

TRANSCRIPT

What you need to know about bond pricing

Richard Carter: Thank you everybody online today, we appreciate it very much, and we're here to present to you a very interesting topic on understanding bond pricing. You know, as many of you may be familiar, we have a series of fixed income webinars every month, and our intent is to provide education on a variety of topics. And so, this is quite specific, but I think it's a very important way to help understand what drives the bond market in general; as an investor, you might want to know about both going in and making a trade as well as holding and potentially selling the bonds down the road.

So, today's agenda is driven by some of the conversations and feedback we received from customers, whether you're just starting, or you're an experienced bond investor. Many times, customers are wondering, let us know why it may take a while to get a certain quote from a bond, and why the stock market is more liquid, and for example, questions that arise as a consequence of the fragmentation of the market, that make it difficult to always see a two-way market, for example, which is something we take for granted in the stock market.

I'm going to be joined by Stephen today, and he and I will talk our way in a dialogue fashion through this agenda. We'll start off by looking at the bond market in a little bit more detail, just for context. Then we're going to move to the body of the presentation, looking at the pricing for individual bonds, and the many different types of prices that exist. And as we close, we'll look at trading costs, because of course the flipside to bond pricing is bond yields, and one of the ways that the bond yields can be impacted is if one's trading costs are higher than they need to be, so we pride ourselves at Fidelity having a very competitive pricing approach, and that hopefully again, lessens the friction between the yield that is available in the market and the yield that the customer, or customers or investors receive and invest against.

So, in this first section, we're going to look at, in pretty short order, the makeup, the size, and the volume of the bond market, and it's more appropriate to say bond markets, because there are actually several. And so, if I just begin here with one way to look at this is to compare the bond market with the stock market, we could look at a couple of different fronts. You know, if you think about the constituents of the stock market, it's really limited to shares, equity of publicly quote companies. By contrast, the bond market has a variety of different product types, and in a sense, different sub-markets.

People are very familiar with the government bond market, the treasuries in the United States, also there's agencies, municipalities issue, and of course corporations issue. When one looks at the size of each of these markets, so the size of the stock market is going to be driven by the size of each company that's again publicly quoted, and the total accumulation of those shares multiplied by the price, in the bond market, again, many submarkets, sometimes large issuance from say a treasury bond, for example, the current 10-year Treasury bond, very large issuance, and as you will see in a second, a lot of liquidity as a result. By contrast, you could go to a municipality and find many hundreds of issuers from that one municipality, some of them quite small, and as you'll see, less frequently traded as a result.

The trading room itself is centralized, even though today a lot of it is performed electronically, there are still these central trading pricing hubs like the NYSE and NASDAQ in stocks, whereas bond market is still over-the-counter. It really comes down to a transaction between one dealer and another, and their clients and investors. And as we'll see, a lot more of that information is now being made available, but it is not of the same variety or the same challenge, if you like, in terms of accessing that information, as it were in the equity markets where you have these exchanges. And as we say at the end here, that does lead to a different degree of transparency. I think, you

know, with the exchanges in the stock market, you could literally find the closing prices pretty much down to the second for each of the constituent members, or stocks in that market. Again, the bond market you will find, and will see, some of the smaller issuance may not trade in particular day and may go actually several days or weeks without a trade in certain issues.

So, Steve, maybe I could pass it to you now, and ask you to add some numbers to this, again, just to get a sense of appreciation of the differences between the stock market and the bond market.

Stephen Traugott:

Thanks, Richard. Sure, I'd be happy to. So, when we look at our slide here, Richard just kind of talked about some of the characteristics of the bond market compared to the equity market, and we see that the bond market is actually a lot bigger market; it's a little bit more complex market. While the overall market size of each is, it's fairly similar with the bond market being about \$44 trillion, stock market about \$46 trillion, the big difference comes in a daily trading volume, where the bond market is over two times greater than what we see on daily trading volumes for the stock market. If we look at the number of securities, this is represented by the number of individual CUSIPs in each of the markets. For stocks, there's about 5300 securities traded.

However, on the bond side, when we look at, we're almost at 1.2 million different CUSIPs, and a CUSIP is just an industry-wide identifier that's used for securities, so each individual maturity for a bond or individual bond has its own CUSIP as an identifier, so as I mentioned in the bond market, we have about 1.2 trillion different individual bonds out there.

