

MARKET LIQUIDITY:

ONE DOOR CLOSES, ANOTHER ONE OPENS?

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INTRODUCTION

It has become almost mainstream thinking that the current state of market liquidity is a significant negative development in the global capital markets since the Global Financial Crisis (GFC). It is the Global Risk Institute's (GRI) perspective that market participants need to not only manage this outcome but, more importantly, look for opportunities that this environment is likely to provide. Market liquidity is in a transition and the capital markets are undergoing a significant transformation that is likely to manifest itself over the next ten years. Like any transition, this one too would have its share of challenges and yet, provide many opportunities to the participants.

LOOKING BACK BEFORE LOOKING AHEAD

"The farther back you can look, the farther forward you are likely to see."

Winston Churchill

The traditional role of market making not only facilitated the users and providers of capital but also enabled the market participants by allowing them to change their ownership profile according to their risk preferences. The participants were traditionally individuals, capital pools, banks and other private entities. The market makers tended to be brokerages and similar investment dealers. The market makers lent their own capital and balance sheet to these market-making activities and traditionally regulators focused on ensuring capital adequacy at these firms. Over time however, this traditional model has dramatically changed. Multiple participants have stepped into the roles of intermediaries. These include not only hedge funds and high frequency traders but also entities such as pension plans and other traditional buy-side firms. The providers of capital have also changed at the same time and include non-traditional participants such as pension plans, sovereign funds as well as private equity firms. The GFC unleashed a range of regulatory changes that have particularly been targeted at the traditional market making firms. In addition to capital

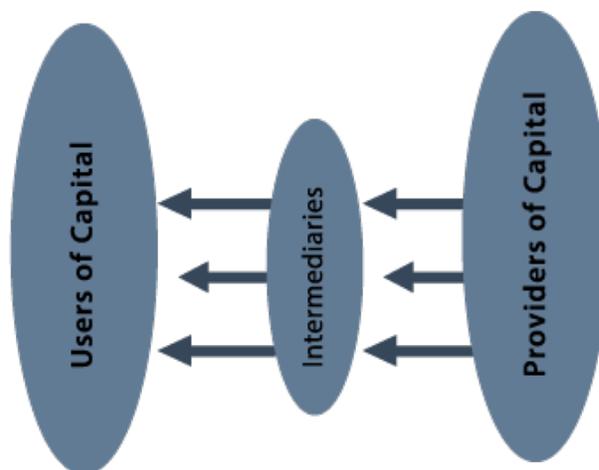


Figure 1

requirements increasing, there has been increasing focus on balance sheet, leverage and liquidity. These changes have made balance sheet intensive businesses, such as repos, from being marginal, in terms of returns on leveraged capital, to being very unattractive for the traditional market making entities, when considered on a stand-alone basis. Since repo markets serve as the proverbial "grease" that ensures a smooth working of capital markets, it is no surprise that the current state of market liquidity has notably deteriorated. However, before delving too much deeper into this, we would like to propose what we mean by market liquidity and what are some of the yardsticks/metrics that we can use/observe to say that it has deteriorated.

1. What is Market liquidity and how do we measure it?

A useful definition of market liquidity comes from former fed governor, Kevin Warsh, who suggests that

“An asset’s liquidity is defined by its ability to be transformed into another asset without loss of value”.^[1]

We would like to slightly alter this definition and suggest that *“An asset’s liquidity is defined by its ability to be transformed into another asset without <any material> loss of value”*. Of course there is no universal level of materiality and it is, in-turn, dependent upon the specific market that we are considering. For example, consider the case of selling US\$100MM notional of a bond in a business-as-usual (BAU) environment. If the bond happens to be an on-the-run (also referred to as benchmark) 2Y bond, this sale could be affected within a fraction of a basis point (bp). However, if this was instead an investment grade corporate bond, with a similar duration as the US treasury, the sale may require a bid/offer spread of 5- 10bps or more. Both these values (fraction of a bp for two-year US treasury and 5-10bps for corporate bond) would, however, be considered within acceptable materiality thresholds, though both these values would have resulted in a different transformed value of the asset. The difference being attributable to the difference in the nature of the market (treasuries versus corporate bonds) and the market environment (BAU versus some degree of stress).

Traditionally the market participants have expressed the concept of liquidity in specific terms by looking at the following metrics for any given market to make a judgement about the level of liquidity. Once again, it is important to reiterate that there are no universal values that apply across markets but rather these are market, or even security specific.

- **Volumes** or the amounts of a security transacted in the market.
- **Width of Bid/Ask Spreads.** These are typically correlated with volumes transacted in that usually the higher the transacted volumes the tighter the bid offer spreads tend to be on a relative basis.
- **Amount or the size that can be traded on the bid or ask prices.** For example, a bid of 25MM notional of a high yield corporate bond may be considered good liquidity whereas a 100MM value for a treasury bond would be considered illiquid.
- **Immediacy** or how long it takes to execute orders. In the extreme cases, such as one experienced in Jan/Feb 2016, a lot of the corporate bonds were being traded on a best efforts basis. Essentially, the market makers were only willing to show a bid price for the bond if they had secured a buyer for that bond and thus refusing to take on any price risk and working solely on an agent basis. This naturally is an example of extremely low liquidity environment and one accompanied by high levels of cost of transaction.
- **Resiliency** or the ease with which prices come back after a transaction has occurred. This phenomenon is reflective of a market’s ability to distribute the risk of a transaction across various participants.
- **Turnover** or the total amount traded relative to outstanding issue sizes.

