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Price formation in the OTC corporate bond markets: a field study of the inter-dealer market

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Abstract

Despite its importance the market-micro structure of the secondary market for corporate bonds remains something of a mystery. The major reason for this has been the OTC inter-dealer nature of this market. As far as we are aware this paper presents the first exploratory field study of the U.S. inter-dealer OTC corporate bond market. We construct a primary data-base from the trades of a major bond dealer and document the competitive structure of the market in terms of the number of active dealers and market trading mechanism. We find that the trading mechanism closely resembles a first-price sealed bid auction. We also examine the potential differences between segments of the market and develop a measure of competition based on the theory of auctions. Our measure indicates that competition is highest in US investment grade corporate bonds and lowest in junk bonds. We also examine the effect of the size of a trade on pricing and spreads. © 2002 Elsevier Science Inc. All rights reserved.

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1. Introduction

While the U.S. corporate bond market had a value close to $3 trillion in 1998, empirical research into price and return formation in this market has been relatively sparse compared

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to research on equity markets. There are two reasons for this. First, while some corporate bonds trade on the NYSE and AMEX exchanges, they tend to be odd-lots accounting for no more than 2% of market volume [see Nunn et al (1986), Warga and Welch (1993)]. Second, data quotes on OTC trades tend to be diffuse and based on matrix valuation rather than on actual trades such as those produced by IDC (in association with S & P and Moody's).

While a few studies have sought to use real quotes from dealers such as Lehman Bros. [see, Warga and Welch (1993)], and find quite surprising disparities between matrix prices and actual dealer quotes, no study, thus far, has analyzed the dynamics of price formation in the U.S. corporate bond OTC market. Specifically, questions such as how many dealers bid for large blocks of OTC-placed corporate bonds? Is there a difference in the bidding behavior for investment-grade versus non-investment grade bonds? What is the link between price determination and the number of bidders—i.e., how competitive is the market, have yet to be analyzed.[1] Indeed, while we know a lot about the competitive structure of US equity markets, we know very little about the competitive structure and pricing dynamics of the US corporate bond markets. The lack of transparency in pricing has been of great concern to the SEC, especially in periods of high volatility as have recently occurred.[2]

As a first step in closing this knowledge gap we carried out a field study of price determination in the OTC corporate bond market with the support of a major corporate bond trader.[3] In Section 2, we provide a general description of the OTC bond market. In Section 3, we describe our database and in Section 4 we provide descriptive statistics of the sample. In Section 5, we report our results on the competitive structure of the market.

2. Description of the market

Most of the participants in the OTC bond market are large institutional traders, usually money managers who trade on behalf of their institutional clients such as pension funds. There are also inter-dealer brokers who operate on both the buy and sell sides of the market and essentially act in a way similar to market-makers in the stock market. These broker-dealers provide anonymity to the traders, who in turn can bypass the inter-dealer brokers and trade directly with other institutional traders for issues in which they know that a given counterparty has an interest.

The following description applies to the asset manager who provided the trading data. Clients of the asset management firm, along with the individual asset managers, decide on a portfolio strategy regarding risk and return. This includes decisions on what type of bonds to hold (high risk, low risk, foreign, domestic, etc.). Once a decision on the general portfolio strategy has been set, the client gives the asset manager complete discretion in executing trading decisions. The asset manager then decides which bonds to buy or sell, as well as which type and maturity (duration) to hold. Periodically, the client reviews the account's performance and indicates to the asset manager any desired change in the risk/return characteristics.

All of the asset manager's trades are on behalf of clients, with the asset manager remunerated by a fee based on the amount of assets managed. The performance of the portfolio (account) is usually benchmarked to appropriate bond indices. The asset manager decides on the names and maturity of the bonds that are needed in different accounts. These

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