

Riskless Principal Trades in Corporate Bond Markets¹

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Riskless Principal Trades in Corporate Bond Markets

Abstract

We identify growth in riskless principal trades using corporate bond market trade data. These trades are arranged by a dealer that obtains compensation by marking up the price instead of charging a commission. In the U.S. markets, over the last 18 years, riskless principal trades increased from 16% to 42% of all customer trades, while the size of non-zero markups declined 48% on average, with most changes occurring recently. The growth in electronic trading systems undoubtedly explains these trends, but most traders cannot directly access these systems. Some changes to bond market structure could further decrease investor transaction costs.

Keywords: Bond market liquidity, transaction costs, riskless principal trades, trade throughs, dealers, brokers, pre-trade transparency, TRACE, market microstructure.

Declaration of Interest: Larry Harris

1) I am the lead independent director of Interactive Brokers (“IB”). IB potentially could benefit from some results and recommendations in this study. IB did not compensate me for undertaking any part of this study; IB did not request the study; IB had no control over the study; the production of studies such as these is not an expected part of my responsibilities as a director at IB; and IB has not provided me any compensation for any work besides my usual director’s fees for more than ten years. 2) The University of Southern California is a large corporate bondholder and could potentially benefit from some results and recommendations in this study. I had no contact with any USC investment staff concerning these topics before or during the production of this study. 3) I do not own any publicly traded bonds or bond funds except a small position in TIAA Traditional purchased in 1982-83. 4) I serve as a director of the various Selected Funds, and as a trustee of the Clipper Fund, all managed by Davis Select Advisors, a value equity manager. These equity mutual funds do not normally hold corporate bonds. Davis Select Advisors selects and trades corporate bonds for its other customers, but I am unaware of these activities. 5) I serve as a director of a small endowment fund that holds corporate bonds. The manager and the other fund directors were unaware of this study while I was producing it.

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Riskless Principal Trades in Corporate Bond Markets

Market microstructures determine the transaction costs that market participants pay when investing, liquidating, and adjusting portfolios. Structures that facilitate competition among traders for the best price lead to lower transaction costs. Low secondary market transaction costs make investing in an asset class more attractive, which lowers capital costs for issuers.

Bond markets have historically traded almost exclusively over the counter in quote-driven dealer markets in which customers solicit quotes from dealers when they want to trade. With the growth of new electronic order processing and communications technologies, bond markets are becoming more automated in many countries.² Market participants who can access new electronic trading systems, either directly or through their brokers, can obtain lower transaction costs as their trading interests are exposed to more potential counterparties. The lower costs come from the operational efficiencies associated with electronic trading and the greater access these systems provide to traders willing to offer liquidity.

In most bond markets throughout the world, almost all customer trades involving broker-dealers are reported³ as principal trades regardless of whether the broker-dealer is acting as dealer or broker. When acting as a dealer, the trade is an actual principal trade because the broker buys or sells the bond for its account. When acting as a broker, the trade may be economically

² The International Capital Market Association (ICMA) provides a detailed world directory of bond market electronic trading platforms at <https://www.icmagroup.org/Regulatory-Policy-and-Market-Practice/Secondary-Markets/electronic-trading/etp-mapping/>.

³ FINRA requires its members to report transactions in TRACE-Eligible Securities. See FINRA Rule 6730 at <https://www.finra.org/rules-guidance/rulebooks/finra-rules/6730>.

equivalent to an agency trade, and thus, is a riskless principal trade (“RPT”). In an RPT, the broker-dealer pre-arranges two offsetting trades, one involving another trader (now often arranged using an electronic alternative trading system such as TMC Bonds, TradeWeb, or Yieldbroker (Australia) or with a dealer providing electronically accessible quotes) and the other involving the customer.

The difference in the prices of the two trades in an RPT, called the dealer markup,⁴ is risk-free revenue to the broker-dealer. If the broker-dealer had arranged the trade on an agency basis, the broker would have given the customer the first trade price and charged the customer a commission. The RPT markup thus is essentially the same as an agency commission.

This article documents the growth of electronic trading by examining the frequency of riskless principal trades (RPTs) in U.S. corporate bond markets over time. Using the regulatory version of U.S. bond transaction data from FINRA’s Trade Reporting and Compliance Engine (“TRACE”) bond price reporting system, we estimate the volume of RPTs at quarterly intervals.⁵ We identify RPT volume by identifying non-overlapping pairs of adjacent trades (within a sequence of equivalent-sized trades made by the same dealer which we call a size run) for which at least one of the trades involves a customer. We find that in 2023Q4, 42% of all bond trades involving a customer are in riskless principal pairs, for which the time between the first trade

⁴ Strictly speaking, the difference is called a markup for a customer purchase and a markdown for a customer sale. Following industry practice, we use the term markup to refer to both markups and markdowns.

