January 15, 2016

# Total Loss Absorbing Capacity (TLAC)

## Material Repercussions and Disruptions for U.S. Banks and Investors:

- *Capital Deductions for Investment in GSIB BHC Senior Debt*
- *Disruption to the BHC LTD Market from TLAC LTD Issuance*
- *Impact of Capital Buffers on GSIB Market Making Activities*
- *Greater Use of LTD in BHC Capital Structures*

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Following the initial TLAC disclosure by the Financial Stability Board (FSB) on November 10, 2014, the Board of Governors of the Federal Reserve System (Board) announced on October 30, 2015 a Notice of Proposed Rulemaking (NPR)[1] for TLAC rules, with comments due by February 1, 2016. TLAC is designed to provide additional loss absorbing capacity for Global Systemically Important Banks (GSIBs) to avoid the need for a government bail-out in the event of insolvency of a bank that is deemed to be "too big to fail."

Using the Single Point of Entry (SPOE) or Multiple Points of Entry (MPOE) resolution framework, which assumes that the GSIB bank holding company (BHC) will remain in place during the resolution of the underlying bank, the GSIB BHC must maintain enough "bail-in" capital in the form of liabilities to absorb losses when continued operations of the bank are no longer viable.[2] On December 3, 2015, S&P downgraded by one notch the BHC long-term debt ratings for all eight U.S.-based GSIBs highlighting the impact of the TLAC requirements and the explicit removal of government support previously factored into GSIB BHC credit ratings.

Overall, we think that the TLAC rules represent the most substantial change in regulatory capital requirements since Basel III was implemented in October 2013 and will have a significant impact on BHC capital structure, lines of business, and financial returns.

[1] http://www.gpo.gov/fdsys/pkg/FR-2015-11-30/pdf/2015-29740.pdf
[2] Please see Appendix A for a glossary of key terms for the TLAC requirements.

## TLAC Requirements

The TLAC issuance requirements will apply directly to the eight top tier U.S. BHCs that are classified as covered BHCs but the TLAC capital deductions for investment in senior covered debt will also impact U.S. Board regulated institutions[3] with total assets of $1 billion or more. Small BHCs with less than $1 billion in assets will be exempt from the TLAC issuance requirements and capital deductions but may be impacted as widening yields on covered debt could make issuing debt more expensive. In addition, longer term, as the GSIB BHCs issue more LTD debt to meet TLAC requirements and small BHCs increase LTD as permitted under the Small BHC policy statement, U.S. BHCs may see an increase in LTD in the BHC capital structure.

The TLAC requirements phase-in beginning on January 1, 2019 and become fully effective on January 1, 2022 and include four components:

- Additional external long term debt and loss absorbing capital requirements applicable to 8 U.S. based Global Systemically Important Banks (GSIBs), referred to as covered BHCs;
- Additional external long term debt and loss absorbing capital requirements applicable to top tier U.S. intermediate BHCs with $50 billion or more in assets that are owned by foreign G-SIBS, referred to as covered IHCs;
- "Clean holding company" limitations on the operations of covered BHCs and IHCs; and
- Deductions from regulatory capital of investments in the unsecured debt of covered BHCs applicable to all Board regulated banking organizations with total assets of $1 billion or more.

## 4 Key Considerations

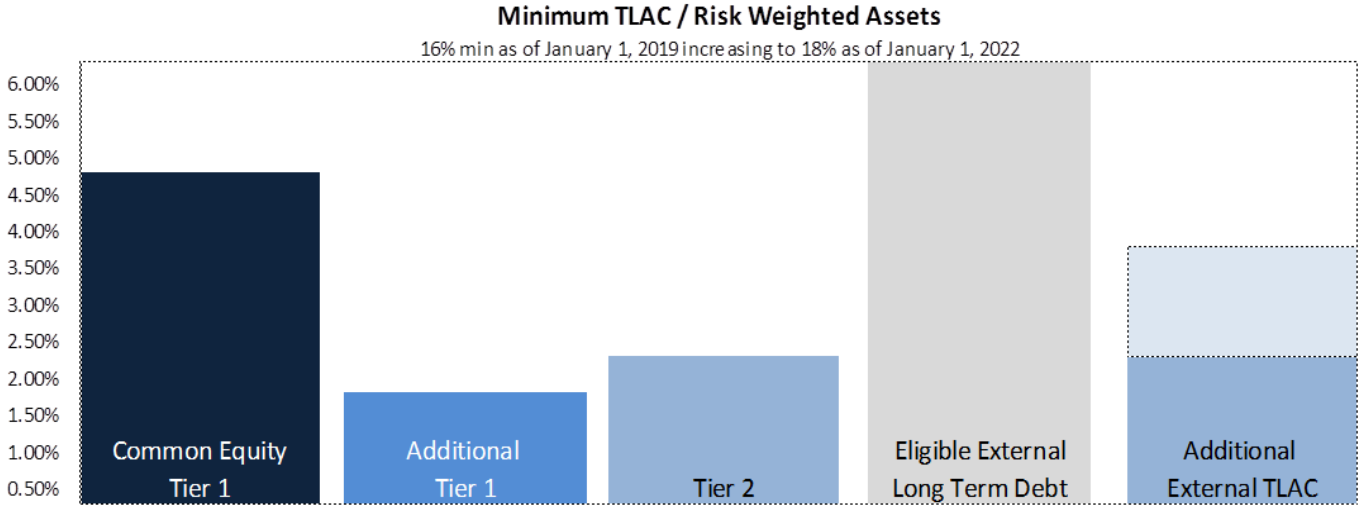
The TLAC requirements raise a number of questions and present some challenges and opportunities that prudent bank management teams, boards of directors, bank debt investors and bank equity investors should consider, including the following:

1) Capital Deductions for Investment in GSIB BHC Senior Debt
2) Disruption to the BHC LTD Market from TLAC LTD Issuance
3) Impact of TLAC Requirements and Capital Buffers on Market Making Activities
4) Greater Use of Long Term Debt in BHC Capital Structures

[3] A Federal Reserve Board regulated institution is any BHC or savings and loan holding company (SLHC) other than one subject to the Board's small BHC policy statement (<$ billion in assets), state member bank or U.S. IHC.

## TLAC Overview

As illustrated below, the TLAC rules are expected to consist of: a minimum of 4.5% of common equity tier 1 capital (CET1), 1.5% additional tier 1 capital (AT1), 2.0% tier 2 capital (T2), and at least 6% eligible external long term debt[4] (LTD) with an additional 2 to 4% of external TLAC[5] to meet the cumulative 16% to 18% minimums.




The TLAC requirements will apply to 8 top tier covered BHCs[6]:

| | Covered BHC Phased-in TLAC Requirements | |
|---|---|---|
| | Eligible Exernal LTD Requirement | Eligible External TLAC Requirement |
| Jan. 1, 2019 | Greater of :<br>o 6% of RWAs plus the Method 2 GSIB surcharge or<br>o 4.5% of SLA exposure | Greater of :<br>o 16% of RWAs plus a buffer of<br>- 2.5% of RWAs, plus<br>- Method 1 GSIB surcharge, plus<br>- Any counter cyclical capital buffer or<br>o 6.0% of SLA exposure |
| Jan. 1, 2022 | Greater of :<br>o 6% of RWAs plus the Method 2 GSIB surcharge or<br>o 4.5% of SLA exposure | Greater of :<br>o 18% of RWAs plus a buffer of<br>- 2.5% of RWAs, plus<br>- Method 1 GSIB surcharge, plus<br>- Any counter cyclical capital buffer or<br>o 9.5% of SLA exposure |

[4] Debt instruments that are issued directly by the covered BHC, are unsecured, "plain vanilla", governed by U.S. law and have a remaining maturity of at least 1 year. "Plain vanilla" is defined by the Board as: (i) does not provide holder with a contractual right of acceleration for reasons other than insolvency or payment default, (ii) does not have a credit sensitive feature, (iii) is not a structured note, and (iv) has no contractual provision of conversion to equity of the GSIB BHC.

[5] Eligible external TLAC consists of common equity tier 1 capital and additional tier 1 capital issued directly by the covered BHC plus eligible external long term debt.

[6] The eight firms currently identified as U.S. GSIBs are Bank of America Corporation, The Bank of New York Mellon Corporation, Citigroup, Inc., Goldman Sachs Group, Inc., JP Morgan Chase & Co., Morgan Stanley, State Street Corporation, and Wells Fargo & Company. Source: Federal Register/Vol. 80, no. 229/Monday, November 30, 2015, page 74931.

