Bank Capital Update

Presented to
UNC Banking Institute

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Historical Background

• Basel I risk-based capital framework
  – Issued by Basel Committee in 1988 and adopted in the United States in 1989
  – Capital requirements account for credit risk for first time
  – Modified in 2002 to add recourse rules and ratings-based approach for ABS

• Market risk rule
  – Issued by Basel Committee and adopted in the United States in 1996
  – Add-on to the Basel I (and later Basel II) risk-based capital requirements to cover “trading book” exposures
  – Applies to US banks/BHCs with trading activity that exceeds 10% of total assets or $1 billion
Historical Background (cont.)

- **Basel II**
  - Issued internationally by Basel Committee in 2004
  - Not adopted in the United States until late 2007, and then only the Advanced Approaches for largest US “core banks”
    - $250 billion in total assets or $10 billion in foreign exposure
    - Long qualification period; no US bank currently actually operating under Basel II
  - US regulators proposed Basel I modifications (December 2006) and Basel II Standardized Approach for non-core banks (July 2008), but neither proposal was implemented
  - Progress on US Basel II implementation slows due to financial crisis

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Basel III (proposed rule)

- May 2012: Basel Committee proposes revised market risk framework based on “fundamental review” of trading book capital requirements
  - More “objective” boundary between banking and trading book to prevent arbitrage
  - More restrictive approval processes and constraints for internal models, including a mandatory “fall-back” standardized approach for banks using models
  - US regulators have signaled intent to follow suit
- June 2012 (published August 30, 2012): US regulators (1) adopt final rule implementing Basel 2.5 revisions and Dodd-Frank 939A compliance to the Market Risk Rule, and (2) issue 3 separate proposals:
  - NPR 1 – Basel III Minimum Capital Requirements, Definition of Capital and Capital Buffers (“Basel III NPR”)
  - NPR 2 – Standardized Approach for Risk-Weighted Assets (“Standardized Approach NPR”)
  - NPR 3 – Advanced Approaches and Market Risk (“Advanced Approaches NPR”)
- July 2012: BCBS amendments to Basel II/III for exposures to central counterparties
- October 2012: BCBS D-SIB final framework with lots of national discretion
- December 2012: BCBS Consultative Document: Revisions to the Securitisation Framework
Basel III Proposal

• Components of Capital:
  – Tier 1 Capital -- common equity Tier 1 capital and additional Tier 1 capital
  – Total Tier 1 capital, plus Tier 2 capital, would constitute total risk-based capital.

• Proposed criteria for common equity and additional tier 1 capital instruments, and Tier 2 capital instruments, are broadly consistent with the Basel III criteria.

Basel III Proposal

• Common Equity Tier 1 Capital elements:
  – Common stock and related surplus net of treasury stock satisfying 13 criteria
  – Retained earnings
  – Accumulated other comprehensive income (“AOCI”)
  – Qualifying common equity Tier 1 minority interest

• Common equity Tier 1 criteria are generally designed to assure that the capital is perpetual and is unconditionally available to absorb first losses on a going-concern basis, especially in times of financial stress.
Basel III Proposal

• Additional Tier 1 Capital elements:
  – Qualifying capital instruments (and related surplus) that satisfy 13 separate criteria (14 for advanced approaches banking organizations)
  – Tier 1 minority interests that are not included in a banking organization’s common equity Tier 1 capital
  – Qualifying TARP and Small Business Jobs Act preferred securities that previously were included in Tier 1 capital

• The 13/14 criteria generally are designed to assure that the capital instrument can absorb going-concern losses and does not possess credit sensitive or other terms that would impair its availability in times of financial stress.

Basel III Proposal

• Tier 2 Capital elements:
  – Qualifying instruments that satisfy 10 separate criteria (11 for advanced approaches banking organizations)
  – Qualifying total capital minority interest not included in Tier 1 capital
  – Allowance for loan and lease losses (“ALLL”) up to 1.25% of standardized total risk-weighted assets excluding ALLL (advanced approaches bank may include excess of eligible credit reserves over total expected credit losses not to exceed 0.6 percent of its total credit RWA.)
  – Qualifying TARP and Small Business Jobs Act preferred securities that previously were included in Tier 2 capital

• Tier 2 capital elements are designed to assure adequate subordination and stability of availability.
Basel III Proposal

• Significant Exclusions from Tier 1 Capital
  – Non-cumulative perpetual preferred stock, which presently qualifies as simple Tier 1 capital, would not qualify as common equity Tier 1 capital, but would qualify as additional Tier 1 capital.
  – Cumulative preferred stock would no longer qualify as Tier 1 capital of any kind.
  – Certain hybrid capital instruments, including trust preferred securities, no longer will qualify as Tier 1 capital of any kind.

• Some of these results are mandated more by the Dodd-Frank Act (section 171, or the “Collins Amendment”) than by Basel III itself.

Basel III Proposal

• Regulatory Capital Adjustments – Common Equity Tier 1:
  – Accumulated net gains/losses on specified cash flow hedges included in AOCI
  – Unrealized gains and losses on AFS securities
    • Unrealized gains on AFS securities includable in Tier 2 would be eliminated.
  – Unrealized gains and losses resulting from changes in banking organization creditworthiness
Basel III Proposal

• Deductions from Tier 1 common equity capital:
  – Goodwill, net of associated deferred tax liabilities (“DTLs”)
  – Intangible assets other than mortgage servicing assets (“MSAs”), net of associated DTLs
  – Deferred tax assets
  – Securitization gain-on-sale
  – Defined benefit plan assets (excluding those of depository institutions (“DIs”))
  – Advanced approaches banks: expected credit losses exceeding eligible credit reserves
  – Savings association impermissible activities
  – Items subject to 10%/15% common equity Tier 1 capital thresholds (certain DTAs, MSAs, significant unconsolidated FI common stock investments)

