The Impact of Changing Market Liquidity
What is Liquidity?

Measure of an investor’s ability to transact in a security at a given point in time, without affecting its price

Opportunity:
Investors can capture additional compensation for bearing illiquidity

Risk Management:
Actively manage liquidity risks through disciplined portfolio management
Understanding the Liquidity Premium Present in Both Private and Public Credit Markets

**Private Markets**

Conventional Mortgages vs. “A” Rated Corporate Bonds

<table>
<thead>
<tr>
<th>Spread (%)</th>
<th>Duration (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.0-1.0</td>
<td>6-7</td>
</tr>
<tr>
<td>1.0-2.0</td>
<td>7-8</td>
</tr>
<tr>
<td>2.0-3.0</td>
<td>8-9</td>
</tr>
<tr>
<td>3.0-4.0</td>
<td>9-10</td>
</tr>
</tbody>
</table>

* Conventional Mortgage Spread*

**Public Markets**

On the run vs. off the run

10Yr Ontario Bonds

<table>
<thead>
<tr>
<th>Spread (%)</th>
<th>Duration (years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-20 bps</td>
<td>6-7</td>
</tr>
<tr>
<td>50-100 bps</td>
<td>8-9</td>
</tr>
</tbody>
</table>

* Infrequently traded “off the run”

** Frequently traded “on the run”

* PH&N Mortgage Pension Trust
** FTSE TMX Canada Short Term Corporate Bond Index
Source: FTSE TMX Global Debt Capital Markets Inc., BondLab
Factors Impacting Liquidity
Multiple Valuation Considerations

- Speed
- Spread
- Depth
- Breadth
- Price Efficiency

Evaluating market liquidity

Liquidity in Credit Markets Today
What Has Changed?

- Reduced Liquidity
- Reduced ability to trade
- Increased volume

- Dodd-Frank
- Basel III
- Central Banking Policy
- Corporate Issuance
- Volcker Rule
- Reach For Yield

= Reduced Liquidity
What Has Changed?
Reduction in Dealer Capacity

**U.S. Dealer Inventories**

- Increased balance sheet cost of holding inventory
- Decrease in dealer willingness to warehouse risk
- Bid/ask spreads on size wider and average trades smaller
- Dealers now acting more as trade facilitators rather than liquidity providers

Source: TRACE, MarketAxess, Citi Research; in USD
*Commercial Paper, High Grade Corporate Debt, High Yield Corporate Debt, RMBS & CMBS
What Has Changed?  
Significant Increase in Debt Outstanding

Investment Grade U.S. Debt Outstanding

Growth in outstanding debt…

- Low interest rate environment supportive of issuance
- Increased demand for yield

…with falling turnover

- Means investor concentration in fewer bonds on the rise
- Setting the stage for liquidity driven volatility

Source: TRACE, MarketAxess, Citi Research
Impact Evident Across Fixed Income Markets
Increased Volatility in Even Most Liquid Markets...

U.S. 10 Year Yield
(Jan 2003 to Jan 2016)

Source: Bloomberg, Citi Research
…But Corporate Bond Market Is Broad, Not Deep
Understanding Liquidity Risks Helps to Define Opportunities

26,000 publicly traded bonds outstanding

3,000 (11%) did not trade in 2014

5,000 (20%) traded on 5 or fewer days

277 (1%) traded daily

Source: Citi Research, TRACE, 2014
Considerations for Your Asset Manager
Maximizing Opportunities While Managing Risk

- **Maintain strong relationships with dealer network**
  - Participate actively in new issue market
  - Capture concessions and receive attractive allocations
  - Early mover and size advantage

- **Act as liquidity providers**
  - Provide liquidity to market when pricing is attractive
  - Use internal liquidity to cross trades and flows
  - Manager must be of adequate size, active and responsive

- **Disciplined portfolio management process**
  - Strong internal research to support dynamic portfolio management
  - Position scaling, sizing and trading critical
  - Analysis of trading costs to ensure relative value captured
Implications for Institutional Investors
What Does This Mean for You?

- **Refine liquidity needs**
  - Focus on factors impacting liquidity needs
    - i.e., asset mix rebalancing, funding tactical opportunities, long term uses of capital
  - Consider a core liquidity allocation with a return seeking, more illiquid sleeve

- **Focus on true impact of volatility**
  - Liability matching reduces sensitivity to unrealized volatility

- **Increase focus on investment structures with longer horizons**
  - Allow manager to focus on longer term opportunities
  - Long term investors best placed to benefit from return premiums

- **Consider private market investments**
  - Reduce mark to market volatility and potentially enhance yields
  - Capture liquidity premium more effectively
Private Debt Strategies
Institutional Investors Increasing Allocations

87% of investors expected to commit same or more capital to private debt in 2015

- More effectively capture premium for bearing illiquidity
- Less frequent marking to market, results in lower portfolio volatility
- Higher yields and lower volatility enhance portfolio efficiency

Risk and Return Spectrum
Sample Continuum of Private Debt Strategies

Note: This chart is intended for illustrative purposes only, and does not represent an opportunity to invest, actual risk and return can look materially different.
### Targeting Liquidity Premiums in Private Markets

#### Some Private Debt Market Examples

<table>
<thead>
<tr>
<th>Asset Class</th>
<th>What Is It?</th>
<th>Estimating the Liquidity Premium&lt;sup&gt;1&lt;/sup&gt;</th>
</tr>
</thead>
</table>
| **Conventional Mortgages** | Senior Mortgages on Core Canadian Real Estate                                | Liquidity Premium: 50 - 100 bps   
Current Yield Range: 240 - 290 bps |
| **High Yield Mortgages**     | Senior & Subordinate Mortgages on Core, Opportunistic and Value-Added Canadian Real Estate | Liquidity Premium: 75 – 150 bps   
Estimated Yield Range: 550 - 750 bps |
| **Direct Lending**             | Senior and Subordinated Loans, Small-to-Mid Sized Corporations               | Liquidity Premium: 100-250 bps   
Estimated Yield Range: 600 – 1200 bps |

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Source: Phillips, Hager & North IM, FTSE TMX Global Debt Capital Markets Inc., BondLab
Private Market Considerations
Non-Traditional Asset Classes

- Portfolio Management Considerations
- Manager Due Diligence
- Governance

What is Your Objective?
Ability to Bear Illiquidity?
Modelling Challenges
Risk Management and Infrastructure
Investment Strategy and Process
Fund Structure and Fees
Policy Considerations
Trustee/Committee Education
Reporting and Performance Analysis

Portfolio Management Considerations
Manager Due Diligence
Governance
Final Thoughts on Liquidity

- **Liquidity changes through time**
  - Premium varies and is not always paid over the short term
  - Significant changes post-crisis in both supply and demand
  - Recent changes are structural in nature

- **Capturing public market liquidity premium**
  - Have flexibility in structure and time horizon
  - Provide liquidity when pricing is attractive
  - Disciplined portfolio management approach

- **Private market investments**
  - Reduced mark-to-market volatility
  - Enhance portfolio efficiency
  - Capture liquidity premiums more effectively
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