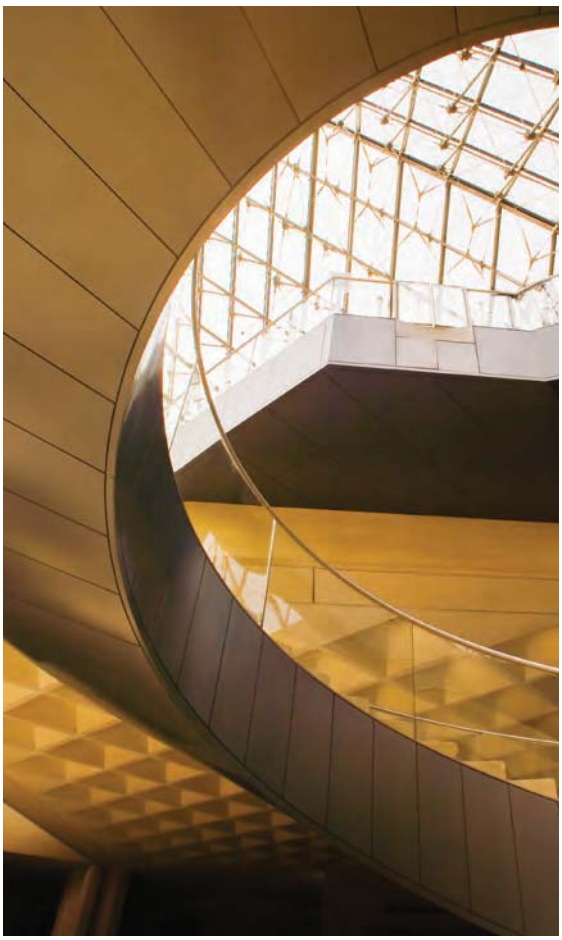

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# The New Liquidity: Investment Implications of Structural Market Changes


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**Executive Summary**

As the combined forces of regulation, technology and the increased concentration of market participants transform global capital markets, the heads of trading at three major BNY Mellon investment boutiques look at structural changes to market liquidity in the U.S. and what they mean for long-term institutional investors. While markets are clearly healthier than they were during the credit crisis of 2008, there remain significant stresses in the foundations of our markets. The biggest stress, affecting both the equity and fixed income markets, is liquidity; the dealer business model is under major pressure, due to strong business headwinds and regulatory changes such as Basel III and the Volcker Rule. This creates obvious problems for an over-the-counter dealer market like the bond market, but even the stock market has been seriously impacted. Trading volume in the stock market is now dominated by high frequency traders, which differ in many ways from traditional dealers. While, they deliver fast execution and tight spreads for small orders, they supply less stable and less reliable liquidity for highly demanding orders, as well as for orders overall during times of market stress. As for the bond market, liquidity problems are compounded by its market structure, where a single corporation has historically not had to pay a penalty for issuing an outsized amount of debt securities.

Given these historic changes, what should the long-term investor consider? First, make sure that your equity and fixed income managers have enough flexibility to source liquidity. Second, ensure that investment strategies and fund managers seriously consider the new paradigm of market liquidity. Third, consider tactical strategies that can profit from an expected increase in pricing dislocations that result from the decrease in market liquidity.


Deep and liquid capital markets have always been the lifeblood of healthy financial systems. Not surprisingly, the seizing up of credit markets during the financial crisis was often likened to heart failure. It was only when the Fed intervened with emergency "injections" of liquidity, that the system was "revived." But even as markets have recovered, there are still concerns about the stability of liquidity. Knight Capital's trading breakdown in August was only the latest warning sign of continued structural vulnerabilities.

Market liquidity has dramatically changed over the last 15 years, driven by the combined forces of regulation, technology and the increased concentration of market participants. These have had direct implications for the ability of institutional investors to source liquidity, especially in highly volatile markets, and the types of trading strategies that are appropriate for these new market conditions.

The Volcker Rule threatens to further undermine the dealer model, as it fails to draw a clear line between committing capital for proprietary trading versus market-making.

## Decline of the Dealer Model

Perhaps the most significant change affecting both the stock and bond market has been the decline of the dealer model. A combination of regulatory mandates and advancements in technology has driven a rapid shift in market structure, which has significantly altered the role of a traditional dealer. The big sources of dealer liquidity historically came from human "specialists" on traditional exchanges or from the trading desks of broker/dealers. The increased automation of exchanges decimated the former; while a combination of reduced margins, general bank deleveraging, stricter capital requirements and a greater focus on core businesses has dramatically reduced the latter.

