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Pre-auction inventory and bidding behavior: Evidence from Canadian Treasury auctions[☆]



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ABSTRACT

Bidders enter the Government of Canada securities auctions with short, neutral, or long pre-auction inventory. We find that bidding strategies and auction performance vary with pre-auction ownership structure. Short and long bidders bid higher average prices, demand larger quantities, and submit fewer bids than do bidders with neutral pre-auction inventory. These bidding strategies imply less underpricing in auctions with aggregate pre-auction inventory tilted in one way or the other. We analyze whether a concern for post-auction short squeeze influences observed bidding strategies and auction performance.

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1. Introduction

Many bidders in Treasury auctions enter with a short or a long position in the security to be auctioned. Negative and positive pre-auction inventory is built in the when-issued market that precedes an auction of a new security, or in the secondary market that is in operation before the reopening auction of an existing security. Securities dealers with privileges on bidding in the auction are natural sellers before the auction as they can expect to cover a short inventory position in the auction, and investors are natural

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counter-parties in that they can ensure delivery void of the uncertainty of the auction. In addition to liquidity-motivated transactions between securities dealers and customers, securities dealers can take speculative short and long positions in the pre-auction trading, and they can trade for risk management purposes. Trading before the auction is beneficial to market participants; it enhances price discovery and improves risk sharing by stretching the distribution process. Entities that analyze the relation between the pre-auction market and the auction include the [Joint Report on the Government Securities Market \(1992\)](#), [Sundaresan \(1994\)](#), and [Nyborg and Sundaresan \(1996\)](#).

In this paper, we analyze the auction bids and the pre-auction inventory positions in more than 1,200 auctions of Government of Canada securities that are conducted by the Bank of Canada (as the fiscal agent of the Department of Finance Canada) from October 1998 through 2011. For conformity with the literature, we refer to them as Canadian Treasury auctions. Little is known about the interaction between securities dealers' pre-auction inventory positions and their bidding strategies in the auctions. We explore the data set by comparing the auction bidding strategies of short, neutral, and long bidders.

We find that bidders with negative pre-auction inventory bid higher prices, demand larger quantities, and submit fewer bids than do bidders with neutral pre-auction inventory. The differences between short and neutral bidders are large. Consider as an example an auction of a new one-year Treasury bill and a bidder with a pre-auction inventory of -25% . We estimate that the short bidder bids 2.7 price bps above the average bid of a neutral bidder, he demands the maximum allowed quantity of 25% of the awards, and he submits 2.2 bids compared to 4.1 bids submitted by the average neutral bidder. The difference in price is large relative to the average spread between the highest and the lowest accepted bid in the auction, which is 2.1 price bps. Hence, bidders with negative pre-auction inventory bid aggressively, and they demand the quantity they need to cover to avoid shortfall. The auction strategies of bidders with positive pre-auction inventory are also aggressive relative to those of neutral bidders. According to our estimation, in a reopening auction of a one-year Treasury bill, a bidder with a pre-auction inventory of $+25\%$ submits bids at an average premium of 1.1 price bps above neutral bidders, he demands about 12.5% of the awards, which is half the maximum allowed quantity, and he submits 3.3 bids. Hence, bidders with positive pre-auction inventory aim at increasing their long position in the security. As a result of the aggressive bidding of short and long bidders, there is less underpricing in auctions where aggregate pre-auction inventory is tilted in either direction.

The pre-auction inventory data allow us to investigate a specific theory of how the bidding strategies in the auction may depend on ownership structure. The post-auction securities ownership may end up in the hands of a single securities dealer who can exercise market power over dealers with negative post-auction inventory. This situation is commonly referred to as a short squeeze, which can result in secondary market prices rising above their competitive level. Bidders who enter the auction with negative pre-auction inventory may bid aggressively to avoid being caught by a short squeeze, and bidders with long pre-auction inventory may bid aggressively to establish a short squeeze position. A short squeeze can arise out of chance, for example, when the securities dealers collectively pre-sell more securities than their combined market share of the auction.¹ A short squeeze can also arise from outright market manipulation. The Bank of Canada bidding rules are designed so that nobody can control more than 25% of the outstanding stock after the auction.² The bidding rules may prevent manipulation, but they do not necessarily rule out unintentional short squeezes.

Shortfalls are common in the Canadian Treasury market as more than one in every ten bidders with negative pre-auction inventory end up with negative post-auction inventory, and short squeeze situations arise. Most of the time, bidders with negative post-auction inventory can turn to multiple

¹ There are examples of such auction outcomes in our data set. [Joint Report on the Government Securities Market \(1992\)](#) discusses situations that can be characterized as unintentional short squeezes. A related discussion can also be found in [Bikhchandani and Huang \(1993\)](#). [Cornell and Shapiro \(1989\)](#) provide the mispricing of the 30-year U.S. Treasury bond in 1986 as an example of a short squeeze that probably emerged by chance. [Nyborg and Sundaresan \(1996\)](#) analyze information release in the when-issued market and the probability of post-auction short squeeze.

² The Bank of Canada revised its bidding rules in responses to incidences of short squeezes in the Canadian Treasury market. Before the revision, a bidder could acquire up to 33% of Treasury bill auctions and 20% of Treasury bond auctions regardless of his pre-auction inventory. The old bidding rules made market corner possible, and examples of market corners are mentioned in [Bank of Canada \(1998\)](#).

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