



Secretariat of the International Organization of Securities Commissions (IOSCO)
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26 October 2016

Re: Public Comment on Examination of Liquidity of the Secondary Corporate Bond Markets

Dear Sirs and Madams,

The Global Financial Markets Association (“GFMA”)ⁱ and the Institute of International Finance (“IIF”)ⁱⁱ (together, “**the Associations**”) welcome the opportunity to comment on the paper and consultation issued in August 2016 by the International Organization of Securities Commissions (“IOSCO”) entitled *Examination of Liquidity of the Secondary Corporate Bond Markets* (“**the Paper**”).

We would appreciate, and would be happy to arrange, a meeting with market participants to further discuss your consideration of these views. Please do not hesitate to contact David Strongin, Executive Director at GFMA (dstrongin@gfma.org); Pablo Portugal, Director at AFME (Pablo.portugal@afme.eu); Brad Carr, Deputy Director at IIF (bcarr@iif.com) or Richard Gray, Senior Policy Advisor at IIF (rgray@iif.com).

I. Executive summary and main recommendations

We welcome and support IOSCO’s efforts to assess the current liquidity environment in corporate bond markets. Liquidity is a fundamental component to healthy and vibrant global capital markets and the bond markets are an important source of financing for economic growth. Secondary markets are vital to corporate issuers. They provide information on the cost of borrowing as the pricing of new issues is guided by secondary markets. Bond markets also play a crucial role in monetary policy and financial stability. Deep and highly liquid secondary markets support reliable price discovery from a regulatory perspective, and therefore enhance the confidence supervisors can have in the veracity of crucial liquidity metrics of banks.

Robust market liquidity is therefore essential to efficient capital markets that can drive capital formation, investor opportunity and funding needs. Given their crucial role in monetary policy,

funding and financial stability, it is appropriate that regulators pay particular attention to the evolution of these markets.

We strongly support the establishment of a new IOSCO project intended to analyze the interaction between transparency regimes and liquidity. This will be an important exercise given the current liquidity environment and the many developments since IOSCO published its report on transparency in corporate bond markets back in 2004. The Associations look forward to continuing to work with IOSCO as the liquidity environment and structural changes in corporate bond markets continue to be analyzed.

In this submission we argue that there are sufficient early warning signals to suggest that regulation and other market factors are contributing to a reduction in certain aspects of secondary liquidity in corporate bond markets that is likely to be exacerbated by the unwinding of quantitative easing (QE) or another stressed market situation.

Although the evidence presented in IOSCO's report may arguably show relatively limited impacts, we argue that IOSCO's analysis was based on incomplete information which can be subject to differing interpretations. We also caution against downplaying the feedback from the majority of both buy-side and sell-side respondents to the IOSCO survey who perceive market liquidity to have decreased in the recent period.

We agree with the analysis that corporate bond markets are undergoing a period of transition as regulation and technological developments drive structural changes; however, we caution against the assumption that all adaptive behaviors will prove sustainable when monetary conditions are less accommodative. In particular we highlight the distortive effects of QE, low interest rates and unconventional monetary policy, as well as potential risks that may arise when more normal conditions are re-established. Furthermore the efficacy of a new market structure and its characteristics are unproven in stressed conditions.

We note IOSCO's request for market participants to provide further data that would help refine its analysis, including specific dealer inventory levels (gross and net), statistics concerning dealer quoting behavior, data related to orders that investors tried to execute but could not do so for various reasons, among others. Clearly some of these statistics go beyond transaction data that is reported and are thus much more difficult to obtain in view of strong proprietary considerations and commercial sensitivities among the various participants. The Associations will continue to explore with their members the possibility of sharing with regulators statistics for use in an anonymized and aggregated form.

We would like to highlight our main recommendations discussed in this response.

- In order to achieve a longer range view of possible future risks in corporate bond markets, and to develop a proactive and transparent early warning process, the Associations recommend the establishment of a permanent joint working group of senior central bank and regulatory officials and representatives from investors, corporate issuers, bank trading desks and trade associations. Such a forum can also facilitate a forward-looking dialogue involving relevant market participants on the evolution of corporate bond markets, including a focus on structural changes as a result of regulation and technological developments.

- In the European context, the European Commission has established a new expert group to examine the functioning of corporate bond markets. We believe the analysis could be replicated at the global level under the leadership of IOSCO and other bodies. The European Commission’s expert group will be tasked with investigating a number of concrete areas:
 - Expectations of how corporate bond markets will perform, how they might evolve, and how efficient and resilient they are;
 - What role – if any - market-making could and should play in corporate bond markets; can technology replace market-making?
 - The importance of pre- and post-trade transparency regimes for price formation and what market infrastructure may be needed in the future;
 - Whether further standardization, greater electronic trading or microstructure reforms could counteract declines in liquidity;
 - Whether and how a larger role of open-ended mutual funds and retail investors could affect corporate bond market liquidity; and
 - The implications of changes in the investor base for liquidity levels and overall market resilience.

- Regulators should continue to pay close attention to the practical feedback and anecdotal evidence provided by market participants as exclusive reliance on empirical data analysis may not capture a number of behavioral changes in bond markets. Also markets can change quickly, and active engagement with market participants would provide dynamic and timely insights into changing conditions and trends, far more effectively than historical data analysis.

- Central banks should remain vigilant about the impact of their asset purchase policies on market liquidity and give consideration to the potential evolution of the market when these programmes are unwound.

- Regulators should consider areas where further research is needed. We emphasize the importance of analyzing data on unexecuted orders and dropped trades, as well as continuing to develop an understanding on optimal liquidity levels across markets.

- Regulators must carefully assess the calibration of existing and forthcoming regulations, including those referred to in section VI, particularly in light of existing signs of fragility in corporate bond liquidity. Policymakers should continue to consider the aggregate impact of current regulation and weigh the incremental financial stability benefits of new rules against the incremental costs of diminishing market liquidity to ensure regulation is not counterproductive. We recommend a process of systematic, quantitative and qualitative assessment of the financial regulation framework over the coming years, particularly focusing on the interactions between prudential and markets regulations.

II. GFMA and IIF engagement in debates on secondary market liquidity

The Associations and our members have been keenly focused on liquidity conditions and the many factors influencing changes in market structure and market participant behaviors in corporate bond

markets. We have provided and continue to provide input into debates at national, regional and international levels on the state of liquidity in fixed income markets.

As part of this effort GFMA and IIF released in August 2015 a comprehensive new report undertaken by PwC on the state of global market liquidity (“**the PwC study**”)¹, produced on behalf of both Associations. We will refer to this GFMA/IIF report and its findings in sections of this response.

III. Measures affecting liquidity conditions

Given the significant extent and pace of post-crisis regulatory change, the unprecedented monetary conditions, changing business models and related factors, it is indeed difficult to isolate individual cause and effect relationships in assessing how the liquidity environment is changing. A range of factors can affect liquidity in bond markets, including the macroeconomic environment, monetary policy, technology, changes in business models, structural changes, market risk appetite and regulation. The Associations acknowledge that it is challenging to form a complete view of liquidity as several indicators seem to point in different directions with respect to whether the environment is deteriorating or improving.

In the current environment, numerous factors are likely to be contributing to liquidity conditions. The Associations consider there are at least four main factors currently driving global market liquidity conditions²:

- Stable global monetary conditions;
- Increase in electronification and digitalisation in financial markets;
- Growth in the size of financial markets; and
- Performance in the banking sector.

A. Stable monetary conditions

QE programmes and the global economic and monetary environment have been generally favorable to market functioning, such that detecting risks and fragilities becomes more challenging. Unconventional monetary policy (i.e. large scale asset purchases or QE in the Eurozone, US and UK) is having distortive effects in financial markets.

As discussed in the PwC study³, there is evidence that QE has influenced market liquidity. The risk is that as a result of QE, the liquidity risk premia may have been compressed to artificially low levels in financial markets, which masks the impact of reduced market making capacity. Recent research suggests that since the ECB’s decision to buy corporate bonds, the eligible universe has tightened by 63bps to 84bps and the bonds which have been purchased have tightened by 58bps from 100bps to 42bps⁴. While central banks may keep their holdings for a long period of time, when a slowdown of QE is announced, even before a formal unwinding of QE programs, there is a risk that an investor sell-

¹ PwC *Global financial markets liquidity study*, August 2015. The full report, including an executive summary, is available here: <http://www.pwc.com/gx/en/financial-services/publications/financial-markets-liquidity-study.jhtml>

² For a more detailed analysis please refer to the PwC *Global financial markets liquidity study*, August 2015

³ Ibid.

⁴ HSBC Global Research, *Credit Telegram – CSPP An update on what the ECB has bought*, August 2016

off would occur in relation to assets they consider to be mispriced or assets considered beyond their risk appetite in normal conditions.

