Meeting between Federal Reserve Board Staff and
Representatives of the American Council of Life Insurers
May 23, 2012

Participants: Scott Alvarez, Sean Campbell, Anna Harrington, and Stephanie Martin (Federal Reserve Board)

Carl Wilkerson (American Council of Life Insurers); Joseph Demetrick, Todd Lurie and Jason Manske (MetLife); Debra Epp and Julia Lawler (Principal Financial Group); Gary Neubeck (Prudential); and Gilbert Schwartz (Schwartz & Ballen).

Summary: Staff of the Federal Reserve Board met with representatives of the American Council of Life Insurers ("ACLI") to discuss issues related to the proposed rule of the Board and other prudential regulators on margin and capital requirements for covered swap entities under Title VII of the Dodd-Frank Act. The ACLI representatives discussed the possibility of treating corporate bonds as eligible collateral. A copy of the discussion document provided by the ACLI representatives is attached.

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Corporate Bonds as Eligible Collateral for Derivative Transactions

Presentation to the Staff of the Board of Governors of the Federal Reserve System

May 23, 2012

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Summary

- U.S. life insurance industry is the largest buyer of corporate bonds in the U.S.
- High quality corporate bonds are currently used as collateral (as variation margin) under most bi-lateral Credit Support Annexes between life insurers and their derivative bank/dealer counterparties
- High quality corporate bonds should be eligible under new rules to satisfy derivative margin requirements
- Our analysis demonstrates that with reasonable diversification and appropriate haircuts, high-quality corporate bonds utilized as both initial and variation margin for derivatives provide more than adequate protection in the event of a counterparty default

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U.S. Life Insurers: Key Investors in U.S. Corporate Securities

- Among financial service companies, life insurers are the largest source of bond financing for American businesses; holding, in 2011, nearly 31% of all U.S. corporate bonds owned by financial firms. (Source: Federal Reserve Flow of Funds data release).
- In 2010, approximately 54% of life insurers' $5.3 Trillion of total assets were held in bonds
  - 40% in corporate bonds (or 73% of bonds were corporate)
  - 15% in government bonds (or 27% of bonds were government)
- In 2010, nearly 62% of bonds held in life insurers' general accounts had maturities of 10 years or greater (at time of purchase)

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U.S. Life Insurers Current Derivatives Margin Practices

Respecting Initial Margin & Variation Margin:

- U.S. life insurers generally do not post initial margin (thus significant impact to industry of new initial margin requirements for cleared and uncleared derivatives)
- U.S. life insurers currently post a wide range of securities for collateral (as variation margin) under CSAs, such as:
  - Treasuries
  - Agency debentures & Agency RMBS
  - High-quality corporate bonds

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Impact of New Dodd Frank Margin Rules

- It is estimated several trillions in additional collateral will be needed as result of new Dodd-Frank Act margin rules (See Risk Magazine, April 2012)
- Rules create new systemic risk of insufficient eligible collateral -
  - Increased risk of market disruption and liquidity risk if eligible margin assets not expanded
  - Wider range of high quality eligible collateral helps mitigate systemic risks and liquidity risk in markets

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Consistency with Title IX of Dodd Frank

- Section 939A of Dodd-Frank section requires that each Federal agency "remove any reference to or requirement of reliance on credit ratings and to substitute in such regulations such standard of credit-worthiness as each respective agency shall determine as appropriate for such regulations"
- ACLI approach using broad-based indices is consistent with Section 939A
  - Does not reference or rely on credit ratings
  - Substitutes diversified portfolio of high-quality corporate credits for ratings-based criteria commonly found in bi-lateral CSAs
- ACLI approach is one method of determining suitability for using corporate bonds as margin
  - Clearinghouses (CME/LCH) are developing non-ratings based criteria to accept high-quality corporate bonds as eligible collateral

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Analysis: Selecting an Appropriate Universe

Challenges

- Develop a broad universe of high-quality issuers without directly referencing public rating agency ratings
- Ensure universe of securities is limited to large liquid issues
- Determine that a ready source of daily pricing exists for securities within universe
- Verify that a source of historical data is available for back-testing purposes