⁵ We use regulatory TRACE data from 2005Q1-2023Q4.

report and the second trade report was one minute or less. For 80% of these pairs, the time difference is one second or less. This fraction increased substantially since 2005Q1 when it was 16%.

Concurrent with the growth in RPTs, markups and bid/ask spreads for retail-size trades dropped substantially. The average TRACE RPT markup fell from 87 basis points (“bp”) in 2005Q1 to 39 bp in 2023Q4. The average bid/ask spread⁶ associated with retail-size RPTs over this period fell from 168 bp to 39 bp. These decreases in transaction costs, especially for retail-size trades, make nuanced adjustments to portfolios more cost-effective.

These results should change how market participants think about bond markets. While once predominantly dealer markets, bond markets are increasingly becoming order-driven agency markets. Market participants would be well advised to consider trading through brokers willing to expose their standing orders widely and who will give them access to the best prices offered anywhere.

These results also provide quantitative evidence that can inform regulators seeking to better regulate bond market structure as bond markets become increasingly electronic.⁷ The advent of

⁶ We calculate the bid/ask spread using TRACE data. We filtered out interdealer trades, and trades with a commission or an ATS indicator flag. We also filter out security/days that don’t have at least one customer “buy” and at least one customer “sell” transaction. We then calculate the daily bid/ask spread for each remaining security by finding the difference between that security’s average buy price and average sell price. We then weighted by par volume and calculate the average bid/ask spread for each quarter.

⁷ Past commissioners of the U.S. Securities and Exchange Commission have regularly identified bond market structure issues as worthy of further attention. Indeed, Chairman Jay Clayton formed the Fixed

electronic trading in the bond markets and the introduction of electronic alternative trading systems⁸ (ATS) have facilitated the steady rise of RPTs so that brokered trades have increased in frequency relative to principal trades. But the regulatory apparatus in bond markets still assumes that most trades are principal trades, which can be inappropriate because regulatory problems involving brokerage are different from those involving straight dealing.

Method of Identifying RPTs

When a pair of bond trades involving the same bond and broker-dealer, with each trade having the same size and occurring at approximately the same time, the trade pair likely is an RPT arranged by said broker-dealer. If one trade is between the dealer and a customer (a “customer trade”), the pair represents an RPT in which the dealer simultaneously executed a customer’s order against another trader and reported the two trades. Any difference in price would be the dealer markup.

We identify potential RPTs as pairs of sequentially adjacent trades of the same size in the same issue made by the same broker-dealer for which at least one trade is a customer trade.⁹ To find these trades in the TRACE data, we first identify all sequences of two or more trades of equal size in the same issue sharing a broker-dealer counterparty, which we call size runs. Using

Income Market Structure Advisory Committee (FIMSAC) to recommend potential changes. See White (2014), Aguilar (2015), Gallagher (2015), Piwowar (2017), Stein (2017), and Clayton (2018).

⁸ An ATS is an exchange-like venue that pairs buyers and sellers who are members of the venue.

⁹ We use the same method as used by Zitzewitz (2010), Sirri (2014), Harris (2015) and others.

regulatory TRACE data fields, we match MPIDs (market participant identifiers) for the dealer common to both trades within each RPT pair. Next, for each size run, we consider which trades, if any, constitute a pair of trades in a potential RPT. We identify potential RPTs in the size run by checking if one trade of two adjacent trades within the size run is a dealer trade with a customer. We identify the first such pair as a potential RPT and then continue searching the size run for any additional pairs that do not involve trades already identified as part of a potential RPT.

Following Harris (2015), we eliminate from the set of potential RPT pairs those pairs for which the markup was more than 5%. Most of these large markups were likely due to uncorrected data reporting errors.

We identify RPTs as those remaining potential RPTs for which the time between the two trades in the pair is 60 seconds or less. We further identify electronic RPTs as those potential RPTs for which this time interval is one second or less.

Finally, we identify the set of RPT pairs for which the markup was equal to zero.¹⁰ Broker-dealers probably arranged many of these trades for wrap customer accounts on a pure agency basis, but some also are reports of transfers from foreign dealer affiliates.

¹⁰ Harris (2015) eliminated trades for which the markup was less than 10 bp because they probably were trades marked up by the typical retail commission rate of \$1/bond for pure agency trades. We did not apply this filter because we wanted to characterize all RPTs for which dealers collected markup compensation and not just those for which the markups were larger than standard commission rates.