B. Increase in electronic and digitalization in financial markets

The development of electronic trading is changing the structure of bond markets, traditionally centered on market makers and primary dealers through voice-based and bilateral relations. While electronic and a greater participation of non-bank intermediaries in bond markets can contribute to reducing transaction costs, in addition to other advantages, they may also create an illusion of market depth as trading can vary widely between normal conditions and periods of high volatility where liquidity can quickly deteriorate.

C. Growth in the size of financial markets

The size of financial markets has seen significant growth in recent years. Debt issuance in Europe and the US has increased as governments have funded fiscal deficits and corporates have taken advantage of the current low interest rate environment. These instruments are increasingly being held by investors. While the outstanding volume has increased significantly, trading volume has not kept up. It follows that turnover rates – the ratio of trading volume to debt outstanding – for corporate bonds have declined, which is a sign of reduced liquidity.

Meanwhile, the growth in assets under management has also been accompanied by the rapid growth of exchange-traded funds (ETFs). The growth in the size of financial markets is likely to put further pressure on market liquidity if and when central banks start to unwind QE. So while central banks do not currently require secondary market liquidity to unwind their QE programmes, other investors do and this demand for liquidity is likely to be further exacerbated when central banks work to unwind their positions.

D. Performance in the banking sector

Major structural changes continue to take place in the banking sector. Another PwC study⁵ undertaken on behalf of the Association for Financial Markets in Europe (AFME) suggested that banks have exited businesses where they have low scale, particularly in equities and commodities trading, and are exiting from regions and jurisdictions in order to concentrate on areas of key strength and utility. Further, more stringent regulatory requirements are also leading banks to withdraw from products and entire markets. This is a particular concern in emerging market economies, a fact highlighted in the Financial Stability Board's recent Annual Report⁶.

⁵ PwC study *Impact of bank structural reforms in Europe*, November 2014

⁶ FSB *Third FSB Annual Report*, July 2016

Industry surveys have underscored the view that market makers' willingness to hold large inventory positions has decreased, particularly in less liquid instruments, with market makers reportedly focusing on activities that require less capital and balance sheet capacity⁷.

In summary, the current global economic, monetary and financial market environment is generally favorable to liquidity, such that detecting risks and fragilities becomes more challenging. In addition, the changes in liquidity are taking place amid the backdrop of significant changes to market structure and technology, growth in investable assets and continued weak financial performance in the banking sector. In general these trends are increasing the demand for market liquidity, while reducing banks' market making activities to support the provision of market liquidity.

Consequently, the Associations are of the view that it is not yet possible to fully assess the extent to which regulatory and structural changes may bring benefits or pose material risks to secondary market liquidity. We nevertheless believe, as discussed below, that there are sufficient early warning signals to warrant great care and consideration to any potential incremental impacts on liquidity. Forces that serve to directly or indirectly diminish liquidity may exacerbate any underlying fragilities which are likely being masked by monetary conditions or temporary changes in market participant behavior.

Although the evidence presented in the IOSCO report may arguably show relatively limited impacts, this analysis was based on incomplete information which can be subject to differing interpretations. In addition, the current state of QE, low interest rates and unconventional monetary policy is likely masking the true state of market liquidity. Regulators should therefore continue to monitor and examine market data over time with a view to regularly assessing the evolution of the liquidity environment and challenging and corroborating the conclusions of various assessments.

Regulators should focus their analysis on potential impacts after the full effects of existing and contemplated regulatory changes play out in more normal interest rate conditions. Potential effects include higher direct transaction costs through wider bid-ask spreads, as well as indirect costs arising from bigger price movements when there is buying or selling pressure from all but the smallest transactions and from the indirect effects of greater overall volatility. Less stable markets, combined with higher transaction costs, could push up liquidity premiums demanded by investors.

It is through this lens that we have called for and continue to call for greater appreciation of and consideration to the link between regulation and market liquidity so that future regulations strike the right balance between promoting stability and maintaining financial markets liquidity.

IV. Comments on IOSCO's conclusions

We note that IOSCO's report examined a range of different liquidity metrics in aggregate, undertook surveys with industry and regulators and a literature review to develop an informed picture of current secondary corporate bond market liquidity. IOSCO notes that while some of the relevant metrics (turnover ratio, dealer inventories, and block trade size) might indicate potential signs of lower liquidity, most metrics reviewed show mixed evidence of changes in liquidity (bifurcation of trading average trade size, and average number of counterparties or market makers) or some evidence of improving liquidity (trading volume, bid-ask spreads, and price-impact measures). Based

⁷ BIS paper *Market-making and proprietary trading: industry trends, drivers and policy implications*, November 2014

on the totality of information collected and analyzed, IOSCO did not find substantial evidence showing liquidity has deteriorated markedly from historic norms for non-crisis periods. IOSCO also notes that there is no reliable evidence that regulatory reforms have caused a substantial decline in the liquidity of the market, although regulators continue to monitor closely the impact of regulatory reforms.

A. General observations

In contrast to the final conclusion in IOSCO's analysis, we note that the majority of both buy-side and sell-side respondents to the IOSCO survey perceive market liquidity to have decreased, with this feedback being based on experience rather than data analysis. The feedback is consistent with other recent regulator reports⁸ as well as recent surveys of participants with experience in the market on a daily basis as investors and risk managers^{9,10, 11}. While IOSCO acknowledges this feedback from market participants, we caution against it being downplayed.

Liquidity is a simultaneously abstract and quantifiable concept. Liquidity can be defined as the ability to execute an order at the given price, with as little market impact as possible. The features that tend to be associated with liquid markets include low transaction costs, immediacy in execution, and the ability to execute large transactions with limited price impact.

While details about trades can be quantified and tracked over time, participants may have differing views about the secondary market liquidity environment at a given point, depending on their market activities and strategies. For this reason we believe that liquidity assessments made solely on the basis of observable trade data have limitations and, when considered in isolation, fall short of providing a complete view of the market environment.

By looking exclusively at executed trades, IOSCO's analysis does not seek to capture or factor in an examination of transactions or strategies which could not get pursued or concluded due to liquidity conditions. We believe that a more complete assessment of the state of liquidity should factor in such dynamics and participant behaviors not necessarily observed in the data sources. Many asset owners

⁸ By way of example, in its *Financial Stability Report* of July 2016, the Bank of England's Financial Policy Committee notes that "over the past year, government and corporate bond markets, including in the United Kingdom, have shown signs of reduced liquidity, and activity in repo markets has fallen materially." The report notes that these changes "probably, in part, reflect post-crisis regulations as firms adjust their risk management and business models."

⁹ See ICMA paper *Remaking the corporate bond market*, July 2016, pps. 19-20

¹⁰ ESRB *Market liquidity and market-making*, October 2016. According to the ESRB survey, Market liquidity is perceived to have decreased steadily and to have been more frequently disrupted in recent times. Survey participants more frequently observed temporary, event-driven phases of illiquidity, such as during the Greek referendum, or unexpected events, such as during the US Treasury flash crash in 2014.

¹¹ CFA Institute *Survey Report on Secondary Corporate Bond Market Liquidity*, September 2016. Respondents from the AMER and EMEA regions report that over the last five years they have observed: (1) a decrease in the liquidity of high-yielding and investment-grade corporate bonds and no change in the liquidity of government bonds; (2) a decrease in the number of active dealers making markets; (3) an increase in the time taken to execute trades and a lower proportion of bonds being actively traded; (4) a higher proportion of unfilled orders.

have unrelated objectives and constraints that drive their behavior in disparate ways, suggesting that market participants are unlikely to react to changes in market conditions in the same way¹².

Post-trade data can, for example, fall short of reflecting behavioral changes such as participants deciding to reduce trade sizes or not to execute an order. Post-trade data may give the impression of liquidity by recording small trades, but fail to capture unexecuted trades in larger sizes or decisions to trade in small sizes as liquidity was not available in larger sizes. Recent surveys of market participants suggest that the execution of block trades has declined in recent years¹³ and that there is a higher proportion of unfilled orders¹⁴. In other surveys, market participants also report that trading large amounts of corporate bonds has become more difficult¹⁵.

By way of example the average trade size in US Treasuries and European corporate bonds has decreased significantly since 2010. Declines in block-trades in US corporate bonds from pre-crisis levels indicate a shift in trading patterns, with liquidity now associated with smaller trade sizes. This may reflect the reality that as a result of the price impact of large transactions, dealers may be forced to break up big transactions into multiple smaller transactions¹⁶. Such changes are important as they can offer insight into potential participant needs and behaviors in period of stress or macroeconomic change. It is also possible that some trades are no longer taking place, or happen later because of reduced liquidity.

