



Corporate Bonds as Eligible Collateral for Derivative Transactions

**Presentation to the CFTC & SEC Staff
October 20, 2011**

Summary

- **U.S. Life Insurance Industry is the second largest buyer of corporate bonds in the U.S.**
- **High quality corporate bonds are an eligible collateral type under most bi-lateral credit-support annexes (“CSAs”) between life insurers and their derivative bank/dealer counterparties**
- **We believe that high quality corporate bonds should be eligible collateral to satisfy the proposed derivatives margin requirements imposed by Dodd-Frank**
- **Our analysis demonstrates that with reasonable diversification and appropriate haircuts, high-quality corporate bonds utilized as derivatives collateral 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

- **Life insurers provide the second largest U.S. source of corporate bond financing; holding 13.5% of total U.S. corporate debt outstanding (over \$2 Trillion at end of 2010)**
- **In 2008, approximately 56% of life insurers' \$4.6 Trillion of total assets were held in bonds**
 - **42% in corporate bonds**
 - **14% in government bonds**
- **Over 41% of corporate bonds purchased by life insurers have maturities in excess of 20 years (at time of purchase)**

Based on data from NAIC and the U.S. Federal Reserve Board, Flow of Funds Accounts of the U.S. See American Council of Life Insurers, *Life Insurers Fact Book* (2009).

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 the CDX IG Index for Issuers; not enough individual CUSIPs**
- **Determining universe based on credit spreads; stability of universe a concern, would include small issue size**

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: 4,430	Currency: USD
Amt Outstanding: \$3.4 trillion	Avg Maturity: 10-ys

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Analysis: Single CUSIP Statistics

Results

- We began our analysis looking 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	6493	6383	2140	708	278	155	85	39	18	11	9	0
2011	4552	4452	2	0	0	0	0	0	0	0	0	0
2010	4735	4730	58	5	0	0	0	0	0	0	0	0
2009	4332	4312	567	182	77	44	16	7	6	2	1	0
2008	3947	3862	1988	628	227	120	71	32	12	9	8	0
2007	3642	3635	79	13	1	0	0	0	0	0	0	0

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**

Portfolio Simulation

Testing Methodology

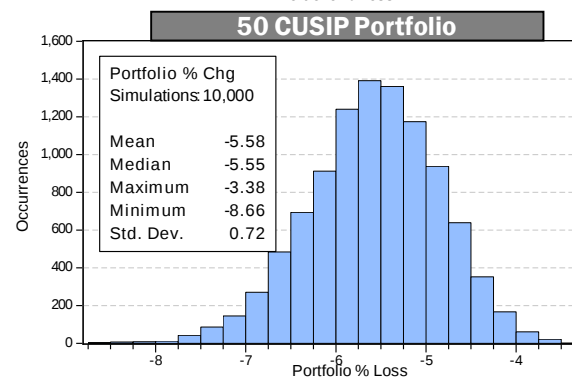
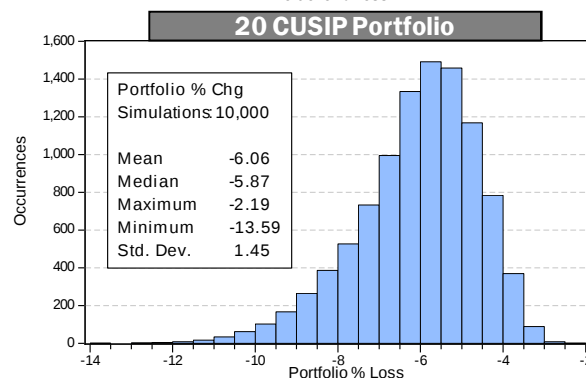
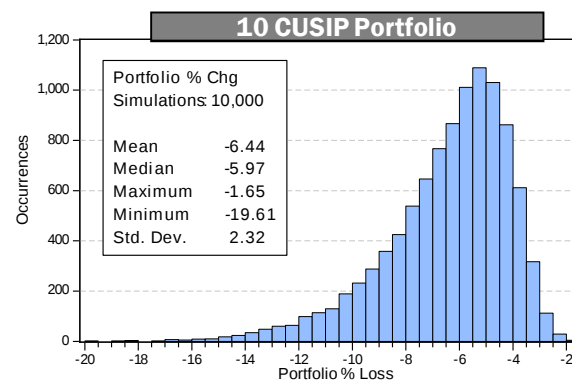
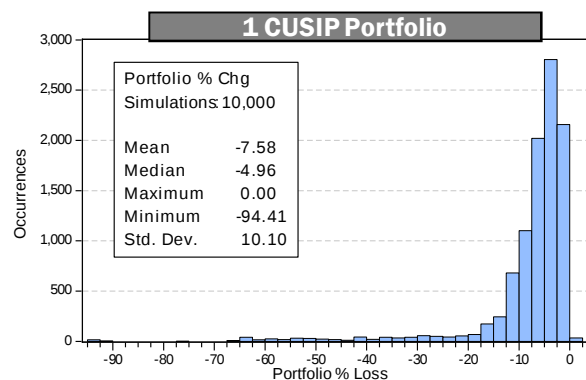
- **Step 1:** Chose a single month to run to ensure a continuous set of CUSIPs
- **Step 2:** Selected a random portfolio on the 1st Day of the month subject to diversification rules
- **Step 3:** Calculated the market value of the equally weighted portfolio as it evolves through the month
- **Step 4:** 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