The TLAC requirements will also apply to the U.S.-based intermediate BHCs of foreign GSIBs (covered IHCs) with $50 billion or more in assets[7].

| | Resolution Entity Covered IHCs TLAC Requirements (MPOE) | |
|---|---|---|
| | Eligible Internal LTD Requirement | Eligible Internal TLAC Requirement |
| Jan. 1, 2022 | **Greater of :**<br>o **7% of RWAs plus the GSIB surcharge**<br>o **3.0% of SLA exposure or**<br>o **4.0% of Average Total Consolidated Assets** | **Greater of :**<br>o **18% of RWAs plus a buffer of**<br>- **2.5% of RWAs, plus**<br>- **Method 1 GSIB surcharge, plus**<br>- **Any counter cyclical capital buffer**<br>0 **6.75% of SLA exposure**<br>o **9.00% of Average Total Consolidated Assets** |

Covered BHCs are required to maintain eligible external TLAC equal to the greater of 16% of risk weighted assets (RWAs) plus applicable capital buffers or 6.0% of supplementary leverage assets[8] (SLAs) as of January 1, 2019 increasing to 18% of RWAs plus applicable capital buffers and 9.5% of SLAs, respectively, in 2022. Covered IHCs are required to maintain fully phased-in internal TLAC equal to the greater of 18% of RWA plus applicable capital buffers, 6.75% of SLA, or 9.0% of average total assets, which is substantially less than the 9.5% of SLA requirement for covered BHCs.

The implications of this substantial difference in TLAC/SLA requirements for covered BHCs vs covered IHCs as well as the 58% increase from 6% to 9.5% in the TLAC/SLA requirements between 2019 and 2022 will be discussed in more detail later. These institutions will be required to maintain additional "plain vanilla" external long term debt and loss absorbing capacity while meeting "clean bank holding company" operating restrictions. As investors, the TLAC requirements will directly impact U.S. based banking organizations with total assets of $1 billion or more by including investments in senior covered BHC debt in the Basel III capital deductions for investments in other bank capital securities.

[7] Among the 22 foreign firms currently identified as GSIBs there are six with top tier U.S. BHCs with $50 billion or more in assets, including Santander Holdings USA, Inc. Banc West Corporation, Deutsche Bank Trust Corporation, HSBC North America Holdings, Inc., MUFG Americas Holdings Corp, and Citizens Financial Group. Source: SNL Financial data as of December 21, 2015 based on September 30, 2015 data.

[8] The Basel III definition of Supplementary Assets include the following exposures: (i) balance sheet carrying value of all of the banking organization's on-balance sheet assets minus amounts deducted from Tier 1 capital; (ii) potential future credit exposure (PFE) amount for each derivative contract to which the banking organization is a counterparty (or each single-product netting set for such transactions) determined in accordance with the U.S. Basel III standardized approach (i.e., the current exposure method), but without regard to the credit risk mitigation benefits of collateral, (iii) 10% of the notional amount of unconditionally cancellable commitments made by the banking organization; and (iv) notional amount of all other off-balance sheet exposures of the banking organization (excluding securities lending, securities borrowing, reverse repurchase transactions, derivatives and unconditionally cancellable commitments).

## 1) Capital Deductions for Investments in GSIB Senior BHC debt

Current Basel III capital rules require that all banks and BHCs with total assets of $1 billion or more deduct significant and non-signficant investments in another bank's capital securities such as subordinated debt, trust preferred, preferred stock and common stock, subject to certain thresholds.[9] The TLAC rules propose to add senior BHC debt issued by GSIBs (covered debt) to the list of securities that will be deducted from bank capital using the corresponding deduction approach, effective January 1, 2019. This deduction will apply to all direct, indirect (through investments funds) and synthetic exposures to covered debt instruments with the amount of investment equal to the net long position held by Board regulated institutions with total assets of $1 billion or more.

Under this approach, investments in capital instruments are deducted from the capital category corresponding to how the instrument is or would be classified by the issuer. Covered debt would be explicitly treated as Tier 2 capital for purposes of the corresponding deduction approach. To the extent that a Board-regulated institution lacked sufficient Tier 2 capital from which to deduct its investment, the remaining amount would be deducted sequentially from the the next higher category of capital.

In substantially all cases for non-GSIB banks, these investments would be viewed as a non-significant investment (i.e., investing bank would own <10% of the outstanding common stock of the GSIB BHC). In these cases, the investment amount exceeeding 10% of the investing bank's CET1 after Basel III deductions and adjustments, would be deducted from capital using the corresponding deduction approach.

To highlight the potential impact on a community bank's balance sheet of this addtion of covered debt to the securities to be deducted from capital, we have provided a case study of a sample bank with total assets of $5 billon, CET1 of $500 million and subordinated debt of $50 millon. This bank has made investments in senior BHC covered debt of $75 million and $50 million of subordinated debt.

In Column A, the sample bank's investment portfolio currently includes senior BHC GSIB debt and subordinated debt totaling $125 million. Under current Basel III rules, the $75 million of senior BHC GSIB covered debt is not included in the calculation of investments subject to Basel III deduction, and the sample bank would face no capital deduction.

In Column B, the sample bank's investment portfolio includes the $75 million in senior BHC GSIB covered debt under the proposed TLAC rules and would create an excess investment of $75 million that would be deducted from Tier 2 capital. Since the amount of Tier 2 capital at the sample bank of $50 million is less than the deduction amount of $75 million, the difference is deducted from the next highest form of capital which is common equity. This results in a $75 million reduction in total capital with $25 million being deducted from common equity. This 13.64% reduction in capital would not be required under current Basel III capital rules but would be triggered under the proposed NPR.

[9] Please see Appendix B for more detail on the distinction between a significant and non-significant investment and the impact on the type of deduction by the Board regulated institution holding the investment.

## Case Study: Impact of Capital Deduction for Covered Debt on Sample Bank

| Total Assets = $5 Billion<br>Total CET1 = $.500 Billion | A<br>Corresponding Deduction Approach Under Current Rules | B<br>Corresponding Deduction Approach Under TLAC NPR |
|---|---|---|
| **Non-significant Investment Type** | **Investment Amt. ($)** | **Investment Amt. ($)** |
| Senior BHC Covered Debt (GSIB) | $ 75.0 | $ 75.0 |
| Subordinated Debt | $ 50.0 | $ 50.0 |
| Trust Preferred Stock | | $ - |
| Preferred Stock | $ - | $ - |
| Common Stock | $ - | $ - |
| Total Bank Investments | $ - | $ - |
| Subject to Basel III Deduction | $ 50.0 | $ 125.0 |
| Common Equity Tier 1 | $ 500.0 | $ 500.0 |
| > 10% CET1 | $ 50.0 | $ 50.0 |
| Excess Bank Investments | $ - | $ 75.0 |

| CET1 Deduction Amount: | | | % Total |
|---|---|---|---|
| Senior BHC Covered Debt (GSIB) | $ - | $ (45.0) | 60% |
| Subordinated Debt | $ - | $ (30.0) | 40% |
| Trust Preferred | $ - | $ - | 0% |
| Preferred Stock | $ - | $ - | 0% |
| Common Stock | $ - | $ - | 0% |
| | $ - | $ (75.0) | 100% |

| Current Capital Structure | Before Deduction | Deduction | Adjusted $ | (%) Change |
|---|---|---|---|---|
| Subordinated Debt | $ 50.0 | $ (50.0) | $ - | -100.00% |
| Preferred Stock | $ - | | $ - | |
| Common Stock | $ 500.0 | $ (25.0) | $ 475.0 | -5.00% |
| Total Regulatory Capital | $ 550.0 | $ (75.0) | $ 475.0 | -13.64% |

There is currently no required call report or GAAP disclosure on the amount of investment by banks in GSIB senior BHC debt. So to develop an estimate of the impact of the potential deduction on the investment portfolios and capital positions of regional and community banks, Sandler O'Neill selected a sample of 200 regional and community banks with total assets of between $1 billion but less than $50 billion and a mean asset size of approximately $4 billion. We discovered that 112 of the 200 banks (about 56%) owned senior covered BHC debt with an average investment amount of approximately $20.7 million. Of the 112 banks that owned senior covered BHC debt, 29 or roughly 26% of the total owned an amount comprising 10% or more of CET1. In aggregate, the amount of investment totaled $1.4 billion. If we extrapolate those numbers to the broader universe of 639 banks in the U.S. between $1 billion and $50 billion in assets, we can estimate that roughly $7.4 billion of senior covered BHC debt is owned by regional and community banks. (i.e., 56% of 639 x $20.7 million average investment amount).