An important data source concerns unexecuted orders and “dropped trades” which occur when one counterparty tries to hit or lift a posted price but the price is not fulfilled by the counterparty and the trade is not executed. These metrics can offer insights on market behaviors. The Associations are willing to work with their members and the relevant trading platforms to help provide data in a suitable anonymized format.

Participants can also have differing views about the market environment which may not be captured in an empirical data analysis. For example, recent analysis by Greenwich Associates based on 58 fixed-income respondents in 2014 and 51 in 2015 suggests diverging views from participants on the difficulty of trading corporate bonds according to trade size¹⁷. We have included below a figure from Greenwich Associates’ 2015 Trading Desk Optimization Study to illustrate the diversity of views.

¹² An analysis of this can be found in Blackrock *Addressing market liquidity – A broader perspective on today’s bond markets*, October 2016

¹³ CGFS paper *Market-making and proprietary trading: industry trends, drivers and policy implications*, November 2014

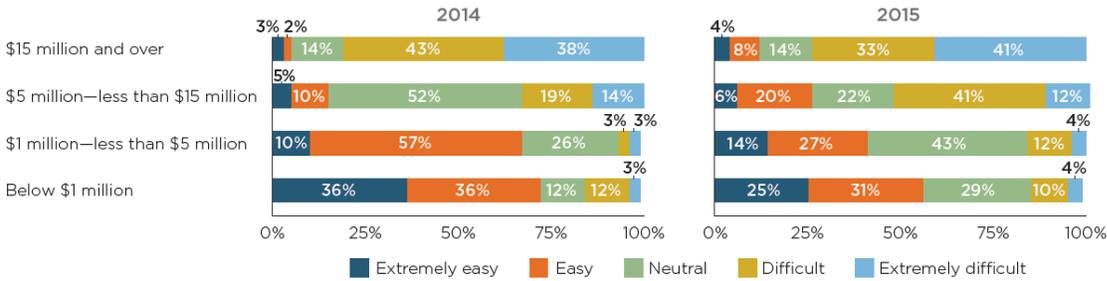
¹⁴ CFA Institute *Survey Report on Secondary Corporate Bond Market Liquidity*, September 2016.

¹⁵ Fender, I. and Lewrick, U. paper *Shifting tides – market liquidity and market-making in fixed income instruments*, Bank of International Settlements, March 2015

¹⁶ See Oliver Wyman paper *Interaction, coherence and overall calibration of post crisis Basel reforms*, August 2016

¹⁷ <https://www.greenwich.com/fixed-income-fx-cmds/understanding-us-fixed-income-market>

HOW HARD IS IT TO TRADE CORPORATE BONDS, BY TRADE SIZE?



Note: Based on 58 fixed-income respondents in 2014 and 51 in 2015.
 Source: Greenwich Associates 2015 Trading Desk Optimization Study

Greenwich Associates recently examined these differing views of corporate bond market liquidity in the Q1 2016 report *In Search of New Corporate Bond Liquidity*¹⁸. While many institutional investors felt that executing corporate bond trades over \$5 million had become easier over the past year, others still saw these trades as difficult to complete. Such surveys of market participants can offer important insight into the state of market liquidity to complement an analysis of quantitative measures such as bid-ask spreads and market volumes.

Metrics have limitations in providing a deep understanding of the underlying market participant behaviors, perceptions and decision making. A variety of metrics create mixed pictures and can be interpreted in different ways. Aggregating different metrics that consider different facets of liquidity to present a generalized view of the overall liquidity could mask underlying liquidity challenges. We therefore recommend that metrics be interpreted individually to identify specific areas where liquidity may have been impaired, while taking into account structural changes that could influence interpretation. For example, although the recent compression of bid-ask spreads has been used as evidence of benign liquidity environment, it is also the result of other changes in market structure and behavior of market participants that in fact point to lower capacity for market making by market participants.

For example, a study by ICMA in 2014¹⁹ notes that intermediaries have responded to regulatory requirements by shifting from a principal to agency trading business model, which requires holding smaller quantities of bonds in inventory. Firms have therefore been able to reduce their inventory costs which partly explains why spreads have not widened significantly. These reservations are supported by the Joint Staff Report into the US Treasury market on 15 October 2014²⁰ which notes that “average bid-ask spreads and market depth, though often indicative of general market conditions, may need to be complemented by other measures in light of these [structural] challenges to obtain a more meaningful picture of the state of market liquidity in the current market structure.” For this reason, we also reiterate the importance of analyzing quantitative data in conjunction with the qualitative feedback from market practitioners.

We also note that more research is needed to form a better understanding of optimal liquidity levels across different markets. If there was, arguably, a surplus of liquidity in the run up to the financial crisis, what is an appropriate benchmark for the various classes of corporate bonds? Such analysis

¹⁸ http://delphx.com/files/1414/5952/1564/GA_-_Corporate_Bond_Liquidity_-_April_2016.pdf

¹⁹ ICMA paper *The current state and future evolution of the European investment grade corporate bond secondary market: perspectives from the market*, November 2014.

²⁰ Joint Staff Report *The U.S. Treasury Market on October 15 2014*, July 2015

would help understand whether the decrease in liquidity observed in certain market segments corresponds to a desired post-crisis adjustment, or whether it suggests a deterioration in conditions with negative consequences for market participants.

A recent analysis by the Federal Reserve Bank of New York discusses several directions for future research. According to the analysis: “Firstly there is a lack of data across markets and within markets; secondly there are deficiencies in methodology in the face of incomplete data; and thirdly there is little attention to the endogenous response of market participants to an already changing liquidity environment. Each of these are promising directions of future research in measuring liquidity”. It is also argued that many traditional liquidity metrics, when computed on selective subsets of data or ignoring endogeneity, are not immune to these measurement challenges and may therefore paint an incomplete picture of current liquidity conditions²¹.

Market liquidity can also become severely impaired due to a turn in cyclical factors. These factors, including monetary policy conditions, are currently creating benign market liquidity conditions which can create the illusion of resilient market liquidity. However, these can turn quickly, resulting in rapidly deteriorating liquidity across asset classes. This calls for a better understanding of how these metrics are likely to respond to a stressed environment.

We would like to make the following general observations of IOSCO’s analysis, referring to the PwC 2015 study sponsored by the Associations.

Data sources

- Data sources used for IOSCO’s study and the PwC study differed, which may have led to differing interpretations on the liquidity environment. As noted by IOSCO, one of the primary challenges it faced during this assessment was a lack of useful data in most jurisdictions on the trading of corporate bonds in the secondary market in each country²².
- In addition, as discussed previously, there was no consideration of failed or withdrawn trades that would provide at least as useful a measure of true liquidity as a study of the trades that were executed. As previously noted, data on unexecuted orders and “dropped trades” can offer valuable insights into participant behaviors.
- In relation to Asian markets, we note that IOSCO’s study did not cover China and utilized Asian market information that may not have appropriately captured the majority of the market.

Regional differences

- We also note that IOSCO’s analysis shows clear differences across regions – for example between the US, Europe and emerging markets – which have not been explored in the report. In general, we have the impression that IOSCO’s analysis does not sufficiently take into

²¹ Federal Reserve Bank of New York *Market Liquidity After the Financial Crisis*, October 2016. The paper concludes that for corporate bonds, bid-ask spreads and price impact have returned to pre-crisis levels, while volume and issuance are at record highs. The paper’s analysis suggests that market liquidity overall is favorable.

consideration important regional differences in terms of corporate bond market structure and reliability and comparability of data.

- Regional differences can be important. For example, recent analysis suggests that liquidity in sovereign and corporate bonds is generally lower in Europe than in the US (e.g. higher transaction costs). Banks also play a more important role in determining market liquidity in the Euro area than the US. In addition, it is felt that the ECB's unconventional monetary policy programmes are currently substituting for market activity in the European context²³.
- Recent surveys of market participants show clear differences in perceptions of liquidity across regions. For example, APAC region respondents to a recent survey by the CFA Institute report that over the last five years they have observed²⁴:
 - no change in the liquidity of high-yielding corporate bonds but an improvement in the liquidity of investment-grade corporate and government bonds;
 - an increase in the number of active dealers making markets;
 - no change in the time taken to execute trades and a higher proportion of bonds being actively traded; and
 - no change in the proportion of unfilled orders.

This feedback in relation to the APAC region is markedly different from perceptions regarding the AMER and EMEA regions, as noted under footnote 11 above.

- We note IOSCO's finding that trading volumes in emerging markets have been volatile since the crisis and that the absence of a longer data series makes it difficult to draw conclusions about trading volume trends in the emerging markets.

