



2007 ~ 2008

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# Micro factors



- - MBS pass-through → CMO pay-through → CDO, CDS, CDO<sup>2</sup>
  - Mortgage: Prime( A ) → Alt-A → Jumbo, Subprime
  - Mortgage: FixedRM → AdjustableRM → Option ARM, exotic M.
  - Conduit, SIV

- - vs. ‘ ’

# Macro Environment



- 1998

- Easy money

- 2004 FRB 4

(1%→2%

- 70

- Bretton Woods 2

- 

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(

)

# Institutional factors



- Agent Problem

- , ex: mortgage broker
- IB incentive system

- 가

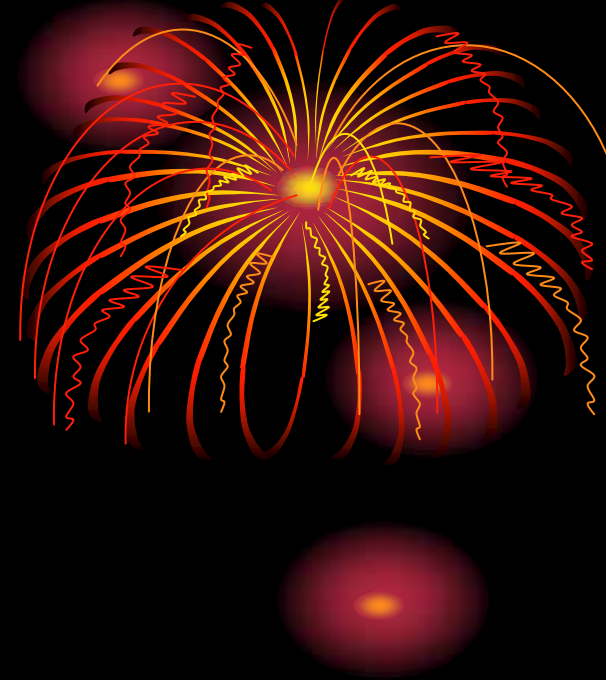
- ,

- 가

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- 9賊 ( )

# Regulatory Factors



- 
- Shadow Banking
- “Greenspan Put”
- Gramlich (2007)
- Mark - to - Market      ?

, 가

- 2003 Fannie Mae, Freddie Mac  
IB

(胚芽)

- Larry Fink

- 1980 First Boston
- BlackRock
- Freddie Mac CMO
- 

Mortgage Trader

( Tranche )





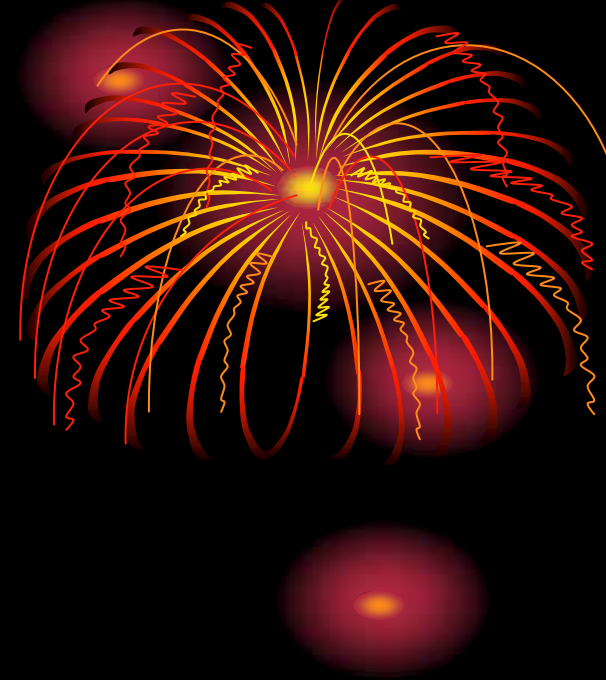
(胚芽)

- Michael Vranos
  - Kidder Peabody CMO
  - Ellington Management Group CEO
  - David Askin CMO
  - IT ,
  - Leverage Equity Tranche (Toxic Waste)
  - 1994 Fed Rate 0.5% → CMO
  - CMO 550

"There is no way to determine [values] that would be simultaneously fair both to investors redeeming from these funds and to investors remaining in the funds" , M. Vranos, Sep. 2009

# 가

- 1970 S&L
  - Federal Home Loan Bank Board
- 1987 Black Monday
  - Portfolio Insurance
- 1998 LTCM
  -
- 2007
  - 2007 6 2
  - 2007 8 IKB, SachsenLB SIV
  - 2007 9 Northern Rock
  - issue





