# Measurement of Credit Exposure for Securities Lending

## (Basel Large Exposures proposal)

# Custody Bank Overall Views on Large Exposure Proposal

The Basel Committee's large exposures proposal* raise several significant concerns for custody banks, due to:

- Significant overstatement of credit risk for securities lending transactions;
- Inflexible limitations on short-term credit exposures related to securities payment and settlement custodial activity; and
- Unduly restrictive limits for all G-SIBS.

This presentation focuses solely on the measurement of credit risk for securities lending transactions.

* Consultative Document, Supervisory framework for measuring and controlling large exposures (http://www.bis.org/publ/bcbs246.pdf)
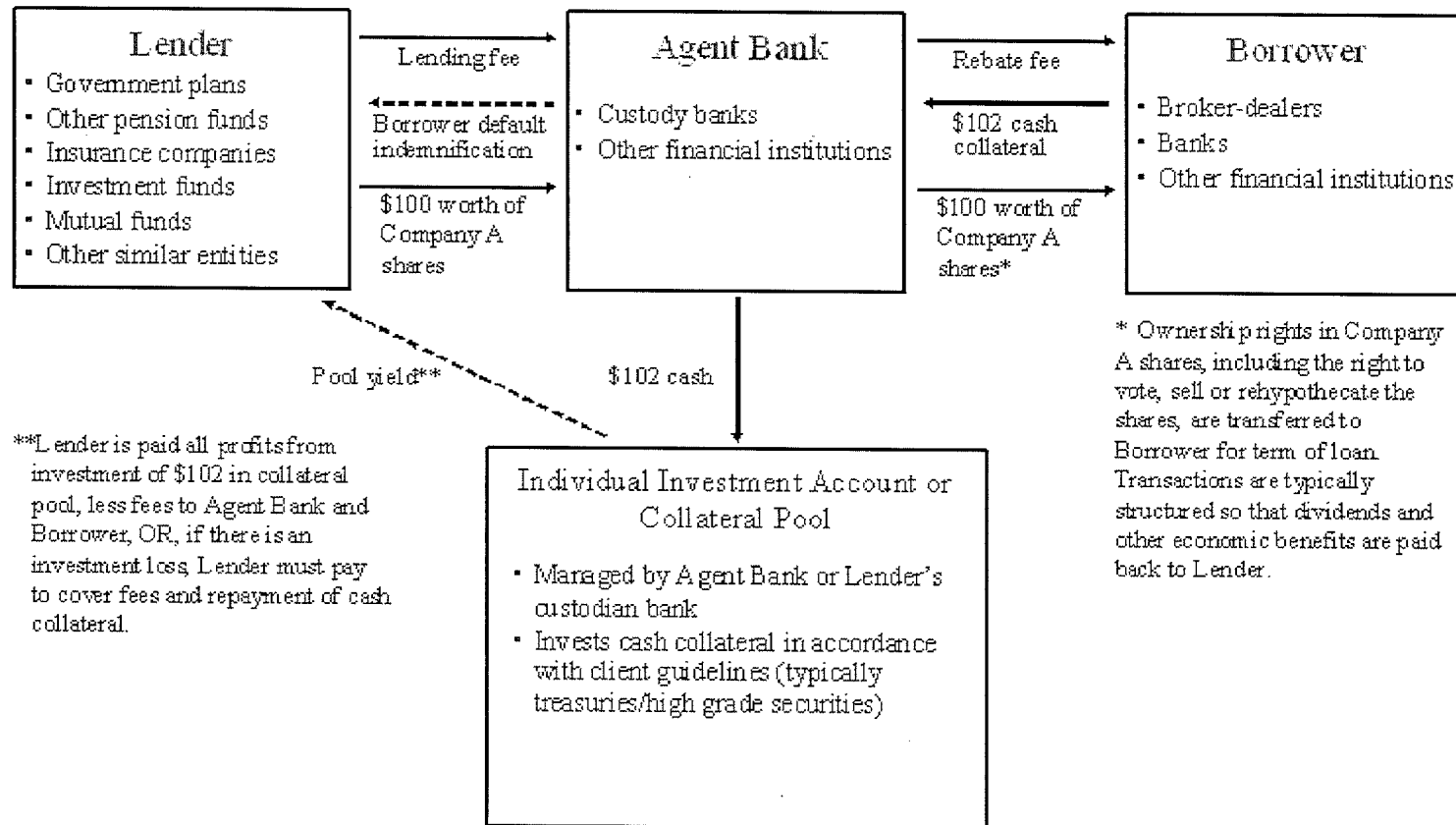
# Summary

- Custody banks, as agent lenders, provide an important service to market participants, adding to market liquidity and stability, and providing opportunities for incremental returns for long-term investors.