Before November 2015, dealers reported transfers to or from their foreign affiliates who were not FINRA members as trades with customers because their affiliates were not FINRA members. Effective November 2, 2015, FINRA changed its reporting protocols to identify these trades with a new counterparty type code.¹¹

We eliminated zero-markup RPT pairs for which a customer was on both sides of the trade. These reports were not likely brokered trades between two customers, but rather the transfers arranged with their non-FINRA member affiliates. The TRACE *cmsn_trd* field (Commission Trade) was marked “N” (not a commission trade) for all but 24 of these 2.091 million TRACE records (1.045 million transfers). The two trade reports were reported within a second for 90% of these pairs in the quarter before the rule change in 2015Q3. Following the rule change, the quarterly counts of these RPT pairs immediately dropped 96%.¹²

We could not remove those affiliate transfer pairs for which only one trade was reported as a customer trade because many such trades were not affiliate transfers. Several of the plots presented below thus present series that drop significantly following the November 2015 rule change. These issues do not appear to affect RPTs with non-zero markups.

¹¹ See FINRA Regulatory Notice 15-14 at <https://www.finra.org/rules-guidance/notices/15-14>.

¹² The deletion of zero-markup pairs with customers on both sides also deleted more than 12,000 such pairs that reported identically priced trades on February 27, 2018, in a single issue (CUSIP=035242AE6 Symbol=BUD4091519). These trades were mostly retail-size trades and both records in each pair were reported within a second of each other.

Our method has some potential problems. It fails to identify an RPT if a broker-dealer uses a single trade to fill multiple customer orders, as might occur when a broker-dealer allocates a trade to multiple accounts. If the intermediate trade size differs from the RPT size, the method will fail to identify the RPT. If all three trade sizes are the same, the method will incorrectly identify one of the two legs of the RPT. This problem will not lead to an undercount, but it may cause us to improperly estimate the markup.

Finally, the existence of a positive markup does not imply that one side or another provided a firm quote or indication to anyone. Instead, the dealer may have arranged the trade by negotiating with one or both sides of the trade. Although such trades are RPTs, they qualitatively differ from RPTs where a dealer simply arranges a trade for a customer by matching the customer with an electronically accessible quote.

When the time between the two trades is very short (and 80% of RPT pairs occur within one second of each other in the sample), these misidentifications are unlikely to occur. Instead, the most likely interpretation of the identified RPT pair is that a dealer took or hit a quote on behalf of a customer.

Sample Characterization

This study analyzes 280,029,019 regular corporate bond trades, from 2005Q1 to 2023Q4.¹³

Table 1 provides counts of the various trade and RPT categories that we studied. Following

¹³ The sample consists of trades with normal condition codes. The sample then excludes those for which the reported trade time is outside of the normal 8:00 a.m. to 5:15 p.m. market trading hours or after 1:00 p.m. on the day after Thanksgiving or on Christmas Eve when the trading session ends early, and those

standard practice in the academic literature, we distinguished retail and institutional trades by whether the reported par value trade size was \$100,000 or less, or greater than \$100,000.¹⁴ To identify the growth of electronic trading in RPTs, we also classify RPT pairs by the difference in reported times between the two trades in the pair. We label RPT pairs as electronic if the difference is one second or less.

Over the entire sample period, we identified 35% of all trades as part of an RPT pair, for which the time between trades was 60 seconds or less. Most (79%) of these RPT trades were retail-size trades, and these trades (counting only one side) represent 42% of all retail-size trades involving customers. Most (55%) of these RPT retail trades had positive markups, and most (80%) RPT pairs appear to be electronic trades as their reported trade times are one second or less apart.

The next sections present and discuss trends in these variables.

trades that occurred on holidays or weekends. The sample also excludes trades for which the reported price is not positive or is greater than 300, for which reported par value size is greater than \$1 billion, and those trades in RPT pairs where the markup is greater than 10 percent.

¹⁴ Bond traders also distinguish between odd and even lot trades where a lot is \$1,000,000 in par value.

Table 1. Trade Counts. A size run is a set of sequential trades with the same size in the same issue. Riskless principal trade (RPT) pairs consist of two adjacent trades by the same dealer involving at least one customer in the same issue with the same size that occurred within 60 seconds of each other. Retail and institutional trades respectively have par values of less than or greater than \$100,000. Electronic RPT trades are those RPTs for which the time between trades is one second or less. The results are based on all regular corporate bond transactions reported to TRACE from 2005Q1 to 2023Q4. All RPT pairs counts in this table include only the transaction involving the customer.

