

Exchange-traded funds and municipal bond market

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Abstract

This paper examines the effect of exchange-traded funds' (ETFs) information disclosure on the pricing and trading of municipal bonds. Bonds held by ETFs are found to have significantly smaller price dispersion than similar, non-ETF-held bonds.

The effect is stronger for retail trades than for institutional trades, suggesting ETF holding disclosure brings about higher benefit for investors who lack information ex-ante. ETF-held bonds are also more liquid and associated with higher trading activity.

Similar effect is documented in the primary market, as when a municipality has outstanding bonds held by ETFs, its newly issued bonds have lower yield, higher price, and lower price dispersion.

Overall, my findings indicate that ETF holding disclosure is an important channel through which investors can gain additional insight into the pricing of municipal bonds.

Motivation

Municipal bond market is highly illiquid, opaque, and decentralized

- 80% of muni bonds do not trade in a given month
- High bargaining power of dealers over customers
- **Little pre-trade transparency** despite post-trade reporting of transaction prices

ETFs are required to disclosure holdings daily \Rightarrow provide pricing information of the constituents to the public

Question: Do ETFs affect the pricing and trading of municipal bonds? If so, through which channel?

Data and methodology

Data sample: 2010-2019

- Morningstar mutual fund holding data
- MSRB municipal bond transaction data
- Capital IQ municipal bond characteristics

Main regression specification:

$$Price\ Dispersion_{b,t} = \alpha_b + \alpha_r + \alpha_t + \beta \times ETF\ Holding_{b,t} + \eta' \mathbf{X}_{b,t} + \varepsilon_{b,t},$$

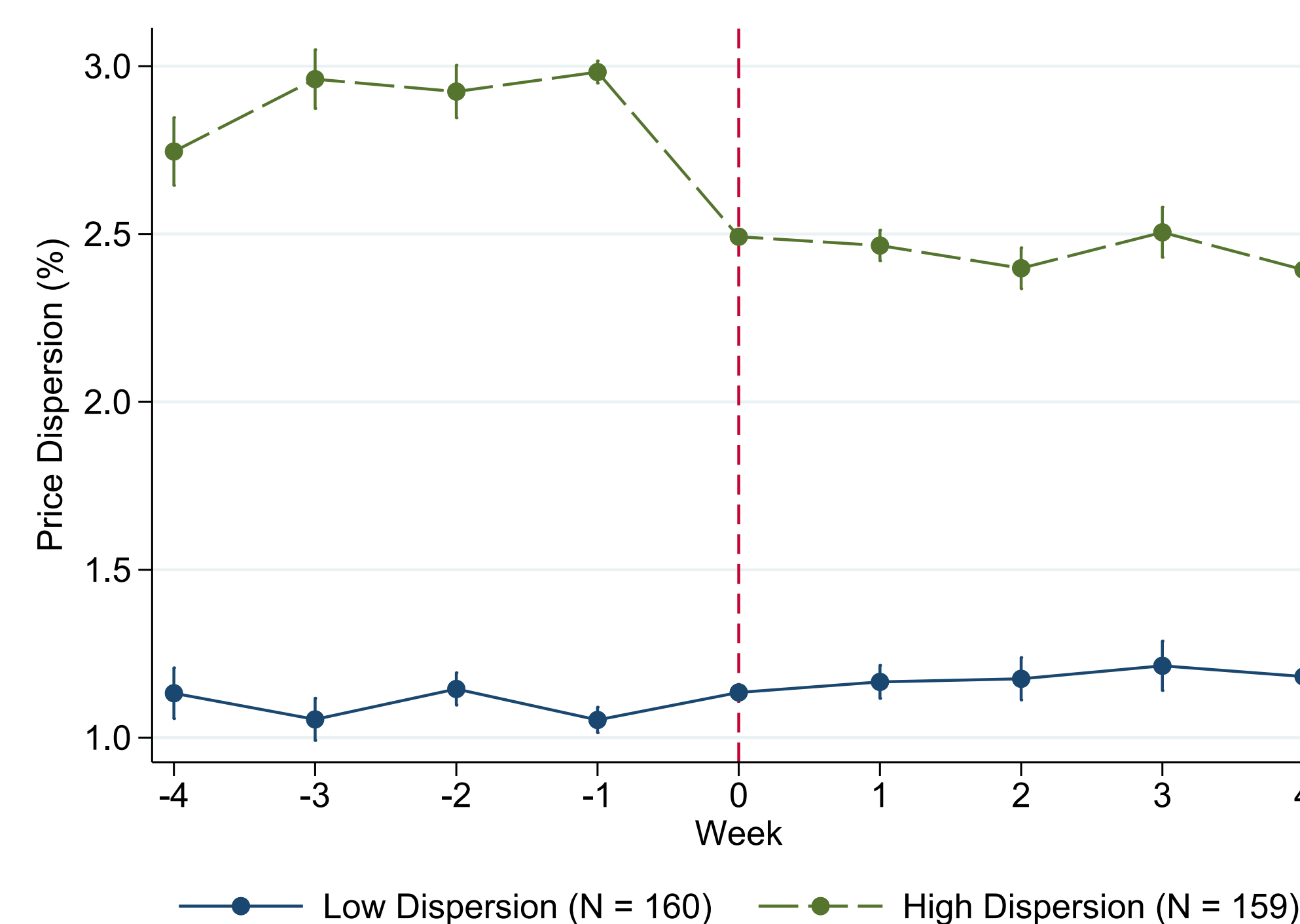
where b indexes bond, r indexes rating, and t indexes year-month

