VIEWPOINT

CORPORATE BOND MARKET STRUCTURE: THE TIME FOR REFORM IS NOW

SEPTEMBER 2014

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> *"It is striking that the dramatic technological advances that have transformed the equity markets over the past decade have had only a modest impact on the trading of fixed income securities"*
>
> *— Mary Jo White, SEC Chairman*
> *June 20, 2014*[1]

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The corporate bond market is the world's largest and deepest source of capital for companies, with rapidly increasing issuance volumes in recent years. A stable, well-functioning bond market is a critical part of financial market infrastructure, providing capital for issuers and investment opportunities for a broad array of savers and investors. Policy makers have recently focused on issues associated with equity market structure, particularly on the impact of regulatory changes and technological innovation on equity markets which is driven, in part, by concerns around high frequency trading.[2] Less attention has been paid to fixed income market structure—although recently SEC Chair Mary Jo White highlighted the need to consider whether the current structure of corporate bond markets effectively serves the needs of investors.[3] Similar concerns have been raised by other regulators.[4]

We believe the secondary trading environment for corporate bonds today is broken, and the extent of the breakage is masked by the current environment of low interest rates and low volatility, coupled with the positive impact of QE on credit markets. The current environment also breeds complacency—for issuers and investors alike. When any of these factors change, the extent to which today's fixed income markets are not "fit for purpose" will be exposed. Market regulators are right to call for change now, while the benign state still exists. In this paper we make four recommendations for reform. As we explain, these are not just regulatory changes, but much broader reforms—to fix corporate fixed income markets will require changes in behavior by all market participants—issuers, intermediaries and investors. And yes, by regulators, too.

Background

For decades, fixed income markets have been structured as over-the-counter (OTC), "principal" markets where the dealer owns or acquires the bonds and is compensated for market-making activity through the bid-offer spread, or the difference between purchase and sale price. This is in contrast to an "agency" market where the purchase or sale transaction is brokered, and the compensation for this brokerage is an explicit commission. To effectively function, a principal market requires the dealer

BLACKROCK RECOMMENDATIONS

- More "all to all" trading venues – not just "dealer-to-customer" or "dealer-to-dealer"
- Adoption of multiple electronic trading (e-trading) protocols – not just request for quote (RFQ) or central limit order book (CLOB)
- Standardization of selected features of newly-issued corporate bonds
- Behavioral changes by market participants recognizing the fundamentally changed landscape

The opinions expressed are as of September 2014 and may change as subsequent conditions vary.

community to warehouse a significant inventory of bonds to serve investor demand. In addition, given the lack of a central exchange, these markets remain highly decentralized and the amount of pricing information available before a trade is limited to quotations provided from dealers directly to their largely-institutional client base.

Exhibit 1: DIFFERENTIATING PRINCIPAL AND AGENCY TRADING

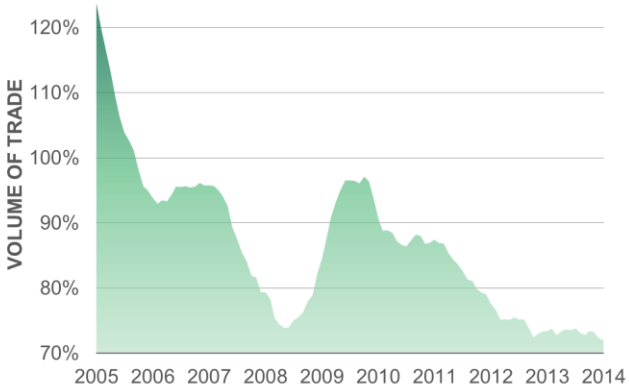
	Principal	Agency
Venue	Typically Over-the-Counter (OTC)	Exchange, clearinghouse, ECN, or other platform
Capital Required	Dealer uses its balance sheet to hold inventory.	Dealer does not use balance sheet; no inventory required.
Cost of Execution	Bid-offer spread	Explicit commission or fee, and market impact cost.
Who Takes Execution Risk?	Dealer / Sell-side	Customer / Asset Owner

Source: BlackRock.

