ERM Update

Presented to ACSW
June 20, 2008
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E nterprise | R eturn / R isk | M anagement

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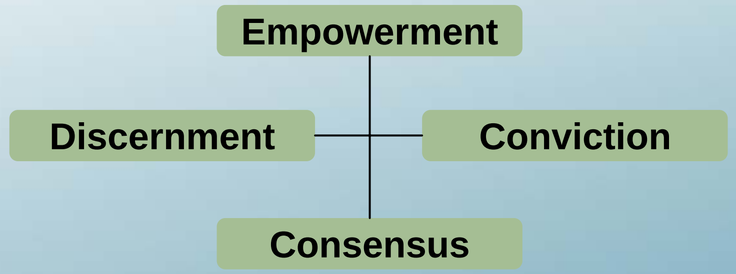
Goals of ERM

- Empowerment - To enable informed and coherent business decision-making across the enterprise
- Discernment - To create needed perspective on comparative risk exposures and assist in remediation, if necessary
- Conviction - To determine and deploy correct levels of risk capital in light of balance sheet interactions
- Consensus - To promote understanding and buy-in from external constituents



ERM Considers 5 Major Categories of Risk

Insurer Risk

Underwriting	Credit	Market	Operational	Liquidity
- Pricing	- Default	- Interest Rate	- Endogenous	- Asset/Liability
- Product Design	- Downgrade	- Equity Market	- Exogenous	
- Claims	- Concentration	- Currency		
- Policyholder Behavior	- Counterparty	- Reinvestment		

Volatility (Underwriting, Credit) | Uncertainty (Market) | Calamity (Operational, Liquidity)

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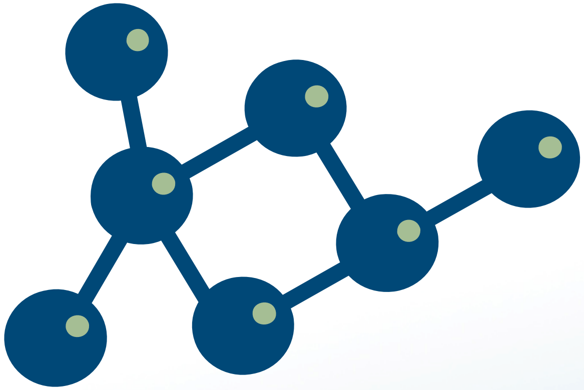
Companies Pursue ERM for Many Reasons



- Competitive pressure and competitive advantages
- Good general business practice
- Rationalize and/or extract capital
- Understand proportionality of comparative risk exposures
- Create understanding and buy-in from external constituents
- Achieve asset and/or liability return advantages through diversification benefits
- Enable informed and coherent decision-making across the enterprise