If we look at kind of an individual example, for example, Ford, Ford has \$81 billion outstanding in bonds, whereas they have about \$37 billion in market cap in the stock market. And then the big difference, as we look at the CUSIPs in different number of issues, 405 different individual Ford issues different maturities coupons et cetera, whereas they just have the one stock ticker that you'll trade on a daily basis.

If we dig a little bit deeper into the bond market, we have our next slide here, looking at the daily trading volumes and CUSIPs outstanding, broken down by product. The green bars will represent the daily trading volumes for each product. The blue diamonds represent the number of CUSIPs outstanding. So, we can see a couple of interesting things here on this slide. So, the volumes tend to be generated by the treasuries and mortgage-backed securities where we see the majority of the volume on a given day whereas when we look at some of the other products, corporates, municipals, agencies,

the volumes are a lot smaller. However, for treasuries, for example, we only have about a thousand outstanding CUSIPs, so we generate a large amount of volume compared to a lower number of CUSIPs. Same for mortgage-backed securities, about 43,000 CUSIPs outstanding, \$252 billion in market cap.

Where then, we kind of looked on the flipside here, if we look at municipals, where there's a large number of outstanding CUSIPs, so \$995,000 of that \$1.2 million outstanding CUSIPs come from the municipal market, whereas the daily trading volumes on the municipal side, much lower than you'd see in kind of the government market. So when you think about it, you have a number of different cities, towns, municipal entities, they all have individual bond offerings, so they all are going to have their individual CUSIPs, which is going to cause the numbers to be a little bit skewed in each of the directions there.

So overall, the bond markets as we discussed a little bit more complex and can be difficult to navigate. But we hope in the next couple sections, we'll be able to shed some light on how you as an investor can use the tools available to you here at Fidelity to evaluate both historical pricing which we'll touch on as well as live pricing on bonds in the market today. So, Richard?

Richard Carter:

Thanks, Steve. Great, so I think you gave great examples there of just how different these markets are from the equity markets and also again, within the bond markets, and that's why this next section, we are going to step through the different types of pricing, because it's not as easy as saying, oh well, we'll just grab the current live price. As I mentioned earlier, and I think Steve's data has showed us, there's unlikely to be pricing on a lot of securities in the way that, you know, the bond market. And so, in order to try and create this level playing field, we want to begin and linger a little bit on the valuation pricing, then move to historical pricing, and then end with live pricing. So, let's move on to this idea of valuation pricing.

Simplest way to explain it I think is to start with the statement, most of our clients who have bonds whether they be at Fidelity or elsewhere I'm sure will be familiar with receiving a statement, now of course more and more online versus a paper product. But you'll see here as we highlight a bond price and you know, the important thing to note here that obviously the statement is going to be generated at the end of the month, but this price you see is what we're saying is the valuation price. Now, in a very liquid issue, like the treasuries, this might be literally the last of the last couple of trades on the day of the month of the statement, of the snapshot. However, if the bond hasn't traded, the onus is on the pricing vendors to come up with a price so that we

can provide statements and do so objectively. So in these cases, you know, it may well be that the price that you're seeing is what we call the valuation price; it may be evaluated and produced by a third party to Fidelity that is looking at a variety of factors. It could be obviously looking back at their data on where the bond has traded. It could also be a model that looks at comparable bonds, similar types of issuers, similar types of maturities and credit quality. And the goal is, again, to make sure that every single bond in a portfolio is actually priced.

And this philosophy, I feel like, carries over to the positions page. So again, if you're looking at Fidelity.com at the start of the day, or anytime during the day, the column here where we see the last price, that will be as of that previous day, that valuation price again, because it could well be that although some of these bonds may be actively trading, others won't be. So again, the level playing field here is that there are a valuation price and you can see here, we call out this particular bond to the right. That's the price, and the change from the day before.

Now, for those of you who may be familiar with our website, we also show the valuation price in what we call the Bond Detail screen, so the purpose of this screen is to help someone evaluate a bond for making a purchase, and remind

themselves (inaudible) of the structure of the bond, the credit quality, the coupon, all that type of thing. And you'll see here in this display, the notion of the "third party price," and that's again a call out for us to just share the fact that this is not Fidelity's generated price; it is not the current live price, it is, again, the valuation price from the night before. So again, this should be populated in every single case, in every single bond, even if that bond is not being offered, for example, you could type the CUSIP in at Fidelity and find out some information about the bond, if you happen to own it, or are interested in it, and you should find that this third party price is populated. It may not mean though that the bond is offered, and we'll talk about that in a few minutes.