Number and nature of counterparties

- It is important to note that liquidity provision can be linked to the nature of counterparties. As broker-dealers become more selective in their choice of counterparties and balance sheet allocation, IOSCO could in the future explore whether large and small asset managers are experiencing differences in the levels and pricing of liquidity.
- IOSCO notes that there is an increase in the number of market participants, based on an increase in the number of counterparties per dealer based on TRACE data. We note that this is not necessarily positive: it could also be indicative of greater market fragmentation and the need to break up trades into smaller sizes and spread it over a large number of counterparties because no single counterparty can provide the depth required to absorb the trade in one go.

Immediacy

- Immediacy typically refers to the time it takes to complete a transaction. It is, we believe, a key factor in any liquidity assessment – arguably more important than information on executed trades. As previously noted, we encourage IOSCO and other regulators to examine

²³ Goldman Sachs paper *Assessing market functioning through liquidity developments*, April 2015

²⁴ CFA Institute *Survey Report on Secondary Corporate Bond Market Liquidity*, September 2016

data on unexecuted orders and dropped trades. We are aware of the challenges in obtaining such data across jurisdictions and stand ready to work with our members and the relevant trading platforms to help in this area of analysis.

Signs of bifurcation

- Research by the Committee on the Global Financial System²⁵ (CGFS) and Fender and Lewrick²⁶ found liquidity has tightened in certain bond markets, with spreads widening in high yield and emerging market corporate debt. Their research also suggests that liquidity is increasingly concentrating in the most liquid instruments and falling in less liquid assets.
- A subsequent paper published in 2016 by the CGFS²⁷ found that liquidity bifurcation continues particularly for off-the-run sovereign bonds and corporate bonds. We note IOSCO's statement that some industry participants, particularly those on the buy-side, have reported that a "bifurcation" is taking place in secondary markets in corporate bonds. As IOSCO notes, it is possible that dealers are less willing or unwilling to make markets in relatively illiquid high-yield bonds and are instead shifting toward an agency model in these bonds.
- In preparing this submission, our dealer-bank members noted that trading practices and provision of quotes to clients have adjusted to the impact of the ECB bond purchase programs. Dealers report that for QE-eligible instruments they are able to quickly provide quotes and narrow spreads to their clients, whereas pricing and immediacy may be noticeably different for non QE-eligible bonds.
- Research suggests that the growing supply of new issues has concentrated trading in the most recently issued securities. FINRA found that the average annual percentage of bonds among the most active 1,000 that were issued within the last 90 days between 2003 and 2007 remained below 20%, but since 2011 has averaged 45%. Similarly, there has been a marked decline in the trading volume among active issues after they have been in the market for 90 days. FINRA found that after their first 90 days in the secondary market, par trading volume fell by 38% in 2015, 250% faster than occurred in 2007²⁸.
- Commentators have also argued that there is evidence of an increase in bifurcation in day-to-day trading conditions, visible in daily volatility levels across markets. Rather than there being a steady stream of moderately volatile days (and liquidity conditions), volatility seems to be becoming more clustered than it used to be: there are many days with tight ranges and good liquidity, and then occasional days of extreme intraday volatility and reportedly poor liquidity – even though volumes on such days can actually remain quite high²⁹.

²⁵ CGFS paper *Market-making and proprietary trading: industry trends, drivers and policy implications*, November 2014

²⁶ Fender, I. and Lewrick, U. paper *Shifting tides – market liquidity and market-making in fixed income instruments*, Bank of International Settlements, 2015

²⁷ CGFS *Papers Fixed income market liquidity*, No 55, January 2016

²⁸ Mizrach, B, paper, *Analysis of Corporate Bond Liquidity*, FINRA, December 2015

²⁹ Citi *The liquidity paradox*, May 2014

Volatility

- We notice that measures of volatility appear to not have been significantly taken into account in IOSCO's report. This is important as liquidity provision from market makers is precisely needed in times of volatility. We would point IOSCO to the following recent analysis illustrating how declining dealer inventories may be linked to higher volatility and lower liquidity:
 - The academic paper *Capital Commitment and Illiquidity in Corporate Bonds* (July 2016) studies US corporate bond markets from 2003 to 2014 and provides data indicating that liquidity has been negatively impacted by unintended consequences of post-crisis regulations focused on banking³⁰. The evidence supports that these outcomes reflect unintended consequences of post-crisis regulations focused on banking.
 - The Bank of England's December 2015 *Financial Stability Report* finds that market makers in US corporate bonds have become less willing to absorb demand shocks and that the volatility of spreads has increased as a consequence³¹.
 - As noted in PwC's 2015 report, there is evidence that episodes of market correction and volatility are now rising, after falling considerably since the global financial crisis. Volatility in bond markets in 2015 was around 40% higher than in 2014, finds PwC. Whereas current market volatility is not as high as the extreme levels of volatility witnessed during the global financial crisis, volatility is arguably above historical levels during benign economic conditions.
 - Sovereign bonds, generally considered a more liquid asset class compared to corporate bonds, have also experienced episodes of volatility such as the 15 October US Treasury "flash crash", which caused a temporary plunge and subsequent recovery in US Treasury yields³².

Single-name CDS market

- IOSCO's analysis has not focused much attention on the importance of the single-name CDS market, which is important in allowing market makers in corporate bonds to manage their risk efficiently as well as providing a reference point for pricing bonds. Industry surveys³³ have highlighted that liquidity in the single-name CDS market has been in decline as the combined effects of regulations – including the Leverage Ratio, capital charge for credit valuation adjustment (CVA), and other expected regimes – have affected market makers of CDS.

³⁰ *Capital Commitment and Illiquidity in Corporate Bonds*, by Hendrik Bessembinder, W.P. Carey School of Business, Arizona State University, Stacey Jacobsen, Cox School of Business, Southern Methodist University, William Maxwell, Cox School of Business, Southern Methodist University, Kumar Venkataraman, Cox School of Business, Southern Methodist University, July 2016.

³¹ See Bank of England *Financial Stability Report*, December 2015

³² US Department of Treasury, the Federal Reserve, SEC and CFTC *Joint Staff Report: The U.S. Treasury Market on October 15, 2014, 2015*

³³ See ICMA paper *Remaking the corporate bond market*, July 2016.

- Meanwhile, a recent study published by ISDA notes that in recent years the single-name CDS market shifted from stagnating growth to an actual contraction and has shrunk substantially, experiencing a contraction of 61% between June 2011 and June 2015³⁴. As noted in the ISDA study, the empirical evidence overwhelmingly supports the conclusion that single-name CDSs lead corporate bonds in price discovery given the illiquidity in cash corporate bonds relative to single-name CDSs.

Central bank and monetary policy

- We note that it was not part of the scope of IOSCO's report to examine how QE and low interest rates may have impacted liquidity in the post-crisis environment, although IOSCO acknowledges these are relevant factors to consider. We reiterate that any analysis of the current liquidity environment needs to take into consideration central bank purchase programmes which have the effect of reducing free-float³⁵ and therefore carry a potential to generate significant market distortions. For example, purchase programmes have been expanding with the European Central Bank now purchasing government bonds, covered bonds and corporate bonds. The last eight years are unprecedented in terms of the amount of fixed income instruments purchased by central banks, with approximately \$7 trillion of bonds purchased and currently held on central bank balance sheets. It is expected that at some point in the future these programmes will begin to unwind.

Repo market

- While IOSCO notes suggestions that dealer-banks' appetite to intermediate repo markets has changed recently, it notes that none of the respondents to the IOSCO survey provided quantitative evidence supporting these assertions. We refer to the following papers which IOSCO may wish to review:
 - ICMA paper *Perspectives from the eye of the storm: the current state and future evolution of the European repo market*, November 2015 – it is noted that the cost of repo has increased and is likely to go up even further with the full implementation of the Liquidity Coverage Ratio, Net Stable Funding Ratio and Leverage Ratio.
 - See Oliver Wyman paper *Interaction, coherence and overall calibration of post crisis Basel reforms*, August 2016 – it is noted that dealers are allocating less balance sheet capacity to repo activity; it is also noted that repo balances of European banks have declined by around 40% since 2011 and those of US banks have declined by around 12%.
 - Bank of England's *Financial Stability Report*, July 2016 – it is noted that activity in UK gilt repo and US repo markets has contracted significantly since the end of 2013, by around 25% and 10% respectively. The report states that "The most marked changes in market conditions have been in the securities financing markets, specifically, those

³⁴ ISDA paper *Single-name Credit Default Swaps – A review of the Empirical Academic Literature*, September 2016.