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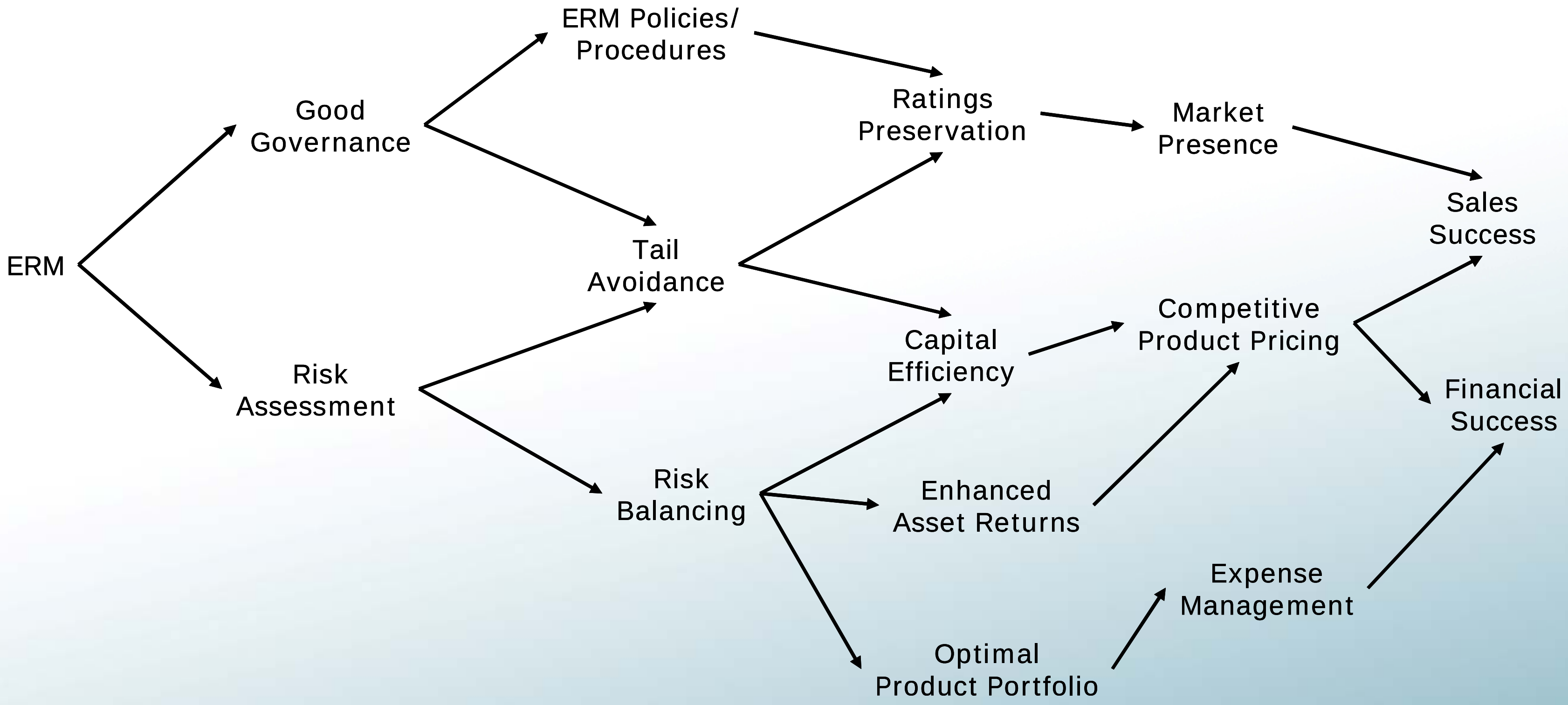
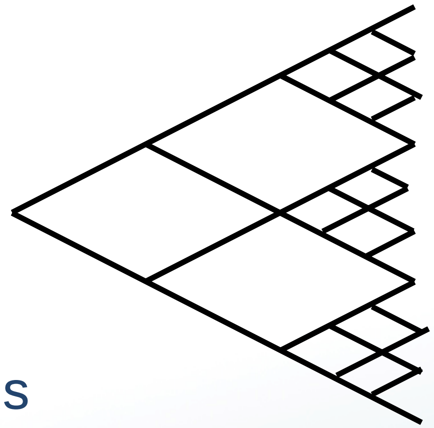
ERM Drives Sales and Financial Success