So, Steve, I think you have one more application for the valuation price, if we could just end this section on.

Stephen Traugott:

Yeah, the valuation price that Richard just mentioned we use in a number of the tools we make available on Fidelity.com. So, for example, we have our Fixed Income Analytics tool which some of you may be familiar with, can be found on Fidelity.com for any customers with bond positions. Without an overnight evaluation price, we really wouldn't be able to do or run a lot of the

analytics, for example, that we use in the FIA report here. So, it has summary calculations that we show at the top of the screen. In this example, we have a number of different averages, portfolio averages, whether it's price or market yield, coupon averages that a customer can look at. We use the third-party price in number of those calculations. We also show a number of cash flow calculations in both chart form that you can break down by positions or call dates, number of ways to look at your portfolio there. And then in the end you can also do some individual analytics, whether it's duration or credit rating, and a number of others. So, the FIA really shows you or gives you kind of a macro picture of your portfolio that you have, and this way you can kind of take a look and we utilize that third-party price to create a lot of these averages and things that you see on the screen.

Richard Carter:

Okay, Steve. Thank you, that's great. So, as you're saying here, you know, that common framework or common point of reference is absolutely vital to be able to analyze the portfolio. Let's move on and step into a very brief preview of the historical price. And you know, why do we have a historical price if we have the valuation price which is itself a day old, if you like, what's the value, and can you just explain to people what does that look like, this, what we're calling the historical price, or prices?

Stephen Traugott:

So, with historical pricing, is really looking at other trades that have been executed for a particular security that you're interested in. So if you're looking, once again, on Fidelity.com, we can find the historical price which we show in our recent trades, which is just a pop-up; it's a link there that you can find for any of the bonds that are available online. It'll show this screen, which is kind of on the right side of your screen there, with historical trades in a particular security. So, for this, gives you a nice idea of the liquidity that you might be looking at in a particular position that you're researching. Our example here, we have a municipal bond where you can see that trading has been months apart. We had some trades back in March of 2020, and then after that, there was a recent buy on June 19th and then there hasn't been anything since then. On the corporate side, or other more liquid markets, which we kind of will discuss in a little more detail coming up, you may see a lot more trading done on a daily basis, where it could be for corporate bonds, you'll have tens or 20, 30 trades on a day. For treasuries, you could have hundreds of different trades on a given day. So, it gives you a nice idea of where your bond has been trading, and then it also can give you an idea of how much liquidity. It's almost important to note for our recent trades is that these are trades done by any customer in the entire market, which is not just Fidelity customer trades. So,

we're showing you all the trades done in the markets to give you a very good sense of kind of the pricing, or recent historical pricing of your position that you're researching.

Richard Carter:

Great, Steve. Thank you. Okay, so I think that's perfect now for context.

We've got that valuation price as part of the setup, then this historical context, as you say Steve, not just at Fidelity but across the US market, dealers trading, customers trading, large and small trades alike. So, let's now dive into the idea of live pricing, and for that, I'm going to show this schematic which may look like a lot to begin with, so bear with us. But essentially what we're trying to do here is to show how we cast a wide net at Fidelity in aggregating and showing on our website, Fidelity.com, as broad a swath of the US bond market as we possibly can find, and in that way, bring with that offering the prices that go with it, the live prices that go with it. So, you may remember that slide you showed earlier on, where out of the different types of bonds, some were trading a lot per day and others less. You know, our attempt here in this model if you start at the far right, is to work indirectly with a lot of familiar names, large dealer, smaller regional dealers, bring them through in the pale blue boxes in the center of the chart, Fidelity Capital Markets, our own in-house brokered trading floor and trading arm, but also other firms here that

you may not be familiar with, trade with ICE BondPoint and ICE TMC. These are what we call ATs, automated trading systems, and they aggregate; they have electronic connections with providers of bond inventory, again, a sample of the names that arise in dark blue, include Fidelity, our own offerings in that, and we then combine them all and show them through with some screen criteria you see in the center, but we show them all, and Fidelity.com in the representation of the prices as we receive them, and that's something again that's important. We're trying here to show, as I mentioned earlier, that there is no central market like the NASDAQ or the NYSE, so we're trying to create a virtual market here by aggregating as many sources as we can to show, and you can see here to the far left, a typical day at a given point in time we hope to show something in the region of 75,000 unique bonds, 120,000 different offerings; we'll show you that distinction in a minute. But you can see it does amount to several thousand and is a number that's gone up through the years, I'm proud to say. But each of bonds contain, those offerings will contain their own live price as behind it, there's a different dealer with a different quantity available and so on.