For the last several years, both retail and institutional investors have been concerned about deteriorating liquidity in the corporate bond market. Liquidity has been impacted by regulatory changes after the global financial crisis and diminished risk appetite by market intermediaries. Contributing factors to decreased liquidity include regulatory reforms such as Basel III and regulations under the Dodd-Frank Wall Street Financial Reform and Consumer Protection Act of 2010 (Dodd-Frank Act). Reforms have resulted in greater capital and liquidity requirements for banks, which in turn diminished banks' ability to maintain large inventories of corporate bonds, while reducing the return on capital of market-making activity. The Volcker Rule proscribing proprietary trading has had a noticeable impact on OTC trading desks, given intermingled activity. As a result, dealer inventories have declined, as has the ability for dealers to act as effective market-makers.

In addition to regulatory factors, the sheer growth of the corporate bond market has affected secondary liquidity. Driven by record new issue volume, the size of the market has grown substantially while the market's trading capacity has decreased. Execution risk, which typically resides with the dealer in an OTC market, has effectively shifted to the investor, while the market structure has not changed to an agency model. With the confluence of these factors, the traditional principal-based, OTC model for fixed income trading is "outdated" and in need of modernization.

Exhibit 2: US INVESTMENT GRADE BOND VOLUME AS % OF OUTSTANDING DEBT, 2005-2014



Source: MarketAxess. As of September 2014
Note: Line represents 12 month rolling value of trade as share of outstanding debt.

Market Changes to Improve Liquidity

There is no "silver bullet" that will cure the corporate bond liquidity challenge. However, there are four drivers which, together, have the potential to substantially improve liquidity in the corporate bond market.

- More "all to all" trading venues – not just "dealer-to-customer" or "dealer-to-dealer";
- Adoption of multiple electronic trading (e-trading) protocols – not just request for quote (RFQ) or central limit order book (CLOB);
- Standardization of selected features of newly-issued corporate bonds; and
- Behavioral changes by market participants recognizing the fundamentally changed landscape.

Create more "all-to-all" venues

To begin, we must first consider the participants and how they interact within fixed income markets. To date, most bond trading venues have been dealer-to-customer or dealer-to-dealer. In other words, trading of bonds primarily occurs via bi-lateral transactions between a dealer and a customer or the trade is done between two dealers. As the dealers' ability to hold inventory has diminished, so has the ability to obtain liquidity via this bi-lateral model. This limitation on inventory holdings contributes to fragmentation in the trading of these instruments. Increased development and acceptance of "all-to-all" trading venues, where multiple parties, from both the buy-side and the sell-side, could come together and communicate would provide opportunities to uncover latent liquidity. Greater use of "all-to-all" venues, including exchanges, clearinghouses, electronic communication networks (ECNs), and similar platforms would enhance liquidity by enabling greater market connectivity and

centralization of liquidity than the current bi-lateral framework. Such venues already exist, but see limited trading activity. For example, the New York Stock Exchange (NYSE) operates NYSE Bonds which trades in a similar manner to the NYSE stock exchange; however, NYSE Bonds has limited volume of largely small-sized trades.

Expand e-trading protocols

It is also important to consider the mechanism by which trades are executed in the corporate bond markets. Currently, trading in the corporate bond market is primarily conducted via the request for quote (RFQ) method, where a trader from the buy-side will communicate an interest in buying or selling a particular bond to a dealer and ask the dealer for a price. The buy-side trader may ask several dealers for a price quote and will then select a dealer with whom to conduct the transaction. In comparison, a central limit order book (CLOB), one of the primary protocols used in the equity markets, allows buy and sell orders for a particular stock that is listed on an exchange to be matched up, and facilitates efficient execution for these securities. Central limit order book protocols work best when the instruments being traded are highly liquid and standardized.