- Unduly constraining securities lending activity will have negative economic and market stability consequences.

- The methodology suggested in the large exposures proposals dramatically overstates credit risk from securities lending transactions.

- Regulators are unwilling to allow use of internal models for measuring exposures.

- **Suggested Approach**:  Develop a more risk-sensitive, but non-models based, approach to measure credit exposures related to securities lending.

# Role of custody banks in securities lending markets

- Agency securities lending through custody banks is demand driven, and does not directly provide leverage or funding for:
  - borrowers, who receive securities, not cash, and post cash or non-cash collateral; or
  - beneficial owner lenders, who reinvest cash in conservative commingled investment pools or separate accounts; or
  - agent lenders, who act solely as agents, and have no access to cash collateral (unlike AIG principal lending during crisis).
- Custody banks are retained by asset-owners (pension plans, central banks, endowments, investment funds, insurance companies) to lend securities held in investment portfolios.
- Asset owners generate incremental yield, at low-risk, and receive the great majority of the revenue associated with agency lending transactions.
- Borrowers use agent lenders to access securities needed to satisfy demand related to market-making, hedging, trade settlement, short-covering, prime brokerage, or emerging swaps collateral requirements.
- Custodians provide:
  - relationships and credit risk assessment for a wide range of borrowers;
  - systems expertise and economies of scale;
  - monitoring, mark-to-market and exchange of collateral;
  - optional reinvestment of cash collateral (under lender investment guidelines); and
  - indemnification for return of securities in cases of borrower default.

**Most asset owners would be unable to lend securities without the services of an agent lender.**

# Securities loans are one form
# of "Securities Financing Transactions" (SFTs)*

| Lender | | Agent Bank | | Borrower |
|---|---|---|---|---|
| • Government plans<br>• Other pension funds<br>• Insurance companies<br>• Investment funds<br>• Mutual funds<br>• Other similar entities | Lending fee<br><br>Borrower default indemnification<br><br>$100 worth of Company A shares | • Custody banks<br>• Other financial institutions | Rebate fee<br><br>$102 cash collateral<br><br>$100 worth of Company A shares* | • Broker-dealers<br>• Banks<br>• Other financial institutions |

Pool yield**  $102 cash

**Lender is paid all profits from investment of $102 in collateral pool, less fees to Agent Bank and Borrower, OR, if there is an investment loss, Lender must pay to cover fees and repayment of cash collateral.

**Individual Investment Account or Collateral Pool**

• Managed by Agent Bank or Lender's custodian bank
• Invests cash collateral in accordance with client guidelines (typically treasuries/high grade securities)

* Ownership rights in Company A shares, including the right to vote, sell or rehypothecate the shares, are transferred to Borrower for term of loan. Transactions are typically structured so that dividends and other economic benefits are paid back to Lender.

* The FSB has identified four SFT market segments: 1) securities lending, 2) leveraged investment fund financing and securities borrowing, 3) inter-dealer repo, and 4) repo financing.

September 24, 2013

5

# Regulatory Initiatives Related to SFTs

- Regulatory concerns with SFTs:
  - GSIB interconnectedness;
  - Overreliance on wholesale funding;
  - Chains of transactions re-using collateral;
  - Procyclicality;
  - "Fire Sales" of assets;
  - Re-hypothecation.
- Pending regulatory initiatives include:
  - Basel large exposures / U.S. SCCL;
  - Leverage ratio – increased ratio, changes to denominator;
  - Basel III capital rules
  - FSB Shadow Banking – cash collateral reinvestment rules, transparency, minimum collateral haircuts for funding transactions;
  - U.S. Dodd-Frank Act Section 984 (SEC rulemaking on transparency)
  - Potential limits on wholesale funding for banks

**The large exposures proposals are only one element in the overall regulatory approach to SFTs.**

# Negative Impacts of Excessively Limiting Securities Lending

- **Lower returns for beneficial owners**: securities lending typically adds 5bps to pension or investment fund yields. Investors received approximately $8 billion from securities lending over the past 12 months (estimate derived from Markit Group Data).

- **Lower liquidity in securities markets**: securities lending narrows spreads, and increases liquidity.

- **Disruption in settlement process**: limiting securities lending will increase failed trades and other disruptions.

- **Reduced availability of high-quality, liquid assets to meet new swaps collateral and other mandates**: $2.3 trillion in government securities are currently lendable assets (based on Markit Group Data), but availability to meet new derivatives collateral rules through lending programs would be limited under proposals.

- **Shift of lending business to non-banks, or larger banks**: non-bank agent lenders outside the reach of large exposure limits, and larger banks with higher exposure limits, will benefit from undue restrictions placed on custody bank agent lenders.