So, with that in mind, Steve, maybe, I'll just go on to actually show the next slide, just show what that represents, that representation on the website, as an investor, as a prospective investor might see it. And here we show a listing of

bonds that might be the result of a bond search, and the bid and the ask side, bid quantity, the bid price, and they represent the corresponding yield again.

So, here's an example of us working as hard as we can to show, again, the best price that we can find out there in the market through this sort of process of discovery.

And I think, you know, I'll maybe through it over to you, Steve, to do some deeper dive into this, and to show how this type of pricing, the live pricing, might vary from one product to another.

Stephen Traugott:

Sure. So, as we look at this chart, one of the biggest differences in the different product markets you'll find, and the difference in live pricing that you'll see is based on liquidity. So, right here we have two different taxable bonds; on the top we have a treasury bond, very liquid. We can see that it has both a bid and an ask price, so both prices where customers can sell a bond or buy a bond. The pricing is the spread, which is the difference between the bid price and the ask price, it's very small; the yield spread's 0.005, which indicates that this is a very liquid market; there's a lot of trading in it, and therefore the spread is very tight. The same kind of situation on the corporate bond on the bottom. Once again, both an active bid price online, active ask price,

customer can get an idea if they're looking at this if I were to buy the bond today, where might be able to sell it if I had that interest down the line. I want to make sure that if it does come up where I need to sell the bond, I know that I'm able to get out of the bond and sell it at a price, there's going to be an active market available. Once again on this, the yield spread very, very tight, 0.011%, indicating that this is an active market, a lot of liquidity available.

So, if we contrast that in our next slide, we find municipal bonds. So, as we discussed a little bit earlier, we saw that the municipal bond market, daily trading volumes are much lower, even though there's also a high number of CUSIPs. So, we have our list here, and one of the things that immediately jumps out, most of these positions are not going to have active bid markets available online. Most dealers, they don't have the ability, they're not really going to short treasuries, or municipals, so they may not have active prices available online. Active prices still on the ask side, so customers know where they'd be able to buy. So in this case, this is where the third-party evaluation price might come a little bit more into play, when you're researching, so that way you can compare both the current ask price to the third party price where the evaluators see it at pricing, as well as you may use historical trading, recent trades that we discussed earlier to get an idea of where it might be trading,

and it's a price that's showing online is within the current context of the market.

Richard Carter:

Great, Steve, thank you. And if we could now, I'd like to flip back to corporates, to use as an example on this slide. So not only are we showing here the best price we can find, as Steve showed in some cases, there may not be a bid price available, but we are getting the best price and showing that where we can. There's also the ability on Fidelity.com to see what we call "Depth of Book," which is to say, the full depth of the market. And again, this example you see on the screen, we've chosen a pretty liquid bond, Johnson & Johnson AAA, imagine a fairly large-size issuance here. And to draw your attention to this little icon to the far right of the offerings table; it's like a little book representing depth of book. If you click on it, you'll come to this pop-up table as you see to the lower part of the screen. And as we indicated, in this particular bond at this particular time, and this can change from minute-to-minute, day-to-day, but there were actually, you can see five dealers bidding over to the left, four dealers offering, and that's why in this table you'll see different prices, different yields, and different quantities available from each dealer, or a different appetite on the bid side, different appetite for each dealer to bid. And so again, we're trying to show here as much as we can

about the pricing, the dynamics of the pricing and how there is a stack, if you like here, a difference of opinion. We'll show through the best price we can, but that might be bounded by a certain quantity limitation. If you wish to purchase more, you might have to appreciate that the (inaudible) is working through the book, and maybe accepting a slightly worse price because there is, at any one point in time, one price that's going to be the leading price.

And again, a facility we offer on Fidelity.com is to say that depth of book together with the historical pricing, or the recent trades. So again, just thinking back to where we've come in this conversation, imagine if you're going to be potentially investing in a bond, you're evaluating whether this current price is a reasonable one. It's very helpful not only to look at depth of book to see how far away the different dealers are from each other currently, but then flipping over to the recent trades as we can see here, it's nice and easy to compare that, if you may be about to buy yourself, where recent trades, or where recent investors have been buying the bond. Or if you're thinking of selling you know, what have been the sort of more recent sales prices? Now in this case, again, we've chosen a very liquid bond, Apple bond here, as an example you see in the blue text at the very top it's an Apple bond. Not all bonds are going to be like that, and that's just, again, the reality of the market, but it's good to see in certain areas where we have an actively-traded bond like Apple,

Johnson & Johnson mentioned earlier, and many others in the corporate bond market, particularly, you'll see this data richly populated.