The Volcker Rule threatens to further undermine the dealer model, as it fails to draw a clear line between committing capital for proprietary trading versus market-making. Because of the bond market's greater reliance on dealers, the rule will have a much greater impact there than on the stock market. Unlike the thousands of trades that happen in any one stock on a given day, the corporate bond market is far less granular. The fact that corporations have many different bond issues means that days or weeks might go by without a particular issue trading. That is why the credit crunch was so much more challenging for fixed income markets than equity markets. Equity markets, given the larger number of market participants, were eventually able to clear, albeit at dramatically lower valuations.[1]

Because the demand for multiple bond issues is more diffuse than for equities, it is a greater challenge to match buyers and sellers. As a result, the ability of dealers to carry inventory on their balance sheets has remained a critical factor for bond liquidity. Dealer inventories of corporate bonds have dramatically shrunk from the highs of 2007 (Exhibit 1), and the fixed income markets are now in the beginning stages of a revolutionary period of significant structural change.

**Exhibit 1 – Primary Dealer Corporate Bond Inventory**

U.S. Primary Dealer Net Positions in Corporate Securities Due in More Than 1-Year: September 5, 2001 to September 12, 2012


Source: BNY Mellon using data from NY Federal Reserve

1 For more information about the structural challenges of stock and bond markets, please see "Exiting a Burning Building: Structural Drivers of Liquidity Shocks in Stock and Bond Markets," BNY Mellon Asset Management, June 2010.

## Fractures in the U.S. Equity Market Structure

Structural changes in the equity markets have been unfolding over the last 15 years, so they seem less dramatic than the sudden changes in fixed income markets. However, since the financial crisis, equity market fragmentation has become a more significant concern because of a decline in "real equity volume" as opposed to the fleeting and shallow liquidity provided by new high frequency traders. In the late 1990s, the U.S. Securities and Exchange Commission (SEC) focused on altering the equity market structure in an attempt to ensure the fair treatment of retail client orders. A major milestone in that endeavor was the authorization of electronic exchanges in 1998, followed by decimalization in 2000. Decimalization meant that price changes in stocks would be reported in dollars and cents, not fractions. Regulators expected that would benefit smaller stockholders who would pay less in commissions. Decimalization was also expected to increase stock market liquidity by encouraging greater participation and improve competitiveness by aligning the U.S. market with international practices. Both electronic exchanges and decimalization led to a profound shift in the U.S. market structure as well as serious unintended consequences.

The introduction of multiple electronic exchanges fragmented liquidity away from a centralized order book into different physical locations.

Market participants were no longer able simply to post price and size on a single order book and be assured of execution when a stock traded at that price. The SEC attempted to resolve this issue with Reg NMS (Regulation National Market System) in 2005, but that required that orders be physically shipped from one location to another in hopes of capturing an offer. If one market participant could route orders faster, he would capture the liquidity in front of another market participant. At that point, the notion of latency, or the time it takes to send and execute a trade, became an increasingly important focus for traders. The share of exchange trading has decreased dramatically in just six years. A recent report pointed out that the trading share of the NYSE accounted for 80% of trading volume in NYSE-listed securities in 2005; by February 2011 that share had fallen to around 24%.[2]

While the move from fractions to decimalization was good for lowering transaction costs, it can be argued it went too far and has had unintended consequences. Decimalization has destroyed whatever was left of the value of the traditional order book model because "price-time priority" is now no longer a real factor. The price-time priority model was a critical component to developing a robust order book because it determined the order in which market participants would participate in any transaction. Orders submitted at the same price would be filled according to the time they were placed. This created an incentive to put larger-sized orders into the transparent public market as it was the best way to ensure a targeted participation rate at a given price.

2 Andrew G. Haldane, "The Race to Zero," speech to International Economic Association, July 8, 2011.

Decimalization further eroded the incentive of placing larger orders into the public market, because the cost to step in front of a large order became insignificant. Instead of having to improve the price by 25 cents, a price improvement is now measured in tenths of pennies. Consequently, when an investor places an order of any significance, it is almost guaranteed that a fast moving algorithmic trader will step in front of their order.