³⁵ In a sense when a central bank buys bonds, they withdraw them from the market. Free float indicates the percentage of bonds that remain to be actively traded. In theory, the fewer actively traded bonds, or the lower the free-float, the wider their price fluctuations.

for repurchase agreements, or ‘repo’. The FPC judges that these developments are of sufficient importance to financial stability and market functioning to warrant further domestic and international assessment of their causes and consequences.”

- The cost of repo funding is a crucial consideration for market makers as they will often borrow the securities via the repo market to provide liquidity to their clients. We agree with IOSCO’s view that a deterioration of liquidity in repo markets, or an increase in costs associated with using repo markets, could conceivably have a negative knock-on effect on liquidity in secondary corporate bond markets.

B. Feedback and comparison of specific metrics

In this section we offer a more specific examination of the liquidity metrics considered by IOSCO. While the same data sources and estimation approach for some indicators have been consistent across a number of studies, there are others where these have differed, leading to different results and interpretations of the data. This section sets out these examples, particularly where they indicate liquidity challenges in corporate bond markets.

Turnover ratio

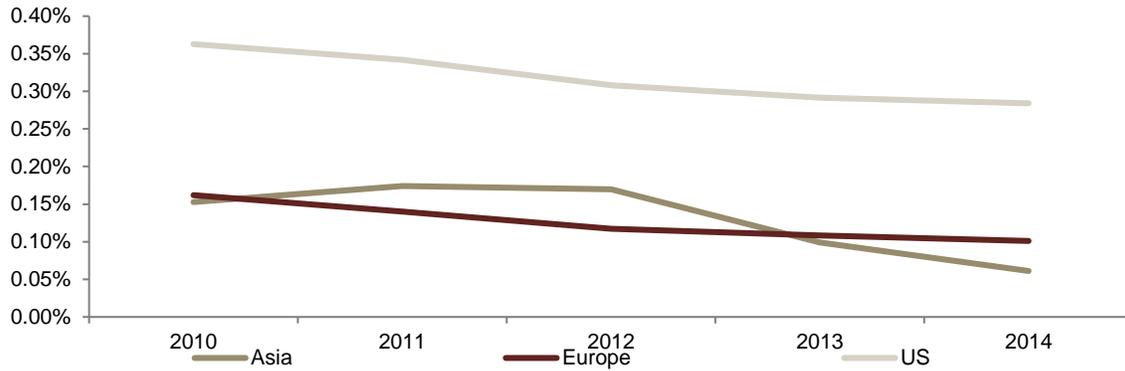
The turnover ratio can be calculated in a number of ways and for individual instruments or a market as a whole and for different trading periods. Whereas IOSCO concluded the turnover ratios it analyzed were broadly flat, the PwC study showed declining turnover across major global corporate bond markets (Figure 1). This is supported by more recent data from MarketAxess on the US corporate bond market (Figure 2).

An examination of more recent data on Asian corporate bond markets (Figure 3) from the Asian Development Bank also shows that corporate bond turnover ratios have also declined for a sample of Asian emerging markets.

Other studies have also observed declines in turnover ratios in different asset classes and markets³⁶. Based on the experience of the recent crisis, turnover ratio could be expected to drop further in the event of a future stress environment.

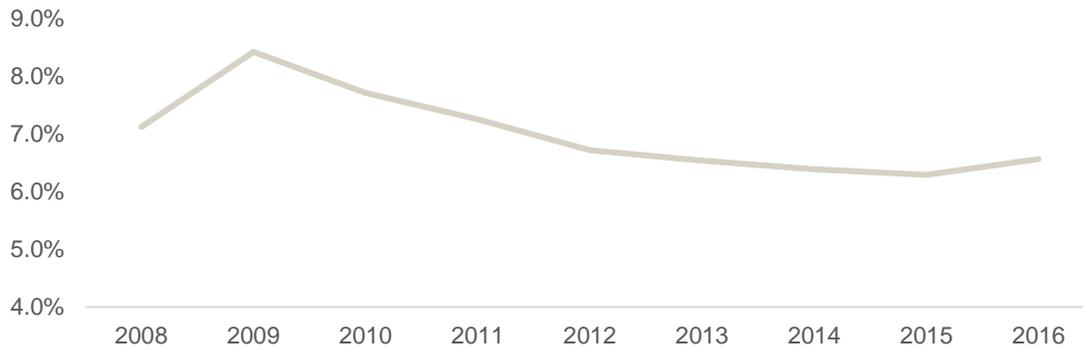
³⁶ See Oliver Wyman paper *Interaction, coherence and overall calibration of post crisis Basel reforms*, August 2016.

Figure 1: Corporate bonds turnover ratio (average daily volume / outstanding volumes)



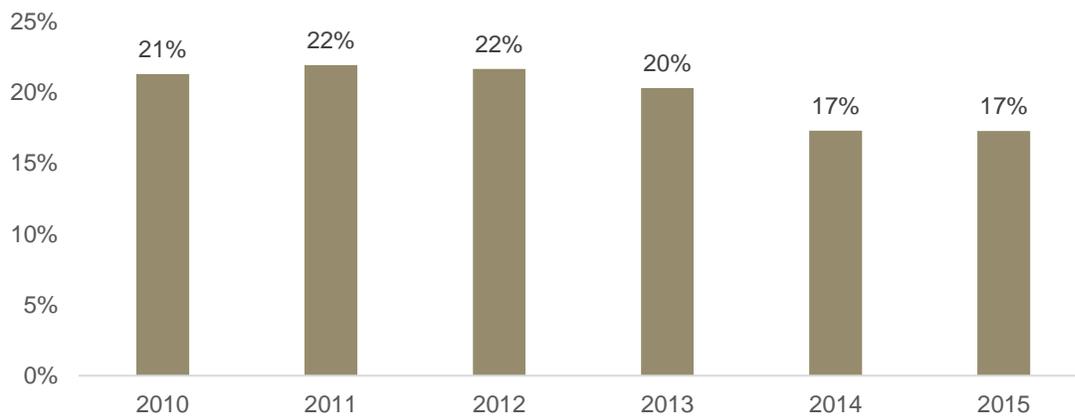
Source: Asian Development Bank, Trax, SIFMA, PwC analysis

Figure 2: US corporate bonds turnover ratio (average monthly volumes / outstanding volumes)



Source: Trax

Figure 3: Corporate bond turnover ratios for selected Asian emerging economies

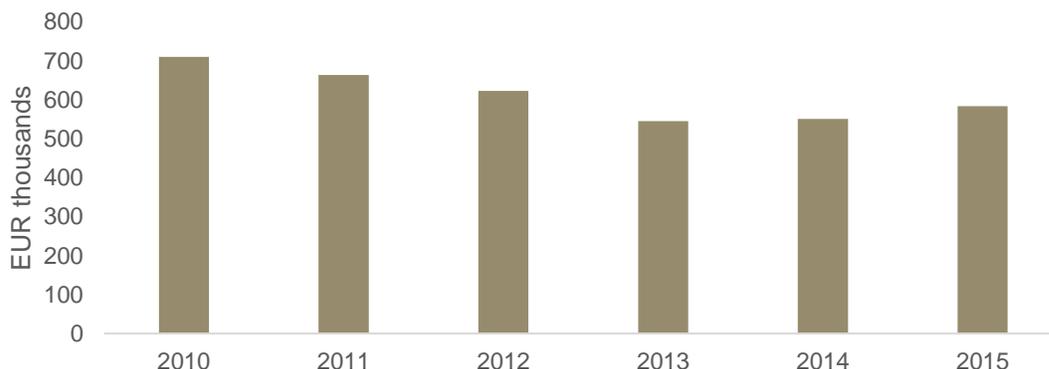


Source: Asian Development Bank. Note this is based on data from Japan, Korea, Thailand, Malaysia

Trade sizes

IOSCO suggests that PwC analysis of average trade sizes (Fig 16 in IOSCO report) could have been affected by exchange rate movements. However, even after correcting for exchange rate effects, the data nevertheless exhibits a downward trend between 2010 and 2015 (Figure 4).

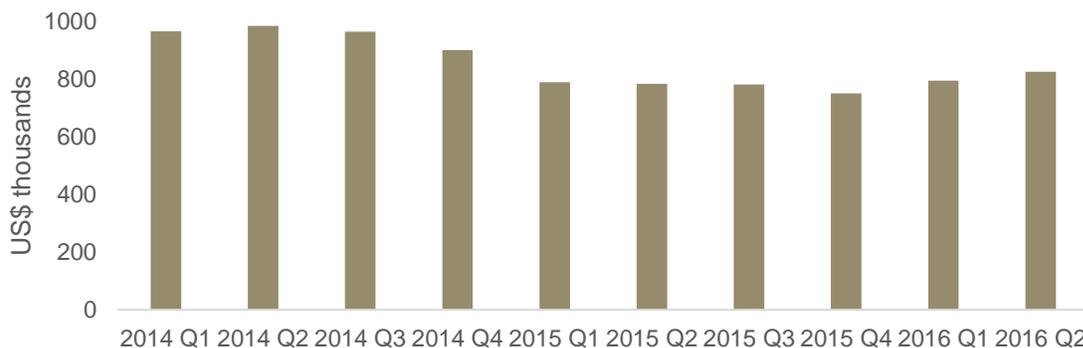
Figure 4: European corporate bonds - Average trade size (Based on PwC data used in GFMA report)



Source: Trax data. Note 2015 data only for January to March

More recent data from Trax (Figure 5) on the European corporate bond market suggests that trade sizes have also declined between 2014 and 2016 – average transaction size declined by 16% between 2014 Q2 and 2016 Q2.