And talking of using data, we recently added a feature that some of our viewers may not be familiar with, which was to chart the recent trade data. So, in this case, we have taken the Apple bond, and you can see here that, you know, in most stages of a stable pricing trajectory, but you see here the dip that was March of this year. I'm sure many of our participants today can recollect what that was like, and certainly the valuation price would have reflected that. But so here you see the evidence in the recent trades, and as Steve was saying earlier, this is across the US market. You can see this chart also by yield. There's a simple toggle button over here to the left, and you can view the whole chart in yield format as well as price format.

So Steve, maybe I can ask you now to step into an area this is a little more tricky for the beginning investor, certainly any investor in the municipal market and that is finding liquidity where there isn't any, as you've just shown earlier, there may be no other dealer bidding up for a bond, and often that can be municipal bond. Also, CDs sometimes have this trade. So how can we help our clients get a price, a live price for when they're wanting to sell?

Stephen Traugott:

So, as I mentioned earlier, you may see, when we talked about municipal bonds a lot of times an active market wasn't available. So, Richard mentioned, how do we deal with that type of situation? And we do that through our requesting of a bid quote. So, this is really, it's easy to initiate a request. You can do it directly from your positions page on Fidelity.com. You would just select the bond that you're looking for, click "sell," it would bring you to this image in the top-left corner, a request for bid quote page. It would pre-load the CUSIP that you had selected. You'd put in the quantity that you were looking to get a bid on. You'd hit the "Submit Request for Bid Quote" button. Now at that point, if you were not signed up for the alerts, it would prompt you to sign up for the alerts. We do this because we use our alert system to notify you the customer when the bid gets returned. So we want to make sure that the process is as quick as possible; we want to notify you as quickly as possible when the bid comes back; therefore we send you that alert and we have you sign up for the alerts. So once you sign up, or if you are already signed up, you would then get your confirmation saying that the request has been received, so you know that that is now in, and your window for getting a bid is kind of now open. If you'd like to review the bid that you just placed, you'd be able to go in that next steps at the bottom of the page.

You can see, just click on the hyperlink and will bring us to our new, or relatively new "Bid Wanted Dashboard." So, if we see on the next slide, what we created here was just a single place for you as a customer to status all of the different bids that you may have requested. So, if you just may have requested one, it would be here, as well as previous ones you may have done. If you have a number of bids that you may be requesting at a particular time, you'd be able to status all of them directly from the dashboard. And the dashboard's going to provide a bunch of pretty helpful information for you. So, number one, it'll give you the response expected time. So, what that is, is when for each different product, we have a window that we allow the ATSS that we discussed earlier to put, the dealers to put a bid on the bond that you're requesting the bid for. So, this tells you exactly when you should expect that alert to come back, when the price will be available to you. We would show you when the price does come back, we'd show you the best bid that comes back, so you have that price readily available. It tells you how long we expect the dealer to make that bid valid for, so how long they would make sure that we hope that it would be able to get filled for you. And the obviously if you want to place the order, once the bid comes back and we have a time that's still available, you could be able to place the order directly from this dashboard. So pretty much a one-stop shop for your different bid requests

and you can really manage everything right from this page once you enter a bid.

Richard Carter:

That's great, Steve. So, thanks, between this and the alert, I can see that I could really keep in touch with my staffers. Can you just give a little bit more sense of what goes on behind the scenes, right? So, what's actually happening to generate these prices, and how do we make sure we're getting the best price we can?

Stephen Traugott:

So, what we do is we utilize the ATSs that we discussed earlier. So once you submit your bid, Fidelity then transmits that bid depending on the product to different ATSs, which allow all the dealers that have access to that particular ATS, to those different ATSs to put a price on the bond for you. So really, rather than just having, say, one dealer at Fidelity, or one trader looking at your position and putting a price on it, you know, dealers are actively and competitively bidding against each other to provide a price to you. So, in some ways, you may see, we may get a couple of bids back for a high yield bond. We may get 50-60 different bids back for say a very liquid muni bond, for example. So behind the scenes, it's really just similar to the aggregation

that we have for the offerings that we show online; it's a way for a competitive bid process to occur behind the scenes to make sure we're getting you the best price.