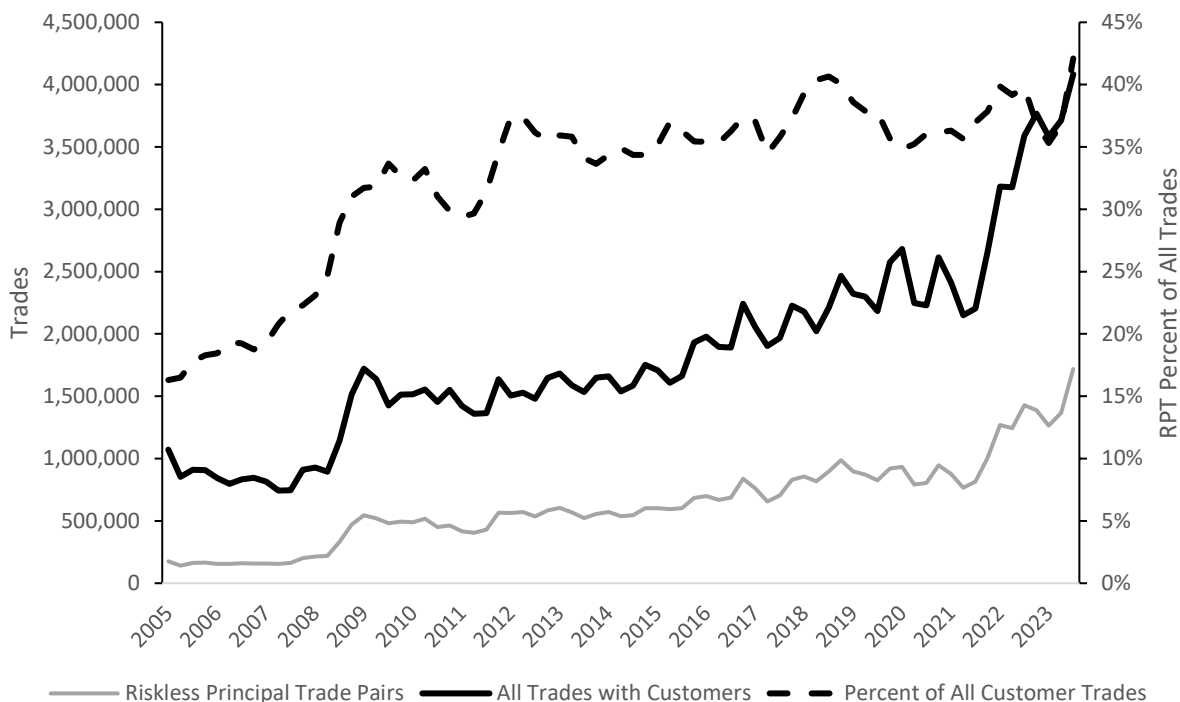
	Count	Percent	Denominator
All trades analyzed	280,029,019		
Trades involving a customer	138,785,516	50%	of all trades analyzed
RPT pairs	47,915,880	35%	of all trades involving a customer
Positive markup RPT pairs	26,601,105	56%	of all RPT pairs
Zero-Markup RPT pairs	21,314,775	44%	of all RPT pairs
Retail-size trades (\leq \$100,000 par value)	192,799,799	69%	of all trades analyzed
Retail-size trades involving a customer	89,876,522	47%	of all retail-size trades
Retail RPT pairs	37,715,069	79%	of all RPT pairs
		42%	of all retail trades involving a customer
Positive Markup Retail RPT pairs	20,879,825	55%	Of all retail RPT pairs
Institutional-size trades ($>$ \$100,000 par value)	87,229,220	31%	of all trades analyzed
Institutional-size trades involving a customer	48,908,994	56%	of all institutional-size trades
Institutional RPT pairs	10,200,811	21%	of all trades in RPT pairs
		21%	of all institutional trades involving a customer
Positive Markup Institutional RPT pairs	5,721,280	56%	Of all institutional RPT pairs
RPT pairs with \leq 1 second between trades	38,119,190	80%	of all trades in RPT pairs
Electronic retail RPT pairs	31,403,055	83%	of all retail RPT pairs
Electronic institutional RPT pairs	6,716,135	66%	of all institutional RPT pairs

The Growth in RPTs Over Time

Over the 2005Q1 to 2023Q4 sample period, total reported bond trades grew from 2 million per quarter to 6 million per quarter. A substantial increase (about 2 million trades per quarter) occurred during the credit crisis and the Great Recession of 2008, probably because many investors switched their asset allocations from equities toward fixed income and because equities became significantly more volatile. Most of this increase involved retail traders. The fraction of trades that involved customers decreased slightly from 57% to 48% during the sample period, probably because the trade cost reductions associated with electronic trading allowed dealers to trade more often with each other to manage inventory exposure.

Figure 1 plots the number of RPT pairs (all involve customer trades) along with the percentage of all customer trades that are RPTs. The RPTs grew with customer trades. The RPT rate increased substantially from 2005Q1 through 2008Q4.