Approaches Considered

- Utilizing CDX G Index; not enough individual CUSIPs
- Determining universe based on credit spreads; stability of universe a concern, would include small issue size

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Analysis: Universe Selection

- We decided to explore broad-based indices of U.S. credit published by major broker-dealers
- This approach would have many advantages, including:
  - Clearly defined and publicly available index rule book
  - Defined list of eligible CUSIPs
  - Securities limited to large liquid issues as defined in the index rules
  - Ready source of daily pricing & historical data
- A number of dealers construct and maintain indices on corporate credit
  - Bank of America, Barclays, JPMorgan
- We selected the Barclays U.S. Credit Index as the source data for our analysis
  - One of the oldest, most established index in the U.S. (predecessor- Lehman U.S. Credit Index was established in 1973)
  - Widely benchmarked by money managers, thus wide acceptability by other real money derivative end users

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Analysis: Barclays U.S. Credit Index

- Barclays U.S. Credit Index comprises the U.S. Corporate Index and a non-corporate component that includes foreign agencies, sovereigns, supranationals and local authorities
- Only high quality U.S. $-denominated fixed-rate securities are included in the index
- Index history is available back to 1973
- U.S. Credit Index is a subset of the U.S. Government/Credit Index and the U.S. Aggregate Index

Barclays U.S. Credit Index	
Issues: 4,480	Currency: USD
Amt Outstanding: $2.4 trillion	Avg Maturity: 10yrs

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Analysis: Single CUSIP Statistics

Results

- We began our analysis looking at the largest 10-day moves across all of the individual CUSIPs in the Barclays Credit Index universe
- Our analysis, summarized in the table below, lists the number of individual CUSIPs that had a 10-day price decline, bucketed by severity of the decline
- For example, in 2008, 628 CUSIPs experienced a 10-day price decline of more than 20%
- Conclusion: Tail events are rare, but they do occur

Period	Total	>0%	>10%	>20%	>30%	>40%	>50%	>60%	>70%	>80%	>90%	100%
2007-2011	6458	6388	2140	708	278	166	86	39	18	11	9	0
2011	[illegible]	[illegible]	8	0	0	0	0	0	0	0	0	0
2010	[illegible]	4720	[illegible]	[illegible]	0	0	0	0	0	0	0	0
2009	[illegible]	4313	567	183	77	44	16	7	6	2	1	0
2008	3947	[illegible]	[illegible]	628	[illegible]	180	71	[illegible]	18	[illegible]	[illegible]	0
2007	[illegible]	[illegible]	74	18	1	0	0	0	0	0	0	0

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Challenge: Develop Rules to Reduce Exposure to Tail Risk

- Our Hypothesis: Diversification rules limiting concentration should reduce exposure to tail risk
- Diversification Rules adopted for our analysis:
  - 5% Maximum Issuer Weight
  - 45% Maximum Sector Weighting (Financial Institutions, Industrials, Utilities, Transportation, Agencies, Local Authorities, Sovereign and Supranational)
- We tested the 4 highest periods of historical volatility since 2007
- Results: Benefits of diversification come quickly as CUSIPs are added across sectors

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Portfolio Simulation

Testing Methodology

- Step 1: Chose a single month to run to ensure a continuous set of CUSIPs
- Step 2: Selected a random portfolio on the 1st Day of the month subject to diversification rules
- Step 3: Calculated the market value of the equally weighted portfolio as it evolves through the month
- Step 4: Calculated the largest 10-day price drop that occurred during the month
- Step 5: Store the result

Repeat this procedure to gain the full distribution of simulated portfolio results

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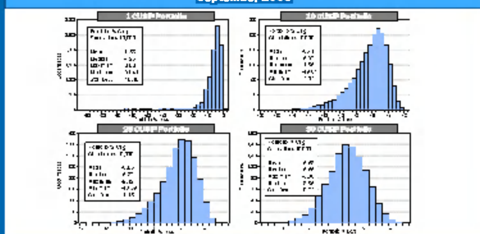
Portfolio Simulation