Richard Carter:

Excellent Steve, thank you. It's very good, and yeah, it's amazing how these electronic messages are passed to dozens and dozens of dealers and you know, we often get quite a lot of responses. So, terrific. Well let's move on. I just wanted to end, close out this section by kind of taking us back to the beginning if you like. This is our landing page on Fidelity.com. If you go "Research," "Fixed Income," and the dealers today maybe you go familiar with this page, and just highlight the yield table, because as we've just explained, you know, we have literally tens of thousands of offerings, 75,000 on a typical day at a moment in time, from dozens and dozens of dealers, and the challenge in some ways is to represent those live prices in an easy, comprehensible format, and there's sort of a comparability way as well. And what we've done here with the yield table is to try to answer that, which is, you can see it's a grid of yields, and the columns are arranged by maturity date, and the rows are different types of bonds. So, it's really trying to help people understand that at any one point in time, and this is updated every 15 minutes,

we are scanning all those different bonds that constitute our offering, and taking those prices and side-by-side with the price of course is the yield of that bond; the price determines the yield. Then taking, this table kind of shows the highest yield or the median yield as we're looking on this zoomed-up example. You have a toggle approach here that you can pull in the highest yields or medium yields for each category. And you know, the benefit here is, again, to sort of assess, well how steep is the US Treasury curve, for example? And you may recall that debate last summer where we saw it go flat, very flat, and then even recently, we've seen some negative yields in the Treasury area. And then what's so important when investing in bonds is to then consider relative prices, or relative yields, and then you can go down to different product categories and see how much extra yield/risk you would take on, or you would potentially benefit from, versus the sort of highest quality or before the benchmark yields of the treasuries. So, you know, it's a very powerful thing to think of a bond price, converting that to bond yield, and yield being a measurement of return and also of risk, and this yield table I think is a very efficient way of doing that.

And you know, for those who are students of the bond market, you'll notice here on our website again we're showing here a yield curve, and that is another way of looking at it, taking the similar types of data, similar types of yield numbers, translating them to a graphical format showing the yield curve,

and this again gives rise to the notion of spreads, higher or lower? How are spreads going? I.e., the spread of this, in this case, this AAA corporate line, blue line, versus the Treasury underlying, and this gap waxes and wanes over time. But it is again all-time measuring the relative, the market's opinion of risk and reward of taking on credit risk versus the Treasury yields which are commonly regarded as having no credit risk because they're backed by the US government.

So, let's move on, and again I think, that little summary of this section, what does it go at just because yields are what matter obviously to the investor, and then for this next section, we wanted to just look at the notion of bond pricing, and how bond trading costs can impact the price, and with that, the yield that you, the investor receive. So, we're going to here have a quick discussion on notions of transparency, introduce the topic of markup, and then what that means as a takeaway.

So, on this next slide, you recall that we spoke earlier about how we attract as many different prices from dealers as we can, and pass them through these partners of ours, ATSs, that help us aggregate all the different offerings, and all the different prices to be sold, to be offered at bid. When we think about that experience, our intent at Fidelity is to take those prices as we receive them,

pass them straight away through to Fidelity.com, just as you would expect in the equity market, right? And there, on top of that, we add our trading commission, or in this case, it's known as the markup. And so, if you look at this diagram, channel A here at the top is how we handle this. You know, we receive these prices on the dealer side of the thing, of the world. We show them through to the website, and those are the prices you'll see in step 2. And then, when you come to trade, we add our pricing markup, and we have a very simple schedule at Fidelity; it's a dollar per bond, and then that's all very transparent in the trade ticket, as is the impact that it has on the yield. So again, pre-trade, there's a price and there's a yield. We add our dollar-per-bond to the cost for the retail distribution side of the transaction if you like. That will impact the yield negatively, and by reducing it, but we'll show that in the trade ticket.

Contrast that with channel B down below where the traditional model often in the bond market has been for the dealers to have a price in mind; again, that's what we're aggregating too. But then after when it represents to the client the markup for the trading transaction cost are buried, and added to the price, and it's been less than possible for the customer, the investor to see the difference between the trading prices, if you like, and the end price to them. And you know, that certainly, ultimately, it's the customer pays either way; there's the

markup. But at Fidelity, we really try to make it very transparent at the point of evaluating the different bonds. For example, when it comes to trading Treasuries online, there's no charge, just because that's a very liquid and aggressively priced market. But otherwise, we charge a dollar per bond for online trading.