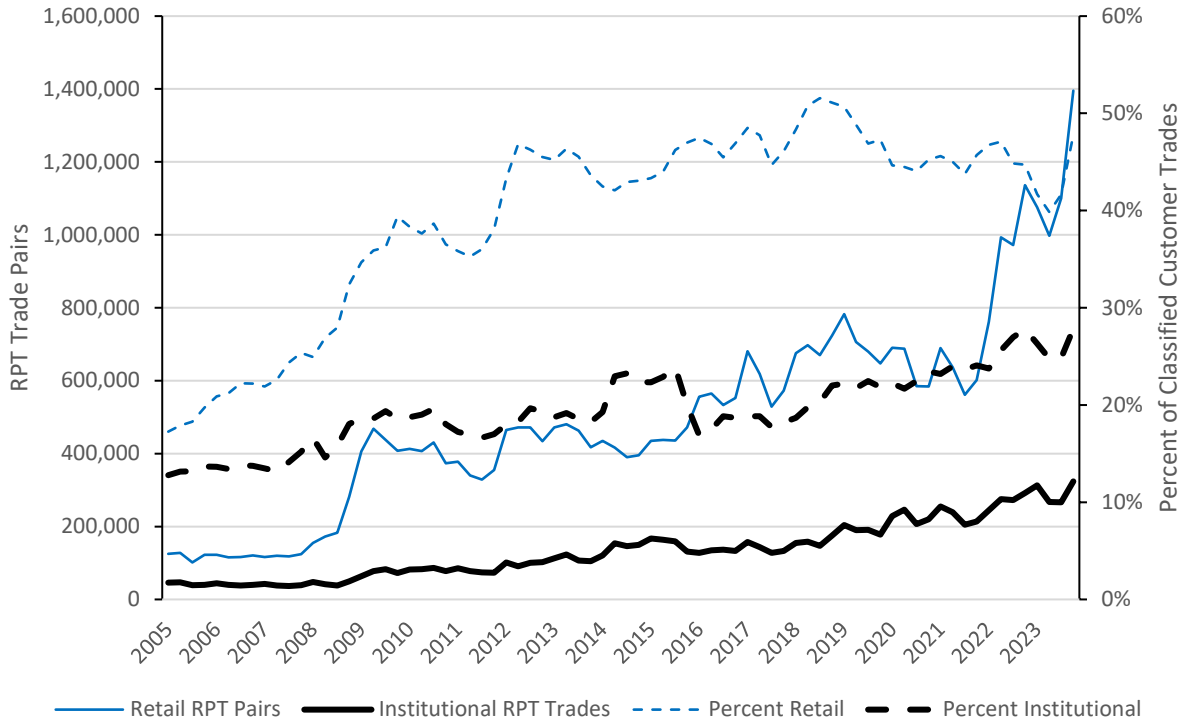
Figure 1. Quarterly Counts of all TRACE Trades Involving Customers, Riskless Principal Trade Pairs, and RPT Percentages of Customer Trades. Riskless principal trade pairs consist of two adjacent trades involving at least one customer and the same dealer in the same issue with the same size that occurred within 60 seconds of each other. The results are based on all regular corporate bond transactions reported to TRACE from 2005Q1 to 2023Q4.



Over the sample period, the fraction of retail-size customer trades varied little. It started at 72% in 2005Q1, grew to a high of 80% in 2009Q1, fell to a low of 66% in 2015Q1, and closed at 70% in 2023Q4. The high occurred during the Global Financial Crisis.

Figure 2 plots quarterly counts of retail and institutional identified RPT pairs and their percentages of all retail and institutional customer trades. RPTs of both sizes increased over the sample period. As a fraction of all customer trades, retail RPTs grew significantly from 2005-2012 and remained at roughly 45% from 2012 through 2023.

Figure 2. Quarterly Retail and Institutional RPT Pair Counts and Percentages of all Retail and Institutional Customer Trades. Riskless principal trade (RPT) pairs consist of two adjacent trades involving at least one customer and the same dealer in the same issue with the same size that occurred within 60 seconds of each other. They are counted as a single trade in this chart. Retail-size trades have par values of \$100,000 or less. The results are based on all regular corporate bond transactions reported to TRACE from 2005Q1 to 2023Q4.



Institutional RPTs as a fraction of all institutional customer trades rose over the sample period. The large drop between 2015Q3 (24%) and 2016Q1 (17%) was almost certainly due to the TRACE affiliate trade reporting rule amendment implemented by FINRA on November 2, 2015, discussed above. Before the rule change, dealers marked their affiliate transfer trades as customer trades. Accordingly, the algorithm used in this study to identify RPTs identifies such affiliate trades as zero-markup customer RPTs trades. For the first month of 2015Q4 and all earlier quarters, the number of zero-markup RPTs thus is overstated, especially for institutional-size transactions. Taking this issue into account suggests that actual customer institutional RPTs

started to grow quickly in 2014Q1, with growth continuing through the 2023Q4 end of the sample.

