

Common liquidity shocks and market collapse: Lessons from the market for perps[☆]

Chitru S. Fernando^a, Richard J. Herring^b, Avanidhar Subrahmanyam^{c,*}

^a Michael F. Price College of Business, University of Oklahoma, Norman, OK 73019-4005, United States

^b The Wharton School, University of Pennsylvania, Philadelphia, PA 19104-6330, United States

^c The Anderson School, UCLA, Los Angeles, CA 90095-1481, United States

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Abstract

We show how a high degree of commonality in investor liquidity shocks can diminish incentives for intermediaries to keep markets open and lead to market collapse, even without information asymmetry or news affecting fundamentals. We motivate our model using the perpetual floating-rate note market where two years of explosive growth – in which issues by high quality borrowers were placed with institutional investors and traded in a liquid secondary market – were followed by a precipitous collapse when market intermediaries withdrew due to large order imbalances. We shed new light on the trade-off between ownership concentration and market liquidity. © 2007 Elsevier B.V. All rights reserved.

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Liquidity, according to Keynes, offers a classic example of the fallacy of composition: what is true for a part is not necessarily true for the whole. The ability to reverse positions and get out quickly vanishes when everyone tries to do it at once. – Merton Miller (1991).

1. Introduction

There has been considerable attention paid in the recent literature to the question of how ownership structure, and in particular ownership by large investors, affects market liquidity, corporate governance and the value of the firm.

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* Corresponding author. Tel.: +1 310 825 5355.

E-mail address: asubrahm@anderson.ucla.edu (A. Subrahmanyam).

One strand of this literature has focused on the trade-off between the value of monitoring by shareholders with large, concentrated positions and the cost of illiquidity of a firm's shares. [Bhide \(1993\)](#) argues that policies aimed at increasing the liquidity of a firm's shares by promoting diffused ownership reduce the incentives for large investors to monitor. This is because of free-riding by small investors, and because higher liquidity reduces the cost to large investors of "voting with their feet". In contrast, [Maug \(1998\)](#) argues that a liquid market makes it easier and cheaper for investors to acquire and hold large concentrations of a security, and makes corporate governance more effective.¹ A basic premise underlying Maug's argument is that concentrated ownership can be reconciled with liquid secondary markets, notwithstanding the inherent reduction in liquidity that results from blockholdings and a smaller investor base.

¹ See also, for example, [Bolton and von Thadden \(1998\)](#), [Kahn and Winton \(1998\)](#) and [Pritsker \(2004\)](#).

We provide a new perspective on the ownership-liquidity debate by studying an aspect of concentrated ownership that has not received much attention in the literature: the risk of a market collapse due to common liquidity shocks, i.e., liquidity shocks that are highly correlated across investors. We argue that this risk increases with ownership concentration, especially among homogeneous investors. Our context is the market for perpetual floating-rate notes (perps). Perps are floating-rate notes (FRNs) of infinite maturity, bearing a coupon indexed to a benchmark rate (usually the London Inter-Bank Offered Rate, LIBOR) and re-set at fixed intervals (usually every three or six months). The first perp was issued in 1984. Issuers of perps were largely European, Australian and North American banks and institutions with generally very high credit ratings. Perps were traded in well-organized markets by sophisticated investors, primarily banks and other institutions. The market for perps grew rapidly and the volume of perps outstanding reached \$22 billion by the end of 1986. Perps traded at close to par value in the secondary market, which was highly liquid until it began to collapse precipitously in December 1986. Secondary market prices experienced drops ranging from 12% to 25%, and trading volume dried up for all perp issues. While the majority of the perps issued during the 1984–1986 period remain outstanding, the secondary market has not regained its liquidity.

We document evidence later in the paper that attributes the loss of liquidity in the perp market directly to the concentrated institutional ownership of perps. Until December 1986, the secondary market remained very liquid despite its narrow investor base. However, once a common drop in demand across perp investors due to highly correlated liquidity shocks caused significant losses to market intermediaries and prompted them to withdraw from the market, the secondary market was unable to recover its liquidity.

Our study provides new insights into the phenomenon of market collapse by explicitly modeling how correlated liquidity shocks experienced by investors can cause intermediaries to withdraw liquidity. Central to our model is a basic Walrasian batch market in which risk-averse investors are symmetrically informed and trade only in response to liquidity shocks. These shocks have both an idiosyncratic component and a component that is common across all investors, i.e., a systematic component.² Trading is facilitated by risk-neutral market intermediaries (e.g., dealers or exchanges) who contract a bid-ask price spread with investors in order to recover costs of offering the market. Liquidity shocks that have a large common component,

i.e., are highly correlated across investors, prevent investors from trading with each other and the resulting drop in trading volume causes losses to market makers. Thus, the decision by market making entities to offer the market depends on their assessment of common liquidity risk. Market makers can withdraw and cause markets to collapse when the degree of commonality in liquidity shocks exceeds a threshold level.

Our implications differ from models in which markets break down due to a worsening of information asymmetry about asset price fundamentals across market participants. In these models (e.g., [Glosten and Milgrom, 1985](#); [Bhattacharya and Spiegel, 1991](#)), uninformed investors withdraw from the market for fear of being taken advantage of by better-informed market participants, causing a market failure. We achieve a comparable result in our model without asymmetric information. This difference has important ramifications for how a crisis can be resolved. If the collapse is caused by an exacerbation of asymmetric information, it can be resolved by alleviating the information asymmetry. If the collapse is caused by a common liquidity shock, however, prices will rebound only if market participants believe that the risk of a recurrence of such shocks is small. Unlike models of rational price bubbles and their collapse (e.g., [Kindleberger, 1978](#); [Allen and Gale, 2000](#)) our model abstracts from agency problems or imperfect information about asset values.

Our model is related to the work of [Brunnermeier and Pedersen \(2007\)](#), who examine the links between a security's market liquidity and traders' funding liquidity. In their model, the ability for traders to provide market liquidity depends on their funding liquidity and the supply of liquidity is reduced when the funding constraints tighten. [Kyle and Xiong \(2001\)](#) and [Gromb and Vayanos \(2002\)](#) also develop models where wealth constraints experienced by market participants give rise to withdrawal of market liquidity. In contrast, the key driver of market liquidity in our model is the demand for liquidity arising from the liquidity shocks experienced by investors. As the correlation across individual liquidity shocks increases, the volume of trading declines, thereby negatively impacting the viability of the market from the standpoint of the market makers. They respond by either increasing their spreads to recover more revenue (thereby further exacerbating the market illiquidity) or by reducing spreads to stimulate trading. If neither of these liquidity supply responses bring in the revenue needed to recover their investment, market makers will stop offering the market.

While our model predicts that the market for perps could recover after a number of periods without an additional high commonality state, a unique and puzzling aspect of the perp market is that such a recovery did not occur. We attribute this lack of recovery, at least initially, to the unwillingness of Japanese banks (which purchased the vast majority of perps) to realize capital losses by selling even a part of their holdings at substantially lower prices to help restore market liquidity.

² Several recent studies have documented common factors in market liquidity, including [Chordia et al. \(2000\)](#), [Hasbrouck and Seppi \(2001\)](#), and [Pástor and Stambaugh \(2003\)](#). However, the potential for common factors in liquidity shocks experienced by investors to cause market collapse has not been rigorously explored in the literature.

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