The Rating Agencies Want to See …

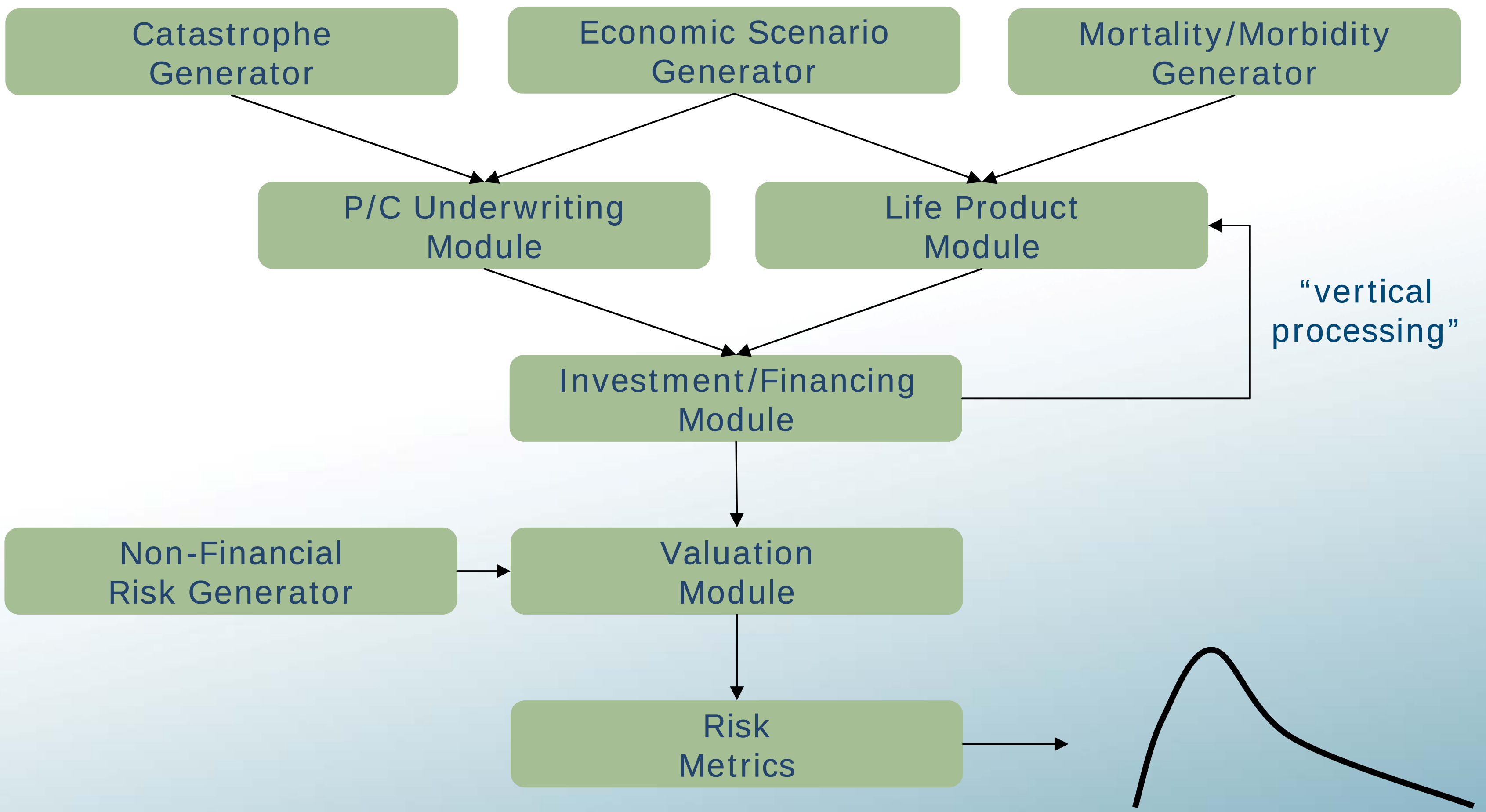
- A wide-screen view that crosses silos
- The application of economic capital technology
- A pervasive culture of risk management
- Movement towards Strategic Risk Management
- Evidence of a strong control environment
  - Clear risk targets and limits
  - Multiple, redundant controls
  - Proactive response mechanisms
  - A combination of quantitative rigor and managerial experience
- A proportionately greater response from larger, more complex organizations

ERM Technology Update



- Emerging consensus on tail treatment
- Ongoing efforts on model convergence
- Accelerated move to economic capital
- Improved quantification of non-financial risks
- Is replication the answer?
- Faster, sooner, now
  - Hardware accelerants (*e.g.*, grid processing)
  - Software accelerants (*e.g.*, variance reduction techniques)

An EC Model of a Multi-Line Company



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Building a GPS System for Insurers