During the sample period, electronic RPT pairs (identified as pairs for which the time between the first and second trade was one second or less) as a percentage of all RPT pairs rose for both retail and institutional trades, presumably with the adoption of new trading technologies. For retail trades, the rise was from 79% in 2005Q1 to a max of 90% in 2023Q4. This result indicates that electronic technologies were already well established and well used by 2005. The ratio dropped slightly during the Global Financial Crisis to a low of 73% in 2007, probably because electronic dealers withdrew from the markets.

Institutional-sized electronic RPTs increased from 50% of all institutional RPTs to 82% over the sample period. The rate dropped significantly between 2015Q3 (71%) and 2016Q1 (58%). This drop would appear to be due to the November 2, 2015, affiliate trade reporting rule. Taking this issue into account suggests that institutional electronic RPTs grew consistently throughout the sample period. Considering only non-zero-markup RPTs (the affiliate trades are predominantly zero-markup trades), the institutional electronic rate increased from 38% to 74% over the sample period.

Excluding affiliate trades, zero-markup riskless principal trades presumably are pure agency trades for which the dealer collected a commission or a wrap fee that was not marked into the price. The percent of institutional-size RPTs with zero-markups fell from 40% to 33% over the sample period. This rate fell sharply from 43% in 2015Q3 to 26% in 2016Q1, which would

appear to be due to the November 2, 2015, affiliate trade reporting rule change. This result suggests that institutional agency RPTs that were not affiliate trades rose over the sample period. The percentage of retail-size RPTs that are zero-markup RPTs shows no similar sharp drop around this time.

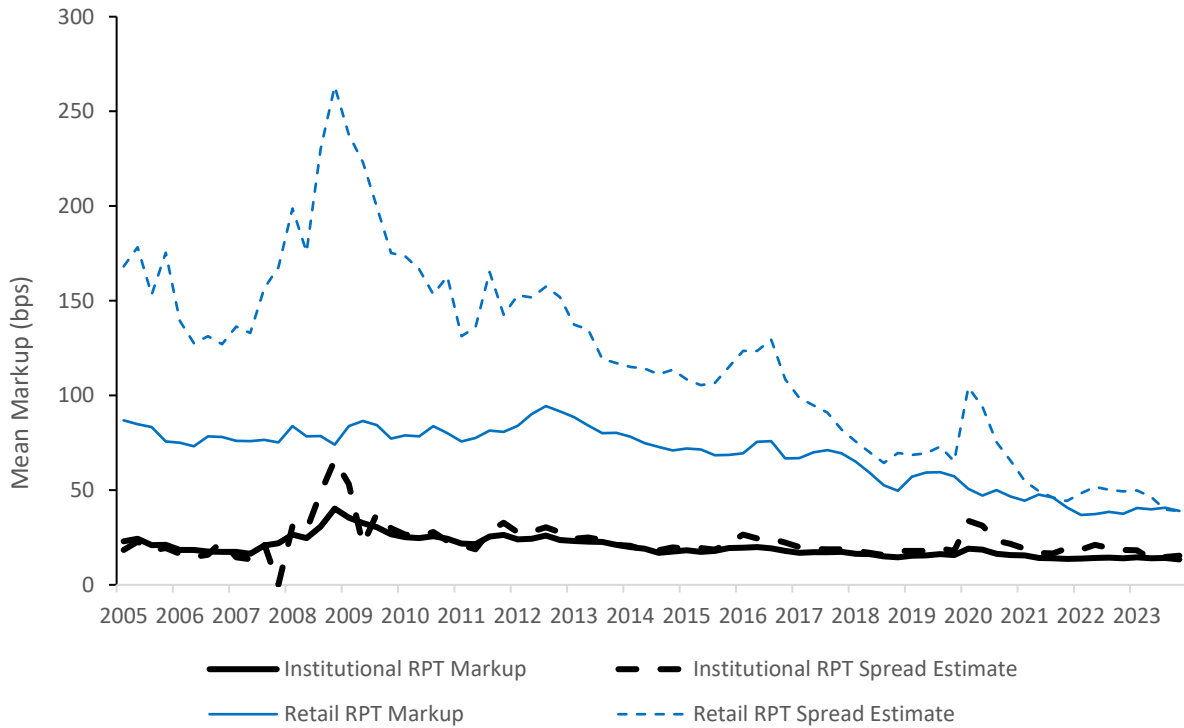
The retail zero-markup RPT rate showed little trend over the sample period, rising from 35% to 38% from beginning to end and ranging from a high of 42% in 2007Q2 to a low of 27% in 2009Q2. The drop from high to low occurred during and following the Global Financial Crisis, which suggests that dealer-brokers were less able, or perhaps less willing, to arrange retail agency trades during this period.

