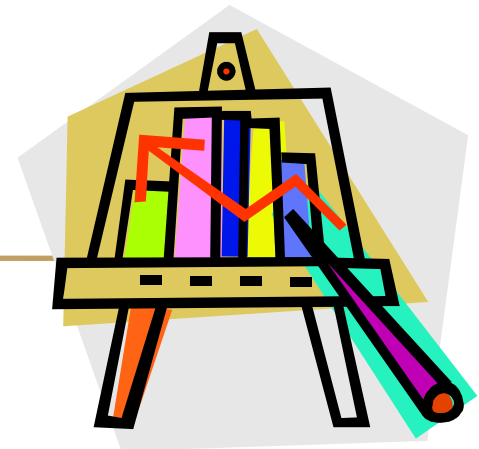




California Municipal Treasurers Association

Managing Credit Risk

April 22, 2009
Palm Springs, California





The world has changed!

THE WALL STREET JOURNAL

September 10, 2008, 2:03 pm

What Does Conservatorship Mean for Fannie and Freddie?

Posted by Heidi N. Moore

This week, Treasury Secretary Hank Paulson announced that Fannie Mae and Freddie Mac would operate in conservatorship by the Federal Housing Finance Authority, or FHFA.

The New York Times

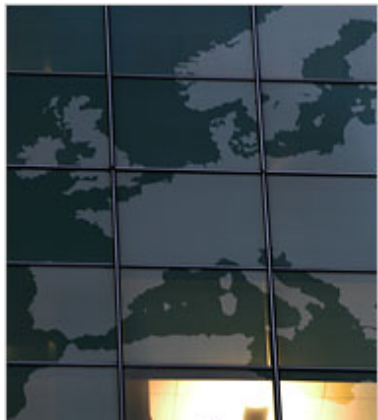
Lehman Files for Bankruptcy; Merrill Is Sold

By ANDREW ROSS SORKIN

Published: September 14, 2008

This article was reported by Jenny Anderson, Eric Dash and Andrew Ross Sorkin and was written by Mr. Sorkin.

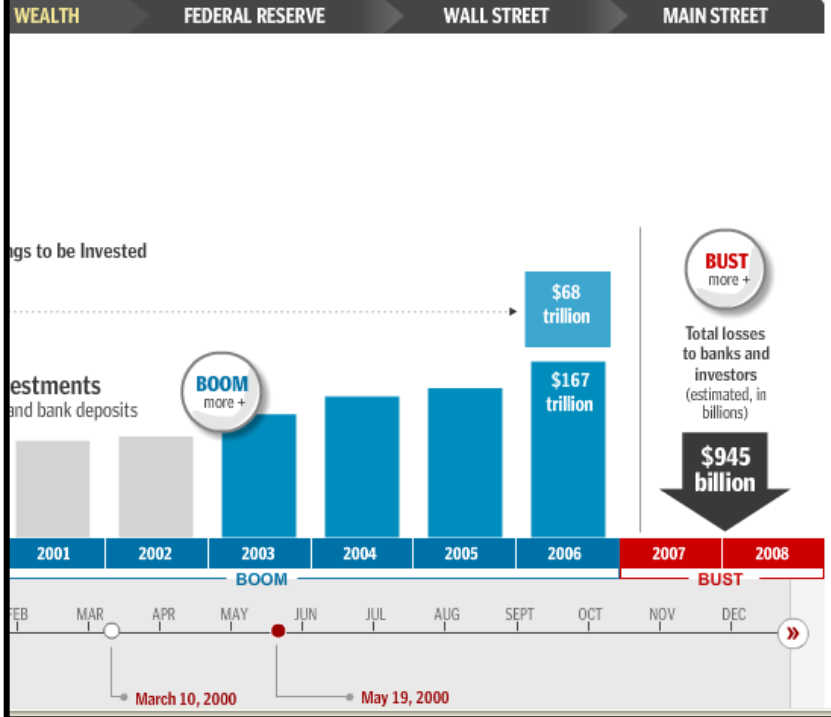
Enlarge This Image



In one of the most dramatic days in Wall Street's history, [Merrill Lynch](#) agreed to sell itself on Sunday to [Bank of America](#) for roughly \$50 billion to avert a deepening financial crisis, while another prominent securities firm, [Lehman Brothers](#), filed for bankruptcy protection and hurtled toward liquidation after it failed to find a buyer.