- Old-fashioned descriptive model

Settings, assumptions → Giant black box → Acontextual result

- New-fangled prescriptive model

What we know about things → Friendly white box → What decisions we could make

Crawling from the Subprime Wreckage

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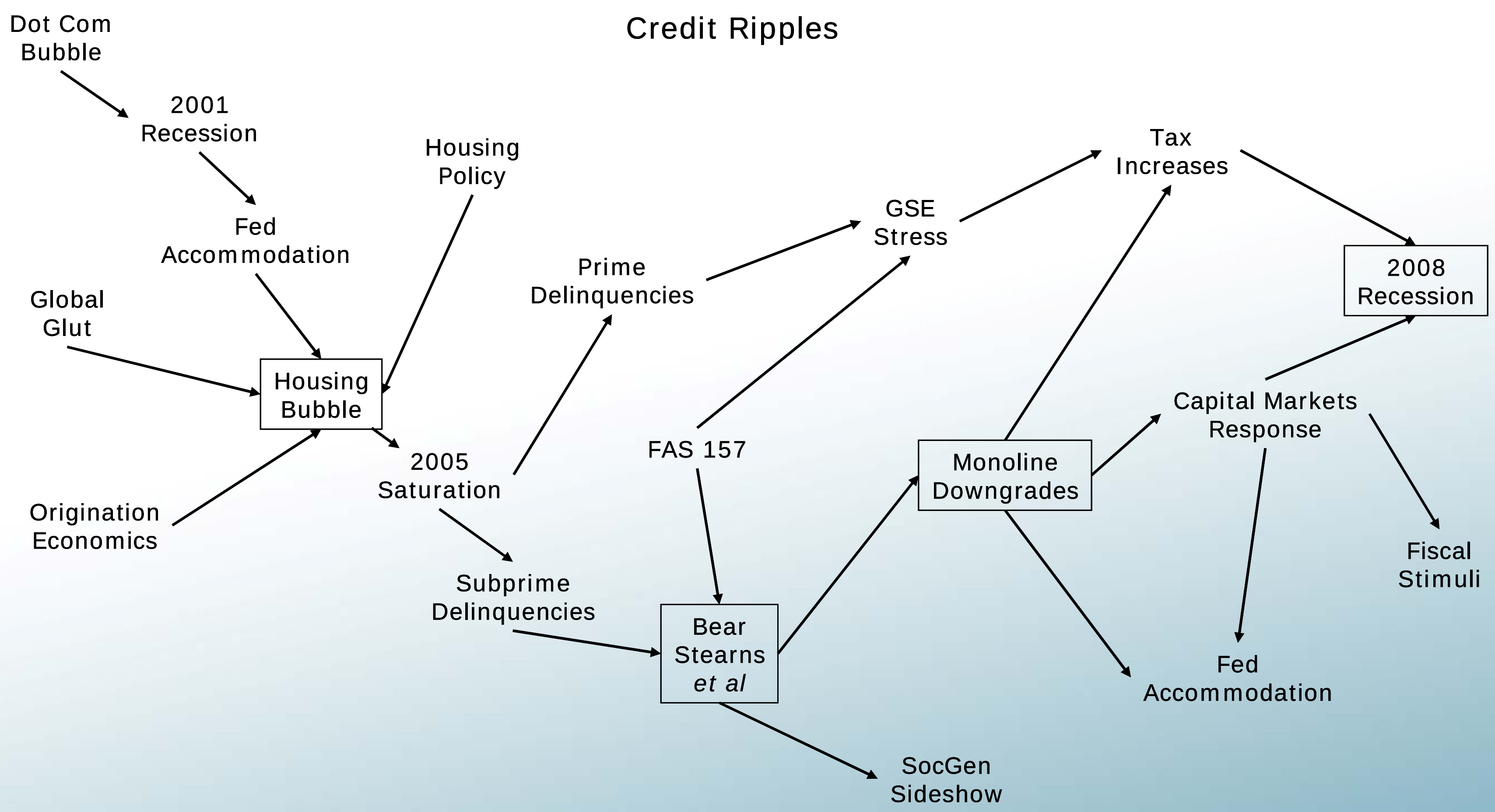
Visualization of Event Dependencies



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The Originate-to-Distribute Model

- Banks seek to bypass capital constraints
  - Loan underwriting/production de-coupled from ownership
  - Non-regulated non-bank banks appear (shadow banks)
  - Underwriting rigor lost, creating a principal-agent problem
    - Sub-prime, alt-A, liar loans, jingle jangle, NINJA
- Re-packaging (alchemy) created AAA assets
  - AA + credit enhancement = AAA (*voila*!)
  - Loss events moved to fatter tails to gain AAA rating
    - Banks retain equity *tranche*
    - Fat tails elude standard VaR models
  - "Priority Ordering" of payments creates credit enhancement