Portfolio Simulation

Benefits of Issuer Diversification

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

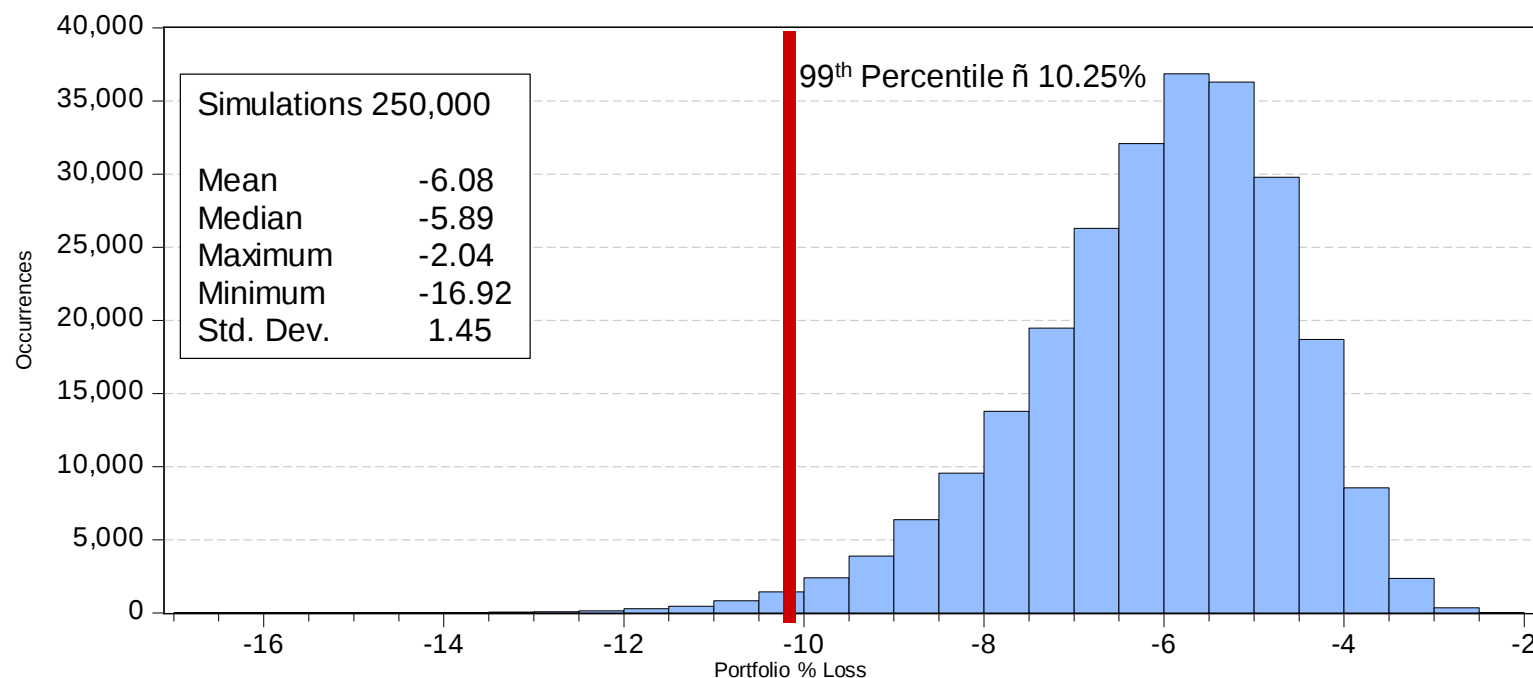


Most diversification benefit is achieved with a small increase in CUSIPs

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

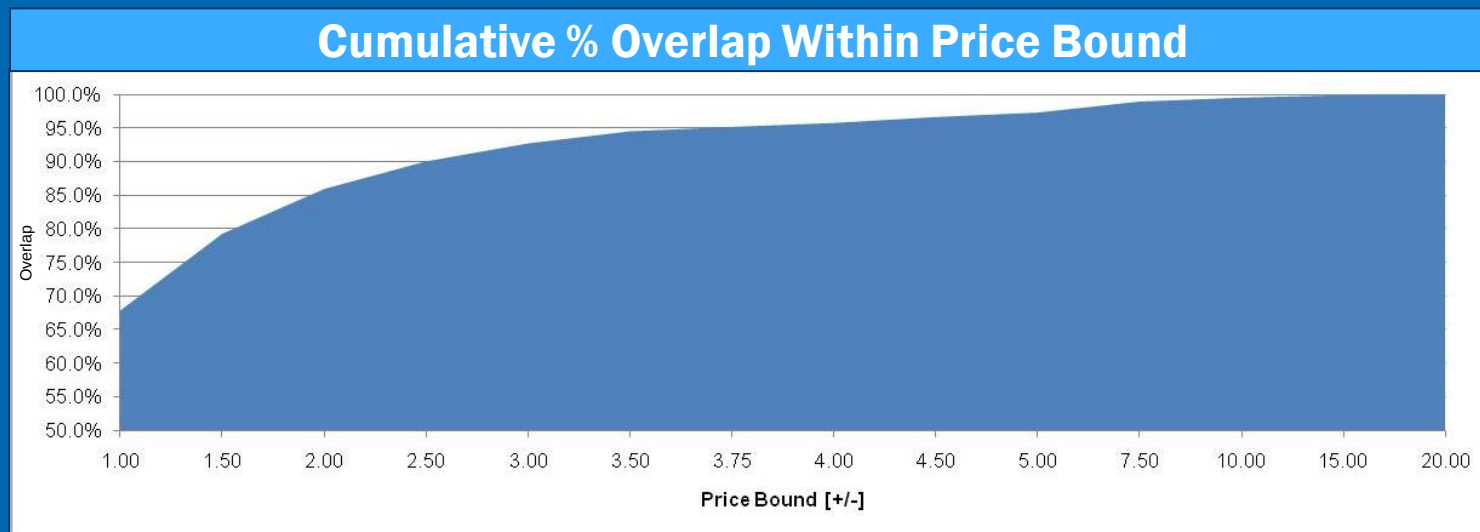


Haircuts of 15-20% Provide Significant Cushion

Portfolio Overlap

Overlap Between Chosen Index and Alternative Suggests High Degree of Liquidity

- We compared the pricing between the Barclay's U.S. Credit Index and the Bank of America ML US Corporate Index where there was CUSIP overlap from 2007-2010
- 95% of observations were priced within +/- 3.75pts between indices



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Conclusions & Recommendations

- **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**
- **High quality Corporate bonds, appropriately haircut and diversified, should be an eligible collateral option for both cleared and uncleared derivative exposure**
- **Other high-quality collateral types such as Agency Debentures and Agency RMBS should be considered as eligible collateral as well**