There has been a great deal of interest in updating the means by which corporate bond trading is conducted through the use of technology and the development of electronic trading (e-trading) venues. Perhaps unsurprisingly, of the four drivers addressed in this *ViewPoint*, development of e-trading venues has seen the most activity to date. In the recent past, several dealers have introduced proprietary e-trading platforms, incumbent e-trading firms including MarketAxess and Tradeweb broadened their product offerings, and nascent firms have started up. While broader e-trading is certainly an important component, without a concurrent change in the underlying trading protocols, this will likely result simply in a transfer of RFQ voice activity into the electronic execution environment – rather than truly broaden liquidity in a meaningful manner.

New e-trading protocols need to be developed that straddle the RFQ and CLOB divide, and these protocols need to be adopted by more market participants. These new e-trading protocols will help alleviate some of the dependency on dealer capital, as they may bring some latent liquidity to the market. Examples of such hybrid protocols can be found in Exhibit 3.

Exhibit 3: ALL-TO-ALL PROTOCOLS

	Description
RFQ systems	All-to-all RFQ systems are all-to-all trading venues, where multiple parties from both the buy-side and the sell-side are connected and quotes can be requested from several different parties electronically. RFQ can be made anonymously or disclosed. Multiple requests could be made simultaneously via lists to multiple participants on the venue. This enables aggregating some of the fragmented liquidity and supports broader market participation.
Open trading protocols	Open trading systems that pool together sell-side inventory and orders with buy-side orders enhance liquidity by broadening the universe of potential matches. MarketAxess is an ECN that has been a thought leader in defining new protocols, and offers both open trading and list-based all-to-all RFQ protocols.
Session-based protocols	Session-based protocols aggregate liquidity in a given security at defined times of day by announcing a time when certain securities will be traded. Parties interested in buying and selling that particular security will do so at that time, which in turn addresses timing mismatches, where there is no buyer when a market participant wants to sell a security or vice versa.
Crossing systems	Enables anonymous matching of desired buy and sell orders using electronic systems, usually executed at a mid-market price.

Product standardization

While creating more “all-to-all” venues and expanding e-trading protocols will certainly help to improve liquidity, it is likely that these enhancements will eventually meet a natural limit as the bond market and the number of bond issues outstanding has grown immensely over the past several years. In order to successfully improve liquidity in the corporate bond market, the impact of new issuance practices will need to be more fully understood and addressed. As such, we believe the greatest opportunity lies in standardization of product and behavioral change.

A key barrier to enhancing liquidity in the bond market is that investor holdings and trading activity are broadly dispersed across a vast number of distinct securities. This situation has arisen over time due to new issue market practices.

Exhibit 4: BONDS AND SHARES OUTSTANDING OF TOP US INVESTMENT GRADE BOND ISSUERS

Issuer	Bonds in Barclays US Corporate Index	Share of Dollar Amt Outstanding	Total Bonds Outstanding	Common Equity Securities	Preferred Equity Securities
Bank of America	53	46%	1,295	1	33
General Electric	48	36%	905	1	4
Verizon	42	83%	73	1	0
JP Morgan	45	40%	1,695	1	5
Goldman Sachs	28	44%	1,488	1	8
Citigroup	42	35%	1,865	1	11
Morgan Stanley	27	42%	1,331	1	13
AT&T	43	63%	85	1	0
Wells Fargo	37	39%	304	1	9
Comcast	36	88%	56	1	0

Sources: Barclays and Bloomberg, April 2014. Note: Table shows issuers with the largest notional amount outstanding in the Barclays US Corporate Index. Reference to issuers is for illustrative purposes only, and should not be construed as investment advice or investment recommendation of those companies.

