



Challenge Paper

Patterns in cross market liquidity

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Abstract

Academic research on liquidity has generally focused on explaining what can be called within market liquidity. That is it seeks to explain things like why one stock is more liquid than another. But there has been considerably less attention to cross market liquidity: the issue of why some securities are more liquid than others. For example, stocks are apparently far more liquid than high yield bonds. Why? Why do some markets exist (orange juice for example) while others do not (potatoes for example)? This article lays out the current academic evidence regarding liquidity across assets and explains why current theories have trouble with one item or another. The challenge then is to produce an overarching theory that offers predictions that are closer to what the data seems to imply about cross market liquidity.

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When most academic articles discuss the issue of liquidity, they are referring to liquidity differences within a market or what might be called “within market liquidity.” These papers help us understand, for example, why some stocks on the NYSE are more liquid than others. But there is another issue that has received much less attention: Why are some *types* of financial securities more liquid than others? In the extreme, why do some markets exist while others do not? At first, it would seem that by simply taking the principles from the within market liquidity literature it should be possible to explain “cross market liquidity” via the same forces. However, as this paper argues it is not that easy to reconcile within market liquidity models with the observed cross market liquidity patterns. The question then arises as to whether other, better, explanations

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for cross market liquidity exist? This paper attempts to map out the problem and explain where current explanations run into problems.

1. Cross market liquidity: measurement

The first problem any researcher discussing “liquidity” must address is the word’s actual meaning. Outside of simple mathematical models the answer is not entirely clear. Nevertheless, the fine points of this problem are going to be ignored here. Instead the discussion will simply assume that if an academic article has measured something that relates to liquidity it can be used to make liquidity comparisons.¹ Thus, in what follows comparisons across markets will necessarily use different measures at different times. While this is not ideal it is all that can be done given the current state of the literature. Naturally, this requires a certain faith in the idea that if under one measure market *A* is more liquid than market *B*, and under another market *B* is more liquid than *C* then *A* is more liquid than *C*.

Another issue that will be ignored is the variation in perceived liquidity across traders. One market may provide more liquidity for small orders, another for large ones. Thus, retail and institutional investors may disagree about each market’s relative liquidity. This may be even more of a problem if each market is dominated by a different investor type. While these are important issues, rationalizing them into a coherent whole is far beyond the scope of this paper. Fortunately, when looking across markets many of the subtleties that make it difficult to determine which market is more or less liquid are dominated by other issues.

2. Cross market liquidity: the basic facts

U.S. Treasury notes are auctioned off periodically and the latest issue is said to be “on the run.” If you want liquidity there seems to be no better market than the on the run U.S. Treasury market.² But off the run matters are quite different. Goldreich et al. (2005) look at the two year notes that the government issues every month. Their data covers the period from May 1994 to November 2000. On the run daily volume averages \$6 billion. A month later, when the note goes off the run, volume falls to a relatively paltry \$100 million. Note that the most recent off the run bond and the newly issued on the run bond are nearly identical yet have vastly different trading volumes. Similar conclusions can be found in Goyenko et al. (2007) who use the quoted spread as their liquidity measure—that is off the run bonds are less liquid than their on the run counterparts especially for longer maturities.³

Across bond markets daily trading volume varies enormously. According to data from the Securities Industry and Financial Markets Association (2007) in 2006 average daily trading volume in billions of dollars came to 524.7 in the U.S. Treasury market and 13.6 in the corporate bond market. Given the size of the U.S. Treasury market this comparison no doubt overstates

¹ The two most popular measures are the bid–ask spread and the slope of the supply function (Kyle’s lambda). See Brennan and Subrahmanyam (1996), Amihud (2002) and Chordia et al. (2007) for a discussion of the latter and Hasbrouck (2006) for a discussion of liquidity measures in general.

² Except for the foreign exchange (FX) market where extremely large transactions at very small spreads take place all the time. However, to keep the paper from delving into too many issues the FX and all other markets involving non-U.S. investments will not be covered here.

³ Does this matter to investors? It must since both papers find that a reduction in a bond’s liquidity leads to a reduction of its price as well. This not only holds for government bonds but is also a common finding in papers using corporate bond data as well.

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