# Technical Flaws with Proposed Methodology

- **Non-risk sensitive haircuts** – the proposals mandate use of an regulatory haircut table which lacks granularity and risk-sensitivity.

- **Foreign exchange** – the 8% adjustment for cross-currency transactions greatly overstates volatility (approximately double) for most currency pairs.

- **Correlation** – assumed negative 100% correlation between loans and collateral.

- **Portfolio diversification** – no recognition of diversification within lending or collateral portfolio (assumed positive 100% correlation)

- **Netting** – no meaningful recognition of netting.

- **Flight to quality** – no recognition of "flight to quality" in times of stress, when certain security types (equities, corporate bonds) would be expected to fall in price while other "safe" assets would be expected to rise (Treasuries).

# Possible Alternatives for Measuring Credit Risk for securities lending

*Existing/Proposed:*

- **Basel Comprehensive Approach**: existing methodology for capital Standardized Approach, and proposed approach for large exposures.
- **Regulator Approved Simple VaR** – existing advanced methodology under capital rules for major agent lenders.
- **NIMM (Non Internal Model Method)**– regulators' proposed alternative to CEM for capital for derivatives exposures; may be used for large exposures as well.
- **Basel Leverage Ratio proposal** – as proposed, current exposure for agency lending and gross exposure for principal activity.
- **Expected Shortfall approach** –Proposed in the Basel Committee's Fundamental Review of the Trading Book to replace VaR methodology.

*Potential New Approaches:*

- **Alternative A --- Regulatory Input Method**--- all market assumptions provided by regulators; banks would only input portfolio data, and run computations.
- **Alternative B --- Revised Comprehensive Approach** – multi-dimensional haircut matrix, incorporating correlations, diversification, and other factors.

*Recommendation:*

- Initiation of a regulatory process similar to that underway for derivatives (i.e., the NIMM), focused on development of a new "Regulatory Input Method."

# Suggested non-internal model approaches
## (Both Alternative A and Alternative B)

- Regulators provide all market assumptions, such as volatilities and correlations.

- Regulators establish methodology for computing exposures.

- Regulatory assumptions (volatilities, correlations) are fixed in regulations, do not fluctuate with market conditions, and would only be changed through regulator-initiated revision of rules.

- Regulators can calibrate outcomes to meet policy goals.

- Banks input portfolio characteristics and run computations.

- Conservative, transparent, and comparable across the industry.

**Proposed Regulatory Input Method (Alternative A) would be simplest approach --- but concept could be translated into a multi-dimensional haircut matrix (Alternative B).**

# Alternative A --- Regulatory Input Method

$$\text{Exposure} = \sqrt{(L^*\delta_1)^{\wedge}2 + (-C^*\ \delta_2)^{\wedge}2 + 2^*(L^*\delta_1)^* \ (-C^*\ \delta_2)^*\text{-}\rho} \quad - \quad (C\text{-}L)$$

Where:

L = loan value

$\delta 1$ = volatility of Lent Security

C = collateral value

$\delta 2$ = volatility of Collateral Security

P = correlation between lent security and collateral security

Advanced Approach - All variables are internally derived by the bank.

Proposed Approach – Loan value and collateral value are from the bank; $\delta 1$, $\delta 2$ ,$\rho$ are all standardized by the regulators at an asset class level based on 99th percentile estimates under stressed scenarios.

# Alternative B --- Revised Comprehensive Method

Exposure = (L * h(L/C)+ ((C-L)*h(C))- (C-L)
L = Loan Value; C – Collateral Value; h(L/C) = haircut for loan/collateral combination;
and h(C) = haircut for collateral vs. cash