Companies tend to issue new bonds whenever financing needs or market opportunities arise. A well-diversified capital structure and debt maturity schedule enables companies to minimize refinancing risk. However, the end result is that corporate issuers have a large number of bonds outstanding, and trading is fragmented across that universe of bonds. Secondary market liquidity will not improve unless this fragmentation is substantially reduced. To illustrate this point, Exhibit 4 shows the number of bonds and equity securities outstanding for the top ten largest issuers in the US. While these companies each have one common equity security outstanding, they collectively have more than 9,000 bonds outstanding. Further, as Exhibit 4 also illustrates, most of these bonds do not have sufficient liquidity to be included in benchmarks such as the Barclays US Corporate Index.

Standardization would reduce the number of individual bonds, via steps such as issuing similar amounts and maturities at regular intervals and re-opening benchmark issues to meet on-going financing needs. Standardized terms would improve the ability to quote and trade bonds, and would create a liquid curve for individual issuers.

While standardization may be a newer concept for the bond markets, standardization has been taking place in other areas of the capital markets for several decades, resulting both from natural market forces and, in some instances, due to regulation. For example, futures contracts have standardized maturities and are used widely for both hedging and obtaining exposure to express an investment view. In the credit market, credit default swaps (CDS) were standardized to have fixed coupons and maturities in April 2009. One of the main catalysts for standardizing the CDS market was regulatory pressure in the face of a rapidly growing market, in order for the market to address the operational inefficiencies and backlog in the processing and settlement of these contracts. In the interest rates markets, as a result of the move to central clearing that was mandated by Dodd-Frank, Market Agreed Coupon (MAC) contracts have been introduced. MAC contracts have standardized pre-set terms, such as set maturities, fixed coupons and payment dates, among others. New futures and swap contracts have been introduced in response to increased costs of trading swaps as a result of central clearing. The Eris swap futures contract is a cash settled futures contract aiming to replicate the economics of a standardized cleared swap. CME has introduced a deliverable swaps futures contract that attempts to replicate standardized cleared swap cash flows. In all cases standardization has led to increased transparency, concentration or aggregation of liquidity, and operational efficiency to execute and settle trades. Standardization has been an important ingredient for products that have successfully migrated to trading efficiently on electronic platforms.

As discussed below, BlackRock believes that standardized issuance in the corporate bond market has benefits for issuers and for both institutional and retail investors. We suggest eight guiding principles underlying corporate bond standardization, which are consistent with the aims of global regulatory initiatives post the financial crisis:

1. Enhance liquidity by issuance of standardized corporate bonds, accompanied by increased use of standardized index products (ETFs and others) and standardized hedging tools including cleared interest rate swaps and credit default swap indices.
2. Concentrate liquidity by reducing the vast number of unique securities.
3. Increase reliability of market access for issuers and dampen volatility through more regular and predictable issuances.
4. Lower financing and issuance costs for corporate borrowers, and decrease transaction costs for investors.
5. Increase price transparency which will enhance regulator monitoring of credit market conditions, facilitate greater retail investor participation and enable corporate bonds to act as the primary credit risk benchmark instead of CDS.
6. Enhance trading volumes through greater use of electronic venues and improved ability for dealers to make markets.
7. Increased operational efficiencies for a variety of market participants.
8. Increased capital formation especially in those environments where bank lending capacity is reduced.

Suggested elements of standardized corporate bonds

Corporate bond standardization would involve corporate issuance evolving to meet a defined list of criteria, with the goal of ultimately reducing the number of individual bond issues. This approach would create a liquid curve for large and frequent issuers. In parallel, the standardization of derivative markets would lower the overall cost of hedging for these issuers. We have attempted to define the characteristics of an ideal standardized corporate bond below.