Starting with these properties of the market liquidity, we now have a basis for measuring the traditional measure of market liquidity to determine if it has indeed deteriorated.

[1] Market Liquidity: Definitions and Implications, Kevin Warsh, March 5, 2007 <https://www.federalreserve.gov/newsevents/speech/warsh20070305a.html>

TRADED VOLUMES AND BID-ASK SPREADS

The traditional measures of market liquidity, namely volumes and tightness of bid/ask spreads suggest that liquidity continues to be ample and is not an issue. Traded volumes are either at their highest levels, or making 'new highs' across Equity, FX and Bond markets. A sampling from across asset classes is shown in accompanying charts. For example, in the case of bond market, whether we look at government, high grade or high yield bonds, the transacted volumes are close to their highest levels in many years.

Similarly, the bid ask spread has been a good indication of market liquidity. Traditionally, tighter bid-offer spreads implying higher liquidity and wider bid-offer spreads implying lower liquidity. Since the financial crises the bid offer spreads have continued to narrow across asset classes. As an example, the charts below show that bid offer spreads are at their tightest in both S&P500 and for high grade bonds.

So, if volume and bid-ask spreads do not suggest any deterioration in liquidity, then why do some observers believe that market liquidity has deteriorated? A different picture emerges when we look at the remaining measures of market liquidity.

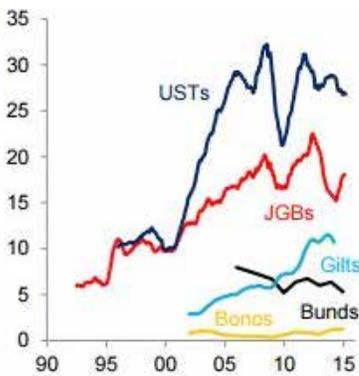


Figure 2: Govt. bond volumes,
Source: Citi Research



Figure 3: High Yield Volumes,
Source: MarketAxess



Figure 4: High Grade Volumes,
Source: MarketAxess

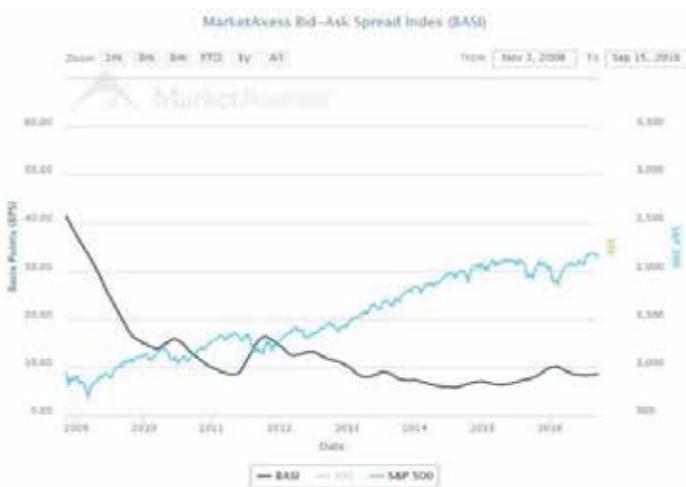


Figure 5: Bid-Offer Spread Index for S&P500,
Source: MarketAxess



Figure 6: Bid-Offer Spread High Grade bonds,
Source: MarketAxess

TURNOVER & MARKET DEPTH

Turnover is essentially a relative comparison of volumes transacted versus the outstanding stock of the security being transacted. When we look at the turnover for the broader markets, it becomes clear that even though volumes are near all time highs in many asset classes, the turnover has been consistently declining. The accompanying charts show the turnover across corporate bonds, government bonds and equity markets. As can be seen, across the major currency and developed bond and equity markets, the turnovers have been in a sustained downtrend. Essentially what this indicator is telling us is that though the volumes traded are at-or-near highs, the amount of securities being issued is out-pacing the traded volumes. As such, focusing only on the volumes traded can be misleading without keeping in mind the amount of outstanding stock of securities. Thus, this is the first indicator that is showing a negative trend in market liquidity.

Studies on market depth are relatively few and ‘a sense’ of the market depth comes primarily from conversations with market makers and other investors. Having said

that, a recent study by BIS^[2] looked at the depth of market for US treasuries, the worlds deepest and most liquid market. They found (chart below) that depth of the treasury market has been on a consistent decline for the last few years. We will review some of the causes of this effect in the following sections but it is very important to note that this is a negative development for all participants in the capital markets. From a purely theoretical perspective, this decline in depth is akin to a risk premium that is being built into the market place. More importantly, this risk premium is of a contingent nature in that it is dependent on market environment, rising when market stress levels rise and falling when they fall. Indeed, this contingency nature is not new and has always been present but has been exacerbated in the current environment. We have seen this manifest itself in a few episodes over the last few years. For example, the flash bond rally on Oct 14th 2014 where 10 year treasuries rallied more than 40basis points in a very short span of time. More recently, we saw an 8 ‘big-figure’ move in the GBP/USD exchange rate on Oct 7th 2016 without any accompanying news or event.