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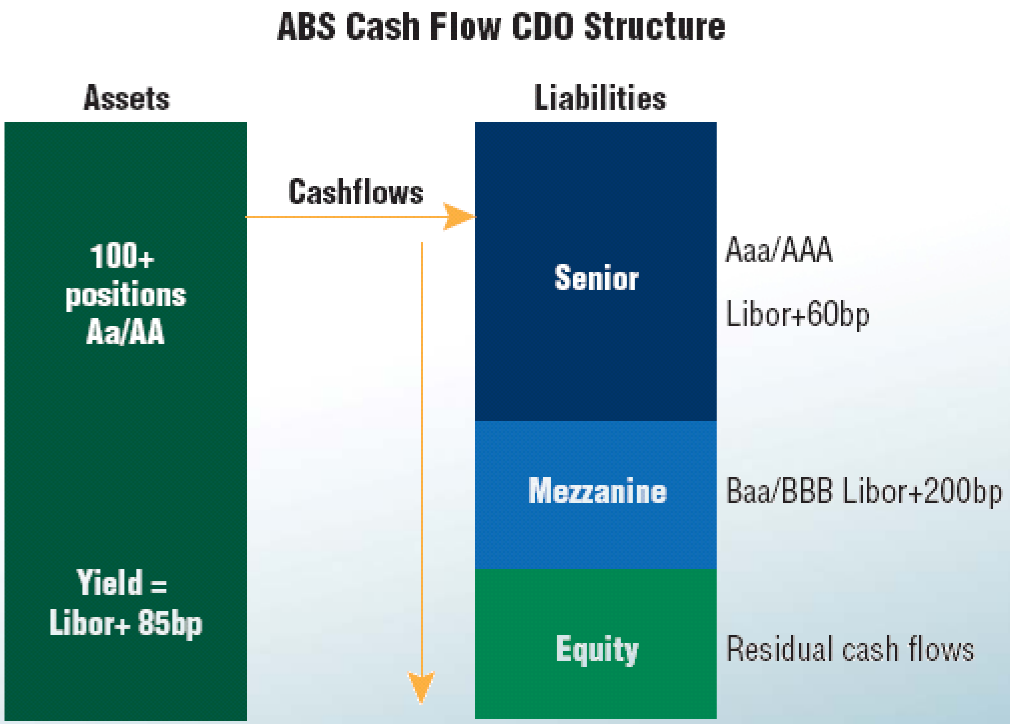
Creation of the AAA Tranche