Now the question then is, well how do you sort of find out what that trade cost is in other firms? And one way we can do this is by using – back to our old friend, recent trades, and Steve, maybe I could just show it, ask if you just show us how that would manifest itself in the Recent Trades view.

Stephen Traugott:

So, recent trades on this slide here is going to be the easiest place for an investor to kind of compare, see how this difference in philosophy plays itself out. So, we went back and looked at a particular day for Kohls Corporation, a bond, to compare a Fidelity customer trade to another brokerage trade. So, if we looked at the bottom, we can see that a Fidelity customer sold ten bonds; they sold them at a price of 100.35. If you add in the dollar-per-bond that Fidelity charges -- or excuse me, sold at 100.45. If you add in the dollar-per-bond that Fidelity charges, that ends up making it 100.35. From that point, we then sell it; it goes to the ATS, and then if we compare that to where a

customer then purchased very shortly after that, 10 bonds, the dealer-to-dealer trade was at 100.56 and the customer actually purchased the bond at 101.315, so it ends up being a \$7.54 per bond markup for that customer who purchased them through another dealer, whereas as we discussed earlier and we kind of went to some example on Fidelity.com if it was available at 100.56, the customer at Fidelity would have then been able to buy it with the dollar per bond at 100.66. So pretty significant difference that can show itself when we look at recent trades.

Another place, if we look at the next slide, that you can see markups and whatnot is really, it's the confirm. So, we show here where you'd be able to find it. We use Fidelity trade confirmations here, both a buy and a sell. So, we have a customer who purchased 100 of a Toyota Motor Corp bonds. They're paying \$100 so a dollar-per-bond, 100 bonds, \$100 for that trade which is only 0.1016%, so very small percentage, once again, that they're paying for that on the markup. On the other side, a customer selling, we have a municipal bond selling 105 of a municipal bond. Once again, there are 105 bonds, \$105, and ends up being less than 0.1% that the customer ends up paying here on that transaction. So, that can show it makes a huge difference if you're a customer when you're paying a higher price, higher markup is going to affect your yield, which will end up making it a lower yield if you're purchasing a bond,

ultimately to you as a customer, which you know, you have to deal with over, to carry it over the life of the bond. And in today's environment, we look at where yields are, those small differences in yield can have a pretty dramatic effect.

Richard Carter:

That's very true, Steve. So, go ahead.

Stephen Traugott:

Yeah, I was going to say, so what we did is, here at Fidelity, is we commissioned, as we look to our next slide, we commissioned a report and sponsored corporate insights to perform a comparison study of markups charged by different brokers. The study looked at thousands of bond prices, bonds priced at both Fidelity and a number of competitors; specifically, we have the competitors listed here, Wells Fargo, Morgan Stanley, and Merrill Lynch, and what the study found is that customers paid a significantly higher markup or markdown on trades done away from Fidelity. So, we talk about our dollar-per-bond that we charge here. If we look at some of the examples here, one corporate bond at Wells Fargo, customers on average paying about \$20.16 per bond. Morgan Stanley was over \$22. Merrill Lynch a little better, but still \$9.15. Same kind of story on the municipal bond side, everything over

between \$10.96 over to over \$16 per bond, customers end up paying more just in markups at other brokers.

So how does that really translate to you as an investor to actual dollars? So, if we look at an example of 22 bonds, Wells Fargo, you're looking at anywhere from \$240 to over \$400 difference in each transaction. So, if you're buying multiple bonds, you're buying a bond ladder, this starts to add up very quickly. And it's the same, once again, same story from Morgan Stanley, Merrill Lynch as well on this. So, very comprehensive study and I mentioned thousands of different bonds were looked at to compare. We looked at bonds at the same time to make sure we were getting a pretty even comparison, and you know, the results are pretty significant.

Richard Carter:

Yeah, thanks Steve, and I would just add that if anyone's looking at this page, it's also on our website if you wish to take a closer look. You might be wondering, how do we get these very precise differences, down to the cent? And that is because as Steve was saying, we look literally tens of thousands of observations, or corporate insight did, and then averaged them. What we're finding with these competitors is they don't have a consistent pricing schedule; it does literally vary from bond to bond. Sometimes the pricing

differential is large and sometimes it's not so large. Sometimes it's very close to our price, but this is the result, these numbers here are the result of, I think it was about 27,000 different observations that we took in munis and corporates that ultimately aggregated or averaged to these types of numbers. So, we believe it's real, and we're very pleased to be sharing this data to the benefit of potentially money to be saved, and yield to be captured by investors if they invest with us.