[2] Fixed income market liquidity, Report submitted by a Study Group established by the Committee on the Global Financial System, BIS, Jan2016, <http://www.bis.org/publ/cgfs55.pdf>

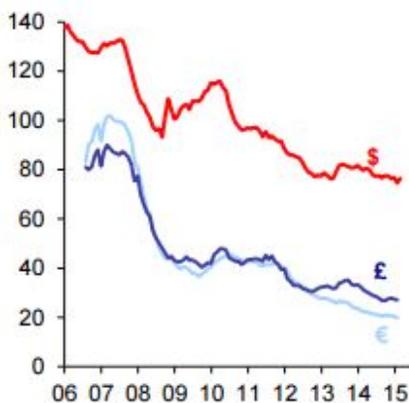


Figure 7 : Corporate Bond Turnover, Source: Citi Research

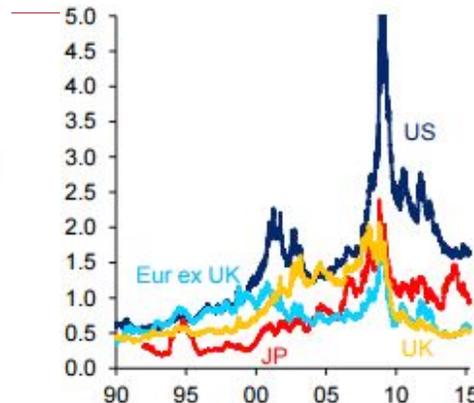


Figure 8: Equity Turnover, Source: Citi Research

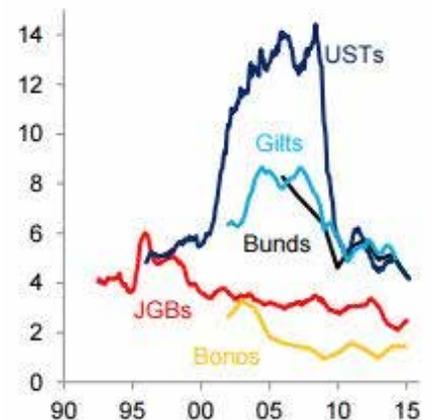


Figure 9: Government Bond Turnover, Source: Citi Research



¹ Quoted depth at five levels for two-year US Treasury notes; quoted depth for the five best quotes exhibited in MTS Cash for medium- and long-term Italian government bonds (BTPs); monthly averages. ² Average transaction size for two-year Treasury notes (United States); for a weighted average of all Italian sovereign bonds; and for Spanish public debt; three-month moving averages. ³ Price change per \$1 billion net order flow; monthly averages. ⁴ Estimated impact of high-value orders (buy and sell orders of €50 million) on the quoted prices of benchmark 10-year BTPs from January 2010 to the end of June 2015.

Figure 10:
Source: BIS

RESILIENCY AND IMMEDIACY

Resiliency and immediacy are indications of the market’s ability to absorb the risk that flows through the market and is ultimately distributed among its participants. As mentioned above, resilience and immediacy are also security and size dependent. In a recent paper by IMF^[3] a few issues related to resiliency and immediacy were highlighted. Using data for corporate bonds collected from the period referred to as the taper tantrum (May 2013), it was highlighted that some of key determinants were size of the issue (total amount of outstanding stock of a security), concentration of positions (how many mutual funds and other assets managers had the same positions), number of market makers for the

issue, duration being traded with longer duration having worse resiliency/immediacy and finally transparency of pricing. Conversations with market participant since then suggests that the resiliency/immediacy issues continue to remain unchanged.

As we can see above, based on the criteria we established earlier in the paper, market liquidity has indeed been deteriorating since the GFC. In the following section, we briefly review some of the key changes that we believe are the reasons for the changes in the market liquidity dynamics.

[3] Market Liquidity—Resilient or Fleeting? Global Financial Stability Report, International Monetary Fund, Oct 2015. http://www.imf.org/External/Pubs/FT/GFSR/2015/02/pdf/c2_v2/pdf

2. How did we get here?

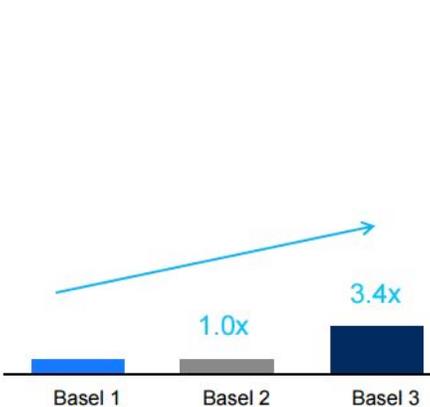
CHANGES TO THE REGULATORY FRAMEWORK

There have been very notable changes on the regulatory front since the GFC. These changes span a broad spectrum covering areas such as capital, leverage, liquidity, proprietary trading and clearing. As a result, there has been a fundamental change in the way banks now approach many of their traditional activities, particularly those related to capital markets. While it is not the intent of this paper to delve into the details of various regulatory changes, it is helpful to look at some of the impacts these changes have brought about. As a result of changes to the capital adequacy requirement, the amount of capital required to support some of the capital markets businesses has increased markedly. Together, the rising cost of capital and caps on the amount of leverage that can be employed, has led to a steady decline in the inventory levels that the banks are holding on their balance sheets. The charts below help put the impact of the changes in perspective.