A similar drop appears in the institutional data during and following the Crisis. Zero markup institutional-sizes RPTs (which include affiliate trades) fell from a high of 48% of all institutional-size RPTs in 2006Q2 to a pre-2015 low of 30% in 2008Q3.

Markups and Bid/Ask Spreads

Markups on RPTs with non-zero markups dropped over the last decade (solid lines in Figure 3), most notably for retail-size trades. The decrease likely is due to the cost economies associated with the growth of electronic trading and increased competition among dealers at ATSS.

Figure 3. Average RPT Markups in Basis Points for RPTs with Non-zero Markups and Average Estimated Bid/Ask Spreads. Riskless principal trade (RPT) pairs consist of two adjacent trades involving at least one customer and the same dealer in the same issue with the same size that occurred within 60 seconds of each other. The markup is the difference in prices between the first and second trade in an RPT pair. The estimated bid/ask spread is computed as the difference between the mean customer purchase and sales prices on days when both types of transactions are available. Retail-size trades have par values of \$100,000 or less. The results are based on all regular corporate bond transactions reported to TRACE from 2005Q1 to 2023Q4.



Retail markups are higher than institutional markups, consistent with many previous studies.¹⁵ The difference may be due to the amortization of fixed costs over different trade sizes or the greater negotiating power that larger customers enjoy.¹⁶

With markups on retail RPTs now averaging about 40 bp, the markups are still high compared to discount equity commissions costs for small trades in low-priced stocks before discount brokers cut these commissions to zero in Fall 2019.¹⁷ These average markups are substantially higher than the \$1/bond commission (10 bp for a bond selling at par value) that pure agency bond brokers charge their clients through small markups or direct commission charges. (Note that the mean markups reported here include these low markup trades.)

The markups for electronic RPTs and RPTs that took longer than one second to arrange were similar for both retail- and institutional-size RPTs (results not plotted). The absolute difference in the mean markups was under 10 bp for almost all quarters, and it was under 1.1 bp every quarter since 2018Q1. These results suggest that broker-dealer pricing was largely independent of the execution method.

¹⁵ See for example, Bessembinder (2006) and O'Hara and Wang (2016).

¹⁶ Duffie, Garleanu, and Pedersen (2005) provide a theoretical model of trading in OTC markets that identifies origins of market power.

¹⁷ Brokers can provide no-commission equity trades because they profit from dealing to their customers (internalizing) or selling their customer orders to other dealers (preferencing) in exchange for payments for order flow.

Markups are only one component of transaction costs. Total trading costs typically also include costs due to the bid/ask spread. For example, suppose that a broker buys a bond at 101 and marks it up by 0.5 for immediate sale to a customer at 101.5. If the broker purchased the bond when the market was 99 bid, offered at 101, the customer's total transaction cost would be 1.5 when computed relative to the 100 mid-quote price.

Estimating bid/ask spreads is challenging without quotation data. To provide a rough estimate of bid/ask spreads, separately for retail- and institutional-sized RPTs, we identified every CUSIP-day for which dealers reported customer trades on both sides of the market.¹⁸ For those days, we computed average customer buy and sale prices weighted by the transaction sizes. The difference between these two averages estimates the security bid/ask spread (including any markups) on those days.

For every non-zero markup RPT that we identified, we then linked the estimated spread for its trade size if an estimate was available for the CUSIP and trade date. This method allowed us to associate bid/ask spread estimates with between 66% and 92% of the RPTs that we identified in each quarter for institutional-size trades. For retail-size trades, these quarterly rates ranged between 42% and 66%. The lower retail match rates suggest that wholesale dealers are more likely to hold imbalanced inventories due to accommodating retail-size trades than institutional-size trades.

¹⁸ Hong and Warga (2000) and Chakravarty and Sarkar (2003) use essentially the same method.

