investor wanted to trade but decided against it, given the prohibitively expensive bid/ask or dealers' inability to offer liquidity. The material shift in trading behavior is itself evidence that liquidity conditions have worsened, in our view.**

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Has liquidity actually deteriorated?

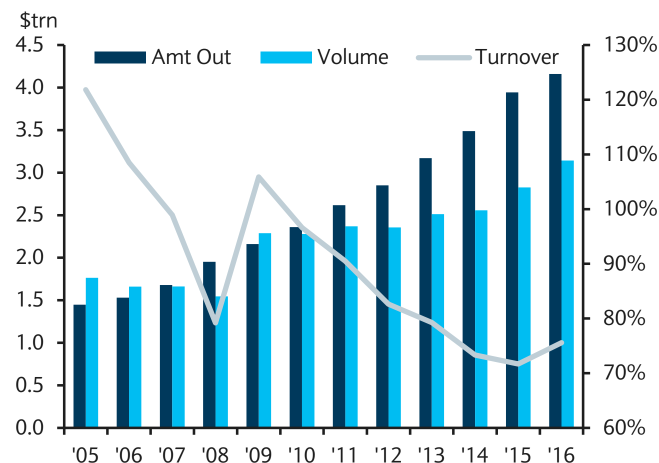
There has been an ongoing debate about the state of secondary market liquidity in the corporate bond market. While the deterioration in liquidity post-crisis has been a constant talking point for market participants, it remains difficult to characterize, and no individual statistic provides conclusive evidence of the amount of liquidity available. Some of the most commonly used metrics provide a mixed picture. For example, trading volumes are higher over the past few years, although turnover is meaningfully lower (Figure 1), as are average trade sizes. Lower turnover could be a sign of reduced liquidity. However, it can also be argued that lower turnover and smaller trade sizes are manifestations of change in the structure of the market. With fewer leveraged investors such as hedge funds and dealer prop desks, reduced volumes are to be expected, regardless of a change in underlying liquidity conditions. Smaller trade sizes could be the result of efficient electronic trading platforms facilitating more odd-lot trading.

As we have previously written, a more detailed analysis of the turnover data does indicate that liquidity has deteriorated. Turnover has not declined uniformly across the market, as would be expected if lower demand for trading were the cause. Instead, trading volumes have become concentrated in recently issues bonds (for instance, see *A Road Block: Liquidity Trends in Investment Grade Corporate Bonds*).

Realized bid-offer is a metric some commentators have cited as evidence that corporate bond liquidity has not worsened. To examine how realized bid-offer has evolved over time, we use TRACE data to estimate the round-trip transaction cost paid by clients in the investment grade market. Smaller trades, mostly executed on electronic platforms, potentially add noise to our analysis; as a result, we focus only on block trades[1] (trade size more than $5mn). For every block trade between a dealer and a client, we attempt to identify an offsetting (ie, same bond, opposite direction) block trade. The roundtrip transaction cost incurred by investors is estimated as the difference in execution level for the two trades.[2]

We consider only trades with offsetting transactions over a five-day period – in other words, where we can track the bonds onto and then off of aggregate dealer balance sheets. There are trades for which we cannot identify an offsetting trade. This may be because dealers owned

FIGURE 1
Investment grade volume and turnover



Note: 2016 stats based on Q1 data. Source: MarketAxess, Barclays Research

FIGURE 2
Investment grade volume statistics

	2010	2015
Total Volume ($bn)	$ 2,280	$ 2,827
Turnover	97%	72%
% of volume in block trades	34%	39%
Avg block trades/bond	16.8	17.1
Transaction Cost		
Realized bid/ask on block trades	3.25bp	2.85bp
Average Corporate OAS	170bp	147bp

Source: Barclays Research

[1] Given the actual notional information is masked for recent block trades, our analysis inherently assumes that all block trades have an equal notional.
[2] The methodology obviously captures any move in valuations between the execution of the two trades, although these moves should be averaged out over thousands of such pairs to provide an unbiased estimate of transaction cost.

the risk for an extended time. More likely, this is the result of some leakage in the TRACE data. For example, some trades with international clients may be captured by dealer to affiliate trades, which we do not include in our analysis (*Going with the Flow*, April 15, 2016).

