

# The Impact of Electronic Trading Platforms on the Brokered Interdealer Market for Government of Canada Benchmark Bonds

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**T**his article summarizes the study by Khan (2007) that analyzed the impact of increased transparency in the market for Government of Canada bonds, following the introduction of electronic trading platforms.

Transparency in capital markets refers to the degree to which information about trading activity, both before a trade occurs (pre-trade) and after a trade occurs (post-trade), is publicly available. Pre-trade transparency refers to the visibility of the best price at which any incoming order can potentially be executed, while post-trade transparency refers to the public visibility of the recent trading history in terms of traded price or volume, or both.

## Competing Hypotheses

Intuitively, it seems that greater transparency should lead to increased sharing of information, which should result in higher efficiency and liquidity (Glosten 1999).<sup>1</sup> However, alternative theories suggest that a lack of transparency may lead to lower initial spreads<sup>2</sup> because dealers compete to get order flow and then use the information they acquire from the order flow to gain profits in subsequent rounds of trading. If information is inexpensive or easily available, dealers will not need to compete through prices to acquire it, resulting in higher spreads (Grossman and Stiglitz 1980; Bloomfield and O'Hara 1999).

1. Market liquidity refers to the ability to rapidly execute large trades without causing a significant movement in prices. See also Bauer (2004) for a detailed discussion of market efficiency.
2. Spread, the difference between buy and sell prices, is a commonly used measure of market liquidity. See D'Souza, Gaa, and Yang (2003) for a detailed analysis of liquidity in the Government of Canada bond market.

The existing literature suggests that the impact of greater transparency depends on the structure of a particular market.<sup>3</sup> For government securities, some degree of transparency seems to improve market liquidity, but there is a point beyond which additional transparency may impair liquidity. For example, if greater transparency forces market-makers to make their trades public before they have had time to unwind or hedge their inventory positions, it will increase the risk that the positions will be unwound at a loss. This higher risk will increase trading costs and decrease liquidity. This suggests a non-linear relationship between transparency and liquidity, implying that there is some optimal level of transparency and that full transparency may not be optimal.<sup>4</sup>

## Change in Transparency Regime

Analyzing the impact of transparency on market liquidity is challenging, because changes in transparency regimes are rare. In Canada, the introduction of three electronic trading platforms, also known as alternative trading systems (ATSs), in mid-2002, increased the level of pre-trade transparency primarily in the customer-to-dealer segment of fixed-income markets.<sup>5</sup> This created a natural experiment providing the opportunity to study the relationship between transparency and liquidity for Canadian government securities. Because of data limitations,

3. See Gravelle (2002) for a detailed discussion of the different dealership markets for government and equity securities. Also see Zorn (2004) for a discussion of the relationship between transparency, liquidity, and market structure.
4. See Casey and Lannoo (2005), FSA (2005 and 2006), and Zorn (2006) for an extensive discussion of the academic literature on market transparency.
5. The three electronic platforms are CanDeal, Collective Bid (CBID), and Bloomberg Bond Trader.

the study is restricted to examining the effect of the transparency change in the customer-to-dealer market on the liquidity in the interdealer market.

## Data and Methodology

This study uses the CanPX dataset for the period 25 February 2002 to 28 February 2003 for the 2-, 5-, 10-, and 30-year Government of Canada benchmark bonds. CanPX, launched in 1999, consolidates feeds from interdealer brokers (IDBs) on one screen and displays anonymous trade and quote data submitted by all participating dealers for actively traded government bonds.

The study uses an event-study methodology and analyzes the impact of increased transparency by comparing liquidity before and after the event. The event period in which the three ATs were introduced is defined as the three-month period, July, August, and September of 2002. The pre-event period is chosen as the four-month period from the beginning of March to the end of June 2002. To give the market time to adjust to the changed transparency regime and reach an equilibrium state, the post-event period is chosen as the five-month period from the beginning of October 2002 to the end of February 2003.

The impact of increased transparency on market liquidity is tested through a series of regressions, where the dependent variable is one of two measures of liquidity and the independent variables include the control measures of trade volume, volatility, and a dummy variable for the pre- and post-event periods. To eliminate the immediate impact of most macroeconomic news events and auctions, the regression analysis uses daily data limited to the 10:10 a.m. to 12:00 p.m. time period for each trading day in the sample.

The first measure of liquidity, the percentage quoted spread, is calculated as the difference between the quoted bid and ask prices divided by the quote midpoint. The second measure, the impact that a change in order flow has on price (the price-impact coefficient), is estimated by using Kyle's (1985) model and regressing log changes in bid/ask midpoint prices on order flow. Order flow contains directional information and affects prices and yields. For instance, a greater number of buyer-initiated trades,

compared with seller-initiated trades, would be expected to put upward pressure on prices. Order flow is measured in two ways: (i) the dollar value of buyer-initiated trades minus the dollar value of seller-initiated trades; and (ii) the number of buyer-initiated trades minus the number of seller-initiated trades.

Wider bid/ask spreads and higher price-impact coefficients imply reduced liquidity and indicate dealers' unwillingness to make markets during periods when prices may change sharply.

## Findings

Overall, this study finds little evidence that liquidity in the interdealer market for Government of Canada bonds was significantly changed by the introduction of the electronic systems. Bid/ask spreads are not significantly different in the pre- and post-transparency periods for the 2-, 5-, or 10-year benchmarks. The 30-year benchmark, however, is the exception, since there is some evidence of decreased bid/ask spreads for this bond in the months following the introduction of the electronic platforms. The price-impact coefficient, using dollar value as a measure of order flow, also decreased in the post-event period for the 30-year benchmark but is not statistically different for any of the other benchmarks.

Since it is difficult to control for factors that may be specific to a particular benchmark, it is possible that factors other than the changed transparency regime may have resulted in lower bid/ask spreads and the lower price-impact coefficient for the 30-year benchmark.

It is important to note that this study analyzes the impact of a change in the dealer-to-customer market on the interdealer market. There is some evidence that the two markets are linked, since dealers use the interdealer market to manage the inventories they acquire trading with customers. However, the test would have been stronger had it been possible to analyze the effect of the change in transparency in the dealer-to-customer market itself on the dealer-to-customer market. This may be driving the results for the 2-, 5-, and 10-year benchmarks in the study. However, there are no data known to us that would allow such an analysis for the Government of Canada bond market.

Finally, it should be noted that this study examines the impact of a change in pre-trade transparency brought about by market innovation, whereas the recent policy debates have been more focused on the effect of post-trade transparency mandated by regulation.<sup>6</sup>

## References

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6. The Canadian Securities Administrators recently extended the current exemption for government securities from transparency requirements until 31 December 2011.