Do bonds held by ETFs have lower price dispersion – the average dispersion between trade price and end-of-day price across all transactions on a bond in a month?

Motivating evidence

Price dispersion, as a percent of price, significantly declines in the first week a bond is held by any ETFs

Figure 1. Price dispersion and ETF holdings: event study (Low versus high ex-ante price dispersion)



Stronger effect for retail-sized transactions and for bonds with high price dispersion ex-ante

Main results

A bond held by at least one ETF has a lower monthly price dispersion by 6 cents per \$100 market price (6 bps), with retail transactions impacted significantly more than institutional transactions

- Consistent with the literature of post-trade transparency (e.g. Schultz, 2012)

Table 1. Price dispersion and ETF holdings

	Institutional trades			Retail trades		
	(1)	(2)	(3)	(4)	(5)	(6)
ETF Holding _{b,t}	-0.023** (0.010)	-0.078*** (0.021)	-0.059*** (0.019)	-0.030*** (0.010)	-0.105*** (0.022)	-0.078*** (0.021)
MF Holding _{b,t}	0.015 (0.013)	-0.042*** (0.016)	-0.015 (0.014)	0.015 (0.013)	-0.007 (0.018)	0.025 (0.016)
Price Dispersion _{b,t-1}	0.529*** (0.018)			0.620*** (0.017)		
Bond Ret (%) _{b,t}	-0.048*** (0.010)	-0.045*** (0.014)	-0.041*** (0.009)	-0.052*** (0.009)	-0.039*** (0.014)	-0.031*** (0.010)
Ln(Age) _{b,t}	-0.022* (0.012)	-0.559*** (0.035)	0.531*** (0.048)	-0.040*** (0.013)	-0.579*** (0.037)	0.457*** (0.057)
Ln(Maturity) _{b,t}	0.276*** (0.017)	0.236*** (0.034)	-0.285*** (0.034)	0.249*** (0.018)	0.485*** (0.040)	-0.008 (0.046)
Observations	40,613	116,587	116,587	40,613	116,587	116,587
Adjusted R ²	0.64	0.56	0.60	0.75	0.63	0.66
Additional Controls	✓			✓		
Bond FEs		✓	✓		✓	✓
Year-Month FEs	✓		✓	✓		✓
Rating FEs	✓	✓	✓	✓	✓	✓

Mitigation of endogeneity concerns

Stronger effect of ETF holding on price dispersion:

- when ETFs have higher disclosure quality – which is not correlated which ETF size, performance, etc.
- for retail investors, who lack information, than for institutions
- on bonds associated with more uncertainty
- in stressed and volatile markets when information is more needed

\Rightarrow Daily ETF holding disclosure stimulates pre-trade transparency that benefits (retail) investors at times of scarce information

Further findings

ETF-held bonds are more liquid cross sectionally

Higher transparency leads to lower dealer profit margin and lower dealer inventory imbalance

ETF effects spill over to primary market

- Higher valuation for bonds issued by municipalities with outstanding ETF-held bonds
- Stronger effect for municipalities with low issuance activity and for negotiated offerings

Conclusion

Positive effects of ETFs on municipal bonds

- Lower price dispersion, higher liquidity, and higher valuation
- Both primary market and secondary market are affected

Consistent with **information channel**: Pre-trade transparency due to ETFs' daily holding disclosure improves customers' bargaining power

References

Schultz, P. 2012. The market for new issues of municipal bonds: The roles of transparency and limited access to retail investors. *Journal of Financial Economics* 106:492–512. doi:10.1016/j.jfineco.2012.07.004.

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