To put that number in perspective, the amount of bank investment in pooled trust preferred securities at the time of the Volcker Rule announcement in the 4th quarter of 2013 was approximately $5.2 billion but only approximately $2.8 billion was owned by regional and community banks after excluding the amount owned by GSIBs and USAA.[10] This means that the amount of senior covered BHC debt owned by regional and community banks could be over twice the amount of TPS CDOs owned by such banks.

In 2013, the banking regulators agreed to grandfather investment in pooled trust preferred securities that would otherwise not be permitted under the Volcker Rule to avoid large losses potentially incurred by regional and community banks that owned such securities. The logic was that banks should be permitted to own such investment if the Collins Amendment specifically permitted the issuance of trust preferred as Tier 1 capital for banks less than $15 billion.

The original version of the TLAC rules published by the FSB did not include a capital deduction for investment by non-GSIBs in senior covered BHC debt securities. The NPR does include this deduction and the potential large overhang from additional debt issuance could cause unsuspecting regional and community banks to face losses on the sale of such securities and/or capital deductions. The Board clearly anticipated that this deduction would elicit much comment and devoted Questions 66-70 in the NPR to solicit feedback from impacted banks.[11] Given the somewhat capricious nature of the change in rules and the relatively short remaining life of most of the senior covered BHC debt issues, a reasonable path to compromise may be to push back the start date for the capital deduction for non-GSIB investment in covered BHC senior debt from January 1, 2019 to January 1, 2022, which would substantially lessen any potential negative impact on the regional and community bank investment portfolios and capital levels.

A related concern is the TLAC deduction that GSIB's face with market making positions in covered debt held for more than 5 days. Based on the observations of Sandler O'Neill's fixed income trading desk, the 5-day limit on trading account positions could have a significant negative impact on market liquidity for such debt which would likely increase yields and negatively impact borrowing cost not only for the GSIB BCHs but also regional and community banks. We suggest that the 5-day market making period be extended to 30 days to avoid constraints on market liquidity.

## 2) Disruption to the BHC LTD Market from TLAC LTD Issuance

Covered BHCs currently have about $1,007 billion in total debt outstanding.[12] Of this amount, eligible external LTD that would potentially qualify as "plain vanilla" with a remaining maturity of at least 1 year

[10] SNL Financial. Based on September 30, 2013 financial information. TRUPs CDO investments by banks totaled $5.2 billion but only $2.8 billion after excluding amounts owned by HSBC, USAA, WFC, BoA, BBVA, Citi, JPM, MS, and GS.
[11] Federal Register / Vol. 80. NO. 229 / Monday, November 30, 2015/Proposed Rules. Pages 74951-52.
[12] Source: Bloomberg. Data compiled as of November 1, 2015 based on GAAP filings as of September 30, 2015.

(50% credit for less than 1 year) approximates $726 to $760 billion.[13] To estimate the volume of senior BHC debt that must be issued by covered BHCs to comply with the external TLAC and LTD requirements, the Board considered outstanding debt as of December 31, 2014 and made several assumptions: (i) covered BHCs were brought compliant with other capital requirements to be in effect in 2019 which necessitated a catch up amount from 5 of the 8 covered BHCs and (ii) all outstanding debt that met the primary requirements for eligible external debt (no derivative linked features and remaining maturity of 1 year or more) was considered eligible LTD.

Based on these assumptions and application of the 2019 TLAC and eligible LTD requirements, the Board estimated an aggregate external LTD need of about $680 billion and the estimated aggregate shortfall for the covered BHCs was approximately $120 billion.[14] This shortfall amount represents about 16% of the average amount of covered BHC senior debt currently outstanding.

Alternatively, using September 30, 2015 public information and assuming the 2022 TLAC requirements, the covered BHCs would be required to maintain eligible TLAC equal to the greater of (i) 18% of RWA plus the capital conservation buffer of 2.5%, the relevant GSIB buffer, and any counter cyclical capital buffer and (ii) 9.50% of SLAs. The chart below shows an estimate of the total external TLAC requirement of approximately $1.5 trillion of which $876 billion would be comprised of existing CET1 and AT1 leaving a required LTD requirement of approximately $634 billion. Highlighted in red are the external TLAC requirements for JPM, C, BAC, WFC and BK which are higher using the RWA approach than the SLA approach. Note that while GS and MS have substantial excess external LTD, other covered BHCs will need to raise an aggregate of about $112 billion.

2022 Total TLAC Requirement Based on 18% RWAs plus Buffers

| ($,MM) | RWA 30-Sep-15 | Leverage Exposure 30-Sep-15 | TLAC Req. to be Higher of RWA 18.00% | External TLAC Requirement W/ Buffers (1)(2) | External TLAC Requirement w/ Buffers | Current CET1 and AT1 Outstanding | Estimated Required LTD (2) | Estimated LTD Outstanding | Estimated Required LTD Issuance |
|---|---|---|---|---|---|---|---|---|---|
| JPM | 1,513,037 | 3,116,440 | 272,347 | 23.50% | 355,564 | 198,157 | 157,407 | 124,061 | (33,345) |
| C | 1,254,473 | 2,363,506 | 225,805 | 22.50% | 282,256 | 161,999 | 120,257 | 97,430 | (22,827) |
| BAC | 1,397,504 | 2,740,854 | 251,551 | 22.00% | 307,451 | 174,631 | 132,820 | 115,475 | (17,345) |
| GS | 580,210 | 1,380,000 | 104,438 | 22.00% | 127,646 | 79,750 | 47,896 | 156,890 | 108,994 |
| MS | 433,750 | 1,120,000 | 78,075 | 22.00% | 95,425 | 66,071 | 29,354 | 119,274 | 89,920 |
| WFC | 1,312,200 | 2,066,600 | 236,196 | 21.50% | 282,123 | 162,200 | 119,923 | 82,801 | (37,122) |
| SST | 103,887 | 270,274 | 18,700 | 21.50% | 22,336 | 14,520 | 7,816 | 7,850 | 34 |
| BK | 173,783 | 390,123 | 31,281 | 21.50% | 37,363 | 18,605 | 18,758 | 20,000 | (1,242) |
| Source: SNL Financial, data as of September 30, 2015 | | | | | 1,510,164 | 875,933 | 634,231 | 723,781 | (111,882) (3) |

(1) Includes 2.5% capital conservation buffer, and Method 1 GSIB buffer but no counter cyclical capital buffer

(2) Chart includes additional amount of external debt required by applying the method 2 GSIB buffer to the minimum external LTD ratio.

(3) Summary of estimated required issuance excludes estimated surplus at GS, MS and SST.

[13] Source: SNL Financial. Data compiled as of November 24, 2015 based on GAAP filings as of September 30, 2015.

[14] Federal Register / Vol. 80 No. 229/ Monday, November 30, 2015 page 74938

The chart below shows an estimate of the TLAC requirement using 9.5% of SLAs. Highlighted in red are the TLAC requirements for GS, MS and SST which are higher using the SLA approach than the RWA approach.

There is minimal need for additional LTD using the SLA approach but the covered BHCs are required to use the higher of the RWA approach or the SLA approach, and the RWA approach requires the higher amount of external TLAC for 5 of 8 GSIBs.

2022 Total TLAC Requirement Based on 9.50% SLAs

| ($,MM) | RWA 30-Sep-15 | Leverage Exposure 30-Sep-15 | External TLAC Requirement @ 9.50% | External TLAC Requirement | Current CET1 and AT1 Outstanding | Estimated Required LTD | Estimated LTD Outstanding | Estimated Required LTD Issuance |
|---|---|---|---|---|---|---|---|---|
| JPM | 1,513,037 | 3,116,440 | 296,062 | 296,062 | 198,157 | 97,905 | 124,061 | 26,156 |
| C | 1,254,473 | 2,363,506 | 224,533 | 224,533 | 161,999 | 62,534 | 97,430 | 34,896 |
| BAC | 1,397,504 | 2,740,854 | 260,381 | 260,381 | 174,631 | 85,750 | 115,475 | 29,725 |
| GS | 580,210 | 1,380,000 | 131,100 | 131,100 | 79,750 | 51,350 | 156,890 | 105,540 |
| MS | 433,750 | 1,120,000 | 106,400 | 106,400 | 66,071 | 40,329 | 119,274 | 78,945 |
| WFC | 1,312,200 | 2,066,600 | 196,327 | 196,327 | 162,200 | 34,127 | 82,801 | 48,674 |
| SST | 103,887 | 270,274 | 25,676 | 25,676 | 14,520 | 11,156 | 7,850 | (3,306) |
| BK | 173,783 | 390,123 | 37,062 | 37,062 | 18,605 | 18,457 | 20,000 | (1,543) |
| Source: SNL Financial, data as of September 30, 2015 | | | | 1,277,541 | 875,933 | 401,608 | 723,781 | (4,849) (1) |

(1) Summary of estimated required issuance excludes GSIBs with estimated surpluses.