The Washington Post

ANATOMY OF A MELTDOWN: THE CREDIT CRISIS





Portfolio management *is* risk management

- You can't avoid it; you must manage it
 - The greater an investor's exposure to properly diversified risk, the higher the expected return over time
 - The greater an investor's exposure to risk, the higher the volatility of return from period to period
 - The objective of "safety" requires establishing risk constraints



What we're planning to cover

- Types of risk
- Focusing on credit risk
- Resources and value in today's market



Investment risks

- Market risk
- Liquidity risk
- Credit risk





Market risk

- Market risk—Bond prices change as interest rates change
- Modified duration measures the percent change in price of a security for a 1 percent change in yields
- We can't predict interest rates, but, using duration, we can calculate approximately how much the portfolio market value will change with a given, instantaneous change in interest rates
- The higher the duration, the greater the exposure to market risk



Liquidity risk has two definitions

- Liquidity risk
 1. The risk that the portfolio won't provide adequate cash flow for the agency
 2. The risk that a security can't be sold, if necessary, at a good price
 - Measured by such factors as the difference between bid and ask
 - Number of market makers for the issue
 - Usually, the larger the issue size, the greater the liquidity



- Investors receive higher yields when they purchase riskier securities
 - Agencies vs. Treasuries
 - Corporates vs. Agencies
 - “A” vs. “AAA” Corporates
- Credit ratings change over time

Section 2

Fundamentals of Credit Analysis





Credit risk

- Default risk
 - Likelihood of default
 - Loss severity
- Downgrade risk
 - Policy constraints
 - Political considerations
- Liquidity risk
- Price (spread) risk

- Assuming credit risk requires that additional resources be devoted to the investment program
 - Moody's/S&P ratings, watch lists, outlook—for a start
 - At time of purchase and
 - On a regular basis thereafter
 - Supplemented by
 - Third party sources
 - Internally generated credit research

- NRSROs* include Moody's, S&P, and Fitch
- Over time, rating has been a good indicator of likelihood of default
- Historically, very few investment grade rated securities have defaulted
- **Conflict warning:** NRSROs paid by companies for ratings

*Nationally Recognized Statistical Rating Organizations



Defaults by credit rating

Five Year Cumulative Default Rates 1970-1997

Moody's Rating	5 Year Cumulative Default Rate
Aaa	0.1%
Aa	0.3%
A	0.5%
Baa	1.9%
Ba	11.5%
B	30.8%
Caa -C	56.6%

Source: Moody's



Rating agencies –what happened in 2008

- During the financial crisis many Aaa rated securities defaulted
- Most of the defaults have not been corporations, but rather esoteric structured products
- Absent fraud, there continue to be very few defaults by highly rated companies
- But defaults do occur, making additional credit research vitally important



Tools to supplement ratings

- Credit ratings have historically been a starting point for research
- Additional resources are needed; including:
 - Dealer research
 - Independent ratings agencies (Egan-Jones Research)
 - Credit research companies (CreditSights, Argus)
 - Internet sources (financial news sites)
 - Financial filings (10K, 10Q)
 - Proprietary models (CAM Quant Model)



Examples of proprietary tools

- Fundamental research
- Statistical models
- Chandler uses a proprietary quantitative model incorporating:
 - Ratings trends and outlooks
 - CDS trends and levels
 - Audit integrity scores
 - Company financials
- Models and tools are never a substitute for professional judgment



Monitoring credit

- Credit should be evaluated at time of purchase
- *And* on an ongoing basis
- Monitoring credit can include:
 - Ratings changes
 - Ratings outlooks and watches
 - Stock price movements
 - CDS movements
 - Developments in financial performance
 - News headlines



Comparing relative value

- Valuations of similar securities should be compared to identify “cheap” and “rich” securities
- Don’t just focus on yield
- Consider how security will fit within overall portfolio
- If you find something you like
 - Compare prices across multiple dealer inventories

Basic yield spread measures

- “Spread” represents additional compensation required by investor to hold a risky asset compared to Treasuries
- The “nominal” spread is the additional yield over a Treasury with a comparable maturity
- There are other, more complicated spread measures
- In all cases, the wider the spread, the greater the perceived risk and additional compensation



Section 3

Managing Credit Risk in a Changing World



Finding value in corporates today

- Is there opportunity in credit today?
 - Maybe—some corporate yields are very high
 - Maybe not—risk could be pretty high too



What happened in 2008

- Record financial market volatility
- Bankruptcies, forced mergers and other unfortunate corporate events
- Corporate bond index fell most ever (-6.81%)
- Some money market funds and state pools restricted liquidity