- There should be an initial issuance amount of $750 million, sufficient to ensure adequate float in the securities over time (and in line with the average tranche size issued). While the inclusion criteria for various indices such as those maintained by Barclays and JP Morgan is currently $250 million and $300 million respectively, a significantly larger tranche size is necessary to ensure future secondary liquidity. Issuance patterns have already evolved such that 57% of the amount issued in 2013 consisted of transactions greater than $750 million in size. The average tranche size issued increased from $259 million in 2000 to $717 million in 2013.
- Bonds should be both SEC registered and underwritten to be eligible for the standardized subset of the market. These characteristics ensure that certain disclosure standards are adhered to, the securities are broadly accessible to both retail and institutional investors, and the underwriting due diligence process has been completed.
- Standardized coupon dates, to align with quarterly dates used for hedging products including interest rate swaps, credit default swaps, and futures contracts. This feature enables both issuers and investors to access standard hedging products and reduce risk management costs.
- A key feature of standardized corporate bonds would be listing on a regulator-approved platform. This feature is critical to ensuring that the securities can benefit from any evolution of market structure toward electronic trading. After the pricing of the new issue, initial trading on platforms with real time pre and post trade price dissemination would have a marked impact on improving price transparency.
- The flexibility to add additional issuance to a security over time, or “re-open” the bond, is an important tool for issuers to meet ongoing financing requirements while enhancing, rather than fragmenting, secondary market liquidity. Issuers with concerns about re-opening bonds subject to Original Issue Discount considerations could opt to issue new securities in these cases.

SUGGESTED ELEMENTS OF STANDARDIZED CORPORATE BONDS

	Description
Minimum tranche size	$750 million
Registration	SEC Registered
Coupon / Maturity dates	Semi-annual coupons, maturity on one of these four dates: 3/15, 6/15, 9/15, and 12/15
Call option for refinancing flexibility	3 month par call option prior to maturity date
Make-whole call option for early redemption	Set as 15% of initial credit spread, rounded to nearest multiple of 5 bps
Listing	Listed on exchange, ECN, or other regulator-approved platform
Issuance format	Underwritten
Credit ratings	Investment grade
Additional issuance	Eligible for re-openings / additional issuance
Post-trade reporting	TRACE

Impact of standardization on issuer capital structures

Standardization of corporate bond issuance offers borrowers several improvements compared to current market practice. Primary among these is the prospect of a more stable, less volatile issuance environment with improved transparency and lower new issue concessions. Importantly, there would be no sacrifice in flexibility regarding timing of issuance or issuance amount. Issuers could come to market at any point in time, with a short first coupon period to maintain alignment with standard coupon dates. As illustrated in the examples shown in Exhibit 5, issuers would continue to be able to maintain well-diversified debt structures and avoid "maturity walls" of elevated refinancing risk. Furthermore, the inclusion of a 90 day par call period prior to maturity further mitigates concerns about concentrated refinancing risk. Finally, issuers with unique financing needs would always retain the ability to conduct financing activity outside the standardized parameters.

Some benefits for corporate issuers include:

- A standardized market will be less prone to closings of issuance windows resulting from technically-driven volatility.
- The reduction of individual securities resulting from standardized issuance will serve to aggregate the secondary liquidity that is currently fragmented across many securities.
- More concentrated liquidity and the concurrent growth of electronic trading and "all to all" venues will serve to increase price transparency.
- While price transparency is primarily of benefit to investors, it is also advantageous to issuers by making credit spreads less vulnerable to volatility stemming from low-volume trading activity. Greater price transparency and secondary liquidity will reduce new issue concessions, as the price discovery process will be simplified.
- Issuer's credit spreads would be less prone to sharp, discontinuous swings resulting from low-volume trades in illiquid bonds or in credit default swaps; liquid, standardized bonds would provide a more reliable assessment of market's perception of credit risk.
- More liquid standardized bonds could be eligible to be used as high quality collateral, easing the shortage of collateral and providing a source of incremental demand, which would result in tighter credit spreads.
- Over time, usage of standardized corporate bonds would result in smoother, balanced debt maturity profiles for corporate issuers, as illustrated in the examples on the following page.