Basel III Proposal

• Deductions from Tier1/Tier2 capital:
  – Direct and indirect investments in own capital instruments
  – Reciprocal cross-holdings in financial institution capital instruments
  – Direct, indirect and synthetic investments in unconsolidated financial institutions. Three basic types:
    • Significant Tier 1 common stock investments
    • Significant non-common-stock Tier 1 investments
    • Non-significant investments (aggregate 10% ceiling)
  – The “corresponding deduction” approach
  – Volcker Rule covered fund investments (from Tier 1)(when Volcker Rule regulatory capital requirements are final)
  – Insurance underwriting subsidiaries
Basel III Proposal

• Minority Interests:
  – Limits on type and amount of qualifying minority interests that can be included in Tier 1 capital.
  – Minority interests would be classified as a common equity Tier 1, additional Tier 1, or total capital minority interest depending on the underlying capital instrument and on the type of subsidiary issuing such instrument.
  – Qualifying common equity Tier 1 minority interests are limited to a DI or foreign bank that is a consolidated subsidiary of a banking organization.
  – Limits on the amount of includable minority interest would be based on a computation generally based on the amount and distribution of capital of the consolidated subsidiary.

Basel III Proposal

• Minimum Capital Requirements (fully phased-in):
  – Common equity Tier 1 capital ratio to standardized total risk-weighted assets (“TRWA”) of 4.5 percent
  – Tier 1 capital ratio to standardized TRWA of 6 percent
  – Total capital ratio to standardized TRWA of 8 percent
  – Tier 1 leverage ratio to average consolidated assets of 4 percent
  – Advanced approach banking organizations must use lower of standardized TRWA or advanced approaches TRWA
  – For advanced approaches banking organizations, a supplemental leverage ratio of Tier 1 capital to total leverage exposure of 3 percent.
  • Common equity Tier 1 capital ratio is a new minimum requirement.
Basel III Proposal

• Leverage Requirement:
  – Measured as a ratio of Tier 1 capital (minus required deductions) to average on-balance sheet assets for all U.S. banking organizations

• Supplementary Leverage Requirement:
  – Applies only to advanced approaches banking organizations
  – Ratio of Tier 1 capital (minus required deductions) to average on-balance sheet assets, plus certain off-balance sheet assets and exposures:
    • Future exposure amounts arising under certain derivatives contracts
    • 10% of notional amount of unconditionally cancelable commitments
    • Notional amount of most other off-balance sheet exposures (excluding securities lending and borrowing, reverse repurchase agreement transactions, and unconditionally cancelable commitments).

Basel III Proposal

• Capital Conservation Buffer:
  – A new phased-in capital conservation buffer for all banking organizations equal to a ratio to TRWA of 2.5% common equity Tier 1 capital
  – Unrestricted payouts of capital distributions and discretionary bonus payments to executives and their functional equivalents would require full satisfaction of capital conservation buffer requirement.
  – Maximum amount of restricted payouts would be the banking organization’s eligible retained income times a specified payout ratio. These ratios would be established as a function of the amount of the banking organization’s capital conservation buffer capital.
Basel III Proposal

• Countercyclical Capital Buffer:
  – A macro-economic countercyclical capital buffer of up to 2.5% of common equity Tier 1 capital to TRWA applicable only to advanced approaches banking organizations.
  – Countercyclical capital buffer, applied upon a joint determination by federal banking agencies, would augment the capital conservation buffer.
  – Unrestricted payouts of capital and discretionary bonuses would require full satisfaction of countercyclical capital buffer as well as capital conservation buffer.

Basel III Proposal

• Supervisory Assessment of Capital Adequacy
  – Banking organizations must maintain capital “commensurate with the level and nature of all risks” to which the banking organization is exposed
  • General authority for regulatory approval, on a joint consultation basis, of other Tier 1 or Tier 2 instruments on a temporary or permanent basis
  • The regulators also can invalidate/modify capital instruments and risk-weighting charges on a case-by-case basis.
Basel III Proposal

• Changes to Prompt Corrective Action (“PCA”) Rules:
  – PCA regulations changed to assure consistency with the new regulatory capital requirements.
  – PCA capital categories would include a separate requirement for minimum common equity Tier 1 capital for top 4 PCA categories (6.5%/4.5%/<4.5%/<3%).
  – “Well-capitalized” DIs would have to have at least 8% Tier 1 capital (up from current 6%), and “adequately capitalized” DIs 6% Tier 1 capital (up from current 4%).
  – “Adequately capitalized” PCA category for advanced approaches banks would include a minimum 3% supplementary leverage ratio requirement.
  – Revisions to the definition of “tangible equity” for critically undercapitalized DIs, and HOLA/savings institutions.

• Effective Dates/Transitional Periods:
  – Minimum Tier 1 capital ratios -- 2013-2015
  – Minimum total capital: no change and therefore no phase-in
  – Regulatory capital adjustments and deductions -- 2013 -2018; goodwill deduction is fully effective in 2013
  – Non-qualifying capital instruments
    • BHCs of $15 BB+ in assets -- 2013-2016
    • BHCs under $15BB and all DIs -- 2013-2022
  – Capital conservation and countercyclical capital buffers, and related payout ratios -- 2016-2019
  – Supplemental leverage ratio for advanced approaches banks -- 2018; calculation and reporting required in 2015
  – PCA changes -- 2015 (2018 for supplemental leverage ratio)
### Basel III Phase-In Schedule Cheat Sheet