The impacts are not restricted only to the credit assets but has also affected the repo markets. Repo markets are the funding vehicle for a notable proportion of capital market activities. As mentioned before, Repo markets are effectively the grease in the capital markets machine and ensures its smooth functioning. By their very nature, repo activity is very balance sheet intensive. As the cost of balance sheets have gone up, the attractiveness of repo business has continued to fall. The chart on the left, courtesy of Citi, shows the changes to the gross outstanding in the repo markets for various market participants. As would come as no surprise, the chart on the right shows the strong correlation between repo outstanding and the turnover in US treasuries. This change should not come as a surprise particularly when one considers one of the key performance metric, the Return on Capital (RoC). For the Repo business (and many other capital businesses such as interest rate swap trading), both the numerator (income) and the denominator (capital allocated) have been negatively impacted and hence, the fall in the commitment to this business as shown in the chart above.

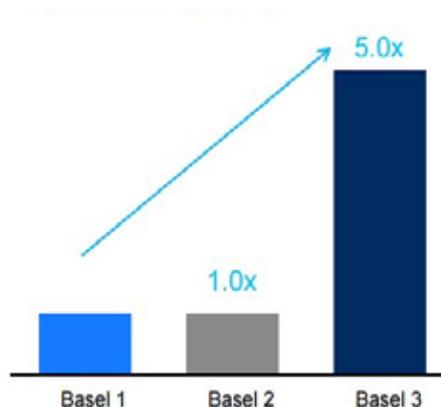
3x Cost for investment grade

Risk-weighted asset charges (\$m)



5x Cost for high yield

Risk-weighted asset charges (\$m)



Credit* inventory down by 80%

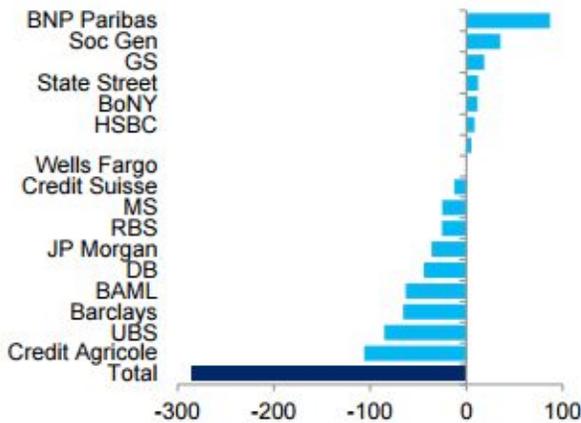
Risk-weighted asset charges (\$m)



Source: Federal Reserve TRACE

*Inventory numbers also include RMBS/ABS, which were likely much larger in 06-07.

4Q12-4Q14



UST turnover and dealer reverse repo. vs outstanding



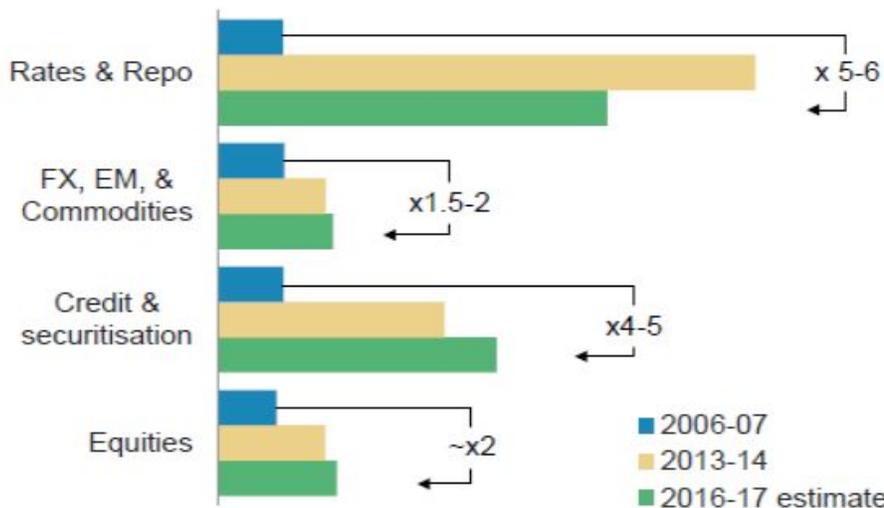
Source: NY Fed.

Another impact of regulations is the move toward central clearing of many products. This model, largely based on the futures markets, has led to the phenomenon of liquidity bifurcation particularly in the swap market. This manifests itself in higher levels of liquidity in centrally cleared products whereas OTC and non-centrally cleared products suffer from a lower level of liquidity.

Overall, the impact of regulations has been a very large increase in the amount of capital required to support various businesses. In addition, regulatory frameworks now require increased liquidity buffers, restrictions on the amount of leverage as well as restrictions on various capital markets activities including proprietary trading. These have occurred at the same time as changes in liquidity experienced in the market place.

Capital required to generate \$1 of revenue has greatly increased across wholesale products.

Estimated dealer financial resource consumption / revenue; 2006-2017E



Note:

1 2006-07 based on Basel II RWA; 2013-14 and 2016-17 based on blended averages of leverage exposure and Basel III RWA; Revenue outlook based on base case revenue projections to 2017; 2017. Included impacts of FRTB leverage ratios, and structural reform in rates.