These estimates of the external LTD shortfalls of $112 to $120 billion assume that a substantial portion of the outstanding GSIB long term debt excluding structured notes would qualify as eligible long term debt. The amount of external LTD funding shortfall could be as high as $550 billion, according to CreditSights, if the outstanding LTD of covered BHCs was not converted into eligible external LTD but would have to be refinanced in the market.[15] This discrepancy between the Board's estimate of the LTD financing need and the CreditSight's estimate arises from the TLAC requirement that eligible LTD not have a contractual right of acceleration other than insolvency or payment default.

Senior unsecured debt of covered BHCs typically includes rights of acceleration for reasons other than payment default or insolvency and so would NOT qualify as eligible LTD. If the covered BHCs had to replace/refinance the entire $550 billion compared to $112 or $120 billion, that would obviously have a material adverse effect on the entire market for BHC debt. Moreover, the $112 to $120 billion amount assumes the minimum amount of eligible LTD issuance and does not factor in additional cushion that GSIBs may want to maintain to avoid any restrictions on activities.

[15] Source: CreditSights. U.S. Banks: TLAC Eligibility of Senior Debt. December 1, 2015. Page 1.

According to representatives from Sandler O'Neill's fixed income trading desk, market yields on covered BHC senior debt have not widened materially following the TLAC announcement. ***We do not think that market participants have focused on the downside case*** with the requirement for large scale refinancing, restructuring or replacement of this LTD as a result of the Board's disclosure that they assumed substantially all the LTD would remain in place. If this does not happen, we could quickly see deterioration in market conditions as market participants focus on the much larger volume of resulting debt refinancing. With Question 3 in the NPR, the Board clearly understood that this requirement for a substantial amount of TLAC and LTD to be issued could disrupt the markets for senior unsecured debt instruments and requested comments "on the probable impact of the proposed requirements on covered BHCs and on markets for senior unsecured debt instruments".[16]

To avoid a large market disruption, the Board may choose to modify the definition of eligible LTD to exclude acceleration from the final rule or potentially grandfather existing LTD that otherwise meets the eligibility requirements. Alternatively, covered BHCs would have to either amend the indentures of existing debt to remove/modify the acceleration language on bonds extending beyond 2020 (and would likely have to compensate current investors to incent them to agree to this modification) or tender for the outstanding bonds with maturities extending beyond 2020 and reissue bonds with acceptable acceleration and other "plain vanilla" language.

## 3) Impact of TLAC Requirements and Capital Buffers on Market Making Activity

Overall, the level of capital required to support different types of assets is a complex area that continues to undergo change as the Basel III rules are implemented. The GSIB banks are subject to the higher of the Standardized Approaches or Advanced Approaches risk weighting methodology and are required to measure their trading risk using the Internal Risk Based (IRB) method. Each of the U.S. GSIBs discloses this information and the calculation quarterly. The regulators have realized that the IRB approach may not be applied consistently around the world, causing banks in some countries to have very low risk weighting while banks in other countries have very high risk weighting.

As a result, the TLAC rules include a SLA ratio requirement of 6% in 2019 increasing to 9.5% by 2022 for covered BHCs. For the IHCs, this is 6.0% SLAs increasing to 6.75% in 2022 along with a requirement for 9.00% of average total consolidated assets. As these requirements are for the consolidated entity, the location of trading operations or other assets will not be important for capital adequacy purposes.

[16] Federal Register / Vol. 80, No. 229 / Monday, November 30, 2015 / Proposed Rules page 74933.

The TLAC NPR proposes a 58% increase in the TLAC/SLA ratio from 6% of SLAs in 2019 to 9.5% of SLAs in 2022. This sharp increase in the TLAC ratio requirements combined with the very large difference in RWAs compared to SLAs as a percentage of GAAP assets, represents a penalty for those covered BHCs such as GS, MS and SST whose business models create a high level of SLAs. As shown in the chart below, there is a wide range of RWA/GAAP assets for the covered BHCs ranging from 42% for State Street to 75% for Wells Fargo with a mean of 59%.

In contrast, the SLA/GAAP assets ratio for the covered BHCs ranges from 103% to 157% with a mean of 126%. The difference between RWAs and SLAs averages about 66% but is largest for GS, MS, and SST that have a high level of relatively low risk weighted trading account assets but also have significant off-balance sheet commitments and exposures. With SLAs to GAAP assets of 156%, 134% and 129%, respectively, GS, MS and JPM face a substantial penalty relative to the other GSIBs when the SLA ratio is increased to 9.50%.

Comparison of SLAs to RWAs

| ($,MM) | GAAP 30-Sep-15 | RWA 30-Sep-15 | Leverage Exposure 30-Sep-15 | Risk Weighted Assets % GAAP Assets | Supplementary Leverage Assets % GAAP Assets | RWA and SLA Difference |
|---|---|---|---|---|---|---|
| JPM | 2,417,121 | 1,513,037 | 3,116,440 | 62.60% | 128.93% | 66.34% |
| C | 1,808,356 | 1,254,473 | 2,363,506 | 69.37% | 130.70% | 61.33% |
| BAC | 2,153,006 | 1,397,504 | 2,740,854 | 64.91% | 127.30% | 62.39% |
| GS | 880,559 | 580,210 | 1,380,000 | 65.89% | 156.72% | 90.83% |
| MS | 834,113 | 433,750 | 1,120,000 | 52.00% | 134.27% | 82.27% |
| WFC | 1,751,265 | 1,312,200 | 2,066,600 | 74.93% | 118.01% | 43.08% |
| SST | 247,274 | 103,887 | 270,274 | 42.01% | 109.30% | 67.29% |
| BK | 377,371 | 173,783 | 390,123 | 46.05% | 103.38% | 57.33% |
| High | 2,417,121 | 1,513,037 | 3,116,440 | 74.93% | 156.72% | 90.83% |
| Low | 247,274 | 103,887 | 270,274 | 42.01% | 103.38% | 43.08% |
| Mean | 1,308,633 | 846,106 | 1,680,975 | 59.72% | 126.08% | 66.36% |
| Median | 1,315,912 | 917,342 | 1,723,300 | 63.75% | 128.12% | 64.36% |

Source: SNL Financial, Financial information as of September 30, 2015

As shaded below in grey, if the RWA ratios and SLA ratios remain the same between now and January 1, 2019, the highest levels of TLAC for the covered BHCs would be required based on the 16% RWA plus buffers ratio. But in 2022, with the sharp increase from 6.0% to 9.5% in the minimum TLAC/SLAs, the 9.50% requirement results in higher levels of TLAC for GS, MS and SST. These institutions may choose to decrease investments in lower yielding, lower risk weighted businesses in order to meet profitability and financial return targets given the higher capital requirements. Note that the difference between the RWA approach and the SLA approach to determine the overall required level of TLAC decreases from $670 billion in 2019 to $232 billion in 2022 as a result of the increase in the SLA ratio to 9.50%.

Comparison of TLAC Based on 2019 vs 2022 RWA and SLA Requirements

| ($,MM) | Risk Weighted Assets % GAAP Assets | Supplementary Leverage Assets % GAAP Assets | RWA and SLA Difference | 2019 Comparsion of TLAC Requirements 16% RWA + Buffers | 6% SLA | 2022 Comparsion of TLAC Requirements 18% RWA + Buffers | 9.50% SLA | |
|---|---|---|---|---|---|---|---|---|
| JPM | 62.60% | 128.93% | 66.34% | 325,303 | 186,986 | 355,564 | 296,062 | |
| C | 69.37% | 130.70% | 61.33% | 282,256 | 141,810 | 282,256 | 224,533 | |
| BAC | 64.91% | 127.30% | 62.39% | 307,451 | 164,451 | 307,451 | 260,381 | |
| GS | 65.89% | 156.72% | 90.83% | 127,646 | 82,800 | 127,646 | 131,100 | |
| MS | 50.74% | 134.27% | 83.53% | 93,113 | 67,200 | 95,425 | 106,400 | |
| WFC | 74.93% | 118.01% | 43.08% | 282,123 | 123,996 | 282,123 | 196,327 | |
| SST | 42.01% | 109.30% | 67.29% | 22,336 | 16,216 | 22,336 | 25,676 | |
| BK | 46.05% | 103.38% | 57.33% | 37,363 | 23,407 | 37,363 | 37,062 | |
| | | | | 1,477,592 | 806,868 | 1,510,164 | 1,277,541 | Total TLAC |
| | | | | | 670,724 | | 232,624 | Difference |

Source: SNL Financial, Financial information as of September 30, 2015

In addition to pressure on reducing SLAs from the TLAC rules, the Board introduced a new method to determine the GSIB buffer for covered BHCs (Method 2) which further reduces the attractiveness of low risk weighted/low return businesses supported by wholesale funding. As shown below, the Method 2 GSIB buffer raises the maximum buffer from 2.50% to 4.50% based on the exposure that a GSIB has to short term wholesale funding (STWF).