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While the SEC achieved its principal aim of creating a more robust and equitable market for retail size orders, an unintended consequence was that it forced market makers to reinvent themselves and forced institutional investors to change how they interact with this market. Within this new paradigm, collocation and latency replaced the value of a seat on the exchange; floor traders were replaced by algorithms; and liquidity became even more fractured. Investors now break up their orders into increments of 290 shares on average in an attempt to avoid triggering a front-running algorithm.[3]

Trading volume in the stock market is now dominated by what is commonly referred to as high frequency traders (HFT). These new liquidity providers deliver fast execution and tight spreads for small orders in the liquid segment of the market, fulfilling the objective of the SEC. However, HFTs fail to provide liquidity for the less liquid segment of the market and for the market overall during times of high stress. The result is that this new market structure fails to provide liquidity when and where it is needed most and has begun to show signs of structural instability as recent trading breakdowns have illustrated.

Today high frequency trading accounts for nearly three-quarters of daily equity trading.[4] While average daily volume has soared as a result of HFTs and trade size has fallen, the nanosecond nature of those trades has transformed equity market liquidity into an ephemeral force that can vanish as quickly as it appears.[5] There is also some question about how much of HFT turnover represents genuine trades; at least one HFT firm has been fined for "layering" or "order stuffing."[6]

The report by the SEC and the Commodities Futures Trading Commission on the flash crash of May 6, 2010, documented that during the crisis HFT traders scaled back liquidity sharply, exacerbating the crash.[7]

3 Tabb Group.

4 *Ibid.*

5 Robert A. Jaeger, "Market Liquidity: Don't Know What You've Got 'Til It's Gone," *A Guide to Global Liquidity 3*, Institutional Investor Journals, Spring 2011.

6 "FINRA Sanctions Trillium Brokerage Services, LLC, Director of Trading, Chief Compliance Officer, and Nine Traders $2.26 Million for Illicit Equities Trading Strategy," FINRA press release, September 13, 2010.

7 "Findings Regarding the Market Events of May 6, 2010," U.S. Securities and Exchange Commission and U.S. Commodity Futures Trading Commission, September 30, 2010.

There are also concerns that HFTs are adding to market swings as their algorithms amplify otherwise minor dislocations in the market. Studies show that both market volatility and correlations have been higher since the fragmentation of trading venues and the ascent of HFTs.[8]

The combination of high-speed computing power and ever more granular algorithms have set the stage for what Andrew Haldane of the Bank of England has called a trading "arms race," as HFTs strive for greater execution speeds.[9] Haldane says the lower limit for trade execution now appears to be around 10 micro-seconds, as HFTs compete for proximity near exchanges to minimize the distance between their servers and the trading engines of the exchange. Major trading venues are vying against each other to reduce their round-trip latencies. Haldane says traders used to want to be "smarter than the average bear" by better understanding the future path of fundamentals. "Today," he says, "it pays to be faster than the average bear, not smarter."[10] Not surprisingly, regulators are now requiring circuit breakers in major markets to halt trading after extreme swings.

While market regulators are concerned with the possible systemic destabilizing effects of ever faster trading algorithms, institutional investors are confronted with challenge of transacting without moving markets or being pre-empted by HFTs.

While certain market venues are more susceptible to predatory HFT activity than others due to infrastructure differences, increasingly this kind of "market toxicity" is shifting across market centers dynamically, making real-time anti-gaming measures much more important that post-trade venue analysis for protecting institutional orders.

As HFTs come to assume a larger share of total market volume, historic assumptions about the percentage of daily volume that can be achieved without causing undue market impact need to be adjusted downward. This has direct implications for portfolio managers to implement their investment ideas as well as the capacity assumptions for strategies that use liquidity as a component.

8 See, for example, Jonathan Brogaard, "High Frequency Trading and Its Impact on Market Quality," Northwestern University, November 22, 2010.

9 Andrew G. Haldane, "The Race to Zero," speech to International Economic Association, July 8, 2011.

10 *Ibid.*

Banks are no longer able to function as market liquidity stabilizers, which were required to support the inordinate amount of issuances.