Source: Oliver Wyman proprietary data and analysis

HERDING BEHAVIOR

It would come as no surprise that varying motivations of the various market participants is a pre-requisite for liquid markets. However, recent research shows that this motivational heterogeneity is clearly declining leading to more asset managers and other money managers having similar positions. More importantly, this decline in heterogeneity is observed broadly. It is not restricted to any specific asset class, or for that matter, to behavior of institutional investors only as the retail funds show similar dynamic. The charts below, from a recent IMF

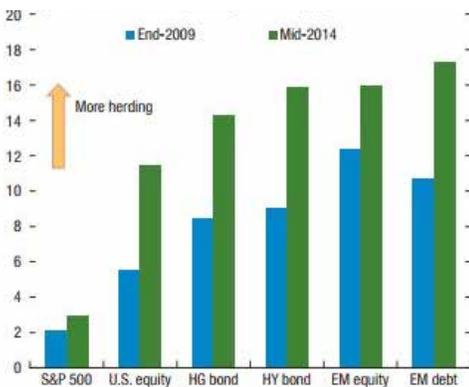
paper^[4], clearly show increasing herding behaviour across asset classes and investor type (retail as well as institutional funds). In addition to asset managers, it is also noteworthy that dealer positioning is getting longer from being more-or-less balanced from before the GFC. This is largely due to bank liquidity regulations such as Liquidity Coverage Ratio (LCR) that now require that banks maintain an unencumbered source of high quality liquid assets (HQLA) that can be readily converted into cash.

[4] The Asset Management Industry and Financial Stability, Global Financial Stability Report: Navigating Monetary Policy Challenges and Managing Risks, April 2015. <http://www.imf.org/external/pubs/ft/gfsr/2015/01/pdf/c3.pdf>

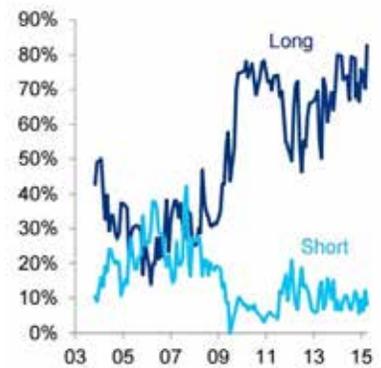
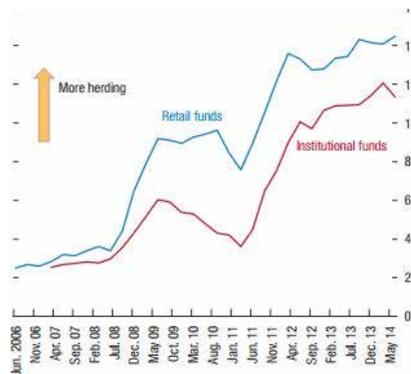
Retail funds tend to herd more than institutional funds.

Dealer credit survey positioning, % of respondents

1. Average Measure of Herding by Security Type (Means across security, four-quarter average)



2. Average Measure of Herding by Funding Type (Means across security, four-quarter average)



Source: Citi Research

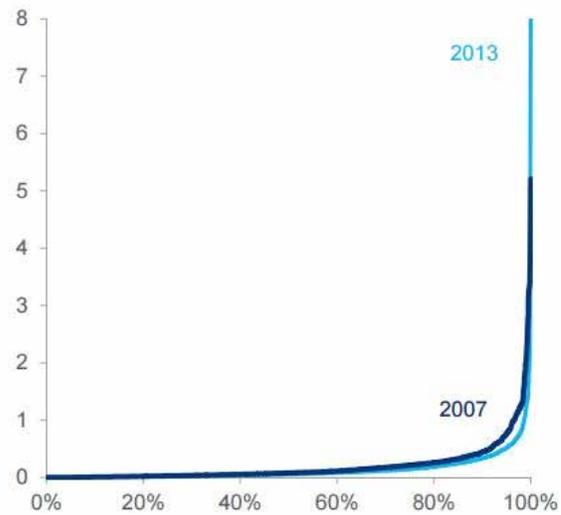
ELECTRONIC TRADING

The advent of electronic trading has greatly enhanced the process of matching buyers/sellers. However, these benefits vary across markets. The largest benefits are seen in markets where the security transacted is homogeneous. For example, equity securities and foreign exchange (FX) markets are ideal candidates for electronic trading since one security is indistinguishable from the next. However, this is not the case for fixed income, especially credit. Unlike equities and FX, bonds are not indistinguishable from each other and most of the liquidity tends to be concentrated in benchmark issues as can be seen in the figure alongside. However, the issuers of bonds do not necessarily issue only benchmark bonds^[5] and actually prefer the diversification benefits provided by a multitude of outstanding securities^[6].