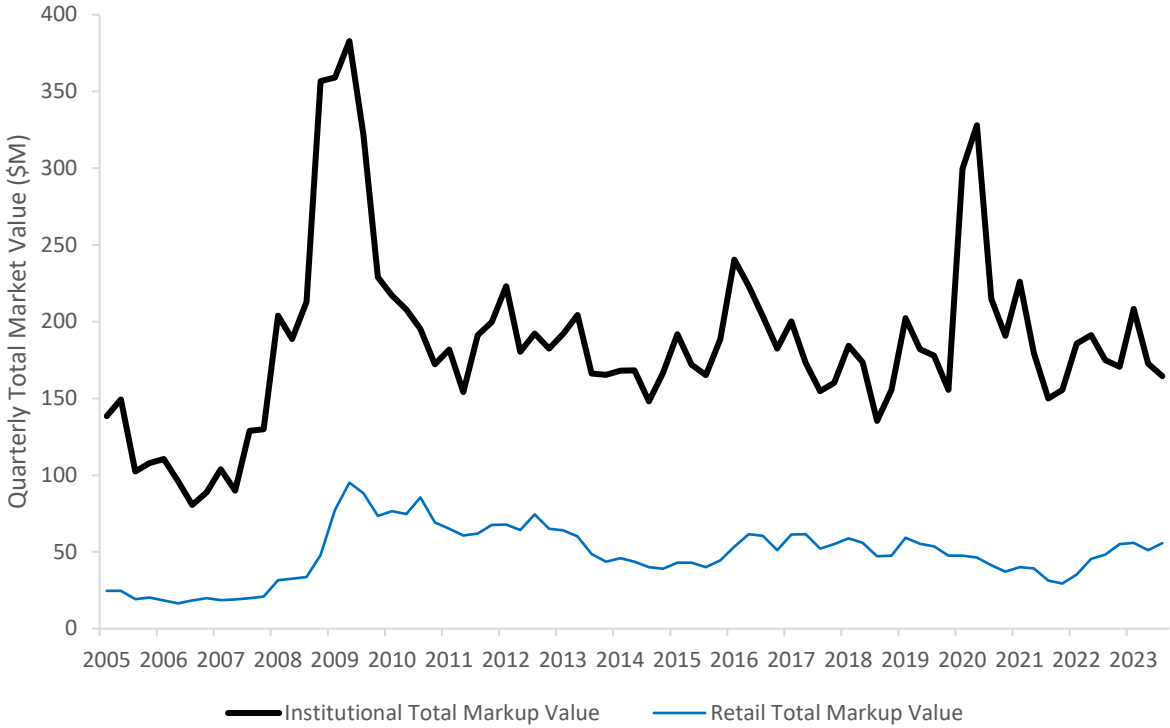
For each quarter, we then averaged these estimated spreads (expressed in basis points) across all RPTs for which we could link spread estimates. These averages, which appear plotted with dotted lines in Figure 3, are somewhat skewed toward more actively traded bonds for which we could obtain spread estimates.¹⁹

Average customer bid/ask spreads on days that arranged retail-size RPTs declined substantially over the sample period from 168 bp in 2005Q1 to 39 bp in 2023Q4. They ticked up in 2020Q1 as bond markets responded to the COVID crisis. Large upticks appear during the Global Financial Crisis and around 2011 and 2015 when bond volatilities increased. Spreads associated with institutional-size RPTs also varied with volatility, but they did not trend much over the sample period. As expected, spreads for retail-size trades were substantially higher than those for institutional trades, through the difference is closing.

Figure 4 plots total markup revenue—markup times trade size—for retail- and institutional-size trades. For both trade size classes, markup revenues rose in 2007-2008 primarily because volumes rose during the Global Financial Crisis. They have been nearly constant over the last eight years, during which time decreases in average markups on RPTs were offset by the growth in RPTs. Dealers obtained greater markup revenue when trading institutional- than retail-size trades because the larger institutional trade sizes more than offset their smaller numbers. The uptick in markup revenues in 2020Q1 is related to the COVID crisis.

¹⁹ We also computed quarterly mean RPT markups for the subset of RPTs for which spread estimates were available. The quarterly differences between the full sample and subset result were minor.

Figure 4. Total RPT Markup Value (\$M) for Retail- and Institutional-size Trades by Quarter. The total markup value is the amount of risk-free revenue, in millions, received by dealers. It is equal to the markup (the difference in prices between the first and second trade in an RPT pair) times the dollar par value size of the trade. Riskless principal trade (RPT) pairs consist of two adjacent trades involving at least one customer and the same dealer in the same issue with the same size that occurred within 60 seconds of each other. Retail-size trades have par values of \$100,000 or less. The results are based on all regular corporate bond transactions reported to TRACE from 2005Q1 to 2023Q4.



Conclusion

Transaction costs in bond markets have decreased as electronic trading technologies have made the markets operationally more efficient and allowed new participants to enter the markets to provide liquidity. The evidence assembled in this study about riskless principal trades shows that it is growing substantially in the U.S. bond markets. Market participants used to principal

trading in dealer markets should pay attention to new ways of trading in increasingly electronic markets.

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