Using the above methodology, we find that realized transaction costs did indeed decline between 2010 and 2015. The realized bid/ask for block trades decreased more than 10%, from 3.25bp to 2.85bp, in that time (Figure 2). This is directionally similar to other results indicating that realized bid-offer has not increased through the period of supposedly declining liquidity.[3] In the following sections, we examine the data more closely to see what has driven transaction costs lower and how much insight about liquidity can be drawn from these results.

Trading behavior has changed

The aggregate statistics include realized bid-offer spreads on a large variety of trades. They comingle trades on small, off-the-run issues with trades on larger, recently issued bonds. Further, they comingle trades done "on order", meaning that a dealer has both sides of the trade lined up in advance of execution, with trades done on risk, meaning that the risk sits on dealer balance sheets. The bid-offer charged depends on the type of trade, and we believe that breaking down the aggregate statistics into the component parts tells a more complete story of how liquidity has evolved and how investors have responded to the new environment.

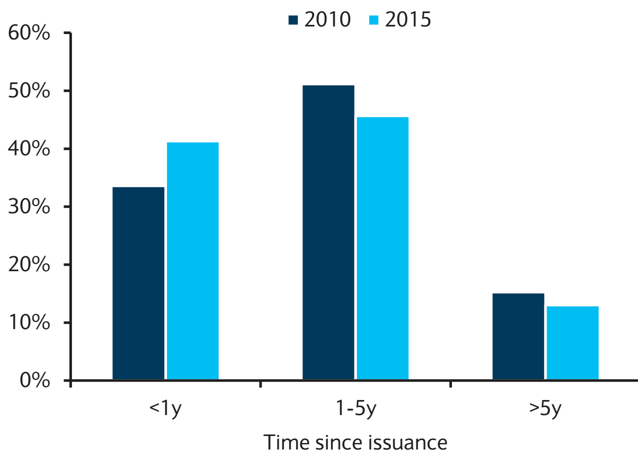
First, volumes have become increasingly concentrated: bonds issued in the past year accounted for 41% of block trades in 2015, compared with only 34% in 2010 (Figure 3). Indeed, the number of block trades per bond has increased for recent vintage securities (those issued in the past one year) while it has declined for older vintage bonds (Figure 4).

Further, the combination of higher capital requirements and limitations on dealer inventory imposed by the Volcker rule has meant that a higher fraction of trades is now done on "order," where the market maker acts as an agent, rather than a principal. We quantify this by breaking down the data into three categories by timing of execution of the offsetting block trade:

- Within 15 minutes
- 15 minutes to one day
- One to five days

FIGURE 3

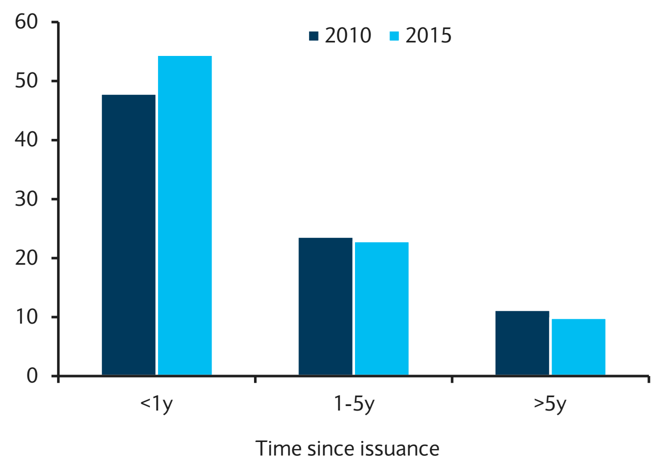
Breakdown of block trades by time since issuance



Source: TRACE, Barclays Research

FIGURE 4

Average block trades per bond



Source: TRACE, Barclays Research

[3] Has U.S. Corporate Bond Market Liquidity Deteriorated?, October 5, 2015, Liberty Street Economics.