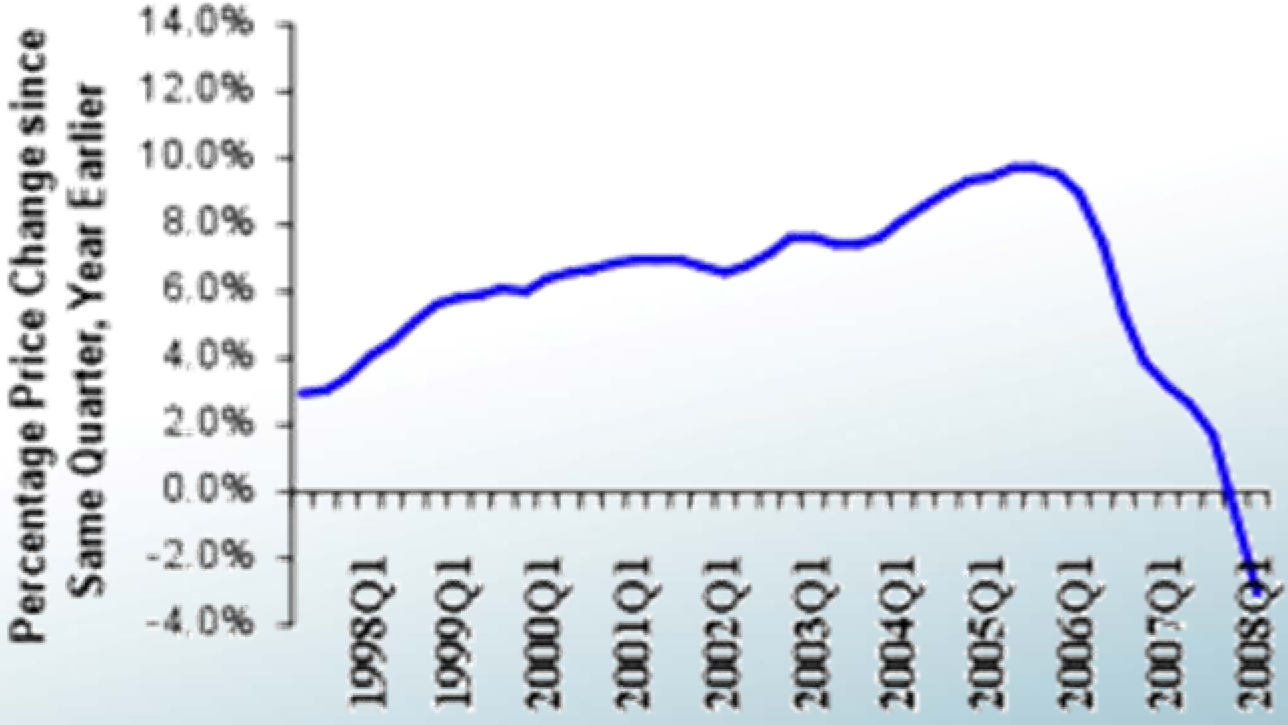


Source: Standish Mellon

The Originate-to-Distribute Model

- Homeowners indulge in an orgy of moral hazard
  – 2000 – 2005 real price increase of 35% in housing
  – Homeowners engage in serial refinancing to monetize home price increases
  – Banks, driven by lure of stable fee income, willingly pander
  – 2/28 loans structured to avoid scheduled year-3 bump
- Willing investors abdicate good sense
  – Scrounging for yield in a low rate/low spread environment
  – Reliant upon rating agencies to assess risks
  – Managing to a stable VaR meant <u>increased</u> risk-taking during the upswing, as vols dropped and capital expanded

Year-over-Year Housing Price Changes



Source: OFHEO

AAA-Rated ABX.HE.06-01 Spreads

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Anatomy of a Housing Bubble

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Insurers Less Scathed than Some Others

- Insurers hold 10% of residential debt but 5% of the losses.
- Mark-to-market losses have hugely overshot expected loss estimates as markets have overreacted, as usual.

Entity	Holdings	CF Loss	PV Loss	MTM Loss
US banks/Thrifts	4,402	393	321	872
GSEs/FHLB	1,493	44	32	127
Broker/Dealers	303	100	81	123
REITs	92	0	0	3
Hedge-Funds	126	11	9	21
Money Managers	688	15	12	57
Insurance Companies	970	57	46	92
Overseas	1,172	49	41	125
MI Companies	-	35	28	-
Financial Guarantors	162	82	66	105
Others	1,273	105	86	211
Total	**10,680**	**891**	**722**	**1,735**

Source: Lehman Bros. Figures in $Billion

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Losses Have Been Concentrated

- Moody's (May, 2008): "Moody's believes that most insurers have the earnings capacity, capital cushion, and financial flexibility to handle these investment losses."
- Moody's expects near-term rating actions to be "modest"
- S&P (May, 2008): "We do not expect to see large amounts of economic loss relative to total impairments in subprime or Alt-A RMBS securities over the next few quarters."
- S&P's high-end loss projections are less than 3% of industry capital.

Who Suffered the Biggest Losses in 1Q08?

Largest Q1'08 unrealized losses and impairments relating to subprime exposure taken by select US life insurers

Company	Ultimate parent	Year-end 2007 subprime, Alt-A exposure at fair value* ($M)	Q1'08 loss on subprime and/or Alt-A ($M)
Unrealized losses**			
ING USA Annuity Life Ins. Co.	ING Groep NV	2,759	550.4
Security Life of Denver	ING Groep NV	3,221	547.6
Allstate Life Insurance Co.	Allstate Corp.	2,887	519.0
ING Life Insurance & Annuity Co.	ING Groep NV	1,616	220.2
ReliaStar Life Insurance Co.	ING Groep NV	1,242	190.1
Impairment losses			
AIG Annuity Insurance Co.	American International Group	6,093	426.4
Prudential Ins. Co. of America	Prudential Financial Inc.	12,137	365.4
American General Life Ins Co.	American International Group	5,631	260.5
Variable Annuity Life Ins Co.	American International Group	2,826	213.2
SunAmerica Life Insurance Co.	American International Group	4,861	197.6

Data as of May 28. Limited to U.S. life insurers with $3 billion in net admitted cash and invested assets and at least $100 million in subprime exposure at year-end 2007.