Method 1 vs Method 2 GSIB Buffer[17]

| | Method 1 BCBS | Method 2 STWF | Increase |
|---|---|---|---|
| JPM | 2.50% | 4.50% | 2.00% |
| CITI | 2.00% | 3.50% | 1.50% |
| BOA | 1.50% | 3.00% | 1.50% |
| GS | 1.50% | 3.00% | 1.50% |
| MS | 1.50% | 3.00% | 1.50% |
| WF | 1.00% | 2.00% | 1.00% |
| STT | 1.00% | 1.50% | 0.50% |
| BK | 1.00% | 1.00% | 0.00% |

The types of transactions the Board appears to be most concerned with include the following: secured financing transactions, unsecured wholesale funding transactions, FMV exchange of assets with differences in liquidity, short positions on all assets, and all brokered deposits and brokered sweep deposits.

[17] Method 1 GSIB buffer is based on the Basel GSIB framework relying on 5 measures of systemic risk: size, interconnectedness, complexity, cross-jurisdictional activity, and substitutability (payment activity, assets under custody, and underwritten transactions in debt and equity markets). A GSIBs involvement in market making and trading activity is captured through the complexity score that covers OTC derivatives, AFS securities and level 3 assets. The Method 2 GSIB buffer calculation is applicable to U.S. GSIBs and replaces substitutability with a measure of reliance on short term wholesale funding referred to as the STWF score. The TLAC external LTD requirement is based on the greater of 6% of RWA plus the method 2 GSIB buffer and 4.50% of SLAs.

As the covered BHCs focus on managing their capital structures to meet the TLAC requirements while minimizing reliance on wholesale funding that could increase the method 2 GSIB buffer, there will likely be increasing pressure on GSIBs to reduce the capital committed to support low RWA businesses that also produce low returns such as market making activities for agency and RMBS trading, credit trading, and securitized products trading. Covered BHCs may have an incentive to take more credit risk on loans funded with stable deposits or other sources of long term funding. ***Changes in the lines of business and targeted financial returns do not happen overnight, but we are already seeing evidence in the market as more covered BHCs reduce their market making activities.***

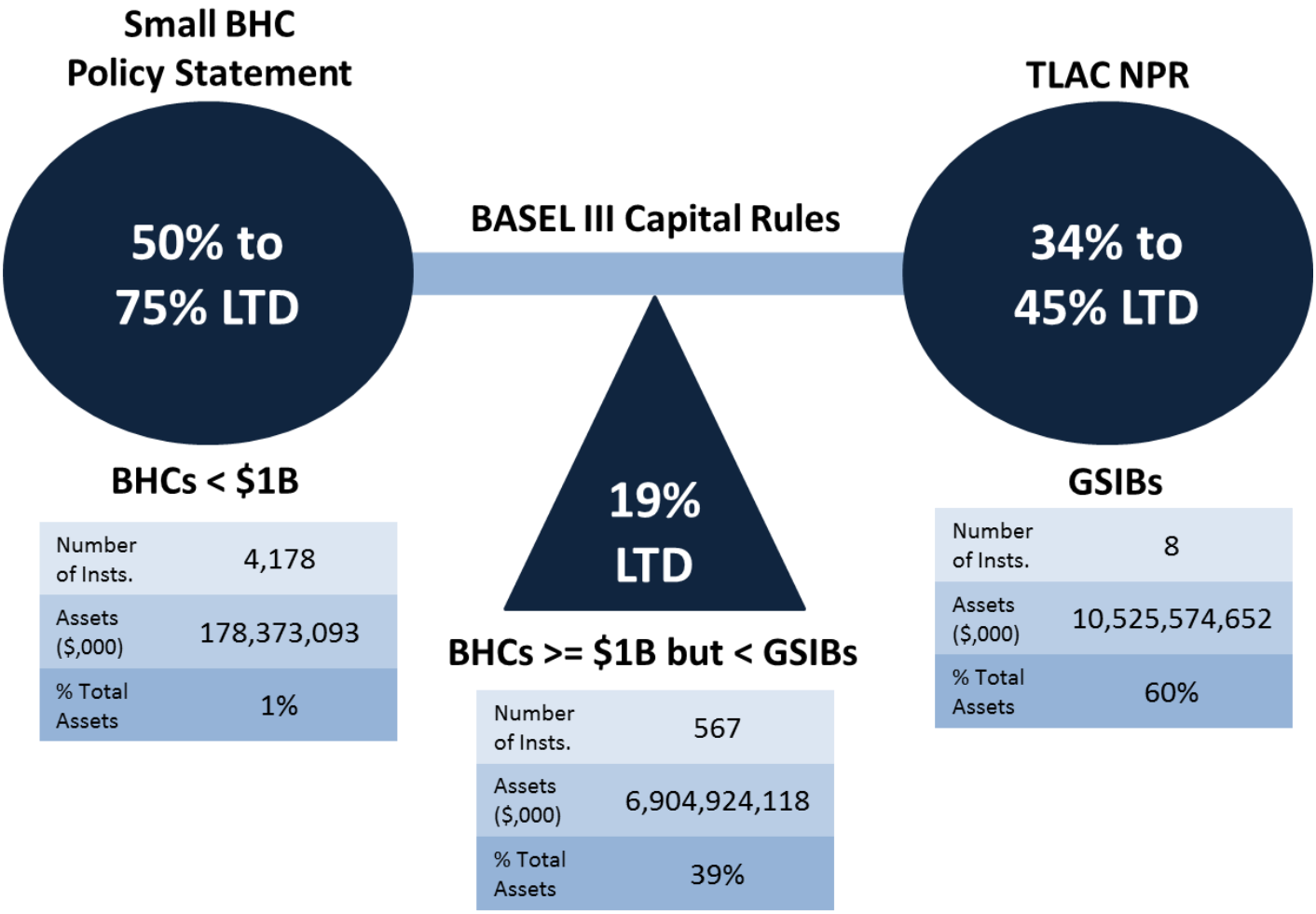
Where will the liquidity come from to support trading in these businesses with low risk weighting but low returns? There are numerous possibilities including buy side accounts such as hedge funds and other investors, non-GSIB broker dealers, and electronic trading platforms. Covered BHCs are also exploring various technology solutions, such as the application of block chain technology, which could offer a way to substantially reduce the time for trading settlement and clearance, releasing capital by shortening the holding periods.

## 4) Greater Use of Debt in the BHC Capital Structure

When fully phased in on January 1, 2022, the TLAC capital rules will require about 34% to 40% LTD[18] in the total capital structure (including the full counter cyclical capital buffer) and about 38% to 45% LTD[19] in the total capital structure (with NO counter cyclical capital buffer). These higher BHC debt levels contrast sharply with the current Basel III rules (applicable to non-GSIBs with assets of $1 billion or more) which currently only include about 19% in LTD (subordinated debt) as a component of total capital.[20] The Small Bank Holding Company Policy Statement (Policy Statement) effective in May of 2015 explicitly permits up to 75% LTD in the BHC capital structure and allows up to 50% LTD without restriction on dividend payments or impacting expedited regulatory approval for M&A transactions.[21] In December 2015, the House Financial Services Committee approved a bill (H.R. 3791) [22] to increase the consolidated BHC asset size threshold applicable to the Policy Statement from $1 billion to $5 billion which, if adopted as law, would significantly expand the number of BHCs that could explicitly use more LTD.