Electronic trading has also facilitated the growth of high-frequency trading (HFT) firms. From a structural perspective these firms tend to have potentially negative impacts on market liquidity. In calm markets, these firms tend to provide significant liquidity, however, during volatile markets these firms can potentially exaggerate

Corp turnover concentration in very few bonds

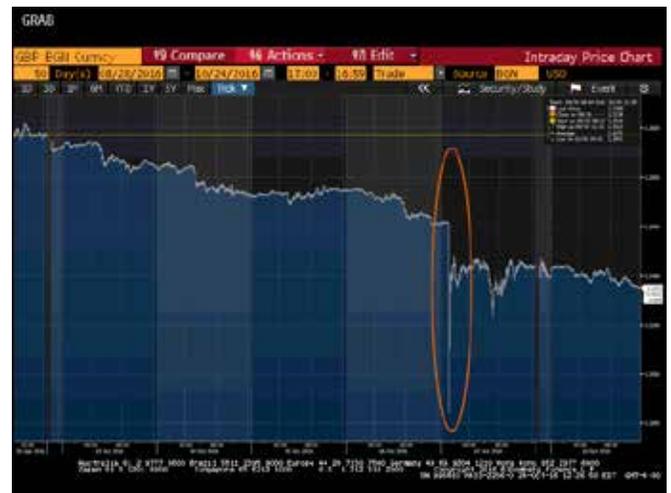
Corp bonds ranked by annual traded volume in block trades, \$bn



the volatility. This can happen as these firms step away from making markets as was the case during the bond flash rally on October 14th 2014 (left figure below) where there was a marked reduction in the depth of the order books. Generally, the HFT firms tend to operate on much shorter cycles than traditional firms and quote for much smaller sizes. This essentially reduces market depth. Moreover, since the HFT firms are focused on small price moves, they tend to withdraw from their market making activities when volatility rises. A more recent example is the very large move in the GBP/USD cross on October 7th 2016 where the GBP moved almost 8 ‘big figures’, a more than 4 standard deviation move based on no news or event but rather due to order flow.

[5] A benchmark bond is usually the most recent issuance of a specific bond for a given maturity. It is used to establish a basic yield curve and also serve as the basis for comparison of yields across other bonds.

[6] Assessing fixed income market liquidity, Presentation to TBAC, July 2013. http://www.treasury.gov/resource-center/data-chart-center/quarterly-refunding/Documents/Charge_2.pdf



3. What are the opportunity for various stakeholders?

As we hope to have communicated by now, over the next few years, the evolution in the public markets will be very dramatic.

We should expect to see increasing number of episodes of large market moves similar to the ones we have recently seen in the Treasuries (Oct 2014), Equities (Aug 2015) and FX (GBP/USD, Oct 2016). The structural forces, discussed above, that brought us here today are unlikely to reverse over any foreseeable future. Regulations and policy frameworks around capital, liquidity and leverage are deeply entrenched and almost all market participants have heavily invested in improving their capabilities to comply with these requirements. Moreover, the pipeline for emerging regulations has not eased up. In addition to the changed regulatory environment, developed world economies are also going through an exceptional macro-economic environment with a relatively bleak outlook for growth and highly engaged central banks undertaking exceptional monetary policy responses. As a result, it is difficult to envision that the current market liquidity environment would improve over any foreseeable horizon. However, rather than dwell on the negative fallout of these changes, we believe that there are opportunities that this evolving environment provides. In the following sections, we explore the opportunity set for various stakeholders in the capital markets.

BANKS

Since the GFC, banks have had to dramatically change the way they operate. As mentioned above, the capital, leverage and liquidity regulations were primarily directed towards banks and have had a negative impact on key metrics such as RoC. Banks also play a variety of roles in the capital markets and the changes in market liquidity affects those roles in different ways. We explore these in more detail.

> Impact on Balance Sheet and Liquidity Management

As part of the liquidity regulations enacted since the GFC, all banks are now required to maintain a portfolio of High Quality Liquid Assets (HQLA) as well as, to comply with metrics such as Liquidity Coverage Ratio (LCR) and the Net Stable Funding Ratio (NSFR, starting in Jan 2018). The intent of these regulations is to ensure that banks maintain adequate levels of liquidity and are not forced into deleveraging their balance sheet in response to a funding constraints. Implicit in these models is an assumption around how much of the liquid assets can be sold in what period of time and with what haircuts. There are two critical assumptions that institutions should ensure meets their risk appetite. The first of these relates to haircuts. Many institutions use the central bank prescribed haircuts on their various assets and assume an almost instantaneous ability to convert certain types of assets into cash after employing these haircuts. Examples of these assets typically include US treasuries and other government bonds. We believe that this assumption should be thoroughly reviewed in light of current market liquidity environment. If the institution is not relying on the central bank for liquidity as the very first action in a liquidity event, then they should review whether the haircuts are adequate given the assumption of a system-wide stress event. Obviously, these assumptions have a direct impact on balance sheet as typically the hair cuts tend to be funded longer than the liquid assets themselves. A second complication of the assumptions is around the stress scenario that institutions employ. Typically, the scenario employed is one where there is systemic stress. If indeed there is system-wide stress, the assumptions around monetization of these liquid assets should be reviewed. Is it fair to assume that someone other than the government would be on the other side to buy the assets given that they would be experiencing stress themselves?