The AIG units' impairments equate to 52% of their share of total realized losses in a securities lending collateral account.

* Companies used differing criteria for reporting exposure. Some companies limited their disclosures to securities with subprime exposure. The list combines reported subprime and Alt-A exposure where available.

** Gross unrealized losses are used where available.

Source: SNL Financial

(Note 20 to Q1-2008 and YE-2007 statutory statements as filed with the NAIC.)

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Lehman Finds Varying Sub-Prime Mgmt.

- Using Schedule D data, Lehman analyzed comparative sub-prime asset exposure and changes over time
- “Ameriprise, Genworth and Lincoln emerged as the least exposed of the six major life companies in our study to widening credit spreads.”
- “Prudential and Hartford were in the middle.”
- “Met came out in our study as most exposed to a further spread widening.”
- “Ameriprise and Lincoln seemed to be more aware of the coming upheaval than were peers.”

Implications for Companies

- The recent experience has underscored the importance of independent modeling and valuation of structured investments, since rating agencies have proved to be unreliable.
- Insurance companies are reviewing existing portfolios to make hold vs. sell decisions, but without the urgency to liquidate that is typical of levered investors and trading portfolios.
- Over time, insurance companies with the ability to model and fully evaluate securitized products will be able to take advantage of significantly wider spreads and simpler structures.

Massive Control Failure at SocGen

- What really happened?
  - A continental culture of swagger and flouting
    - Lip service paid to risk controls
    - A company of incessant growth pressures and a control environment that couldn't keep up
  - A resentful principal of uncertain emotional balance
    - Not a graduate of *Grandes Ecoles*
    - "Discovered" the double-down betting strategy
  - Knee-jerk unwinding by SocGen on January 21 into the face of the worst market day since 9/11 served only to convert unrealized losses into realized ones
    - Unwinding turned a €2.7B loss into a €6.3B loss ($7.2B)
    - Contrast: insured cost of Katrina/Rita = $28B
    - Contrast: Barings/Leeson = $1.6B

Massive Control Failure at SocGen

- How was it done?
  - A three-year program of falsification
    - Prior to 2008, program exhibited large gains (€1.4B in 2007)
    - Complicity is highly likely
  - Controls covered net positions not gross positions
    - Fake offsetting positions were canceled at the last minute
  - Poor controls over computer passwords
  - Cellphones used to bypass automated trade recordings
  - Forgery committed on a massive scale, aided by MS Paint
  - Internal/OTC counterparties used to avoid margin calls and bypass Eurex controls
  - Transactions marked as “pending” to avoid traded reconciliation

Massive Control Failure at SocGen

- What are the learnings?
  - Change the culture
  - Reinvigorate insider-risk controls, downplayed after 9/11
  - Analyze psychiatric profile of traders
  - Kerviel/Leeson traded most sleepy and least structured contracts (index futures)
  - Control systems (SunGard/Algorithmics in this case) cannot perform enforcement
- What are the questions?
  - Can/should controls protect against criminal acts?
  - Controls without enforcement are not controls

The July, 2007 Bear Stearns Failures

- Create fund of AAA CDOs leveraged 10-to-1
- Decelerating home prices result in increased delinquencies
- July 17, 2007: two Bear Stearns hedge funds lose between 90% and 100% of their value!
- CEO plays cards without access to cell-phone or Blackberry!!
- Asset liquidation was halted because it would constitute price discovery resulting in large-scale write-downs!!!
- Learnings:
  - Lack of liquidity to prevent value spiral
  - Insufficient hedging
  - Fund managers didn't watch home price trends
- CEO says bailout would not have "any material adverse effect" on the company's business!!!!

Some Policy Recommendations

- Don’t blindly rely on the bond rating.
- Subject every bond to rigorous tail-section analysis.
- Understand contagion potential across the balance sheet.
- Employ the Moody’s Diversity Score methodology.
- Adopt a contrarian viewpoint on credit.
- Use default and capital haircuts as risk governor:

  Gross Spread

  - Default Loss Charge

  <u>- RBC C-1 Haircut</u>

  = Net Spread (if negative, use caution)

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