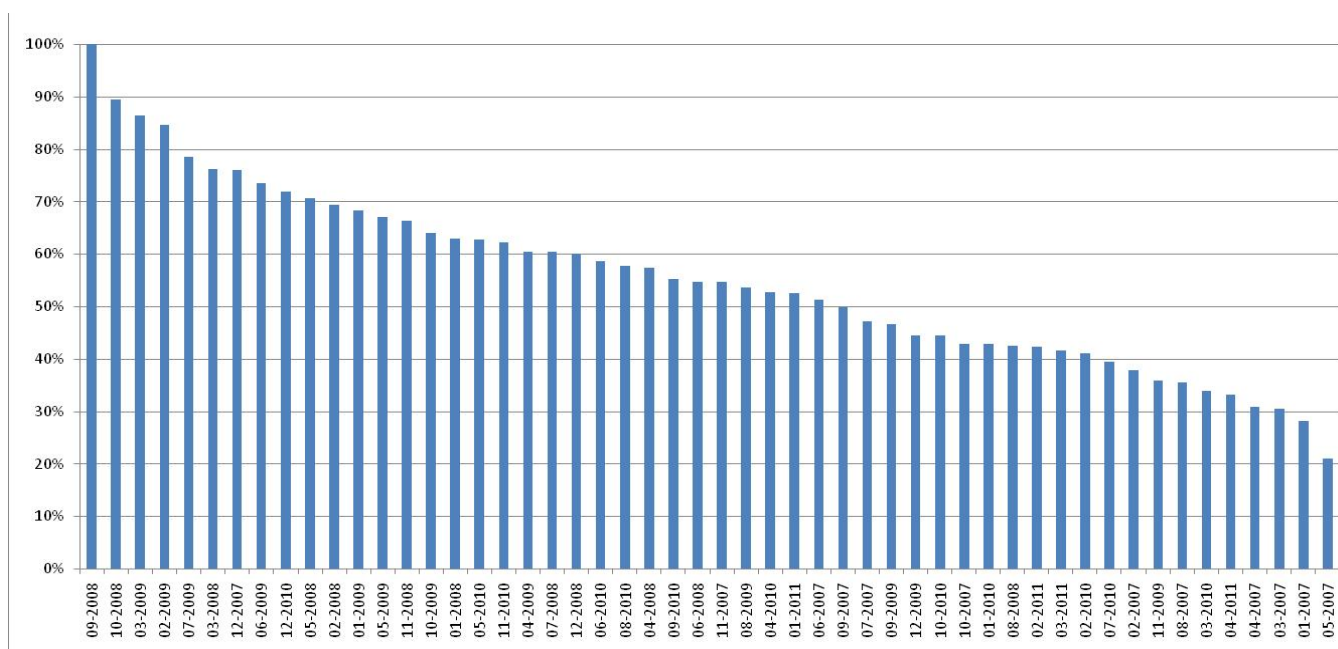


Appendix

Portfolio Simulation

Historical Index Price Volatility

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



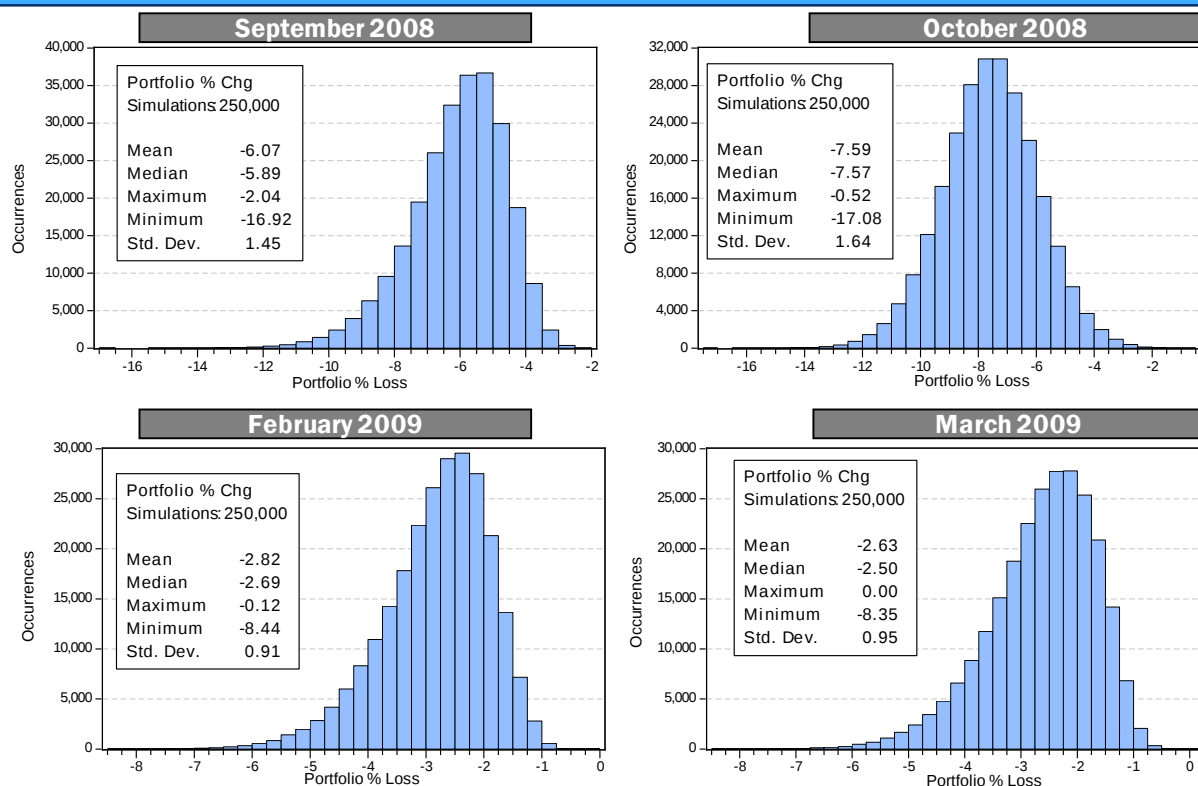
We selected the 4 highest volatility months since 2007 to test