> Banks as Investors

Banks also play the role of investors. Most banks hold securities in their Available-For-Sale (AFS) or

Hold-To-Maturity (HTM) accounts. In the current environment, there would be periodic opportunities to invest in assets that provide adequate risk premiums, potentially masked as liquidity premiums, in times of stress. This is particularly valuable given that risk premiums have generally compressed over the last few years and are at the low end of the historic ranges. However, in order to do this, we believe that banks would be well advised to invest their time in reviewing their risk appetite, governance and management framework to enable this type of market-timing activity. The thinking and development of plans has to be done prior to an actual liquidity event so that adequate processes and authorizations can be reviewed/established. Given the evolving regulatory focus in this area (Interest Rate Risk in Banking Book) it would be prudent to cover the steps mentioned above. In most cases, treasury is the natural place for this activity to occur and the treasurer's roles/responsibilities/authorities and mandates need to be made clear and broadly accepted. An additional consideration in this regard is the counter-cyclical impact of some of these investments in the event of economic downturns. In a recently published GRI paper^[7], the authors discussed what the next recession might look like and what policy alternatives exist to manage such an outcome. From the perspectives of the banks, these investments could play an important role in terms of supplementing earnings when the earnings in their traditional businesses weaken along with the economy.

> Banks as Issuers

Banks also serve the role of issuers of debt to fund their activities. We believe that banks would need to become more flexible in their issuance programs by being able to respond to favorable market conditions such as investor demand and movements in cross-currency basis, among other things, even though that may be out of sync with their issuance calendars. Once again, this would require a review of risk appetite as issuance considerations are not always dictated by pricing but also by balance sheet and quarterly reporting considerations. There is also a case to be made to deepen relationship with investors in bank paper. Since, we believe, market liquidity events are quite likely to occur with rising frequency in the future, deep relationships with debt investors are a relatively cheap form of contingent funding. As before, this activity too would be the

responsibility of the treasurer and the treasurer's roles, responsibilities, authorities and mandates need to be made clear and broadly accepted.

> Banks as Intermediaries

Banks play a crucial role in helping their customers manage their risk, accommodate debt issuance and provide them with key order flow information. Due to their dealing with many customers with varying needs and motivations, banks are in a key position to know about potential sources of market liquidity in the current environment. This knowledge will become more valuable than ever before will allow banks a way to further deepen their relationships with key clients.

INSTITUTIONAL INVESTORS / TRADITIONAL ASSET MANAGERS / INSURANCE COMPANIES

The GFC brought to light a number of drawbacks in the governance and management frameworks of many of the Institutional investors, such as pension plans. The awareness of these have led to significant changes in the way these funds are managed. We believe that the changing market liquidity environment can potentially offer a very interesting set of opportunities to these managers. These opportunities arise as a result of their longer-term approach to investing and relatively unleveraged balance sheets. The opportunities that we see are:

> Opportunities from Changing Balance Sheet Dynamics in banks

Due to capital and liquidity regulations facing banks discussed above, there are opportunities that are being created in areas where banks are either stepping away from or reducing their commitment. Examples of some of these opportunities are in collateral upgrade/downgrade trades that can help collateral efficiency at pension plans and, at the same time, help banks

[7] Low Rates and Ever Higher Debt Brian O'Donnell, Richard Nesbitt, Oct 3rd, 2016, Global Risk Institute <http://globalriskinstitute.org/publications/low-rate-ever-higher-debt/>

manage their regulatory liquidity metrics. However, to be able to accomplish this, appropriate governance and expression of risk appetite need to be articulated. Moreover, management and operational capabilities need to be evaluated.

> Ensuring Adequate Compensation for Liquidity Premiums

Institutional investors should develop a framework for evaluating whether or not they are being compensated adequately for the liquidity premium for holding on to securities. This is particularly relevant in public markets since, as we have repeatedly seen, liquidity in certain securities is quite asymmetric, being ample in rising asset prices but diminished in falling markets.

> Opportunistic Investments

Similar to the banks (in their roles as investors), institutional investors will be provided with opportunities to invest in times of elevated risk premiums. However, in order to be able to do this, there must be a governance framework established and some form of risk appetite expressed a-priori.

> New Product Offering

Traditional Asset Managers can consider new product offerings that are aimed at taking advantage of the changing regulatory requirements. For example, most banks maintain large excess cash balances that typically have a negative carry. This cash, due to its short-term contractual nature does not have any liquidity benefits to the institution. However, when one looks at the cash balance profile over time, it provides opportunities for creating an investment product that some of these cash balances can be invested in and which would minimize the negative carry. These can be designed to have minimal balance sheet impacts including those on capital allocation and leverage. Some of the recent developments and initiatives^{[8][9]} undertaken at one of the largest asset managers globally, Blackrock, provides an excellent example of putting these ideas into practice.

[8] Addressing Market Liquidity, BlackRock, Jul2015, <https://www.blackrock.com/corporate/en-us/literature/whitepaper/viewpoint-addressing-market-liquidity-july-2015.pdf>

[9] The Liquidity Challenge Exploring and Exploiting (II)Liquidity, BlackRock, June 2014 <http://www.blackrock.com/corporate/en-mx/literature/whitepaper/bii-the-liquidity-challenge-us-version.pdf>