<table>
<thead>
<tr>
<th>As of Year-End</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
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<td>Minimum Common Equity Capital Ratio</td>
<td>3.50%</td>
<td>4.00%</td>
<td>4.50%</td>
<td>4.50%</td>
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<td>Capital Conservation Buffer</td>
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<td></td>
<td></td>
<td>6.625%</td>
<td>7.25%</td>
<td>7.875%</td>
<td>8.50%</td>
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<tr>
<td>Minimum Common Equity plus Capital Conservation Buffer</td>
<td>3.50%</td>
<td>4.00%</td>
<td>4.50%</td>
<td>4.50%</td>
<td>5.125%</td>
<td>5.750%</td>
<td>6.375%</td>
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<tr>
<td>GSIB Buffer (industry range is 100-250bps; assume WFC will be in middle)</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.25%</td>
</tr>
<tr>
<td>Minimum Common Equity plus CCB and GSIB Buffer</td>
<td>3.50%</td>
<td>4.00%</td>
<td>4.50%</td>
<td>4.50%</td>
<td>5.375%</td>
<td>6.250%</td>
<td>7.125%</td>
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<td>5.50%</td>
<td>6.00%</td>
<td>6.00%</td>
<td>6.00%</td>
<td>6.00%</td>
<td>6.00%</td>
</tr>
<tr>
<td>Minimum Tier 1 Capital plus Conservation Buffer</td>
<td>4.50%</td>
<td>5.50%</td>
<td>6.00%</td>
<td>6.00%</td>
<td>6.00%</td>
<td>7.250%</td>
<td>7.875%</td>
</tr>
<tr>
<td>Minimum Tier 1 Capital plus CCB and GSIB Buffer</td>
<td>4.50%</td>
<td>5.50%</td>
<td>6.00%</td>
<td>6.875%</td>
<td>7.750%</td>
<td>8.625%</td>
<td>9.50%</td>
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<tr>
<td>Minimum Total Capital</td>
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<td>8.00%</td>
<td>8.00%</td>
<td>8.00%</td>
<td>8.00%</td>
<td>8.00%</td>
<td>8.00%</td>
</tr>
<tr>
<td>Minimum Total Capital plus Conservation Buffer</td>
<td>8.00%</td>
<td>8.00%</td>
<td>8.00%</td>
<td>8.00%</td>
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<td>9.750%</td>
<td>10.625%</td>
<td>11.50%</td>
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<tr>
<td>Countercyclical Capital Buffer</td>
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<td>1.250%</td>
<td>2.50%</td>
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<tr>
<td>Minimum Total Capital plus CCB, GSIB and Countercyclical Buffer</td>
<td>8.00%</td>
<td>8.00%</td>
<td>8.00%</td>
<td>8.875%</td>
<td>10.375%</td>
<td>11.875%</td>
<td>14.00%</td>
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</tbody>
</table>

### Comparing Capital Ratio Denominators Under Current Rules (Modified Basel I), Standardized NPR and Advanced Approaches NPR
Modified Basel I Denominator Components

- **Asset risk weights**
  - OECD sovereigns: 0%
    - Others: 100%
  - OECD banks: 20%
    - Others: 20% short-term; 100% long-term
  - Residential mortgages: 50%
    - 100% if not prudently underwritten
  - Asset-Backed Securities (optional): Ratings Dependent
    - Everything else: 100%

- **Sample capital calculation**
  - $100 million corporate exposure
  - 100% risk weight = $100 million risk weighted assets (RWA)
  - Capital charge = \( \frac{\text{Required Capital}}{\text{RWA}} \) = 8%
  - Capital charge: $8 million

Modified Basel I Denominator Components

- **Off-balance sheet exposures**
  - **Credit conversion factors**
    - Unfunded commitments under one year: [0% changed to 10% for US banks]
    - Unfunded commitments over one year: 50%
    - Guarantees: 100%
    - Assets sold with recourse: gross up

  - **Sample capital calculation**
    - $1 billion long-term corporate loan commitment
    - 50% Credit Conversion Factor (CCF) x 100% (risk weight)
    - $1 billion x 50% x 100% = $500 million
    - Required Capital = \( \frac{\text{Capital charge}}{\text{RWA}} \) = 8%
    - Capital charge = $40 million
Standardized NPR Denominator

• Standardized total risk-weighted assets
  – Sum of
    1. Total risk-weighted assets for general credit risk
    2. Total risk-weighted assets for cleared transactions and default fund contributions (new)
    3. Total risk-weighted assets for unsettled transactions (new)
    4. Total risk-weighted assets for securitization exposures
    5. Total risk-weighted assets for equity exposures
    6. If applicable, standardized market risk-weighted assets
       Note: No operational risk add-on
  – Minus
    • Allowance for loan and lease losses not included in tier 2 capital

Advanced Approaches NPR Denominator

• Advanced approaches total risk-weighted assets
  – Sum of
    1. Credit risk-weighted assets */
    2. Credit Valuation Adjustment risk-weighted assets
    3. Risk-weighted assets for operational risk
    4. If applicable, advanced market risk-weighted assets (i.e., advanced market risk measure x 12.5)
  – Minus
    • Excess eligible credit reserves not included in tier 2 capital

*/ Credit – risk-weighted assets
1.06 x (total wholesale and retail risk-weighted assets plus risk-weighted assets for securitization exposures plus risk-weighted assets for equity exposure)
Residential Mortgages

- Existing Basel I treatment
  - 50% RW if first, prudently underwritten, owner-occupied, not 90 days past due; otherwise 100%
- BCBS Basel II Standardized: generally 35% if meet certain criteria
- US Standardized NPR

<table>
<thead>
<tr>
<th>LTV</th>
<th>Category 1</th>
<th>Category 2</th>
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<tr>
<td>≤ 60%</td>
<td>35%</td>
<td>100%</td>
</tr>
<tr>
<td>&gt; 60% &amp; ≤ 80%</td>
<td>50%</td>
<td>100%</td>
</tr>
<tr>
<td>&gt; 80% &amp; ≤ 90%</td>
<td>75%</td>
<td>150%</td>
</tr>
<tr>
<td>&gt; 90%</td>
<td>100%</td>
<td>200%</td>
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</tbody>
</table>

- 50% or less (35%) only for traditional firsts meeting very conservative underwriting AND LTVs of 80% or less (w/o PMI)
  - 75-200% for others

Advanced Approaches NPR

- Method to compute RW for wholesale exposures and retail exposures
  - Substantially same as Basel II US final rules
  - Bank must have approved internal risk-rating system to assess rating grades for each wholesale obligor and retail segment
  - RWs a function of:
    - PD (probability of default, based on at least 5 yrs data) (subject to .03 floor unless gov’t guaranteed)
    - LGD (loss given default, based on at least 7 yrs severity data) (10% floor for unguaranteed resi-mortgage segments)
    - EAD (exposure at default, based on at least 7 or 5 yrs data for wholesale or retail, respectively)
    - M (for wholesale only, maturity) (must be between one and 5 years unless not part of bank’s ongoing financing of obligor)
    - If defaulted, EAD multiplied by .08 then multiply total defaulted by 12.5 (or effectively, 1250%)
Comparison of Methods to Calculate Securitization Exposure RWs