Figure 5: European corporate bonds - Average trade size (Trax Fixed Income update)



Source: Trax

Again this demonstrates the need to agree on a basis of calculation of trade size data so that the whole financial community is drawing conclusions from an agreed definitional analysis.

Meanwhile, in a recent analysis the ESRB³⁷ finds that there has been a significant decline in median³⁸ trade size for corporate bonds issued by both non-financial and financial corporations while trading volumes decreased only slightly. The ESRB's analysis of changes in market makers' median trade sizes, volumes and inventories suggest that liquidity resilience may have decreased in both government bond and corporate bond markets.

In a recent analysis, the Federal Reserve Bank of New York noted that average trade size declined sharply during the crisis and never recovered; it is noted that some market commentators see this trend as evidence that investors find it more difficult to execute large trades and so are splitting orders into smaller trades to lessen their price impact^{39 40}.

Price impact measure

Price impact measures are potentially a very important indicator of market liquidity conditions, as they provide more information on the cost of illiquidity. There have been a number of instances where reports (provided by both regulators and industry commentators) have calculated and presented price impact measures on a different definitional basis and/or with very different results. For example, PwC used the Amihud measure of price impact, which captures the ratio of the absolute daily returns to its trading volume, averaged over each month. This analysis was performed using data on trading volumes for a sample of European corporate bonds from Trax. The study shows that the price impact measure is sensitive to market conditions, which results in highly volatile trends (e.g. manifesting in peaks and troughs). It should also be noted that it showed an increase in the Amihud measure of price impact at the beginning of 2015. In contrast, IOSCO and the FCA have presented price impact measures which have reached virtually all-time lows in 2015, which is also markedly different to the anecdotal views of market participants.

It is clear that different data sources and estimation approaches can result in different conclusions on liquidity trends. The above assessment therefore underscores the need to also consider alternative sources of market data to ensure that a representative view of market liquidity is captured.

V. Current market environment

A. Signs of fragility

We continue to believe that there are sufficient early warning signals to suggest that regulation and other market factors are contributing to a reduction in certain aspects of secondary market liquidity that is likely to be exacerbated by the unwinding of QE or another stressed market situation. Indeed the FSB highlighted similar concerns in its recent Annual Report stating that: "There is limited evidence of a broad deterioration in market liquidity, although there is some evidence of less depth in certain sovereign and corporate debt markets⁴¹."

³⁷ ESRB *Market liquidity and market-making*, October 2016.

³⁸ The median is the median of average trade sizes reported by the market-makers.

³⁹ Federal Reserve Bank of New York *Market Liquidity After the Financial Crisis*, October 2016.

⁴⁰ See also the analysis by Greenwich Associates referenced under footnotes 17 and 18 above.

⁴¹ FSB *Third FSB Annual Report*, July 2016.

Policymakers should continue to consider the aggregate impact of current regulation and weigh the incremental financial stability benefits of new rules against the incremental costs of diminishing market liquidity to ensure regulation is not counterproductive. We note as a result of recent observations the FSB has committed to “...more active monitoring and analysis, especially of changes in market depth and funding liquidity conditions”⁴². We fully support this work, with a particular focus on the impacts of progressive implementation of regulatory reforms as discussed further below.

Regulator and industry-sponsored studies inevitably rely on specific data samples and a snapshot of market conditions to assess market conditions at a given point. We believe that secondary corporate bond market liquidity should be a matter of continual assessment by policymakers as the regulatory reform programme is gradually implemented. In order to achieve a longer range view of possible future risks, and to develop a proactive and transparent early warning process, the Associations recommend the establishment of a permanent joint working group of senior central bank and regulatory officials and representatives from investors, corporate issuers and bank trading desks.

We recommend that regulators continue to pay close attention to the practical feedback and anecdotal evidence provided by market participants. While the totality of empirical information may continue to show a mixed picture, regulators should not ignore recent signs that point to greater fragility of market liquidity in corporate bond markets. For example:

- As noted above, PwC’s 2015 analysis finds that European corporate bond trading volumes have declined by up to 45% between 2010 and 2015. Evidence suggests that block trades are becoming more difficult to execute without affecting prices. Banks’ holdings of trading assets have decreased by more than 40% between 2008 and 2015, and dealer inventories of corporate bonds in the US have declined by almost 60% over the same period, finds PwC’s report. This has accompanied a decline in turnover ratios in corporate bond markets, where trading volumes have failed to keep pace with the increase in issuance.
- The academic paper *Capital Commitment and Illiquidity in Corporate Bonds* (July 2016) studies US corporate bond markets from 2003 to 2014 and observes that despite a decrease in trade execution costs post-crisis, alternative measures, including intraday and overnight dealer capital commitment, dealer participation as principals, turnover, the frequency of block trades, and interdealer trading, have not returned to pre-crisis levels and in many cases have worsened. The reduction in dealers’ commitment to bond market making in recent years is attributable to bank-affiliated dealers, while non-bank dealers have increased their participation. The evidence in the study supports the view that these outcomes reflect unintended consequences of post-crisis regulations focused on banking⁴³.
- In the EU, ESMA’s Report on Trends, Risks and Vulnerabilities⁴⁴ (No. 2, 2016) observes no systematic trends in liquidity levels in EU corporate bond markets between March 2014 and March 2016, but finds episodes of decreasing market liquidity when wider market conditions deteriorate.

⁴² Ibid.

⁴³ *Capital Commitment and Illiquidity in Corporate Bonds*, by Hendrik Bessembinder, W.P. Carey School of Business, Arizona State University, Stacey Jacobsen, Cox School of Business, Southern Methodist University, William Maxwell, Cox School of Business, Southern Methodist University, Kumar Venkataraman, Cox School of Business, Southern Methodist University, July 2016

⁴⁴ ESMA’s Report *Trends, Risks and Vulnerabilities*, No. 2, 2016

- In their paper *Fixed Income Market Liquidity* (January 2016) the CGFS found evidence of greater fragility in liquidity conditions. The paper highlights reduced trade size and greater reluctance of dealers to undertake market making activities, pinpointing regulatory change as a key contributor. The CGFS also poses the question that the liquidity support mechanisms of central banks may be at the cost of greater market fragility⁴⁵.

Such fragilities signal the need for careful consideration of incremental regulatory impacts. It is widely recognised that there are substantial benefits to the appropriate implementation of recent reforms in response to the crisis. Equally, there are increasing concerns regarding the interaction between various reforms and their cumulative economic effect on the liquidity environment. There is clear need for carrying out a process of systematic, quantitative and qualitative assessment of the financial regulation framework over the coming years. This should include not only a holistic assessment of G20 reforms to bank prudential regulations, but also their interaction with market regulations and broader economic and monetary conditions.

B. Structural changes

i. Technology and innovation

As acknowledged by IOSCO, there are also clear signs that market structure and participants' behavior is adapting to the evolving environment. The growth of ETFs provide investors with a more tradeable instrument for investment, in the absence of directly investing in the underlying asset, which may not be as liquid. Meanwhile, a more widespread adoption of electronic trading could further reduce transaction costs for market participants by providing additional platforms to match buyers and sellers. Such platforms will, in some cases, help reduce the time required to locate buyers and sellers and improve the process of price discovery.

While electronic trading platforms can bring many positive effects, they are unlikely to fully replace liquidity provision by dealers, in particular the ability to bear proprietary risk and provide immediacy. Electronic trading can help efficiency but it does not in itself create liquidity. It is also questionable whether a full automation of credit markets is realistic or desirable. These markets are distinct from equities, commodities, foreign exchange and sovereign bond markets. The high degree of complexity and heterogeneity – companies will often issue many different types of bonds, with varying interest rates and maturities – has so far made the market maker principal trading model indispensable in allowing investors to trade instruments and restructure their debt portfolios.

