



Price discovery in government bond markets[☆]

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Abstract

Price discovery in government bond markets is explored using Norwegian data including trades from both tiers of the market and dealer identities. The results show that while aggregate interdealer order flow explains one-fourth of daily yield changes, aggregate customer order flow has little explanatory power. Dealers are heterogeneously informed and appear to have different sources of information. While some dealers mainly rely on their customer trades, others appear to rely on skill in acquiring and interpreting other relevant information, suggesting that dealers play an independent role in the price discovery process.

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1. Introduction

The process of price formation is largely ignored in traditional economic models that assume that prices adjust instantaneously to new information. This assumption applies equally to public and private information. The market microstructure literature advocates a different view. In microstructure models, the process of price formation is crucial and private information plays a key role. Information is incorporated into prices through two

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channels: a direct channel where prices adjust immediately to new public information, and an indirect channel, referred to as price discovery, where prices adjust over time to private information conveyed through order flow.¹

Lyons (2001) defines private information as information, not known by all, that produces a better price forecast than public information alone. Several studies confirm that price discovery is an important part of the price formation process in asset markets. Hasbrouck (1991), Evans and Lyons (2002), and Brandt and Kavajecz (2004) document that contemporaneous order flow explains a substantial part of daily price changes in stock markets, foreign exchange markets, and government bond markets, respectively. The gradual adjustment of prices through order flow implies that prices do not fully reflect all available information at any point in time and suggests that market participants have asymmetric information.

The purpose of this paper is to investigate the role of different market participants in the process of price discovery in government bond markets. Government bond markets are characterized by a two-tier structure, reflecting that customers can trade with dealers only while dealers can trade both with their customers and with other dealers. The tier where dealers and customers trade is referred to as the customer market and the tier where dealers trade with other dealers is referred to as the interdealer market. A new data set including trades in both the interdealer and customer markets, as well as the identities of the buying and selling dealers allows for an investigation of how different dealers contribute in the price discovery process and of the type of information embedded in interdealer order flow.

In sovereign bond markets, private information can be divided into types along two dimensions. The first dimension is whether information is fundamental or non-fundamental. Fundamental private information is related to macroeconomic factors, for example heterogeneous interpretations of macroeconomic indicators like consumer and producer surveys on future inflation, employment, and GDP growth. Non-fundamental private information is related to other factors like changes in liquidity conditions, investor risk preferences, auction volumes or hedging demands. Fundamental private information can influence expected future short rates and risk premia through the macroeconomic outlook, while non-fundamental private information can, for example, influence liquidity risk premia.

The second dimension of private information is the source. Two sources of information are considered: dealer skill and customer trades.² This paper defines dealer skill as a dealer's ability to acquire and interpret relevant information including public news and the order flow of other dealers. If the information in interdealer order flow reflects the information in customer order flow only, it indicates that the dealer does not add any information by trading. In this case, dealers are passive intermediaries of customer orders and customer trades are considered to be the source of information in interdealer order flow. If interdealer order flow is more informative than customer order flow, it suggests that dealers possess more information than their customers. Dealers can obtain extra information by using effort and skill in collecting and interpreting other relevant

¹Order flow is a measure of the net buying pressure in the market, and is calculated by subtracting seller-initiated trades from buyer-initiated trades during a time interval. A buyer-initiated trade will have a positive sign and a seller-initiated trade will have a negative sign.

²These sources are in line with Goodhart (1988), who considers three sources of information for better informed dealers. These are better and faster public information, access to and trained interpretation of the order flow of other dealers, and access to own customer orders and order flow.

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