The first bucket captures "order" trades where the dealer has most likely pre-identified the counterparty on the other side of the trade and just acts as an agent to transfer risk from one investor to another. The second bucket is likely a combination of order trades and those where the dealer has a strong sense of where to find the other side, or the bonds are so liquid that the risk is easy to move. The third bucket likely contains trades done on dealer balance sheets, without an obvious offset at the time of execution. Finally, trades without an offset in five days represent those where the dealer owns the risk for a longer time (or where the other side of the trade is lost due to leakage in the TRACE reporting system).

There has been a meaningful shift in the composition of agent versus principal trades since 2010, with a clear shift toward the former. While about 16% of block trades had an almost immediate (within 15 minutes) offsetting transaction in 2010, those trades comprised 23% of total block trades in 2015 (Figure 5), an increase of almost 50%. Similarly, the fraction of trades with an offsetting transaction between 15 minutes and one day has also increased, likely also representing some increase in order taking. On the other hand, the fraction of block trades without an offset in five days – ie, the risk stays on dealer inventories for a longer time – has declined significantly, from 47% to 36%.

The increase in agent trades is particularly evident in older vintage bonds. Figure 6 compares the fraction of total block trades with a 15 minute offset by the vintage of the security. In general, a higher proportion of block trades in older securities happen on order; in 2015, 28% of block trades in bonds issued more than five years ago had an offsetting trade within 15 minutes. More important, while agent trades have generally become more prevalent across all bonds since 2010, the effect has been clearly more apparent in bonds issued more than a year ago, suggesting a shift toward more agency trades for less liquid bonds.

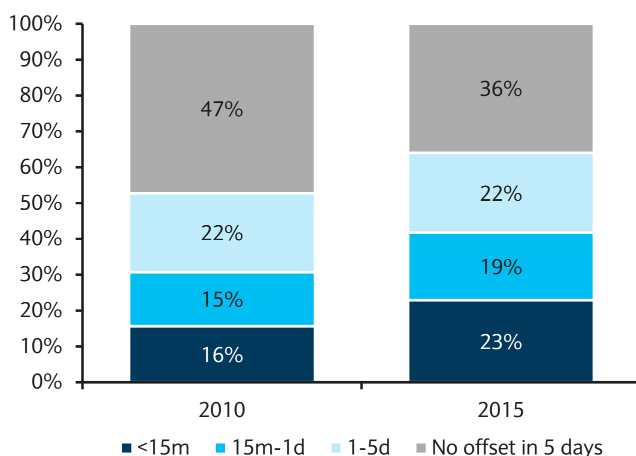
Bid/ask spread: Lower for agent trades but mostly unchanged since 2010

The offsetting block pair trades allow us to estimate the realized transaction costs for different types of transactions. Figure 7 shows the realized bid/ask spread in 2015 for block trades categorized by time since issuance:

- Bid/ask costs are lower for trades with an immediate offset, which makes sense since dealers take minimal risk in such transactions (acting as agents).
- Transaction cost is higher for older vintage securities, given their lower liquidity. However, for pure agent trades, the difference in transaction costs between recently issued bonds and those issued more than five years ago is relatively small (only 1.5bp).

FIGURE 5

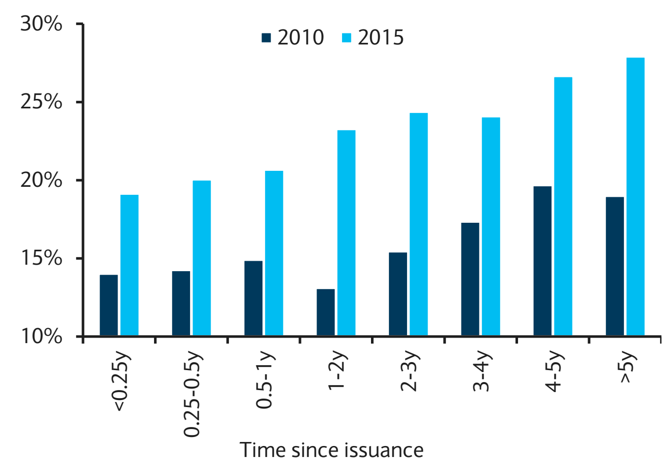
Block trades by time of offsetting trades