So, up to the commercial part of the presentation. We're pretty much ready to wrap it up, just a quick recap. Hopefully we helped frame this whole conversation by looking at the bond market itself, recognizing its multi-faceted and in some cases pretty fragmented, and therefore the hunt for different types of prices is important, and trying to show them all, bring them all into the minds of our investors is of help, before and during the ownership experience. And then part of that is recognize how bond price translates to yield, which is after all, what investors are looking for. And the driver, or factor of that yield in net terms is the trading cost, so we're trying to bring as much inventory as we can, and get the best price represented through the depth of book display, and then try to take as very reasonable cost for the transaction itself, as we're trying to prove in our day-to-day activities in the pricing study.

And just before we do turn it over, again, reminder that Fidelity.com > Research > Fixed Income, Bonds & CDs is the place to start. You see the yield table there but if you do have questions, don't forget we have our fixed income specialists and others that can help you further the conversation after this webinar.

END OF AUDIO FILE

Fidelity commissioned Corporate Insight to study bond pricing, available online, for self-directed retail investors from three brokers that offer corporate and municipal bonds for comparison to Fidelity's standard online pricing. The [study](#) compared online bond prices for more than 27,000 municipal and corporate inventory matches from January 28 through March 2, 2020. It compared municipal and corporate inventories offered online in varying quantities. The study found that, on average, the three online bond brokers identified in the chart were asking \$15.41 more per bond. Corporate Insight determined the average price differential by calculating the difference between the prices of matching corporate and municipal bond inventory at Fidelity, including Fidelity's \$1 per bond mark-up for online trades vs. the prices offered online for the same bonds from the three brokers in the table, then averaging the differences of the financial services firms. An order size of 22 bonds was selected to illustrate the hypothetical trade because this is the average for Fidelity's retail brokerage account holders who purchased individual municipal or corporate bonds during 2019. The analysis included investment grade corporate and municipal bonds only, as the three brokers in the study do not offer non-investment grade bonds for purchase online.

Minimum markup or markdown of \$19.95 applies if traded with a Fidelity representative. For U.S. Treasury purchases traded with a Fidelity representative, a flat charge of \$19.95 per trade applies. A \$250 maximum applies to all trades, reduced to a \$50 maximum for bonds maturing in one year or less. Rates are for U.S. dollar-denominated bonds; additional fees and minimums apply for non-dollar bond trades. Other conditions may apply; see [Fidelity.com/commissions](https://www.fidelity.com/commissions) for details. Please note that markups and markdowns may affect the total cost of the transaction and the total, or "effective," yield of your investment. The offering broker, which may be our affiliate, National Financial

Services LLC, may separately mark up or mark down the price of the security and may realize a trading profit or loss on the transaction.

References to individual securities are for illustrative purposes only and should not be construed as investment advice.

In general, the bond market is volatile, and fixed income securities carry interest rate risk. (As interest rates rise, bond prices usually fall, and vice versa. This effect is usually more pronounced for longer-term securities). Fixed income securities also carry inflation risk, liquidity risk, call risk and credit and default risks for both issuers and counterparties. Any fixed income security sold or redeemed prior to maturity may be subject to loss.

Interest income earned from tax-exempt municipal securities generally is exempt from federal income tax and may also be exempt from state and local income taxes if the investor is a resident in the state of issuance. A portion of the income received may be subject to federal and state income taxes, including the federal alternative minimum tax. In addition, investors may be subject to tax on amounts recognized in connection with the sale of municipal bonds, including capital gains and "market discount" taxed at ordinary income rates. "Market discount" arises when a bond is purchased on the secondary market for a price that is less than its stated redemption price by more than a statutory amount. Before making any investment, investors should review the official statement for the relevant offering for additional tax and other considerations.

The tax information contained herein is general in nature, is provided for informational purposes only, and should not be construed as legal or tax advice. Fidelity does not provide legal or tax advice. Fidelity cannot guarantee that such information is accurate, complete, or timely. Laws of a particular state or laws that may be applicable to a particular situation may have an impact on the applicability, accuracy, or completeness of such information. Always consult an attorney or tax professional regarding your specific legal or tax situation.

Past performance is no guarantee of future results.

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