Ratings Based Approach (Modified Basel I - No Longer Applicable)

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<th></th>
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<tbody>
<tr>
<td></td>
<td>Granular Pool</td>
<td>Non-Granular Pool</td>
</tr>
<tr>
<td></td>
<td>Senior Exposure</td>
<td>Non-Senior Exposure</td>
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<tr>
<td>AAA</td>
<td>20%</td>
<td>7%</td>
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<tr>
<td>AA</td>
<td>8%</td>
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<td>BBB+</td>
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<td>35%</td>
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<td>BBB</td>
<td>60%</td>
<td>75%</td>
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<tr>
<td>BB+</td>
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<td>250%</td>
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<td>BB</td>
<td>425%</td>
<td>650%</td>
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<tr>
<td>B, below or unrated</td>
<td>RBA Not Available</td>
<td>Deduct from tier 1 and tier 2 capital</td>
</tr>
</tbody>
</table>

Short-Term Ratings

| A-1                | 20%                          | 7%                                         | 12%                         | 20%                      |
| A-2                | 50%                          | 12%                                        | 20%                         | 35%                      |
| A-3                | 100%                         | 60%                                        | 75%                         | 75%                      |

* For investing banks, one rating is sufficient. If there are multiple ratings on a particular position, the lowest solicited rating governs.
**US Version of SSFA – Standardized and Advanced Approaches NPRs**

- **General Guidelines**
  - Data used must be most currently available and no more than 91 days old
  - If data not available must use 1250% RW
  - RW is higher of (x) RW obtained per SSFA equation and (y) 20%

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**US Version of SSFA Parameters**

\[ K_0 = \text{weighted average capital for underlying exposures (between zero and 1)} \]
\[ W = \text{ratio of delinquent underlying exposures to ending balance of underlying exposures (new, replacing proposed “flexible floor” tied to losses)} \]
\[ A = \text{attachment point (when losses first are allocated to tranche) (includes subordinated tranches and funded reserves)} \]
\[ D = \text{detachment point (when total loss occurs – i.e., tranche thickness)} \]
\[ p = \text{supervisory calibration parameter} = .5 \text{ for securitization and 1.5 for resecuritization} \]
\[ K_A = (1 - W) \cdot K_0 + (.5 \cdot W) \text{ (New)} \]
  - If \( D \leq K_A \), then RW = 1250%
  - If \( A \geq K_A \) use SSFA equation
  - If \( A < K_A \) but \( D > K_A \) then RW = weighted average of 1250% and RW per SSFA equation
### US Version of SSFA Equation

$$K_{SSFA} = \frac{e^{\alpha + \beta \delta}}{\alpha (u - l)}$$

where,

- $\alpha = -\frac{1}{p} \cdot K_u$
- $u = D - K_i$
- $l = A - K_i$
- $e = 2.71828$ (the base of the natural logarithms)

$$RW \ for \ exposure = K_{SSFA} \times 1250\%$$

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### Gross-Up Approach
(Standardized Approach NPR only)

- Calculate RW of underlying assets allocable to exposure
  plus all senior positions
US Version of SFA – Advanced Approaches NPR Only

- The SFA capital requirement for a securitization exposure is UE (underlying exposure) multiplied by TP multiplied by the greater of (i) 0.016* T; or (ii) S[L+T] – S[L], where:

\[ \text{KIRB} = \frac{\text{Ratio of RBC for underlying exposure plus expected credit losses to UE}}{\text{L} = \text{Credit enhancement level (ratio of (x) subordinated tranches to tranche that contains bank’s exposure to (y) UE). May include funded reserve accounts and any first loss discount}} \]

\[ \text{T} = \text{Thickness (ratio of tranche containing bank’s exposure to UE}} \]

\[ \text{N} = \text{Effective number of exposures per formula} \]

\[ \text{EWALGD} = \text{Exposure – weighted average loss given default per formula; assumes 100% LGD for each securitization exposure in a resecuritization exposure} \]

- If \( \text{KIRB} \geq \text{L+T} \) the RW is 1250%
New Due Diligence Requirements
(Same for Standardized and Advanced Approaches)

- Failure to comply results in 1250% RW
- Bank must demonstrate “comprehensive understanding of [each] securitization exposure by conducting analysis of risk characteristics prior to acquiring and documenting same within 3 business days after acquisition:
  - Material structural features, such as waterfall, triggers, credit enhancements, liquidity enhancements, market value triggers, servicer performance, and default definitions
  - Underlying exposure performance such as % of 30, 60 and 90 day past dues; default rates; prepayment rates; average-credit scores; average-LTVs; and diversification data
  - Market data such as bid-ask spread, price history, trading volume, implied market rating, and depth of market
  - If a resecuritization, performance information for underlying exposures
- Bank must review and update analysis at least quarterly

Proposed revisions to Basel securitisation framework
– introduction

- Following review of Basel securitisation framework, in Dec 2012, Basel Committee on Banking Supervision (BCBS) issued Consultative Document: Revisions to the Securitisation Framework (BCBS 236)
- Comments due 15 March 2013
- Follows implementation of Basel II in many countries and post-financial crisis amendments, known as Basel II.5, to the securitisation framework
- During implementation of Basel III changes to bank capital framework.
- Follows US bank regulatory proposals to implement Basel II and II.5 as well as Basel III
Hierarchies of approaches for calculating securitisation risk weights – two alternatives

**Alternative A**

1. Modified Supervisory Formula Approach (MSFA)
   - Jurisdiction’s choice:

2. Revised Ratings Based Approach (RRBA) (or Internal Assessment Approach (IAA) if applicable)
   - Simplified Supervisory Formula Approach (SSFA)