Source: TRACE, Barclays Research

FIGURE 6

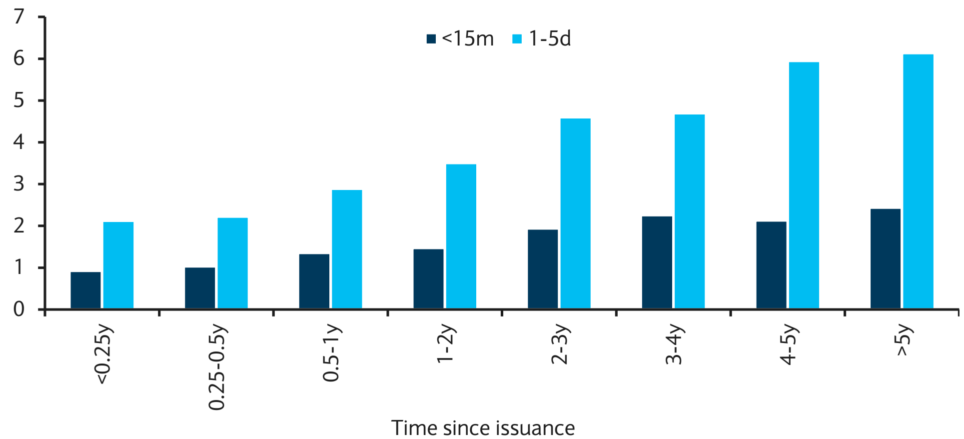
Fraction of block trades with an offsetting trade in 15min



Source: TRACE, Barclays Research

Because dealers act as intermediaries for such trades, the liquidity risk of the underlying security is less important, and we believe the higher bid/ask is partly compensation for the increased effort in finding the offsetting counterparty for an illiquid bond.

FIGURE 7
2015 realized bid/ask spread (bp)



Source: TRACE, Barclays Research

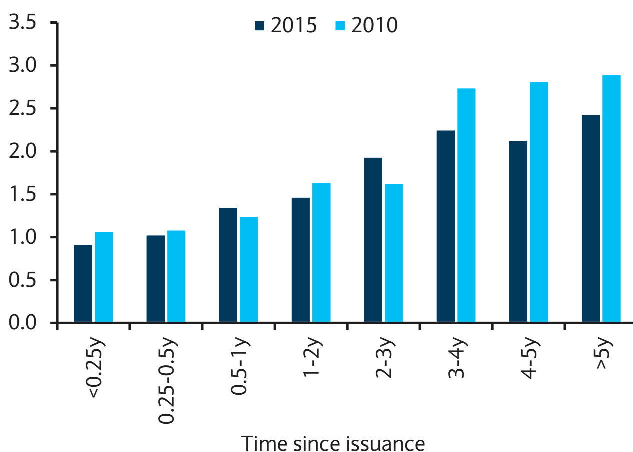
- Not surprisingly, bid/offer costs are higher for block trades where the offsetting trade occurs in 1-5 days. Further, the difference in cost is much higher across vintages: the realized bid/ask cost is 4bp higher for bonds issued five years ago than for recently issued securities. Given that the inventory sits on dealers' balance sheet for a slightly longer time (1-5 days), the liquidity premium charged by dealers is higher.

The realized transaction costs for agent and principal trades and across different vintage buckets have remained largely unchanged between 2010 and 2015 (Figures 8 and 9).

So why are realized transaction costs lower?

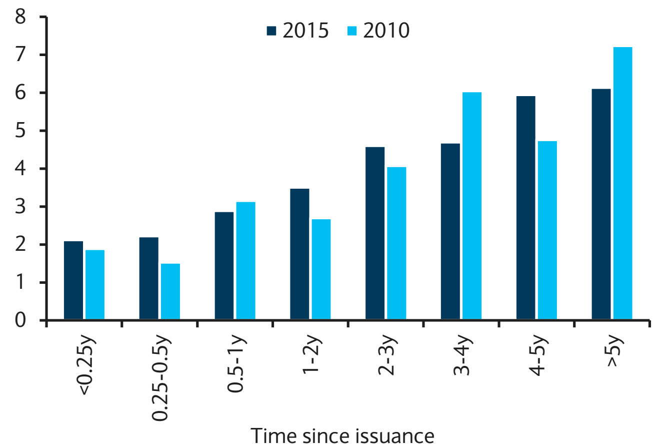
With the bid/ask spread in different bond vintage buckets remaining largely unchanged since 2010, the decrease in realized transaction costs (Figure 2) can be explained by a change in trading behavior to favor lower transaction cost trades. More trading is