## Credit Market Fractures

Credit markets are also facing similar challenges to the market structure caused by new market regulations, only at a more rapid and disruptive pace. Basel III's stricter capital requirements for banks and the Volcker Rule are dealing a one-two punch at banks' ability to act as dealers by striking directly at their ability to act as and profit from their role as core dealers. The financial crisis revealed to regulators that systemically important financial institutions (like large banks) were leveraging their balance sheets 30-50 times. Regulators are now forcing banks to reduce their balance sheet risk. The pace of this deleveraging is sending shockwaves through the market because of the role banks have traditionally played in the liquidity profile of modern credit markets.

As mentioned, credit markets by their very nature are fragmented. In the U.S. bond market, there are over 2.9 million different CUSIPs, the nine-character alphanumeric code that identifies a security eligible for trading. Of these, 2.7 million CUSIPs represent mortgages and municipal bonds and 87,000 represent corporate bonds, with just under 10,000 issuers.[11] Historically, debt issuers were able to structure their balance sheet in alignment with specific funding requirements without much concern for liquidity. This was made possible because the banks managed large inventories of securities for their market making business. Banks were able to operate large and fluid portfolios of both liquid and illiquid securities because they have access to sophisticated hedging techniques that allow them control their risk and manage their inventory. Because of deleveraging and new market regulations, banks can no longer afford to manage these large inventories and serve as the primary liquidity stabilizer for the market.

Fortunately, since the crisis, investor demand for debt securities has outpaced the spike in supply caused by the deleveraging process. Without this shift in demand, the entire credit market would be in another crisis as banks would be forced to shed assets at fire sale prices. However, the negative side effect of this migration of assets is the shift in market structure. Banks are no longer able to function as market liquidity stabilizers, which were required to support the inordinate amount of issuances.

A greater percentage of the inventory of securities now lies with more traditional institutional investors who do not and cannot function as liquidity providers. Subsequently, the market structure for the corporate bond market is being forced to evolve. While over time, new technologies, new processes and new sources of liquidity will emerge, our view is that the market is currently in a state of shock as investors attempt to implement their strategies and minimize transaction costs using standard execution processes.

11 Bloomberg data, as of October 17, 2012.

We believe understanding the new structure of market liquidity is central to designing and implementing investment strategies that are appropriate for a transformed financial organism.

## Investment Implications

All of these changes have radically reconfigured the trading landscape. We believe institutional investors must rethink their investment strategies on a number of levels and recalibrate their risk and return expectations for certain types of strategies. Investors need to be prepared for higher volatility because of growing liquidity constraints, especially in certain sectors of the bond markets. They should consider their liquidity needs in both benign and turbulent market environments and how they will source it. The link between portfolio management and execution has to become both more flexible and more granular, in order to facilitate more opportunistic trading strategies.

Investors should be keenly aware of both their asset class sizing as well as their underlying manager position sizing. In addition, investors should be engaging with their underlying managers to determine how they are addressing these changes in terms of overall liquidity risk management. Furthermore, investors need to ensure that their managers have the flexibility to access liquidity from all available sources possible. Too often, counterparty or other mandate guideline restrictions on the part of investors limit the ability of traders to seek liquidity where it is available.

One final implication may be a change to rebalancing strategies, with tighter tolerance ranges to both strategic and tactical targets. With commission rates having declined, implicit market costs may be more important than explicit market costs given this changing liquidity landscape. By keeping tighter tolerance ranges around asset allocation targets, investors allow themselves a smaller footprint in the markets when it is time to rebalance.

But those are all defensive moves. We believe investors should also be looking for ways to pro-actively take advantage of these changes. As discussed, the fragmentation of liquidity is likely to create transitory distortions in prices. Those may be found across markets, across market segments, or within a market. Taking advantage of the opportunities will require readily available capital and the ability to be nimble enough to employ it before the opportunity disappears. Investment managers must also expand their arsenal of strategies to exploit these opportunities, assuming asset owners give them the necessary flexibility. Finally, in addition to capturing these transitory opportunities, larger investors might consider partnering with their managers to develop strategies that systematically and/or opportunistically provide liquidity and capture associated liquidity premia.

The global financial crisis turned a great deal of conventional wisdom about diversification, correlations and expected returns on its head, leading to a healthy reconsideration of traditional investment models. At the same time, the credit crunch revealed the vulnerability of the global financial circulation system to blockages, inspiring a new respect for stable liquidity. In a post-crisis world of protracted deleveraging and zero-bound interest rates, investors need to make every unit of invested capital work harder. We believe understanding the new structure of market liquidity is central to designing and implementing investment strategies that are appropriate for a transformed financial organism.

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