[18] Please see Appendix C
[19] Please see Appendix D
[20] Basel III Final Capital Rules effective October 2013.
[21] Small Bank Holding Company Policy Statement effective May 2015. Requires that BHC assets are less than $1 billion, no significant non-bank activities, no significant off balance sheet activities done through non-bank subsidiaries, and no material amount of SEC registered debt or equity. Principal ongoing requirements include: parent company debt must be repaid within 25 years, maximum debt to equity ratio of 3:1 (75%) but must be reduced to .3:1 (25%) or less within 12 years, each insured depository subsidiary must be well capitalized under Basel III rules, and no dividends can be paid until debt/equity ratio less than 1:1 (50%).
[22] http://financialservices.house.gov/uploadedfiles/bills-114hr3791ih.pdf

As illustrated below, these capital rules differ substantially by asset size and result in a bar bell scenario where the largest and smallest banks in the U.S. can have substantially more debt in their capital structure than Basel III would otherwise permit. GSIBs with about 60% of the U.S. banking assets are required to have 34% to 45% long term debt while small BHCs representing about 87% of the total number of BHCs are currently permitted to have 50% to 75% long term debt. The BHCs in the middle with $1 billion or more in assets but less than GSIBs (representing about 39% of total U.S. banking assets) will have only 19% debt and be at a distinct disadvantage in terms of weighted average cost of capital.[23]




As explained in more detail in Appendix E and using standardized costs of common equity of 12.00%, preferred equity of 7.00%, subordinated debt of 5.50% and senior BHC debt of 4.00%, the hypothetical after-tax WACC for a small BHC would be 7.43% compared to 8.07% for a covered BHC and 9.63% for a BHC with $1 billion or more in assets but less than GSIB in size. This WACC differential highlights the benefit of the higher debt mix in lowering the after-tax WACC.

[23] All data related to number of institutions and total assets for U.S. BHCs and Savings and Loan Holding Companies based on SNL Financial as of December 23, 2015, using data for the quarter ended September 30, 2015.

As illustrated in Appendix F, the WACC advantage that TLAC banks have relative to Basel III banks is offset by the higher total cost of capital due to the greater volume of capital required with 21% total capital/loss absorbing capacity vs 10.50% for Basel III and small BHCs. This results in higher total capital costs relative to the Basel III and small BHCs and reinforces why covered BHCs will continue to be under pressure to reduce their asset profiles to lower the volume of capital required to support their level of business activity.

Again, this may heighten focus on greater use of technology by covered BHCs to maintain their level of transaction and trading activity without tying up capital by shortening clearing times and reducing inventory positions.

## Summary and Implications

Depending upon the outcome from the comment process which ends on February 1, 2016, the TLAC rules have the potential to materially disrupt the senior BHC debt market, negatively impact non-GSIB bank senior debt investments in covered BHCs and Basel III capital ratios, further reduce capital allocated by covered BHCs to support market making activities, and significantly increase the level of long term debt in GSIB BHCs to lower the weighted average cost of capital (WACC) but increase the overall cost.

Thus far market participants have apparently not focused on the downside case of the TLAC requirements of up to $550 billion. This appears to be based on the assumption that the Board's estimate of $120 billion of LTD financing need over the next 3 years was an accurate approximation and that substantially all outstanding covered BHC senior LTD would remain in place and concerns about the acceleration language would be resolved in the comment process. This further assumes that the covered BHCs will not issue covered debt in excess of the required minimums. If these assumptions should prove to be inaccurate, the volume of debt to be raised could materially disrupt the BHC LTD market.

There are at least three concerns that we think should be addressed through the comment process: (i) modifying, grandfathering or offering forbearance to outstanding covered debt that generally meets the requirements for eligible LTD except for acceleration clause(s); (ii) pushing back the start date from January 1, 2019 to January 1, 2022 for the Basel III deduction for investments by non-GSIBs in covered BHC's debt and expanding the time frame for the market maker exemption for ownership of covered debt from 5 days to 30 days to facilitate orderly market making by GSIBs; and (iii) reducing the SLA penalty by reducing the 9.50% buffer to be more in line with the buffer applicable to foreign BHCs at 6.75%.

Clearly, the Board and other regulators are comfortable with more debt in the BHC capital structure with small BHCs permitted to have 50 to 75% long term debt and GSIBs required to have 34 to 45%. This will likely encourage the BHCs with $1 billion or more in assets but less than GSIBs to add more debt to their capital structure to stay competitive with the WACC of other banking organizations. Properly managed within safety and soundness parameters, this could be a win/win for all parties as the banking regulators

get more third party loss absorbing capacity into the banking system while bank management teams and Boards are able to add additional capacity to lend, which can certainly be used to stimulate economic growth and job creation.

***Thomas W. Killian*** *is a Principal of Sandler O'Neill + Partners, L.P. His 37-year career in commercial and investment banking includes seven years of commercial banking experience with NationsBank, structuring and arranging leveraged finance transactions; two years with Salomon Brothers, transacting capital markets and advisory assignments for a variety of major corporations; five years with J.P. Morgan, managing financial advisory and capital raising activities for banks and thrifts in the Western region of the United States; and 23 years with Sandler O'Neill, advising banks, thrifts, and insurance companies on a variety of capital markets, strategic advisory and M&A assignments.*

*At Sandler O'Neill, Mr. Killian has managed the successful execution of 13 M&A transactions representing over $2.4 billion in deal value and $8.5 billion of capital raising transactions. Most recently, he advised the FDIC on the successful least cost resolution of Doral Bank using a multiple acquirer strategy. He has co-managed the Sandler O'Neill team responsible for successfully completing 17 pooled trust preferred transactions that raised over $7 billion for approximately 650 financial institutions. Included in Mr. Killian's capital raising transactions are eight recapitalization and restructuring transactions that involved complex capital structures designed to preserve tax benefits for the issuing institutions. He functions as a primary resource in structuring and implementing complex capital markets transactions for financial institutions.*

*Mr. Killian holds a Bachelor of Science from the University of North Carolina at Chapel Hill, where he was a John Motley Morehead Merit Scholar, and a Masters in Business Administration from Northwestern University's J.L. Kellogg Graduate School of Management. He has represented Sandler O'Neill in conferences with the Federal Financial Institutions Examination Council, the Federal Reserve, the Federal Deposit Insurance Corporation, and SNL Financial to discuss capital structure, Dodd-Frank and Basel III related issues. His articles have appeared in Bank Accounting & Finance, U.S. Banker and Modern Bankers, a publication of the Peoples Bank of China.*

*Mr. Killian is also a founding board member of Students Bridging the Information Gap, a 501(c)(3) charity that provides computers, books and other support to African schools and orphanages.*

# *Appendix – A*

## TLAC - Selected Glossary of Key Terms (1)

**AT1** - Additional tier 1 capital as defined in Basel III final capital rules.

**Bail-in capital** – Debt issued by the BHC that will remain in place to absorb losses during the resolution of the underlying bank when continued operations of the bank are no longer viable.

**Capital Conservation Buffer** - Additional CET1 capital buffer above regulatory minimums. The capital conservation buffer is phased-in between January 1, 2016 and year end 2018 becoming fully effective on January 1, 2019. It will begin at 0.625% of RWAs on January 1, 2016 and increases each subsequent year by an additional 0.625 percentage points, to reach its final level of 2.50% of RWAs on January 1, 2019. If these minimum requirements are not met the regulated institution faces restrictions on discretionary payments such as dividends, bonuses, etc.

**CET1** - Common equity tier 1 capital as defined in the Basel III final capital rules.

**Clean BHC** – Restrictions on the types of liabilities permitted within a GSIB BHC including: (i) prohibited liabilities such as short term debt, setoff rights against subsidiaries, qualified financial contracts with third parties, guarantees with cross defaults or benefiting from other guarantees, (ii) 5% cap on aggregate amount of non-contingent liabilities owed to third parties, and (iii) certain other liabilities that are otherwise ineligible liabilities such as liabilities to a subsidiary, TLAC debt with a remaining maturity of less than 1 year, payables associated with TLAC, certain tax liabilities, contingent liabilities and obligations under executory contracts such as rental payments.

**Counter Cyclical Capital Buffer** – Additional CET1 capital buffer of up to 2.50% potentially imposed by the Board during periods of excess credit growth as calculated based on a credit-to-GDP ratio. This credit-to-GDP ratio is viewed as a reliable indicator for periods of excess credit growth, in line with the objective of the countercyclical capital buffer.

**Covered BHCs** – currently consists of 8 top tier U.S GSBI BHCs.

**Covered Debt** – Senior eligible external BHC debt issued by 8 top tier U.S. BHCs of GSIBs.

**Covered IHCs** – Intermediate Holding Companies consisting of the U.S. BHC subsidiaries with $50 billion or more in assets of 22 foreign GSIBs.