Behavior change from all stakeholders

Change requires first that market participants recognize the need for change in their behavior, acknowledging that the current market has irrevocably changed and second that all stakeholders adopt changes relevant to their roles. For investors, this behavioral change means a willingness to give up new issue gains and liquidity arbitrage strategies for lower transaction costs, access to deeper markets, and for institutional investors in particular, the ability to buy and sell in greater size. Investors must become price makers as well as price takers. Issuers must begin to assess the benefits of standardization (potentially lower issuance costs) against the cost (some compromises in flexibility) not only in today's benign environment but also when interest rates rise and volatility increases. Bankers should provide leadership in product innovation and structure debt offerings to improve liquidity, as the status quo is not sustainable. Larger, more frequent issuers, particularly wholesale-funded banks that are also the leading debt underwriters, are natural parties to lead the market evolution. Trading venues need to develop new ways to trade beyond the standard protocols. And regulators, given concerns about transparency and market liquidity need to consider the benefits of standardization and how best, within their mandate, to promote it.[5]

Conclusion

The low interest rate, low volatility environment, coupled with the impact of QE on the credit markets, masks the amount of change that has occurred in the corporate bond market as decreased liquidity and the shift from a principal market to an agency market takes hold. A less-friendly market environment will expose the underlying structure as broken, with the potential for even lower liquidity and sharp, discontinuous price deterioration. Lack of liquidity for corporate bonds harms issuers and investors alike, with attendant consequences for dealers and trading venues. A movement toward product standardization, accompanied by expanded e-trading venues and new trading protocols, along with changes in stakeholder behavior, is needed. These reforms would hasten the evolution from today's outdated market structure to a modernized, "fit for purpose" corporate bond market.

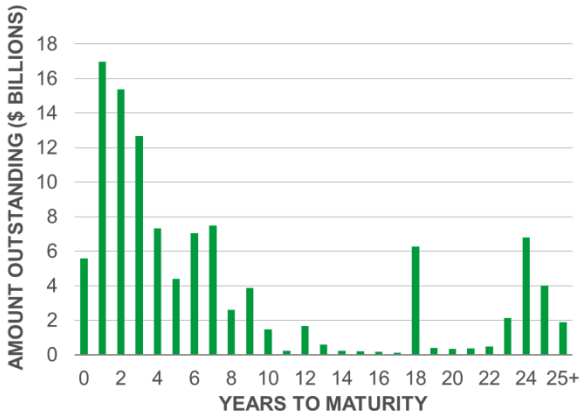
Exhibit 5: HYPOTHETICAL EXAMPLES OF THE POTENTIAL IMPACT OF BOND STANDARDIZATION ON ISSUER DEBT STRUCTURES

For illustrative purposes only, to demonstrate what a hypothetical corporate debt structure would potentially look like under the discussed standardization framework.

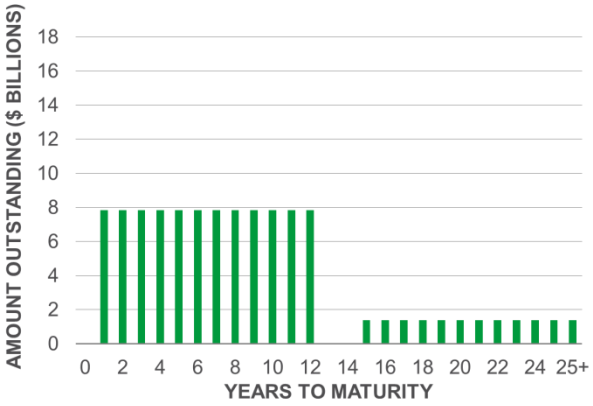
Example 1: FREQUENT ISSUER, FINANCIAL SERVICES

Illustrative example of a company with $100 billion of bonds outstanding. The $100 billion consists of 1,000 separate bonds, with a range of maturity dates spanning from the current year to 25+ years in future. The dollar-weighted average years to maturity of the 1,000 bonds is approximately 8 years.

