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Article in *Quantitative Finance* · February 2014

DOI: 10.1080/14697688.2013.826815

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Market Liquidity: Asset Pricing, Risk, and Crises

By Yakov Amihud, Haim Mendelson, and Lasse Heje Pedersen. Cambridge University Press, 2013, Hardback

The work of Yakov Amihud, Haim Mendelson, and Lasse Heje Pedersen, has been pivotal in furthering our understanding of the effects of illiquidity on asset pricing. In *Market Liquidity: Asset Pricing, Risk, and Crises*, we have a collection of their papers, with co-authors, tied together with nice introductions to the three sections of the book, covering the effects of illiquidity on asset prices, the effects of the uncertainty of illiquidity on asset prices, and the role of illiquidity in financial crises, respectively. Each paper is preceded by a very clear summary and discussion of the implications of the paper.

Part I of the book investigates the direct effects of liquidity on asset prices. The cost of trading an asset consists of a number of components, including commissions, order processing fees, transaction taxes, bid-ask spreads, and price impact. The early literature naturally started with a characterization of the size and determinants of transactions costs (e.g., Demsetz (1968)). Chapter 1 contains the paper that first (to my knowledge) studied how transactions costs influence the prices of assets when investors have heterogeneous investment horizons. In equilibrium, common stocks with higher spreads sell for lower prices, or equivalently, promise a higher before-cost return to compensate for higher expected trading costs. Additionally, the relation is concave since higher spread assets are held, in equilibrium, by investors with longer horizons. The empirical evidence in the paper is consistent with the model. In this chapter trading frequency is exogenous the effect of trading costs is reduced when trading is endogenous (Heaton and Lucas (1992)).

Chapter 2 finds similar results in fixed income markets. Chapter 3 studies the effect of an exogenous change in asset liquidity due to a change in market structure on the Tel Aviv Stock exchange. The event leads to increased stock prices, with the increase being related, cross-sectionally, to the size of the liquidity improvement.

Part II of the book takes seriously the fact that liquidity is stochastic. Assets that are liquid may rapidly become illiquid. Chapter 4 proposes a low-frequency approach to measuring price impact, the average of the daily ratio of the absolute value of return to volume. The measure has come to be called the Amihud Measure. Market illiquidity is shown to have substantial variation over time. When market illiquidity rises, stock prices fall and future expected returns rise. Additionally, the Amihud measure is useful in explaining the cross-section of stock returns.

The stochastic nature of illiquidity suggests that the risk of illiquidity, as well as its level, is important. It is certainly possible that two assets with the same current spread might have very different levels of uncertainty about future spreads. This implies that, in addition to a premium for the level of illiquidity, there may be a premium for the risk of illiquidity. While it might be natural to assume that illiquid assets also have the most risk to changes in liquidity, there is significant evidence that very liquid stocks have

the highest liquidity risk (Lou and Sadka (2011)). The implication is that the effects of liquidity on asset prices are multidimensional.

Chapter 5 analyzes the effects of illiquidity and liquidity risk in a mean-variance framework. Assets have stochastic terminal payoffs that are offset by stochastic costs of illiquidity. In equilibrium, expected return of an asset is given by the sum of a) the riskless interest rate, b) that asset's expected illiquidity cost (consistent with the results of Chapter 1), c) the standard CAPM risk premium (the asset's market sensitivity times the market risk premium), and d) three illiquidity systematic risk parameters (or "betas") times their respective risk premiums. Illiquidity risks are driven by the covariance of the 1) asset's illiquidity cost with the market's illiquidity cost, 2) asset's return with the market's illiquidity cost, and 3) asset's illiquidity cost with the market's return. The paper finds a significant relation between stock returns and the liquidity betas with an average effect of 1.1% per year. This effect is largely driven by the last liquidity risk term. Given this result, it is interesting that many subsequent studies focus on the covariance of the asset's return with the market's illiquidity cost. The literature has found that a number of other measures of liquidity exhibit risk premiums. One interesting question is whether there are multiple liquidity risk premiums or are all of these measured premiums a manifestation of one underlying risk premium. The evidence seems to indicate the latter.

Part III of the book studies the role of liquidity in financial crises. Chapter 6 makes the distinction between two notions of liquidity. Market liquidity is the ability to sell assets with low transactions costs and is the focus of Parts I and II of the book. Funding liquidity is the ability of traders to obtain capital to finance their investments and trading operations. The chapter argues convincingly that there is an externality between these two notions of liquidity. When traders have access to ample capital, they trade more actively, leading to higher market liquidity. When traders face markets with high levels of market liquidity, funding liquidity increases since the risk associated with adjusting or liquidating positions is lower. The flip side to this is that negative shocks to one type of liquidity affects the other which, in turn, has a feedback effect on the first type of liquidity. This leads to what the authors call "liquidity spirals." The model is consistent with many aspects of the recent financial crises and has important implications for central bank behavior during liquidity spirals. If the central bank has superior ability to distinguish liquidity crises from fundamental crises (which may be difficult when the two are intertwined) there is an important role for the bank to act as a supplier of liquidity.

Chapter 7 documents the type of inter-linkage between fundamental and liquidity shocks during the 1987 stock market crash. The chapter shows a significant decline in stock liquidity around the crash. Those stocks with the largest decline in liquidity experienced the largest price drops.

Chapter 8 presents evidence that liquidity spirals are not unique to the recent financial crisis. The chapter studies two liquidity spiral events in the convertible bond market and one in the merger arbitrage market. Funding illiquidity during these events leads to slow moving capital in the sense that investors are unable to take full advantage of apparent profit opportunities. This funding illiquidity leads to increased market illiquidity for the affected assets in each of these events.

Over the span of time since the publication of Chapter 1, the profession's understanding of the causes and consequences of illiquidity has grown immensely. The material in this book represent major contributions to that understanding.

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