**Excluded liabilities** – excludes the following liabilities from external TLAC requirement: (i) insured deposits, sight deposits, and deposits with an original maturity of less than 1 year, (ii) liabilities arising from derivatives or debt instruments with derivative linked features such as structured notes, (iii) liabilities arising other than through a contract, (iv) liabilities which are preferred to normal senior unsecured creditors, and (v) liabilities that, under the laws governing the resolution entity, are excluded from bail-in or cannot be bailed in without external risk of a successful legal challenge compensation claim.

**Eligible LTD** - Debt that is (i) paid-in, (ii) not secured or guaranteed by the GSIB BHC or any other subsidiaries and not subject to any other arrangement that enhances the seniority of the debt, (iii) has a maturity greater than 1 year from date of issuance, (iv) governed by U.S. state or federal law, and (v) "plain vanilla" with no contractual right of acceleration for payment of principal or interest except in the event of insolvency or upon payment default, no credit-sensitive feature, not a structured note, and no conversion or exchange for equity of the GSIB BHC.

**Eligible TLAC** – Debt and equity issued to third parties that counts as tier 1/tier 2 capital as well as debt that is (i) paid-in, (ii) unsecured, (iii) perpetual or has a remaining maturity of at least 1 year, and non-redeemable by the holder within one year, (iv) must absorb losses prior to "excluded liabilities" in insolvency, without giving rise to compensation claims or legal challenge, (v) subordinated to excluded liabilities, (vi) may be ranked as senior to capital instruments, including tier 2 subordinated debt, and (vii) cannot be hedged or netted in a way that would reduce ability to absorb losses.

**External Debt** – Eligible LTD issued to third parties.

**External TLAC** – TLAC issued to third parties.

**GSIB** – Global Systemically Important Bank as determined by the Financial Stability Board and updated yearly.

**Internal TLAC** – TLAC issued to intermediate material sub-groups of a foreign GSIB.

**Method 1 GSIB Buffer** – Under the Basel III framework, GSIBs are subject to an additional CET1 surcharge based on an indicator approach to determining risk that consists of 5 categories including: size, interconnectedness, substitutability, complexity, and cross jurisdictional activity. The amount of buffer using this methodology generally ranges from 1.0% to 2.5%. The method 1 buffer is used to calculate the minimum amount of TLAC required.

**Method 2 GSIB Buffer** – The Board has established an alternative GSIB buffer, method 2, that replaces the substitutability factor from method 1 with a measure to capture reliance on short term wholesale funding (STWF). The method 2 buffer generally results in higher surcharge level for U.S. GSIBs due to the use of STWF by these banks. The amount of the buffer generally ranges from 1.0% to 4.5%. The method 2 buffer is used to determine the minimum amount of external LTD required.

**MPOE** – Multiple Points of Entry resolution framework where multiple internal BHCs would enter into a resolution proceeding allowing operating subsidiaries to be recapitalized by pushing losses up to the internal BHC.

**NPR** – Notice of proposed rule-making with comments due by February 1, 2016.

**RWA** – risk weighted assets which comprise the denominator in the risk weighted assets ratio applicable to GSIB BHCs.

**SLA** – supplementary leverage assets which comprise the denominator in the supplementary leverage asset ratio applicable to the U.S. GSIB banks.

**SPOE** – Single Point of Entry resolution framework where only the top tier BHC would enter into a resolution proceeding allowing operating subsidiaries to be recapitalized by pushing losses up to the BHC.

**T2 capital** - Tier 2 capital as defined in the Basel III final capital rules.

**TLAC** – Total loss absorbing capacity rules and requirements applicable to 8 U.S. GSIBs and 22 foreign GSIBs.

**WAAC** – Weighted Average Cost of Capital.

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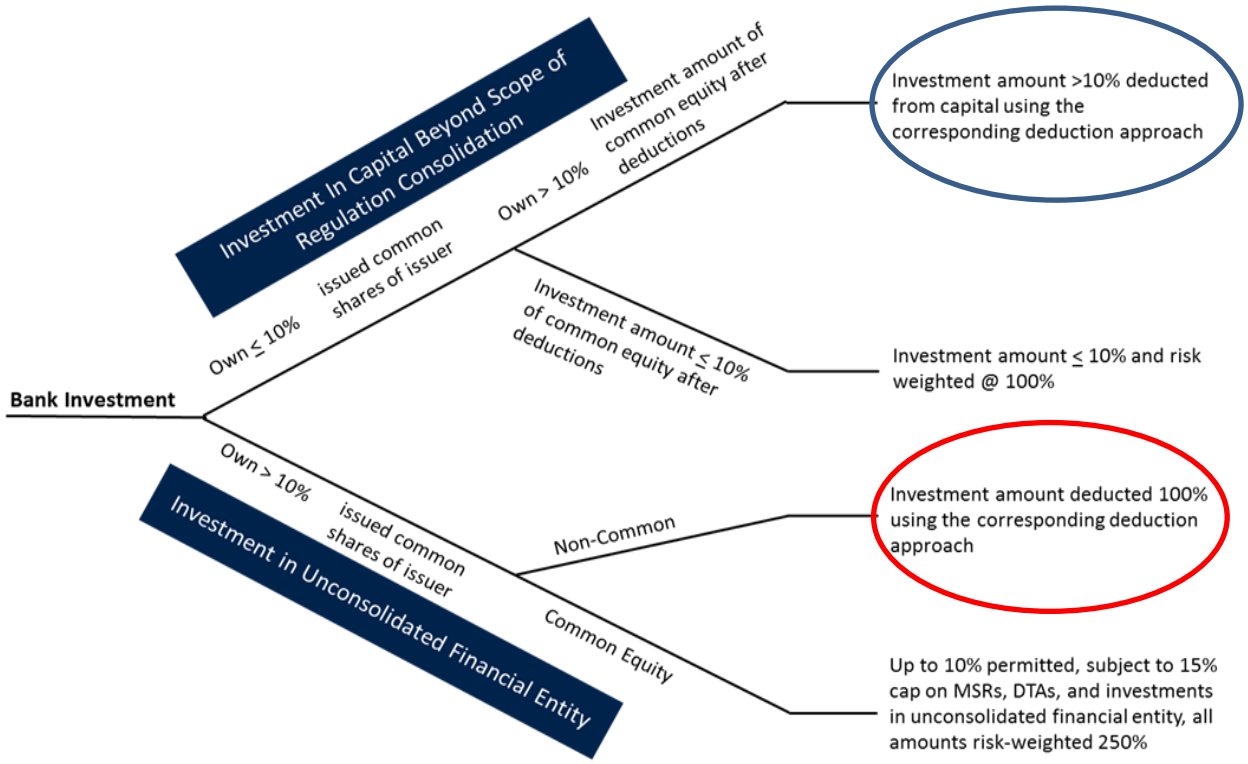
(1) This is intended to provide a brief summary of the key terms mentioned in this TLAC note. For a complete list of all key terms of the Board's TLAC NPR please refer to the Federal Register / Vol. 80., NO. 229 / Monday, November 30, 2015 / Proposed Rules.

