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Market run-ups, market freezes, inventories, and leverage ☆

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ABSTRACT

We study trade between an informed seller and an uninformed buyer who have existing inventories of assets similar to those being traded. We show that these inventories could induce the buyer to increase the price (a run-up) but could also make trade impossible (a freeze) and hamper information dissemination. Competition can amplify the run-up by inducing buyers to purchase assets at a loss to prevent competitors from purchasing at lower prices and releasing bad news about inventories. In a dynamic extension, we show that a market freeze could be preceded by high prices. Finally, we discuss empirical and policy implications.

1. Introduction

Consider the sale of mortgages by a loan originator to a buyer. As widely noted, the originator has a natural information advantage and knows more about the quality of the underlying assets than do other market participants. One consequence, which has been much discussed, is that the originator will attempt to sell only the worst mortgages.[1] However, a second important feature of this transaction has received less attention. Both the buyer and the seller may hold significant inventories of mortgages similar to those being sold, and they may care about the market valuation of these inventories, which affects how much leverage they can take. Consequently, they may care about the dissemination of any information that affects market valuations of their inventories. In this paper, we analyze how inventories affect trade—in particular, prices and information dissemination. Our setting applies to the sale of mortgage-related products, but more broadly to situations in which the seller has more information about the value of the asset being traded.

Our main result is that the effect of inventories on trade depends on the buyer's and seller's initial leverage or, more precisely, on how tight their capital constraints are. When capital constraints are moderately tight, concerns about the value of existing inventories lead to higher prices (a market run-up). However, when capital constraints are very tight (i.e., initial leverage is very high), trade becomes impossible (a market freeze) and information dissemination ceases.

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[1] See, for example, Ashcraft and Schuermann (2008) and Downing, Jaffee, and Wallace (2009).

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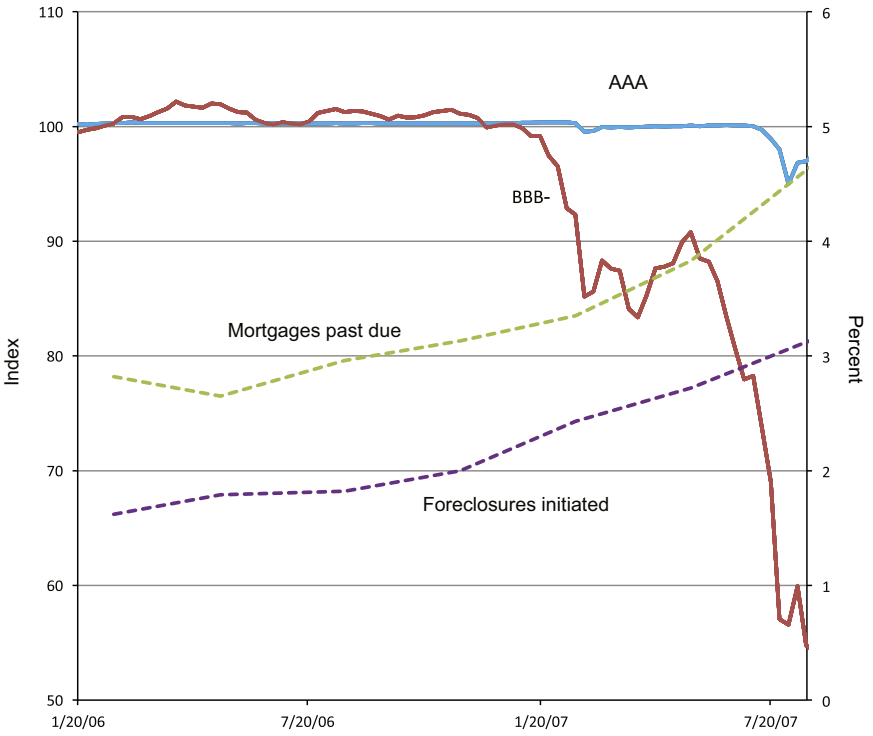

Fig. 1. The solid lines plot the Markit ABX.HE 2006-1 indexes for subprime residential mortgage-backed securities rated AAA and BBB-. The dashed lines plot quarterly data from the Mortgage Bankers Association on subprime mortgage payments: the percentage rate of mortgages that are past due 90 days or more, and the percentage rate of loans for which a foreclosure has been initiated during the quarter (both are seasonably adjusted).

Our results cast light on several features of the market for structured financial products that have attracted much attention. First, it is widely believed that these products were overpriced in the period leading up to the financial crisis. This is illustrated by Fig. 1, which shows a sharp divergence between foreclosure rates and mortgage-backed security (MBS) prices.[2] Fig. 1 is also consistent with many anecdotal accounts. For example, Lewis (2010, p. 164) suggests that "from mid-2005 until early 2007, there had been this growing disconnect between the price of subprime mortgage bonds and the value of the loans underpinning them." Second, this market collapsed in the financial crisis, as illustrated by Fig. 2. Third, the collapse of this market attracted concern not just because of the associated fall in potentially socially beneficial trade, but also because it severely hampered information dissemination (see, e.g., Wall Street Journal, 2009).

Our basic model has one buyer and one seller, and the (uninformed) buyer makes a take-it-or-leave-it offer to the informed seller. The motive for trade is that the buyer values the asset by $\Delta > 0$ more than the seller. The buyer has existing inventories of the traded assets, and he incurs a large cost if the market value of his inventories falls below some threshold. For example, creditors might not roll over the buyer's debt and the buyer could go bankrupt. We refer to this as the buyer's capital constraint and assume that, before trade begins, the capital constraint is satisfied.

The intuition for our main results is as follows. Whenever the seller agrees to sell at a price p, the market infers that the value of the asset is less than p, and so the value of the buyer's existing inventories drops. This could lead to a violation of the buyer's capital constraint. When the buyer's capital constraint has sufficient slack, the buyer can prevent a violation of his constraint by increasing the price while still maintaining positive profits. Hence, a price run-up results. However, when the capital constraint is tight, the buyer can no longer increase the price without losing money. At this point, the buyer prefers not to make any offer. Hence, trade completely breaks down, and the market learns nothing about the value of the asset.[3] We obtain similar results when the seller is subject to a capital constraint and must retain a fraction of his assets on his balance sheet.

In a dynamic extension of our basic model (Section 4), we show that when the buyer has high leverage and holds inventories of two assets with independent values, trade

[2] In 2006, MBS prices also diverged from other proxies for the health of the housing sector and, hence, the value of the underlying mortgages. Examples include construction spending, pending home sales, and the share price of large residential construction firms such as Toll Brothers.

[3] Of course, asymmetric information by itself can lead to a reduction in trade, even absent inventories and capital constraints. However, when there are strictly positive gains from trade for even the lowest-valuation seller, as in our setting, some trade still survives absent inventories and capital constraints. In particular, sellers with sufficiently low valuations still trade. In contrast, inventories and capital constraints can lead to a complete market breakdown.