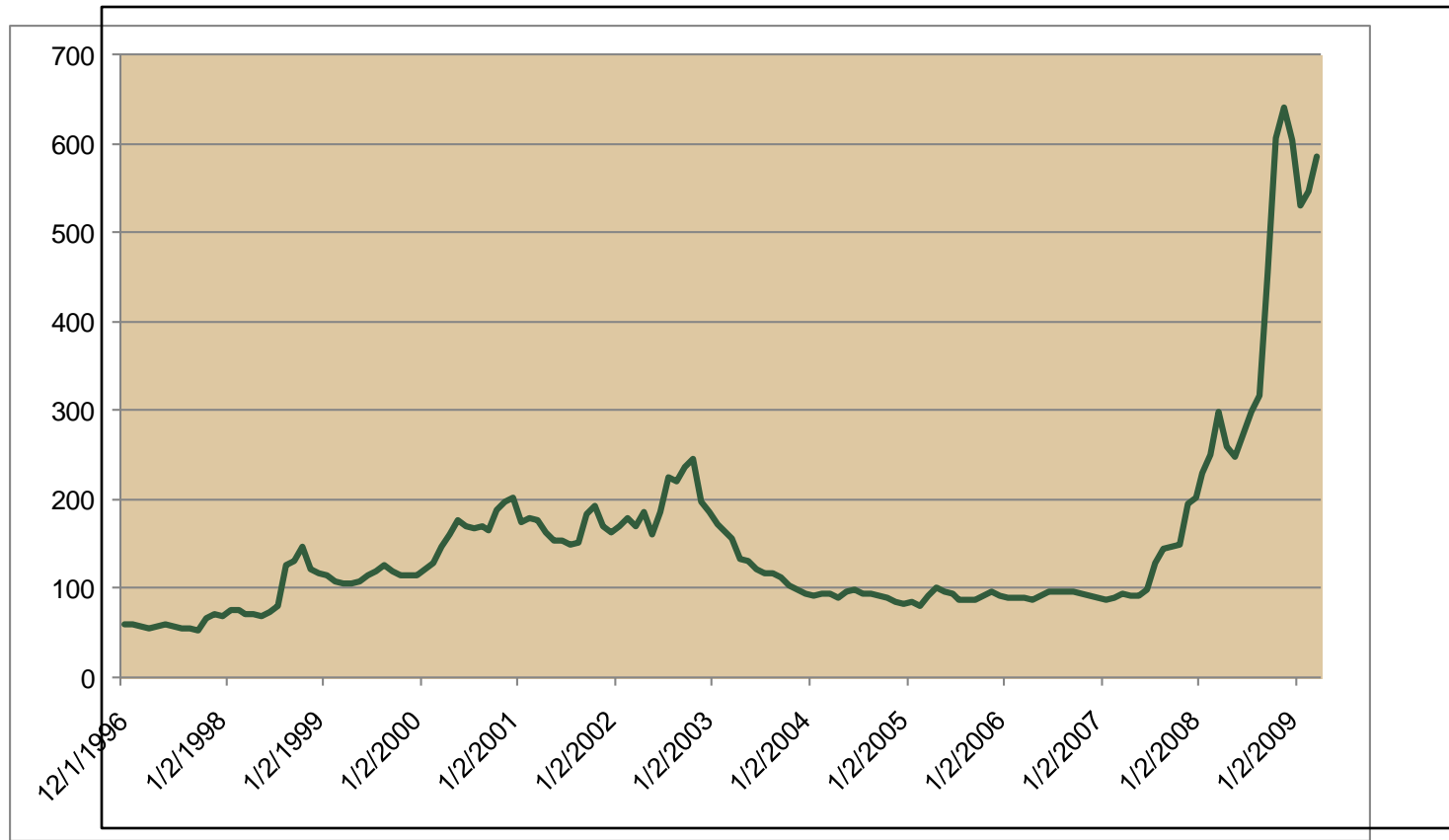
Evolving credit market conditions

- Washington new center of global finance
- Impact of government programs (TARP, TALF)
- Temporary Liquidity Guarantee Program (TLGP)
- Corporate stalwarts lose AAA ratings (GE, BRK)
- Record high nominal spreads



Record spread levels

High Grade Corporate OAS (Option Adjusted Spread)

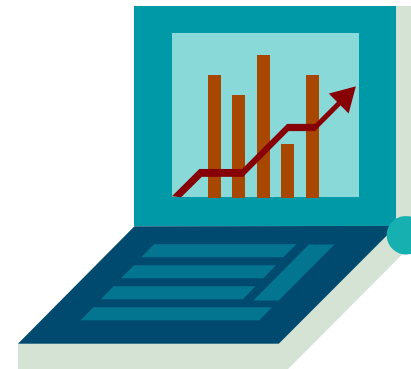


Source: Merrill Lynch



Agency securities—how safe are they?

- Supported by the United States government - AAA rated
- Credit risk is present, but minimal
- Considered very safe and liquid
- Include FNMA, FHLMC, FHLB, FFEB, TVA
- Available in a range of maturities and structures





Agency conservatorship

- FNMA & FHLMC have been taken over by the government and placed under federal conservatorship
- Management control now rests with the agencies' regulator, the Federal Housing Finance Agency (FHFA)
- Treasury will:
 - Provide up to \$200 billion to each if needed
 - Provide unlimited short term liquidity if needed
 - Purchase mortgage backed securities in the market





Pitfalls of credit analysis

- Questionable asset valuations (mark to market or held at cost)
- Off balance sheet items (SIVs)
- Overreliance on credit ratings
- Extremely complex companies (Enron, WorldCom, Banks)
- Lack of an action plan



What if you have limited resources

- Consider not buying corporates
- Analyze corporate financials
- Purchase only highest quality companies
- Retain a professional manager



Managing credit risk

- Be aware of the risks
- Make sure you understand—independently—exactly what you are buying
- Keep track of the changing environment
- Diversify
- Move beyond ratings
- Monitor after purchase



And now for your questions