When a market maker absorbs an investor's supply of a given instrument, it will use its distribution network to find the other side of the trade, or if unable to locate a buyer, may take the debt into inventory pending the location of a willing buyer. For these reasons, dealer-client relationships and voice brokerage remain key aspects in corporate bond markets. While technology has an important role to play, it is unlikely to supplant dealer-client relationships and non-electronic modes of trading in the foreseeable future.

There are also suggestions that electronic trading may be boosting market volumes but adding little depth for those who need to trade in size. When markets become more volatile, it is observed that electronic trading operators tend to withdraw – or, at best, reduce the size in which they are willing

⁴⁵ CGFS *Papers Fixed income market liquidity*, No 55, 2016

to trade⁴⁶. For example, an IMF analysis concluded that a reduction in the depth of order books seems to have led the “flash rally” in US Treasuries on 15 October 2014⁴⁷.

ii. Potential risks

While we agree with IOSCO’s sentiment that the liquidity environment is dynamic and that participants have demonstrated an ability to change and adapt, we caution against the assumption that all adaptive behaviors in corporate bond markets will prove sustainable when monetary conditions are less accommodative. As noted in the PwC study, the effect of QE on portfolio rebalancing and the liquidity risk premia are likely to reverse following the withdrawal of QE, which could expose the structural reduction in liquidity in capital markets. PwC’s analysis notes that monetary policy normalization and the reversal of QE in the US or EU could result in persistently higher levels of liquidity risk premia as the market adjusts to an environment of higher interest rates, which could be accompanied by periods of heightened illiquidity and market volatility.

An increase in costs for underlying investors due to illiquidity will impact their returns. We recommend that central banks remain vigilant about the impact of their asset purchase policies on market liquidity and give consideration to the potential evolution of the market when these programmes are unwound.

Another important area of attention concerns the decline in the CDS and repo markets, which risk reducing participants’ ability to hedge and/or finance the purchases of corporate bonds. These markets should be carefully monitored and the impact of regulation on hedging capacity should be evaluated.

In the EU context, ESMA’s recent assessment of risks and vulnerabilities finds that market and credit risks are very high – the highest level – while liquidity and contagion risk remain high. ESMA notes that the risk outlook has deteriorated following the result of the UK referendum on EU membership. Market, liquidity and contagion risks may increase going forward, as political and event risks have intensified, and the macroeconomic environment may weaken. According to the report, the deteriorating liquidity risk outlook reflects increased fund outflows following the referendum, leading, among other impacts, to the suspension of redemptions in a number of open-ended funds holding UK commercial property⁴⁸.

As recently noted by the ESRB, “liquidity illusion” remains a risk to financial stability as the experience from the financial crisis has shown that, in normal times, liquidity conditions may be perceived to be ample, but a sudden lack of liquidity can occur during times of stress. Evidence of event-driven phases of illiquidity may be cause for concern. Respondents to the recent ESRB survey more frequently observed temporary, event-driven phases of illiquidity, such as during the Greek referendum, or unexpected events, such as during the US Treasury flash crash in 2014. According to most respondents, lower market liquidity has its origin in a reduction in the number of market participants, investors in general and market-makers in particular, as well as capital and balance sheet constraints potentially as a result of regulation⁴⁹.

⁴⁶ Citi research *The liquidity paradox – The more liquidity central banks add, the less there is in markets*, May 2015

⁴⁷ IMF *Financial Stability Report, The October 15 Flash Rally in US Treasuries*, April 2015, see Figure 1.19

⁴⁸ ESMA’s Report *Trends, Risks and Vulnerabilities*, No. 2, 2016

⁴⁹ ESRB *Market liquidity and market-making*, October 2016

Recent research also suggests that market participants are concerned about the increasing frequency of “flash crashes” that occur without obvious causes⁵⁰. For example, there have been a number of events with erratic price movement outside of normal ranges expected for market movements in response to external events:

- The flash crash in US treasuries – when there was a steep drop of 37 basis points in 10-year US Treasury yields, after which yields rebounded to normal levels;
- The taper tantrum in US treasuries – when between 1 May 2013 and 5 July 2013, US sovereign bond yields rose rapidly from 1.64% to 2.71%;
- The Swiss Franc move – when on 15 January 2015, currency markets were particularly affected by the appreciation of the Swiss franc by nearly 40% against the euro and the dollar following the Swiss National Bank’s decision to remove its cap to the Euro;
- Sterling flash crash – when on 7 October 2016 the British pound plunged from \$1.26 against the dollar to a little over \$1.18 in two minutes – initial market reactions have suggested a deterioration of liquidity in the FX market as a key factor⁵¹.

Regulators have in recent years also examined the impact of high-frequency trading. A recent study by the German Bundesbank, analyzing data from DAX and Bund future contracts, concluded that high-frequency trading can amplify financial market volatility⁵².

We believe a decline in market making capacity is a source of material potential risk in fixed income markets. Market makers play a key role in bridging the varying requirements– including time preferences, investment mandates and risk appetites – of investors and users of capital, which are often highly diverse. Market making services help investors bridge a range of gaps encountered in different market conditions, such as risk gaps, inventory gaps and time gaps.

As noted by IOSCO and other authorities, dealer corporate bond inventories are not keeping pace with the number of bonds available for trading in the secondary corporate bond markets. Following the financial crisis dealer inventories seem to have recovered but remain below pre-crisis levels. This could carry important implications for these markets, particularly in stressed scenarios, that we believe should not be underplayed.

We concur with policymakers that have raised awareness of this concern, for example:

- ESRB paper *Market liquidity and market-making*, October 2016: “Market-making plays an important role in a market functioning correctly. A key element of market liquidity in bond markets, and in corporate bond markets in particular, is market-makers’ ability to absorb temporary order imbalances by warehousing risk for short periods of time.”
- BIS CGFS *Fixed income market liquidity*, No 55, January 2016: “Dealers have continued to cut back their market-making capacity in many jurisdictions. Demand for market-making

⁵⁰ Citi paper *The liquidity paradox*, May 2015

⁵¹ Financial Times *Pound plummet blamed on ‘liquidity holes’*, 10 October 2016

⁵² Bundesbank *Bedeutung und Wirkung des Hochfrequenzhandels am deutschen Kapitalmarkt*, October 2016 (in German only)

services, in turn, continues to grow. The effects of these diverging trends have, thus far, not manifested themselves in the price of immediacy services, but rather they are reflected in possibly increasingly fragile liquidity conditions.”

VI. Summary of major reforms yet to be finalised and their potential impact on corporate bond markets

Since the 2007/2008 financial crisis, global and jurisdictional authorities have been implementing a multi-year regulatory reform programme and introduced a large number of initiatives which are substantially reshaping the way financial markets operate.

It is acknowledged by many policymakers that changes to banks’ prudential regulations emanating from the G20 agenda are likely to significantly affect banks’ capacity to intermediate and provide services such as market making in certain instruments. A reduction in banks’ intermediation capacity, combined with other factors, could significantly impair secondary market liquidity.

While existing data will factor in the impact of implemented reforms – or those for which market participants have already adjusted – a number of major reforms underway are likely to have a significant impact on corporate bond markets. We provide below a non-exhaustive list of the most important reforms yet to be fully implemented.

A. Prudential reforms

The following reforms emanating from the G20/Basel Committee remain to be fully implemented:

- Capital floors;
- Fundamental Review of the Trading Book (FRTB);
- Net Stable Funding Ratio (NSFR);
- Leverage Ratio (LR); and
- Total loss-absorbing capacity (TLAC) requirement for banks.

In particular, we believe that the implementation of the FRTB, NSFR, LR and TLAC reforms, depending on their final calibration carry various probable impacts, including:

- Lower dealer capacity;
- Lower net liquidity as trading and repo activity contract further;
- Higher transaction costs, including for end users;
- Less ability to transact especially in less liquid or lower grade issues including for end users;
- Greater uncertainty over secondary market pricing and capacity, particularly in respect of new measures such as TLAC;
- Higher market volatility; and
- Loss of liquidity in corporate bond market could transmit risk to other markets.

All of the above potential effects are likely to be amplified at times of stress.

While the Associations fully support the financial stability objectives of the reform programme, we believe that the process is at a stage where a forward-looking approach should inform regulators’

evaluation of the potential market liquidity implications of measures being implemented. We would also caution against evaluation of the market effects of isolated measures, and instead take a holistic approach to evaluating the market liquidity impacts of the regulatory programme where possible.

B. Market conduct & structural reforms

In the European context, we draw attention to two major pieces of legislation which could exacerbate negative impacts on corporate bond market liquidity.

