Market Impact of TLAC Requirements

FIG DCM Bank Capital Solutions

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RWA vs. SLR Driven TLAC Requirements

Fed's SLR driven TLAC requirement is more stringent than FSB TLAC framework

- The Fed’s RWA driven minimum TLAC requirements appear to be well aligned with FSB requirements
- The Fed’s leverage ratio driven minimum TLAC (9.5%) materially exceeds FSB requirements (6.75%)
- The Fed’s implied minimum TLAC debt (i.e. 47%) requirement is also more binding than FSB’s 33% TLAC debt requirement

Key

1. GSIB surcharge applied to minimum LTD requirement and the capital conservation buffer is based on estimates disclosed with the GSIB capital surcharge final rule in July 2015.
U.S. G-SIBs Appear to be Well Positioned

Proposed rule is fairly benign relative to market expectations

We estimate that the US G-SIBs will need $164bn of additional TLAC, $62bn of which is capital shortfall and $102bn of which is due to LTD shortfall

Some of the LTD shortfall can be met by refinancing bank level debt with Holdco leading to ~40bn incremental supply

<table>
<thead>
<tr>
<th>Avg. Annual Sr. Issuance</th>
<th>JPM</th>
<th>BAC</th>
<th>C</th>
<th>WFC</th>
<th>GS</th>
<th>MS</th>
<th>BK</th>
<th>STT</th>
</tr>
</thead>
<tbody>
<tr>
<td>$21.5</td>
<td>$29.0</td>
<td>$20.4</td>
<td>$18.5</td>
<td>$24.2</td>
<td>$19.5</td>
<td>$4.7</td>
<td>$3.3</td>
<td></td>
</tr>
</tbody>
</table>

2022 LTD Need as Multiple
1.3x 0.9x n/a 2.4x n/a n/a n/a 1.2x

Sr. Bank Debt Out
$52.4 $11.5 $4.8 $18.3 n/a n/a n/a n/a

% of 2022 LTD Need
52% 226% n/a 245% n/a n/a n/a n/a

Source: Bloomberg, SNL, Company Filings as of 6/30/15; debt outstanding as of 10/2/15.
1. We estimate that 10% TLAC / Leverage Exposure is binding for JPM relative to 16% RWA and for BNY & STT relative to 16 & 18% RWA
Canadian D-SIBs have excess wholesale funding and regularly access the unsecured funding market globally. Given their regular access to the capital markets and upcoming maturity profile, the Canadian banks would be able to meet TLAC needs through refinancing. However, the grandfathering of the outstanding senior unsecured has made the situation more complicated.

### Capital Structure & TLAC Need at 16 / 18% RWAs (6.00 / 6.75% SLR)

The following table shows the capital structure and TLAC need at 16% and 18% RWAs for various Canadian D-SIBs.

<table>
<thead>
<tr>
<th>Bank</th>
<th>Avg. Annual Sr. Issuance</th>
<th>18% TLAC Need as Multiple</th>
</tr>
</thead>
<tbody>
<tr>
<td>RBC</td>
<td>$18.3</td>
<td>1.1x</td>
</tr>
<tr>
<td>BNS</td>
<td>$10.8</td>
<td>2.6x</td>
</tr>
<tr>
<td>TD</td>
<td>$8.7</td>
<td>3.2x</td>
</tr>
<tr>
<td>BMO</td>
<td>$6.0</td>
<td>3.2x</td>
</tr>
<tr>
<td>CIBC</td>
<td>$24.5</td>
<td>0.4x</td>
</tr>
<tr>
<td>CCDJ</td>
<td>$3.9</td>
<td>1.0x</td>
</tr>
<tr>
<td>NBC</td>
<td>$2.0</td>
<td>2.0x</td>
</tr>
</tbody>
</table>

### Notes:
- **Source:** Bloomberg, SNL, Company Filings as of 7/31/15; debt outstanding as of 10/23/15.
- 1. We do not anticipate a 6.75% leverage requirement to be binding for any Canadian bank.
Meaningful Uncertainty Remains in Europe

For the European banks included in our analysis below, we estimate a total TLAC need at 18% of RWAS to be about €344.5bn.

The criteria by which debt will qualify for TLAC in Europe will vary from jurisdiction to jurisdiction.

For example, Deutsche Bank appears to have ample senior unsecured and is in a regime that already has a clear solution.

CS & UBS, on the other hand, will need to issue HoldCo debt to meet the newly announced 10% leverage requirement for Swiss TLAC.

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**Capital Structure & TLAC Need at 16 / 18% RWAs (6.00 / 6.75% SLR)**

Source: Bloomberg, SNL, Company Filings as of 6/30/15; debt outstanding as of 10/23/15.

1. We estimate that the 6.75% leverage requirement is binding vs. 18% for BARC, and the 10% requirement is binding vs. both 16 and 18% for CS and UBS.
2. Hatch pattern represents senior debt of banks / in jurisdictions where the treatment is uncertain.
Spread Moves in U.S. Bank Senior

We observed a modest 5 to 15 bps of relative widen in US Senior Holdco Spreads

**US$ domestic market (Spread to Treasury)**

- **Pre-TLAC** Jan – Aug 2014
  - JPM/ PNC Spread= 0 -10bps

- **FSB to Fed Proposal** Sep 14 – Sep 15
  - JPM/ PNC Spread= 15-25bps

- **Post Fed -NPR** Oct-Dec 15
  - JPM/ PNC Spread= 5-15bps

- **12/8/2015**
  - JPM/PNC = 5bps

**Euro market (Spread to € Swap)**

- **Pre-TLAC** Jan – Aug 2014
  - JPM/ PNC Spread= 10bps

- **FSB Proposal** Nov 10, 2014
  - JPM / PNC = 10bps

- **Fed NPR**
  - Oct 30
  - JPM/PNC = 15bps

- **Post Fed - NPR**
  - Oct-Dec 15
  - JPM/PNC = 5-15bps

- **12/8/2015**
  - JPM/PNC = 5bps

**FSB Proposal** Nov 10, 2014
- **GS /JPM** Spread= 35-45bps

**Post Fed - NPR**
- Oct-Dec 15
- **GS/JPM**
- ~30bps

Source: Bloomberg
Confirmation of Bail-in risk has seen German senior spreads widen by 28 to 34 bps on a relative basis.

**Spreads moves in German bank Senior**

US$ domestic market (Spread to Treasury)

- 10-Mar: German Draft Law
  - DB / Rabobank Spread = 7 bps

Current
- DB / Rabobank Spread = 35 bps

Euro market (Spread to € Swap)

- 10-Mar: German Draft Law
  - DB / Rabobank Spread = -11 bps

Current
- DB / Rabobank Spread = 23 bps

Source: Bloomberg
Impact of NPR on Issuance Volume

November and December GSIB Senior Holdco issuance has been impacted by the Fed's NPR

The Fed's NPR provided the market with clarity on the total amount of required TLAC and LTD

However, the qualification criteria (no cross-defaults, must be governed by U.S. law, etc.) have left issuers with meaningful questions on whether currently outstanding and interim-issued debt will qualify or be grandfathered

This has resulted in less supply from GSIBs since the NPR

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