CORPORATE ISSUERS

Since the GFC, the market environment has been very supportive of those corporations that are large enough to access capital markets. The central bank actions, investor appetite for corporate paper and a receptive environment for credit spreads has led to a notable increase in corporate issuance. However, it is increasing... likely that the next eight years would be remarkably different from the last eight. As such, it is our belief that there needs to be an increasing focus within the CFOs office to be aware of the evolution of the market dynamics and a need to be nimble and opportunistic in the market from an issuance perspective. A recent example results from the market environment resulting from the actions of the European Central Bank (ECB). The ECB has taken nominal rates along a large part of the yield curve negative. In this environment, some European corporates such as the German consumer goods group Henkel have taken advantage by selling €500m worth of two-year debt with a yield-to-maturity of minus 0.05 per cent. Henkel is not alone and other corporates such as Sanofi, BP and BMW have also taken advantage of this environment by issuing debt at negative yields. Similarly, with the decline in nominal yields together with rising equity prices, corporates have continued to leverage up by issuing debt to fund share buyback. For example, even cash flow rich companies like Apple and Microsoft have been issuing massive amounts of debt to either buyback stock or, fund purchase of other equity investments. As we look ahead and the market environment evolves, there would also be a need to develop key relationships with a few trusted partners (banks, investors) rather than a blanket approach that may have been useful in the past. As we've said before, the coming environment could be dramatically different from what we have experienced and to prepare for that, a flexible and adaptive mindset is necessary.

OTHER STAKEHOLDERS

In addition to the above, other key stakeholders include Regulators & Policy Makers, Custodians as well as Retail investors. The accompanying table summarizes the opportunity universe for these, and stakeholders discussed previously.

See chart >

OPPORTUNITIES

STAKEHOLDERS	Banks & Dealers	<ul style="list-style-type: none"> • Provide opportunities to add to securities holdings in times of market dislocation when risk premiums are elevated • Leverage flow knowledge to deepen client relationships by identifying various sources of liquidity especially the non-traditional channels • Develop better relations with policy makers by continuing to highlight the negative effects from the various capital, liquidity, market structure and other policies introduced since the financial crisis. • Review liquidity model assumptions and ensure asset monetization assumptions are in-keeping with current market
	Institutional investors / Traditional Asset Managers	<ul style="list-style-type: none"> • Provide opportunities to step into areas that banks are stepping away from. Reconsider policy constraints, if any, as well as investments objectives and beliefs with regards to leverage to enable such activities. • Undertake a fundamental review of assumptions inherent in investments portfolios for public markets to ensure adequate compensation for market liquidity risks • Provide opportunities to add to securities holdings in times of market dislocation when risk premiums are elevated, but this requires a fundamental review of investment beliefs and expression of risk tolerance related to negative drag from keeping powder dry. • Possibly consider new offerings that can help banks manage the variety of regulatory requirements. For example, creating a product that mimics an equity-linked deposit that is capital guaranteed that banks can invest and manage the excess case balances that result from maintaining regulatory metrics, such as LCR that necessitates having negative-carry cash balances.
	Fast Money Investors	<ul style="list-style-type: none"> • Market would provide many opportunities to generate alpha • Opportunity to add assets as this type of skill set would continue to be in demand.
	Retail investors	<ul style="list-style-type: none"> • Very limited opportunity set for retail investors as rising risk premiums lead to falling asset prices regardless of which asset class we look at. The need to be disciplined with the investment
	Corporate Issuers	<ul style="list-style-type: none"> • Review skill set, especially in the CFO teams, and ensure the team(s) are aware of the evolution of the market dynamics. There would be greater need to be opportunistic in the market. • Develop key relationships with a few trusted partners (banks, investors) rather than a blanket approach. Truly understand the capital and balance sheet constraints faced by banks and factor that into decision making around issuance.
	Custodians	<ul style="list-style-type: none"> • Potentially new product/service offering that separates out custodian responsibilities from securities lending initiatives. • Help their clients to understand the efficiency of collateral usage and offer solutions aimed at increasing this efficiency
	Regulators & Policy Makers	<ul style="list-style-type: none"> • Have the opportunity to reflect the learnings from the unintended consequences of the various policy actions since the financial crisis and use this learning when formulating new policies. • Improve relationship and coordination between enforcement arm and the policy development arm.

CONCLUSION & POSSIBLE AREAS FOR FUTURE RESEARCH

The impact of the changes that have come about since the GFC impact the very fabric of capital markets. These would take time to be fully assimilated and the capital markets are likely to undergo a significant transformation over the next ten years. Impacts to capital market liquidity is one of the fundamental changes. We believe that this change would provide many opportunities to the various market participants and lay out our recommendations to enable these participants to capitalize on, and prosper from, the evolving market environment.

In addition, due to its nascent stage, this area provides tremendous opportunities for further research. Some of the possible areas could cover:

- i. **The changes in corporate balance sheets and the leveraging that has been a move towards debt issuance to support share buyback activity. What could potentially be the consequences of this behaviour over the next ten years?**
- ii. **What could be the key elements of a framework to evaluate pros and cons of various regulatory changes and its application to specific regulations such as the Volcker rule?**
- iii. **To what extent is High Frequency Trading affecting the market liquidity and is the effect similar across asset classes?**
- iv. **What could the 'new normal' look like for capital markets in ten years?**

About the Author



Saurabh is currently a Special Advisor with the Global Risk Institute in Toronto, Canada. Prior to this role, he was the Senior Vice President, Balance Sheet, Liquidity and Pension Risk for Canadian Imperial Bank of Commerce (CIBC) where he led a team with global accountability to provide an effective challenge and sound risk oversight to the treasury/liquidity management function as well as pensions within CIBC.

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