3. Backstop Concentration Ratio Approach (BCRA)

4. 1250% RW

**Alternative B**

- Senior high-quality (SHQ) tranches
- Non-SHQ tranches

- Bank’s decision:

1. RRBA / IAA
2. MSFA / SSFA
3. Concentration Ratio $K_{RRB}$ ($C_{KRRB}$)

4. 1250% RW

Revised RBA illustrative RWs

**Illustrative Revised RBA risk weights under hierarchy A (%)**

(Source: BCBS 236 Table 2; +/- rating levels omitted)

<table>
<thead>
<tr>
<th>Rating</th>
<th>Senior tranche</th>
<th>Non-senior tranche</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Maturity (years)</td>
<td>Thin</td>
</tr>
<tr>
<td></td>
<td>Maturity (years)</td>
<td>1y</td>
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<tr>
<td>AAA</td>
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<tr>
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<td>5y</td>
<td>1250</td>
</tr>
</tbody>
</table>
Market Risk Amendment (Basel 2.5) – Effective January 2013

Definition of Covered Position
- Based on intent and ability to trade, position liquidity and ability to hedge position in a two-way market

General VaR and Stressed VaR
- 10-day VaR measured at 99% confidence level
- 10-day Stressed VaR measured over a 12-month period
- Requires backtesting using clean P&L with 1 year transition provision

Incremental risk charge
- Applicable to unsecuritized credit products in the trading book
- Coverage for default and migration risks at 99.9% one-year horizon

Comprehensive risk measure
- Applicable to the correlation trading portfolio
- Coverage for all material price risks, including default, credit spread and migration risks
- Reduces surcharge from 15% to 8% and transitions to 8% floor after 1 year with regulatory approval

Standardized Specific Risk Measure
- OECD country risk classification approach for exposures to sovereigns, banks and public sector enteritis
- Investment grade approach for corporate debt positions allows use of external credit ratings as part of criteria to assess risk of default, but they must be supplemented by internal ratings or other indicators of financial performance
- SFA and/or SSFA for securitization positions (internal models are not permitted)
Key Terms Related to Counterparty Credit Risk

**Counterparty Credit Risk** is the risk that the counterparty to a transaction could default before the final settlement of the transaction’s cash flows. An economic loss would occur if the transactions or portfolio of transactions with the counterparty has a positive economic value at the time of default. Unlike a firm’s exposure to credit risk through a loan, which the exposure to credit risk is unilateral and only the lending bank faces the risk of loss, CCR creates a bilateral risk of loss: the market value of the transaction can be positive or negative to either of the counterparties. The market value is uncertain and can vary over time with the movement of underlying market factors.

**Counterparty Exposure** is the larger of zero or the market value of the derivative positions with a counterparty that would be lost if the counterparty were to default and there were zero recovery. Counterparty Exposure consists of two components:

1. **Current Exposure (CE)** is the current value of the exposure to a counterparty. This is sometimes referred to as the mark-to-market exposure.

2. **Potential Future Exposure (PFE)** the PFE for a single OTC derivative contract, including an OTC derivative contract with a negative mark-to-market value, is calculated by multiplying the notional principal amount of the derivative contract by the appropriate conversion factor.

**Netting** refers to offsetting positive and negative values when operational criteria are met. This results in reduced credit, settlement, and other risks in financial contracts by aggregating (combining) two or more obligations to achieve a reduced net obligation. Operational requirements include the execution of a written and legally enforceable master netting agreement.

**Credit Risk Mitigants** are designed to reduce credit exposure, and they can include credit derivatives, guarantees, and collateral that meet the eligibility requirements. **Wrong Way Risk** arises when a counterparty’s probability of default has a strongly positive correlated relationship with the underlying risk exposure in a transaction.

Calculating Capital for Counterparty Credit

**Step 1: Determine Counterparty Exposure at Default (EAD)**: banks have two available methods to calculate EAD:

1. **Current Exposure Method (CEM)**
   - A relatively simple approach which does not require internally developed models
   - EAD is equal to the sum of the current credit exposure plus potential future exposure (PFE)
   - PFE is calculated by multiplying the notional exposure amount by a factor provided by the regulators; this factor is based on product type, maturity and/or credit quality of the reference asset

<table>
<thead>
<tr>
<th>Remaining Maturity</th>
<th>Interest Rate</th>
<th>Foreign exchange rate and gold</th>
<th>Credit (investment grade reference asset)</th>
<th>Credit (non-investment grade reference asset)</th>
<th>Equity</th>
<th>Precious metals (except gold)</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 1 Year</td>
<td>0.0%</td>
<td>3.0%</td>
<td>5.0%</td>
<td>10.0%</td>
<td>6.0%</td>
<td>7.0%</td>
<td>10.0%</td>
</tr>
<tr>
<td>&gt; 1 Year and &lt;= 5 Years</td>
<td>0.5%</td>
<td>5.0%</td>
<td>5.0%</td>
<td>10.0%</td>
<td>8.0%</td>
<td>7.0%</td>
<td>12.0%</td>
</tr>
<tr>
<td>&gt; 5 Years</td>
<td>1.5%</td>
<td>7.5%</td>
<td>5.0%</td>
<td>10.0%</td>
<td>10.0%</td>
<td>8.0%</td>
<td>15.0%</td>
</tr>
</tbody>
</table>

2. **Internal Models Method (IMM)**
   - IMM applies an internal modeling approach to estimate exposure at future time horizons
   - This is a more precise approach but requires regulatory approval and significant effort to implement

**Step 2: Once EAD is determined, apply a risk weight to that EAD as you would to a loan exposure**
- Under Basel 1 or the Basel 3 Standard Approach this would be based on general characteristics of the counterparty and other factors (e.g. all OECD banks might be treated similarly, all corporates might be treated alike)
- Under the more advanced Basel 2 or 3 approaches, factors such as the counterparty credit rating (used to determine probability of default), internally modeled loss given default and maturity would be run through a formula that is provided by the regulators.
B3 Advanced NPR – Key Provisions

Central Counterparty Clearing: Banks are required to clear derivative transactions through central counterparties and hold capital for these transactions, as well as default fund contributions to central counterparties if the bank is a clearing member.