Current debt structure:
- $100bn outstanding
- 1000 securities
- 8 year average life



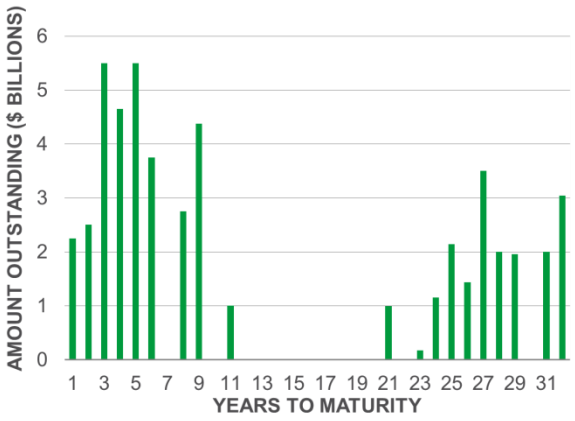
Debt structure under standardized format:
- $100bn outstanding
- 72 securities – largest $2bn, smallest $750mm
- 4 tranches / year for year 1-12, 2 tranches / year for longer maturities
- 8 year average life



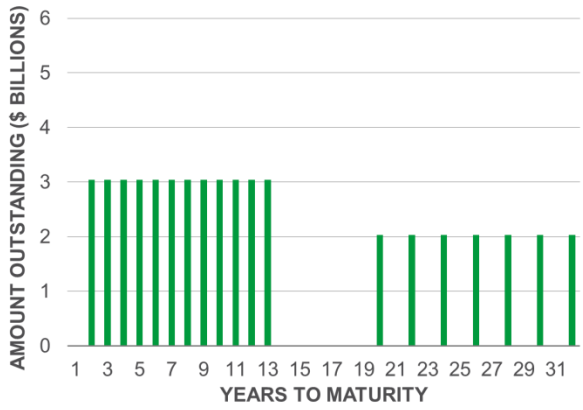
Example 2: FREQUENT ISSUER, INDUSTRIAL OR TELECOM SECTOR

Illustrative example of a company with $50 billion of bonds outstanding. The $50 billion consists of 100 separate bonds, with a range of maturity dates spanning from the current year to 30+ years in future. The dollar-weighted average years to maturity of the 100 bonds is approximately 12 years.

Current debt structure:
- $50bn outstanding
- 100 securities
- 12 year average life



Debt structure under standardized format:
- $50bn outstanding
- 40 securities – largest $1.5bn, smallest $1bn
- 2 tranches per year
- 12 year average life



Endnotes

1 "Intermediation in the Modern Securities Markets: Putting Technology and Competition to Work for Investors", SEC Chair Mary Jo White, June 20, 2014; available at: http://www.sec.gov/News/Speech/Detail/Speech/1370542122012

2 See *ViewPoint* entitled "US Equity Market Structure: An Investor Perspective" Available at http://www.blackrock.com/corporate/en-us/literature/whitepaper/viewpoint-us-equity-market-structure-april-2014.pdf

3 "Intermediation in the Modern Securities Markets: Putting Technology and Competition to Work for Investors", SEC Chair Mary Jo White, June 20, 2014; available at: http://www.sec.gov/News/Speech/Detail/Speech/1370542122012

4 See, Michel Barnier statement on MiFID II and corporate bond market transparency: http://europa.eu/rapid/press-release_MEMO-14-15_en.htm?locale=en. IOSCO at the global level is undertaking research on corporate bond market infrastructure: http://www.iosco.org/research/pdf/swp/SW4-Corporate-Bond-Markets-Vol-1-A-global-perspective.pdf

5 We note that IOSCO has begun to study this issues and has suggested that issuing firms may issue standardized issuances to facilitate electronic trading and/or continue to issue tailored bonds to meet specific financing needs: http://www.iosco.org/research/pdf/swp/SW4-Corporate-Bond-Markets-Vol-1-A-global-perspective.pdf

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