## Collateral

| Loan | | Cash | OECD 0-1 <1 year | OECD 0-1 1-5 year | OECD 0-1 >5 year | OECD 2-3 <1 year | OECD 2-3 1-5 year | OECD 2-3 >5 year | Corp/Muni <1 year | Corp/Muni 1-5 year | Corp/Muni >5 year | Equity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cash | | 0.0% | 0.1% | 1.2% | 2.6% | 0.5% | 1.9% | 6.7% | 1.2% | 6.9% | 13.7% | 15.0% |
| OECD 0-1 | <1 year | 0.6% | 0.5% | 1.6% | 3.0% | 0.8% | 2.3% | 4.4% | 1.5% | 4.4% | 8.6% | 10.8% |
| OECD 0-1 | 1-5 year | 1.6% | 0.9% | 2.0% | 3.5% | 1.4% | 2.8% | 5.0% | 1.9% | 4.8% | 9.1% | 11.6% |
| OECD 0-1 | >5 year | 3.0% | 1.6% | 2.8% | 4.1% | 1.9% | 3.3% | 5.6% | 2.4% | 5.6% | 9.8% | 12.5% |
| OECD 2-3 | <1 year | 0.9% | 0.6% | 1.9% | 3.2% | 1.1% | 2.5% | 4.6% | 1.6% | 4.5% | 8.8% | 11.0% |
| OECD 2-3 | 1-5 year | 2.3% | 1.2% | 2.4% | 4.2% | 1.8% | 3.2% | 5.3% | 2.1% | 5.2% | 9.4% | 11.7% |
| OECD 2-3 | >5 year | 1.8% | 2.2% | 3.5% | 4.8% | 2.8% | 4.2% | 6.3% | 2.9% | 6.2% | 10.4% | 12.9% |
| Corp/Muni | <1 year | 1.7% | 0.8% | 2.3% | 3.6% | 1.1% | 2.9% | 4.9% | 1.7% | 4.6% | 9.0% | 11.2% |
| Corp/Muni | 1-5 year | 1.6% | 2.0% | 3.2% | 4.8% | 2.4% | 4.0% | 7.3% | 2.6% | 5.7% | 10.3% | 13.2% |
| Corp/Muni | >5 year | 3.3% | 3.7% | 5.3% | 6.7% | 4.0% | 5.7% | 8.2% | 4.2% | 7.9% | 12.1% | 15.9% |
| Equity | | 6.2% | 6.5% | 8.7% | 9.8% | 6.2% | 7.5% | 10.1% | 6.0% | 10.7% | 15.1% | 11.8% |

- 99% most positive / most negative index - index correlations
- 99% most positive / most negative security - index correlations
- Adjusted to account for right way / wrong way risk, resulting in a higher haircut for exposure pairs with lower quality collateral and lower haircut for instances of higher quality collateral

# Pro-Forma model results

| | Lend | | Rec eive | | | | Net Exposure |
|---|---|---|---|---|---|---|---|
| | Ford | 100 | 10 year UST | 102 | | | |
| Standardized | | | | | | | 11.5 |
| Regulatory Input | | | | | | | 6.2 |
| Revised Comprehensive | | | | | | | 7.9 |
| Simple VaR | | | | | | | 4.4 |
| | | | | | | | |
| | 2 Year UST | 100 | GM | 108 | | | |
| Standardized | | | | | | | 4.9 |
| Regulatory Input | | | | | | | 8.3 |
| Revised Comprehensive | | | | | | | 4.8 |
| Simple VaR | | | | | | | 0.0 |
| | | | | | | | |
| | GE | 100 | Cash | 102 | | | |
| Standardized | | | | | | | 8.6 |
| Regulatory Input | | | | | | | 4.2 |
| Revised Comprehensive | | | | | | | 4.2 |
| Simple VaR | | | | | | | 3.8 |
| | | | | | | | |
| Portfolio | Loans | 300 | Collateral | 312 | Gross Exposure | Net Exposure | |
| Standardized | | | | | 36.9 | 24.9 | |
| Regulatory Input | | | | | 25.2 | 13.2 | |
| Revised Comprehensive | | | | | 23.3 | 11.3 | |
| Simple VaR | | | | | 7.6 | 0.0 | |

**Standardized =**
Proposed large exposures methodology.

**Regulatory Input =**
Proposed alternative, with asset class volatilities based on proposed haircuts shifted to reflect flight to quality, and stressed correlations at the 99th percent highest (for loan vs. loan and collateral vs. collateral) and lowest (loan vs. collateral).

**Revised Comprehensive =**
Proposed Alternative using haircuts for loan and collateral pairs based on proposed haircuts shifted to reflect flight to quality, and stressed correlations at the 99th percent highest (for loan vs. loan and collateral vs. collateral) and lowest (loan vs. collateral).

**Simple VaR =**
VaR derived using the variance-covariance methodology and a 1 year volatilities and correlations

September 24, 2013

13

# Benefits of Regulatory Input Method

- Regulators provide all market inputs, and control level of conservatism of exposure measurement.

- Static assumptions, with regulators controlling timing of recalibrations.

- Banks only input portfolio characteristics, with no discretion with respect to market assumptions.

- No bank-dependent "model risk" --- regulators prescribe all discretionary factors.

- Provides for simple, transparent implementation.

- Significantly increases measured credit exposure compared to current Simple VaR models,  but addresses flaws with Comprehensive Approach.

- Would require reduced exposures between GSIBs in current market environment, and will constrain future growth of exposures.

- Would have required dramatically reduced exposures in 2008 markets.

# Recommended Next Steps

- **Immediate priority**:   develop new approach to measuring credit risk from securities lending transactions.

- Permit continued use of approved existing approved methods for large exposure measurement while regulators develop new methodology.

- Process would be similar to that currently underway for derivatives for capital, with the NIMM.

- Consider using new methodology for other purposes, including Standardized Approach, and leverage ratio.