Benefits of Issuer Diversification

Portfolio 10-Day Maximum Decline by Number of CUSIPs in Portfolio
September 2008



Most diversification benefit is achieved with a small increase in CUSIPs

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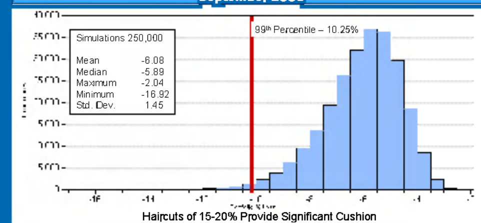
Portfolio Simulation

Broad-Based Historical Simulation of worst case decline over a 10-day period using a 99% confidence interval

Portfolio 10-Day Maximum Decline 20 CUSIPs - 45% Sector Max
September 2008



Haircuts of 15-20% Provide Significant Cushion

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Conclusions

- **Corporate bond tail risk can be controlled with basic diversification rules**
- **Limiting issuer exposure to 5% per issuer and High Level Sector exposures to 45% achieves this result**
- **Further diversification past these rules provides little incremental benefit while substantially increasing operational burdens**
- **Corporate bonds haircut by 15-20% provide significant cushion when compared against historically stressful periods**
- **Use of corporate bonds as proposed for initial and variation margin reduces systemic risk and market liquidity issues**

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Recommendations

- **High quality assets, such as corporate bonds, agency debentures and agency RMBS, appropriately haircut and diversified, should be eligible for purposes of both initial and variation margin, for both cleared and uncleared derivative exposure.**
- **The expansion of eligible margin assets not only reduces cost impact of margin rules on end-users, it increases market liquidity and reduces systemic risk.**

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Appendix

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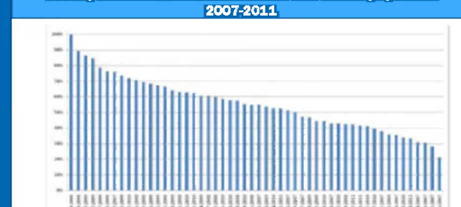
Portfolio Simulation

Historical Index Price Volatility

Barclay's Credit Index: Relative Index Price Volatility by Month
2007-2011



We selected the 4 highest volatility months since 2007 to test

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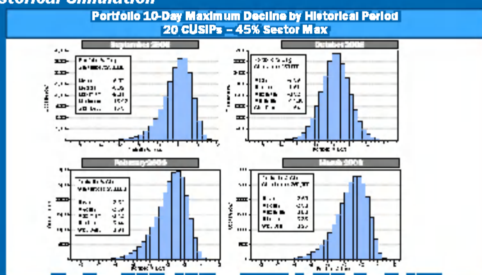
Portfolio Simulation

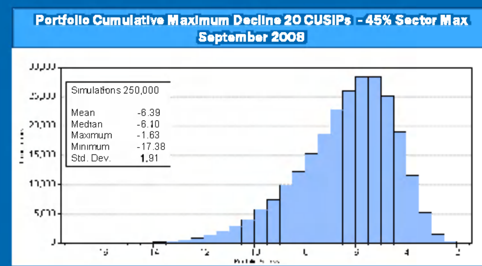
Historical Simulation



Results are intuitively in line with historical index level volatility

Portfolio Simulation

Historical Simulation: Cumulative Monthly Change



Discount Window Corporate Collateral Margin Table[1]

- FRB currently accepts Investment Grade corporate bonds as collateral at the Discount Window based on a schedule

Collateral Type	Duration Buckets		
Corporate Bonds	0-5	> 5-10	>10
AAA rated - U.S. Dollar Denominated	97%	[illegible]	94%
BBB-AA rated - U.S. Dollar Denominated	[illegible]	[illegible]	92%
AAA rated - Foreign Denominated[2]	91%	[illegible]	[illegible]

[1]Extracted from the Federal Reserve Discount Window & Payment System Risk Collateral Margins Table As of January 3, 2011

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