- The introduction of MiFID II will bring significant changes to the way liquidity is defined for the purpose of trading and transparency requirements. MiFID II includes a range of new transparency requirements that could increase the risk of exposure for market makers and investors to adverse market scenarios, thereby potentially impairing their capacity and willingness to trade certain instruments. The Associations do welcome the proposed phasing in of waivers and requirement for ESMA to assess liquidity annually before proceeding to the next step of the phase in.
- Meanwhile, the European Central Securities Depository Regulation (CSD Regulation) states that transactions should be bought-in or cash compensated following a certain period of time. In addition, a daily penalty fee should be levied against the failing party. Our expectation is that this regulation will discourage trading in bonds and reduce liquidity particularly on less high grade issues due to concern over ability to acquire stock for delivery before buy in period commences⁵³.
- The scope and nature of market making activities have also been specifically addressed in certain regulations – in some cases this has resulted in the introduction of undue restrictions on the activities of liquidity providers. By way of example:
 - The EU Short Selling Regulation includes an exemption for market making activities from some of the Regulation’s requirements. The text of the Regulation acknowledges that market makers are often required to take short or uncovered positions to perform their role and that imposing inappropriate requirements on their activities would result in a significant adverse impact on the efficiency of financial markets in the EU. However, provisions introduced in subsequent EU-level guidelines have sought a narrow and constraining interpretation of this exemption with the effect of limiting and preventing legitimate market making activities⁵⁴.
 - The proposed EU Bank Structural Reform Regulation when first published sought to require structural separation of market making activity from deposit taking through a carve out of trading activities from universal banks if certain size-based thresholds are met. Market participants argued that mandatory structural separation may result in some banks withdrawing from market making activities on EU markets, for EU

⁵³ See AFME’s response to ESMA’s Technical Standards in relation to the CSD Regulation, February 2015; see also ICMA Impact Study for CSDR Mandatory Buy-ins, February 2015.

⁵⁴ See AFME-ISDA response to ESMA Call for evidence on the evaluation of the Regulation (EU) 236/2012 of the European Parliament and the Council on Short Selling and certain aspects of Credit Default Swaps, March 2013.

market participants, in EU securities and other financial instruments. The gap would be filled by other potentially unregulated entities that do not have to comply with similar restrictions⁵⁵.

- In the US, for example, the Volcker Rule forbids dealers from running positions except so as to facilitate client trades. It is possible that this has promoted dealers to become more cautious than previously, and that this increased caution is amplified particularly on occasions when markets become more volatile. Some market participants point to prop trading desks serving a role as an uncorrelated source of risk-taking, in particular during moments of stress⁵⁶.

VII. Support for IOSCO's new transparency project

The Associations welcome the establishment of a new IOSCO project intended to analyze the interaction between transparency regimes and liquidity. There have been many important developments since IOSCO published its report on transparency in corporate bond markets back in 2004. As noted above, the MiFID II regime in Europe will overhaul transparency requirements for non-equity instruments. MiFID II attempts to determine bond market liquidity levels in order to calibrate waivers for pre- and post-trade reporting, with the average number of daily trades being a main factor. A phased-in approach has been considered for the gradual introduction of the transparency regime for bond markets, thereby seeking to ensure that the impact of requirements is assessed annually before proceeding to the next phase of calibration. This will be an important exercise conducted by ESMA with the potential to provide many insights on the link between transparency requirements and liquidity.

IOSCO's analysis is timely in view of transparency regulations introduced in several jurisdictions. IOSCO may wish to consider the following studies in its analysis.

A. The Effects of Mandatory Transparency in Financial Market Design: Evidence from the Corporate Bond Market, September 2013⁵⁷

Summary:

This paper studies how mandatory transparency affects trading in the corporate bond market. In July 2002, TRACE began requiring the public dissemination of post-trade price and volume information for corporate bonds. Dissemination took place in Phases, with actively traded, investment grade bonds becoming transparent before thinly traded, high-yield bonds. Using new data and a differences-in-differences research design, the study finds that transparency causes a significant decrease in price dispersion for all bonds and a significant decrease in trading activity for some categories of bonds. The largest decrease in daily price standard deviation, 24.7%, and the largest decrease in trading activity, 41.3%, occurs for bonds in the final Phase, which consisted primarily of high-yield bonds. These results indicate that mandated transparency may help some investors and dealers through a decline in price dispersion, while harming others through a reduction in trading activity.

⁵⁵ AFME Briefing Note *EU Bank Structural Reform Measures*, April 2014

⁵⁶ Citi *The liquidity paradox*, May 2015

⁵⁷ <http://economics.mit.edu/files/9018>

B. Capital Commitment and Illiquidity in Corporate Bonds, July 2016⁵⁸

Summary:

The paper studies liquidity in U.S. corporate bond markets from 2003 to 2014. Despite a temporary increase during the financial crisis, trade execution costs have decreased over time. However, alternative measures, including intraday and overnight dealer capital commitment, dealer participation as principals, turnover, the frequency of block trades, and interdealer trading, have not returned to pre-crisis levels and in many cases have worsened. The reduction in dealers' commitment to bond market making in recent years is attributable to bank-affiliated dealers, while non-bank dealers have increased their participation. The evidence supports that these outcomes reflect unintended consequences of post-crisis regulations focused on banking.

C. Can Transparency Hurt Investors in Over-The-Counter Markets?, March 2016⁵⁹

Summary:

The paper examines the efficacy of post-trade transparency regulations like TRACE in over-the-counter (OTC) markets. It is a widely held belief that greater transparency in the trading process benefits investors by reducing opportunities for their exploitation, but the paper seeks to show that this need not be the case. Using a multi-period auction based model of trading, the paper seeks to demonstrate that potential counterparties may delay their trades when there is transparency because they can monitor transaction prices and learn more, before participating. This leads to liquidity dry-ups and increased execution risks for investors with immediate trading needs. The model seeks to offer an alternative explanation for many of the pronounced adverse characteristics of OTC markets in recent times, such as diminished liquidity, usually attributed to the exodus of dealers from the market.

D. When More Is Less: How Financial Market Transparency Affects Corporate Investment, March 2016⁶⁰

Summary:

The paper examines how changes in financial market transparency affect corporate investment. Using a difference-in-differences analysis, the paper finds that increases in price and volume transparency for corporate bonds reduces corporate investment. Greater transparency reduces firm-level capital expenditures, R&D expenditures, and cash acquisitions, and increases primary market bond yields. This reduction in investment is heterogeneously stronger in firms with more volatile operations, more dependency on external financing, and higher rollover risk. It is also suggested that greater market transparency is not unambiguously bad for firms. Greater transparency increases investment efficiency and the sensitivity of investment to bond prices.

⁵⁸ http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2752610

⁵⁹ http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2746910

⁶⁰ http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2746452

VIII. Conclusion

In closing, we would like to reiterate our strong support for IOSCO's efforts to assess the current liquidity environment in corporate bond markets.

In this submission we argue that there are sufficient early warning signals to suggest that regulation and other market factors are contributing to a reduction in certain aspects of secondary liquidity in corporate bond markets that is likely to be exacerbated by the unwinding of quantitative easing or another stressed market situation.

We encourage IOSCO and other regulators to continue building their understanding of the evolution of liquidity in these markets and the key factors driving structural changes. GFMA and IIF stand ready to assist IOSCO in refining its data analysis and to pursue a forward-looking dialogue with market participants. As follow up to this submission, we plan to pursue further engagement with IOSCO's secretariat and national member authorities to provide assistance and facilitate a platform for dialogue among policymakers and leading market participants represented in our memberships.

We appreciate the opportunity to comment and your consideration of these views. Please do not hesitate to contact David Strongin, Executive Director at GFMA (dstrongin@gfma.org); Pablo Portugal, Director at AFME (Pablo.portugal@afme.eu); Brad Carr, Deputy Director at IIF (bcarr@iif.com) or Richard Gray, Senior Policy Advisor at IIF (rgray@iif.com).

ⁱ The Global Financial Markets Association brings together three of the world's leading financial trade associations to address the increasingly important global regulatory agenda and to promote coordinated advocacy efforts. The Association for Financial Markets in Europe (AFME) in London and Brussels, the Asia Securities Industry & Financial Markets Association (ASIFMA) in Hong Kong and the Securities Industry and Financial Markets Association (SIFMA) in New York and Washington are, respectively, the European, Asian and North American members of GFMA. For more information, please visit <http://www.GFMA.org>.

ⁱⁱ The Institute of International Finance is the global association of the financial industry, with close to 500 members from 70 countries. Its mission is to support the financial industry in the prudent management of risks; to develop sound industry practices; and to advocate for regulatory, financial and economic policies that are in the broad interests of its members and foster global financial stability and sustainable economic growth. Within its membership IIF counts commercial and investment banks, asset managers, insurance companies, sovereign wealth funds, hedge funds, central banks and development banks. For more information visit www.iif.com.