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Portfolio Simulation

Historical Simulation

Portfolio 10-Day Maximum Decline by Historical Period 20 CUSIPs – 45% Sector Max

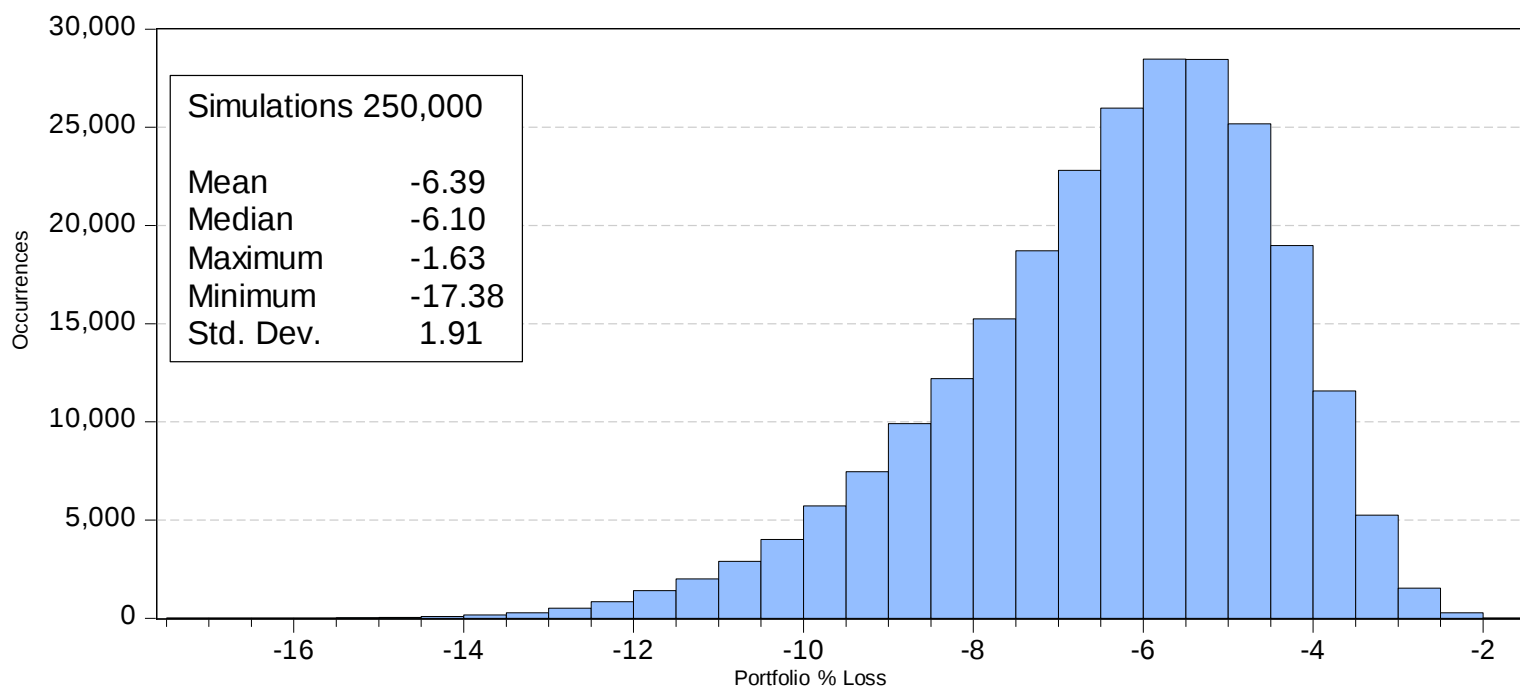


Results are intuitively in line with historical index level volatility

Portfolio Simulation

Historical Simulation: Cumulative Monthly Change

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



Discount Window Corporate Collateral Margin Table¹

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

Margin for Securities as a % of Market Value			
Collateral Type	Duration Buckets		
Corporate Bonds	0-5	> 5-10	>10
AAA rated - U.S. Dollar Denominated	97%	95%	94%
BBB-AA rated - U.S. Dollar Denominated	95%	93%	92%
AAA rated - Foreign Denominated ⁷	91%	89%	88%

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

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