FIGURE 8
Realized bid/ask for block trades with an offsetting trade in 15 minutes (bp)



Source: TRACE, Barclays Research

FIGURE 9
Realized bid/ask for block trades with an offsetting trade in 1-5 days (bp)



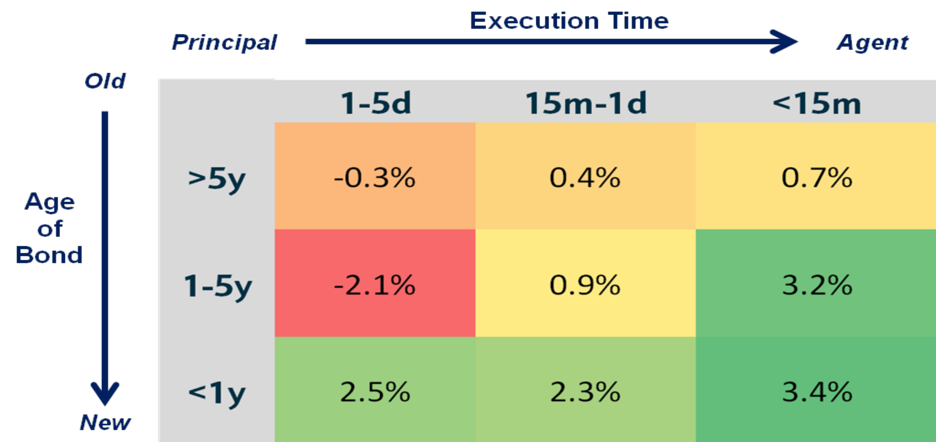
Source: TRACE, Barclays Research

concentrated in highly liquid securities and/or done on order, both of which carry lower bid/ask costs. Figure 10 shows the change in block trading volume between 2010 and 2015 by execution time and bond vintage.

- Agent trades in newly issued bonds – which are the least expensive to execute (average bid/ask 1.1bp) – comprised only 4.8% of all block trades in 2010, but in 2015 accounted for 8.2% of total block trades. Agent trades in bonds issued 1-5 years ago have also increased meaningfully.
- On the other hand, trades with an offsetting transaction in 1-5 days in older vintage bonds – the most expensive with an average bid/ask of 5-6bp – have declined the most since 2010.

FIGURE 10

Change in block trading volume since 2010



The number in each box refers to the change in block trading volume between 2010 and 2015 in that bucket. Green shading shows buckets with the highest increase, while red shading shows those with the most decrease.
Source: TRACE, Barclays Research

The catalyst for change in trading behavior has likely come from both the dealer and investor communities. Higher cost of capital and restrictions imposed by the Volcker rule have impaired dealers' ability to provide balance sheet to corporate bond trading, mandating a move to more agent trading/focusing on more liquid bonds. At the same time, clients' desire to minimize bid/ask costs, particularly given the rather steep penalty for principal trades/illiquid bonds, has had the same effect.

While realized transaction costs are lower now, we do not believe that they imply that liquidity is better. Investors may be incurring lower bid/ask costs, but the change in trading behavior does come with other less measurable but equally important costs. Waiting for a dealer to find the offsetting counterparty for any trade means that the time between the desire to trade and execution is much higher today. At the same time, limiting trading to more newly issued securities (to minimize transaction costs) limits portfolio flexibility and could lead to higher tracking error.

Further, our analysis captures only trades that were actually executed. In fact, there have likely been many instances when an investor wanted to trade a bond but decided against it, given the prohibitively expensive bid/ask or dealers' inability to offer liquidity. The fact that the two factors combined were severe enough to alter the trading behavior of market participants is perhaps the strongest evidence that liquidity conditions have deteriorated. The shift has somewhat ironically meant that more volumes are now concentrated in the least expensive trades (in terms of transaction cost), which has caused realized bid/ask costs to decline. In our view, lower transaction costs are more an outcome of a tougher trading environment than evidence that liquidity conditions are improving.

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