CVA: The proposal includes a new capital charge to account for volatility in credit valuation adjustments (CVA).

Eligible Financial Collateral: Advanced approach banking organizations would be subject to a more restrictive definition of financial collateral which could offset EAD. Eligible financial collateral must meet the following criteria:
- Be in the form of:
  - Cash on deposit
  - Gold bullion
  - Debt securities that are investment grade
  - Equity securities or convertible bonds that are publicly traded
  - Money market mutual fund shares and other mutual fund shares if a price for the share is publicly quoted daily
- A bank must have a perfected, first priority security interest or outside the US, the legal equivalent thereof (with the exception of cash on deposit)

IMM Enhancements: The proposed rule makes changes to the advanced approach internal models methodology (IMM), requiring banking organizations to consider stressed inputs and other factors.

Wrong Way Risk: Advanced approach banking organizations also would be subject to enhanced standards for identifying and managing wrong way risk.

Liquidity Coverage Ratio Overview

- The Liquidity Coverage Ratio ("LCR") was officially introduced in December 2010, subject to observation and recalibration by the Basel Committee.
- The LCR requires banks to hold a specified stock of high quality liquid assets ("HQLA") equaling at least 100% of potential net cash outflows in a 30-day period of stress. The calculation of cash outflows is subject to runoff and drawdown factors specified in the text of the LCR.

<table>
<thead>
<tr>
<th>Purpose and Definition of LCR</th>
<th>Stock of High Quality Liquid Assets (HQLA) &gt; 100%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recalibration of the LCR</td>
<td>When the LCR was officially introduced by the Basel Committee in December 2010, the standard was subject to an observation and recalibration period ending in mid-2013.</td>
</tr>
<tr>
<td></td>
<td>However, to provide market clarity, the Basel Committee accelerated this recalibration and released a finalized framework for the LCR on January 6, 2013.</td>
</tr>
<tr>
<td></td>
<td>The revised framework represented a relaxation of the rules proposed in 2010. Namely, the revised rules:</td>
</tr>
<tr>
<td></td>
<td>Moderately expanded the types of assets that can be included in the stock of high quality liquid assets, and</td>
</tr>
<tr>
<td></td>
<td>Reduced the runoff and drawdown factors assumed for calculating cash outflows for stable deposits and certain unfunded lending facility categories.</td>
</tr>
</tbody>
</table>

Scope and Implementation Timeline

- Under the 2010 framework, the LCR would have become fully effective on January 1, 2015 with a fully effective 100% minimum.
- However, the Basel Committee has revised this timeline and established a four-year transition period beginning January 1, 2015, with a full 100% minimum standard effective on January 1, 2019.

<table>
<thead>
<tr>
<th>Summary 1</th>
<th>Minimum LCR % Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>65%</td>
</tr>
<tr>
<td>2014</td>
<td>72%</td>
</tr>
<tr>
<td>2015</td>
<td>80%</td>
</tr>
<tr>
<td>2016</td>
<td>90%</td>
</tr>
<tr>
<td>2017</td>
<td>100%</td>
</tr>
</tbody>
</table>

Drawdown in Periods of Stress

- Upon full implementation, the standard requires that, absent a situation of financial stress, the value of the ratio be no lower than 100% (i.e. the stock of HQLA should at least equal total net cash outflows).
- Banks are expected to meet this requirement continuously and hold a stock of unencumbered HQLA as a defense against the potential onset of liquidity stress. During a period of financial stress, however, banks may use their stock of HQLA, thereby falling below 100%.

The stock of High Quality Liquid Assets ("HQLA") constitutes three tiers of asset categories whose inclusion grows more limited with increasing risk profiles.

- High quality liquid assets include Level 1, Level 2A, and Level 2B assets.
- Level 2B assets were added in the 2013 recalibration and represent an easing of eligibility requirements for HQLA.
- Level 1 assets are generally the highest quality and most liquid in the markets during periods of stress, and there is no limit on their inclusion in the stock of HQLA. Level 2 assets comprise Level 2A and Level 2B assets and count toward the minimum standard up to certain limits.
- Debt and equity issued by financial institutions are ineligible for inclusion in the stock of high quality liquid assets.

**General Characteristics of High Quality Liquid Assets**

High Quality Liquid Assets ("HQLA") constitute "unencumbered" assets that can easily and immediately be converted into cash, with minimal impact to the value of the assets. The Basel Committee has established several fundamental and market-related characteristics to determine which assets should be included in the stock of HQLA in calculating the LCR.

**Fundamental Characteristics**

- **Low Risk**
  - Less risky assets typically have higher liquidity.
  - High credit standing and low degree of subordination increases liquidity.
  - Low duration, low legal risk, low inflation risk, and low foreign exchange risk enhance liquidity.

- **Ease and certainty of collection**
  - Assets with more standard and simple structures tend to be more liquid.
  - Pricing of a high quality liquid asset must be based on public information, with minimal assumptions.
  - Most structured and exotic products will be excluded from high quality liquid assets.

- **Low correlation with risky assets**
  - High quality liquid assets should not be highly correlated with risky assets.

- **Listed on a developed and regulated exchange**
  - Listed assets have increased transparency, typically resulting in higher liquidity.

**Market-Related Characteristics**

- **Active and sizable market**
  - High quality liquid assets must have active sale or repo markets at all times.
  - Historical evidence of market breadth and depth.
  - Assets should demonstrate low bid-ask spreads and high trading volumes.
  - Large and diverse number of market participants.

- **Low volatility**
  - Low volatility of traded prices and spreads will enhance liquidity.
  - Assets with relatively stable prices and lower inclination to sharp price declines will have lower probability of triggering Periodic Sales.
  - Historical evidence of relative stability during stressed market periods.

- **Flight to quality**
  - Flight to quality assets have higher liquidity, especially during a systemic crisis.