# *Appendix – B*

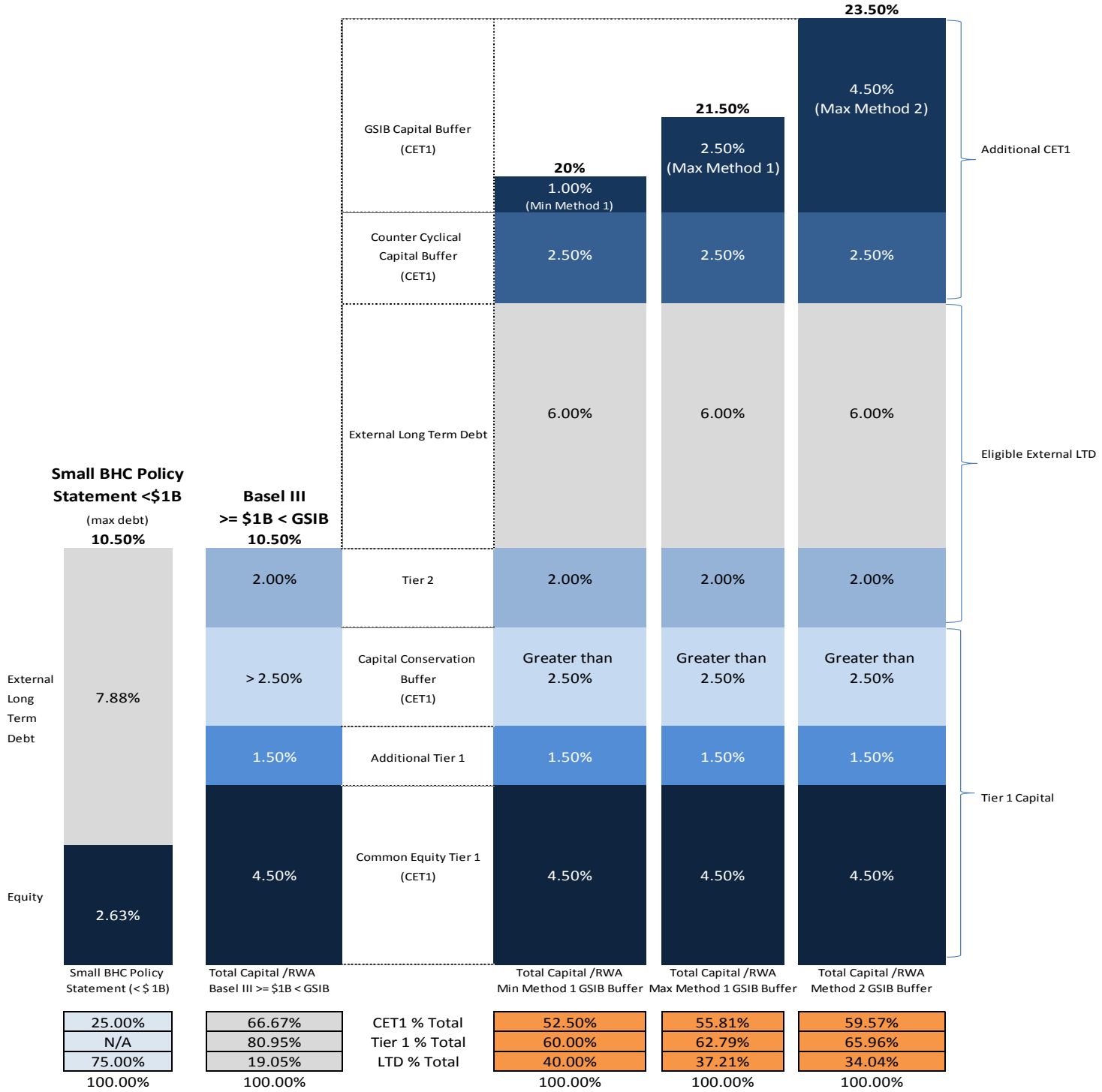
## Capital Deductions for Investment in Covered Debt




| Covered Debt Investment | Fed Regulated Institution Investment Amount | Type of Deduction |
|---|---|---|
| Significant Investment | > 10% CET1 | Complete Deduction |
| Non-significant Investment | > 10% CET1 | 10% Threshold Deduction |

# *Appendix – C*

## Covered BHC Capital / RWA with Counter Cyclical Capital Buffer




*Sources: Small BHC Policy Statement (April 2015), Basel III Capital Rules (October 2013), TLAC NPR (November 2015)*

# *Appendix – D*

## Covered BHC Capital / RWA with NO Counter Cyclical Capital Buffer

*Sources: Small BHC Policy Statement (April 2015), Basel III Capital Rules (October 2013), TLAC NPR (November 2015)*

# *Appendix – E*

## Impact of Capital Mix on WACC

| | |
|---|---|
| Common Equity | 12.00% |
| Preferred Equity | 7.00% |
| Sub Debt | 5.50% |
| Senior BHC Debt | 4.00% |

| | | Permitted Amount | Permitted % | BTX Cost of Capital | ATX Cost of Capital @ 40% | Weighted Average Cost of Capital |
|---|---|---|---|---|---|---|
| TLAC | Common Equity | $ 54.76 | 54.76% | 12.00% | 12.00% | 6.57% |
| | Non-cum. Perp. Preferred | $ 7.14 | 7.14% | 7.00% | 7.00% | 0.50% |
| | Sub Debt | $ 9.52 | 9.52% | 5.50% | 3.30% | 0.31% |
| | Senior BHC Debt | $ 28.58 | 28.58% | 4.00% | 2.40% | 0.69% |
| | | $ 100.00 | 100.00% | | | 8.07% |
| Basel III | Common Equity | $ 66.67 | 66.67% | 12.00% | 12.00% | 8.00% |
| | Non-cum. Perp. Preferred | $ 14.29 | 14.29% | 7.00% | 7.00% | 1.00% |
| | Sub Debt | $ 19.05 | 19.05% | 5.50% | 3.30% | 0.63% |
| | Senior BHC Debt | $ - | - | 4.00% | 2.40% | 0.00% |
| | | $ 100.00 | 100.00% | | | 9.63% |
| Small BHC | Common Equity | $ 50.00 | 50.00% | 12.00% | 12.00% | 6.00% |
| | Non-cum. Perp. Preferred | $ - | 0.00% | 7.00% | 7.00% | 0.00% |
| | Sub Debt | $ 25.00 | 25.00% | 5.50% | 3.30% | 0.83% |
| | Senior BHC Debt | $ 25.00 | 25.00% | 4.00% | 2.40% | 0.60% |
| | | $ 100.00 | 100.00% | | | 7.43% |

Regional and Community Banks have the highest relative WACC due to lower level of debt in capital

***To highlight the impact of capital mix on the WACC, we assumed that the cost of common equity, preferred equity, subordinated debt and senior BHC debt would be the same for covered BHCs, banks with $1 billion or more in assets but less than GSIBs, and small BHCs with total assets of less than $1 billion. This is a hypothetical example only and the actual cost of each of these types of capital will vary based on the size of the institution, financial performance and other factors.***

# *Appendix – F*

## Impact of Total Capital Volume on Total Cost of Capital

| | |
|---|---|
| TLAC Capital (1) | 21.00% |
| Basel III Capital | 10.50% |
| Small BHC Capital | 10.50% |

| | | Permitted Amount | Permitted % | BTX Cost of Capital | ATX Cost of Capital @ 40% | Weighted Average Cost of Capit | |
|---|---|---|---|---|---|---|---|
| TLAC | Common Equity | $ 11.50 | 54.76% | 12.00% | 12.00% | 6.57% | |
| | Non-cum. Perp. Preferred | $ 1.50 | 7.14% | 7.00% | 7.00% | 0.50% | |
| | Sub Debt | $ 2.00 | 9.52% | 5.50% | 3.30% | 0.31% | |
| | Senior BHC Debt | $ 6.00 | 28.58% | 4.00% | 2.40% | 0.69% | |
| | | $ 21.00 | 100.00% | | | 8.07% | $ 1.69 |
| Basel III | Common Equity | $ 7.00 | 66.67% | 12.00% | 12.00% | 8.00% | |
| | Non-cum. Perp. Preferred | $ 1.50 | 14.29% | 7.00% | 7.00% | 1.00% | |
| | Sub Debt | $ 2.00 | 19.05% | 5.50% | 3.30% | 0.63% | |
| | Senior BHC Debt | | - | 4.00% | 2.40% | 0.00% | |
| | | $ 10.50 | 100.00% | | | 9.63% | $ 1.01 |
| Small BHC (1) | Common Equity | $ 5.25 | 50.00% | 12.00% | 12.00% | 6.00% | |
| | Non-cum. Perp. Preferred | $ - | 0.00% | 7.00% | 7.00% | 0.00% | |
| | Sub Debt | $ 2.63 | 25.00% | 5.50% | 3.30% | 0.83% | |
| | Senior BHC Debt | $ 2.63 | 25.00% | 4.00% | 2.40% | 0.60% | |
| | | $ 10.50 | 100.00% | | | 7.43% | $ 0.78 |

The WACC advantage of the TLAC banks is offset by the higher total volume of capital required with 21% total capital vs. 10.50% for Basel III and small BHCs

(1) Note that while the Small BHC policy statement permits up to 75% debt in the BHC capital structure, we have used 50% total debt (25% sub debt and 25% senior debt) as up to 50% LTD can be used without restriction on dividend payments or limits on expedited approval for M&A transactions.

***To highlight the impact of required capital volume on the total cost of capital for each of the three types of banks, we assumed that the cost of common equity, preferred stock, subordinated debt, and senior BHC debt would be the same for all banks regardless of size. We have further assumed that the volume of total capital would be based on the covered BHC capital RWA requirement of approximately 21% with NO counter cyclical capital buffer and 10.50% for the Basel III BHCs and the small BHCs. Each of these types of institutions may choose to have more of any type of capital, which would impact the calculations. This is a hypothetical example only and the cost of each of these types of capital will vary based on the size of the institution, financial performance and other factors.***

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