*According to the Basel Committee, "unencumbered" means free of legal, regulatory, contractual or other restrictions on the ability of the bank to liquidate, sell, transfer, or assign the assets.*
## High Quality Liquid Assets – Level 1 Assets

Level 1 Assets are intended to encompass the highest quality and most liquid assets. Level 1 Assets can constitute 100% of the pool of high quality liquid assets and are not subject to haircuts. However, haircuts may be applied on a jurisdictional basis based on, among other things, duration, credit and liquidity risk, and typical repo haircuts.

<table>
<thead>
<tr>
<th>Level 1 Assets (No limit on proportion of HQLA)</th>
<th>Haircut</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Cash.</td>
<td></td>
</tr>
<tr>
<td>• Central bank reserves (including required reserves).</td>
<td></td>
</tr>
<tr>
<td>• Certain marketable securities representing claims on or guaranteed by sovereigns, central banks, public sector entities (&quot;PSEs&quot;), the Bank for International Settlements, the International Monetary Fund, the European Central Bank and European Community, or multilateral development banks (&quot;MDBs&quot;).</td>
<td></td>
</tr>
<tr>
<td> Eligibility Criteria</td>
<td></td>
</tr>
<tr>
<td> • Assigned a 0% risk weight under the Basel II Standardized Approach;</td>
<td></td>
</tr>
<tr>
<td> • Traded in large, deep and active repo or cash markets characterized by a low level of concentration;</td>
<td></td>
</tr>
<tr>
<td> • Proven record as a reliable source of liquidity in the markets (repo or sale) even during stressed market conditions; and,</td>
<td></td>
</tr>
<tr>
<td> • Not an obligation of a financial institution or any of its affiliated entities.</td>
<td>0%</td>
</tr>
<tr>
<td>• Sovereign and central bank debt securities with &gt; 0% risk weight under the Basel II Standardized Approach are also eligible for inclusion in Level 1 Assets.</td>
<td></td>
</tr>
<tr>
<td>• Issued in domestic currencies in the bank’s home country or the country in which the liquidity risk is being taken; and,</td>
<td></td>
</tr>
<tr>
<td>• Issued in foreign currencies, up to the amount of the bank’s stressed net cash outflows in that specific foreign currency stemming from the bank’s operations in the jurisdiction where the bank’s liquidity risk is being taken.</td>
<td></td>
</tr>
</tbody>
</table>

### Considerations
- Level 1 Assets include GNMA MBS securities given the unconditional guarantee by the U.S. government, but do not include FNMA or FHLMC MBS.
- It is expected that U.S. rulemaking will be adjusted to include FNMA and FHLMC MBS securities as Level 1 Assets.
- Multilateral development banks, such as KFW, would be eligible to be treated as Level 1 assets.


1 To the extent that the central bank places value on market prices (repo) and cash flows (sale).
2 Up to the amount of the bank’s stressed net cash outflows in that specific foreign currency stemming from the bank’s operations in the jurisdiction where the bank’s liquidity risk is being taken.

## High Quality Liquid Assets – Level 2 Assets

Level 2 Assets include comparatively riskier and less liquid assets than Level 1 assets and are divided into Level 2A and Level 2B assets, with varying haircuts applied in each level.

After the application of certain haircuts, total Level 2 Assets can account up to 40% of a bank’s high quality liquid assets.

<table>
<thead>
<tr>
<th>Level 2 Assets (Capped at 40% of total HQLA)</th>
<th>Haircut</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 2A Assets</td>
<td></td>
</tr>
<tr>
<td>• Certain marketable securities, representing claims on or guaranteed by sovereigns, central banks, public sector entities (&quot;PSEs&quot;), or multilateral development banks (&quot;MDBs&quot;).</td>
<td></td>
</tr>
<tr>
<td> Eligibility Criteria</td>
<td></td>
</tr>
<tr>
<td> • Assigned a 20% risk-weight under the Basel II Standardized Approach;</td>
<td></td>
</tr>
<tr>
<td> • Traded in large, deep and active repo or cash markets characterized by a low level of concentration;</td>
<td></td>
</tr>
<tr>
<td> • Proven record as a reliable source of liquidity in the markets even during stressed market conditions; and,</td>
<td></td>
</tr>
<tr>
<td> • Not an obligation of a financial institution or any of its affiliated entities.</td>
<td>15%</td>
</tr>
<tr>
<td>• “Plain-vanilla” senior corporate debt securities (including commercial paper) and covered bonds.</td>
<td></td>
</tr>
<tr>
<td> Eligibility Criteria</td>
<td></td>
</tr>
<tr>
<td> • Not issued by a financial institution or any of its affiliated entities (in the case of corporate debt securities);</td>
<td></td>
</tr>
<tr>
<td> • Not issued by the bank itself or any of its affiliated entities (in the case of covered bonds);</td>
<td></td>
</tr>
<tr>
<td> • Long-term credit rating of AA- or higher (or equivalent short-term rating);</td>
<td></td>
</tr>
<tr>
<td> • Traded in large, deep and active repo or cash markets characterized by a low level of concentration; and,</td>
<td></td>
</tr>
<tr>
<td> • Proven record as a reliable source of liquidity in the markets even during stressed market conditions.</td>
<td></td>
</tr>
</tbody>
</table>

### Considerations
- PTE obligations with a 30% risk-weight under the proposed Standardized Approach rules include FNMA and FHLMC MBS, U.S. agency debt (including debt issued by FNMA, FHLMC, and FHFB), and general obligation municipal bonds.

High Quality Liquid Assets – Level 2 Assets (cont.)

Level 2B Assets may be included in Level 2 Assets at the discretion of national supervisors in different jurisdictions.
Level 2B assets are limited to 15% of total high quality liquid assets and receive greater haircuts than Level 2A Assets.

<table>
<thead>
<tr>
<th>Level 2 Assets</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 2B Assets (Capped at 40% of total HQLA)</td>
</tr>
<tr>
<td>Haircut</td>
</tr>
<tr>
<td>Non-agency residential mortgage-backed securities (&quot;RMBS&quot;).</td>
</tr>
<tr>
<td>Eligibility Criteria</td>
</tr>
<tr>
<td>Underlying mortgages are full recourse loans and have a maximum loan-to-value ratio of 80% on average at issuance;</td>
</tr>
<tr>
<td>Subject to risk-retention regulations, which require issuers to retain an interest in the assets they securitize;</td>
</tr>
<tr>
<td>Proven record as a reliable source of liquidity in the markets even during stressed market conditions.</td>
</tr>
<tr>
<td>21%</td>
</tr>
<tr>
<td>&quot;Plain vanilla&quot; senior corporate debt securities (including commercial paper) with a long-term credit rating of between A+ and BBB- (or equivalent).</td>
</tr>
<tr>
<td>Common equity shares meeting the following criteria:</td>
</tr>
<tr>
<td>Underlying mortgages must be full recourse and geographically diversified, which could make certain RMBS in the U.S. ineligible under this calibration;</td>
</tr>
<tr>
<td>At least 11 states in the U.S. are classified as non-recourse states.</td>
</tr>
<tr>
<td>Every RMBS pool will need to be evaluated to determine what may be included in RMBS in the U.S. LCR.</td>
</tr>
<tr>
<td>50%</td>
</tr>
</tbody>
</table>

Considerations

Source: Table 4. No liquidity stress test results are available for these haircuts. Banks calculate on-balance-sheet, liquidity risk.

Significant Changes Affecting Outflow Calculations

<table>
<thead>
<tr>
<th>Deposits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under the 2010 LCR framework, &quot;stable deposits&quot; (i.e., the amount of deposits covered by an effective deposit insurance program) had a minimum runoff assumption of 5% for purposes of calculating cash outflows.</td>
</tr>
<tr>
<td>In the 2013 recalibration, the minimum runoff factor was lowered to 3% for deposits insured by deposit insurance programs meeting criteria specified by the Basel Committee.</td>
</tr>
<tr>
<td>The cash outflow rate for &quot;non-operational&quot; deposits provided by non-financial corporates, sovereigns, central banks, and PSEs was reduced from 75% to 40%.</td>
</tr>
<tr>
<td>Insured or publicly guaranteed &quot;non-operational&quot; deposits will have a 20% runoff rate.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Unfunded Commitment Runoff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under Basel III, credit and liquidity facilities are defined as explicit contractual agreements and/or obligations (commitments) to extend funds at a future date to retail or wholesale counterparties.</td>
</tr>
<tr>
<td>Within the LCR framework, a liquidity facility is defined as &quot;any committed, undrawn back-up facility that would be used to refinance the debt of a customer in situations where such a customer is unable to rollover that debt in the financial markets.&quot;</td>
</tr>
<tr>
<td>- General working capital facilities for corporate entities will not be classified as liquidity facilities, but as credit facilities.</td>
</tr>
<tr>
<td>- Liquidity facilities backing obligations maturing in more than 30 days will be excluded from the definition of &quot;liquidity facility.&quot;</td>
</tr>
<tr>
<td>The LCR revisions on January 6, 2013 significantly relaxed the drawdown assumptions required for unfunded commitments extended by a bank.</td>
</tr>
<tr>
<td>- Original drawdown assumptions, including a 100% drawdown assumption for all liquidity facilities, appeared to be extreme and not based on empirical data.</td>
</tr>
<tr>
<td>- Liquidity facilities extended to financial institutions (other than prudentially regulated banks) will continue to be subject to a 100% drawdown assumption.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Credit &amp; Liquidity Facility Treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013 Calibrated</td>
</tr>
<tr>
<td>Non-Financial Corporates, Sovereigns, Central Banks, Public Sector Entities and Multilateral Development Banks</td>
</tr>
<tr>
<td>Bank Subject to Prudential Supervision</td>
</tr>
<tr>
<td>Other Financial Institutions (including Securities Firms and Insurers)</td>
</tr>
<tr>
<td>Other Legal Entities (SMEs, Cooperatives and SHPs)</td>
</tr>
</tbody>
</table>

Source: Baseline Committee on Banking Supervision.
What’s Next for Bank Liquidity?

While the LCR has been finalized at the Basel Committee level, work remains to finalize the Net Stable Funding Ratio (“NSFR”) and for national regulators to implement the LCR in their own jurisdictions.

<table>
<thead>
<tr>
<th>Net Stable Funding Ratio (“NSFR”)</th>
</tr>
</thead>
<tbody>
<tr>
<td>With work on the LCR complete, the Basel Committee has stated it will turn its attention to finalizing the NSFR.</td>
</tr>
<tr>
<td>Despite the transitional arrangements adopted for the LCR, the Basel Committee has stated its commitment to adopt the NSFR as a minimum requirement by January 1, 2018.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>U.S. Proposal Rulemaking</th>
</tr>
</thead>
<tbody>
<tr>
<td>The U.S. federal banking agencies are expected to release a proposed rule for implementing the LCR in the U.S. around mid-year.</td>
</tr>
<tr>
<td>However, the proposal is subject to an inter-agency approval process which would cause unpredictability in the timing of the release.</td>
</tr>
<tr>
<td>Importantly, the Dodd-Frank Act prohibits references to credit ratings in regulations, requiring U.S. federal banking agencies to modify aspects of the LCR.</td>
</tr>
<tr>
<td>The Basel Committee will continue to assess the comparability of model-based internal ratings approaches to external ratings.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Section 165/166 Final Rulemaking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sections 165 and 166 establish enhanced prudential standards (including capital buffers and Liquidity risk management requirements) and early remediation requirements for systemically important financial institutions in the U.S.</td>
</tr>
<tr>
<td>A proposed rule implementing Section 165 and 166 of the Dodd-Frank Act covering U.S. activities of foreign banking operations was released on December 14, 2012.</td>
</tr>
<tr>
<td>A final rule applicable to U.S. bank holding companies under Sections 165 and 166 of the Dodd-Frank Act could be released during 1H2013, following proposed rules in December 2011 and comments received on the proposals for both U.S. institutions and foreign banking institutions.</td>
</tr>
</tbody>
</table>