# 2000

# Perfect Storm

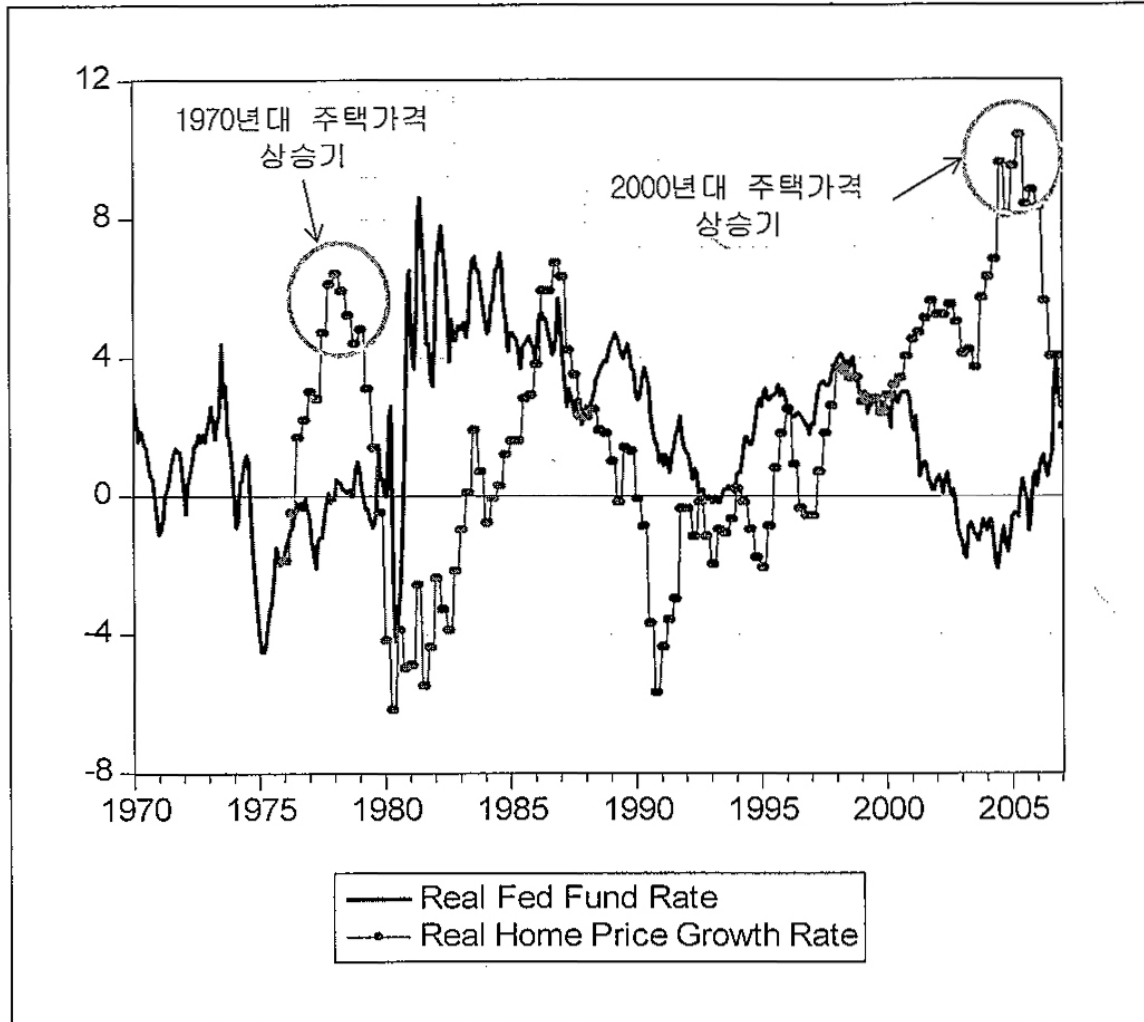


- 가
  - ,
  - 
  - Yield curve play: Mortgage
  - - Mortgage Credit Score → Prime Mortgage
    - 2000 Subprime → ,
    - Subprime CDO CDO Diversification
  - (Information Asymmetry)
    - Due Dilligence
    -

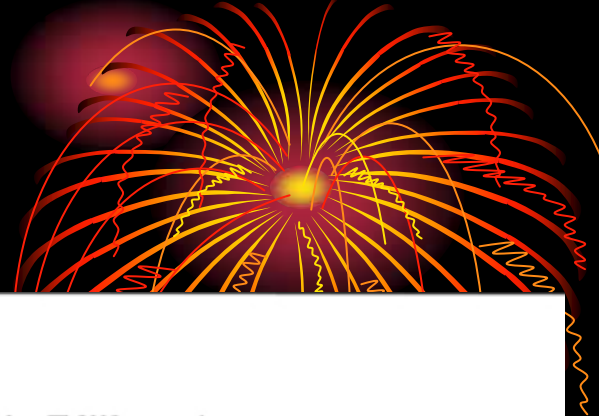
(2008)

# 가

그림 5. 미국 연준의 실질정책금리(Real Fed Fund Rate)와 주택가격성장율



# 2000



## 표 2.

U.S. Debt Outstanding, By Instrument (2000Q1-2006Q4; Billions)

	2000Q1	2006Q4	CAGR**
Mortgage*	6,332	13,510	13.5%
Consumer	1,554	2,418	7.7%
Municipal	1,462	2,403	8.6%
Treasury	3,626	4,862	5.0%
Corporate, non-financial	4,410	5,976	5.2%

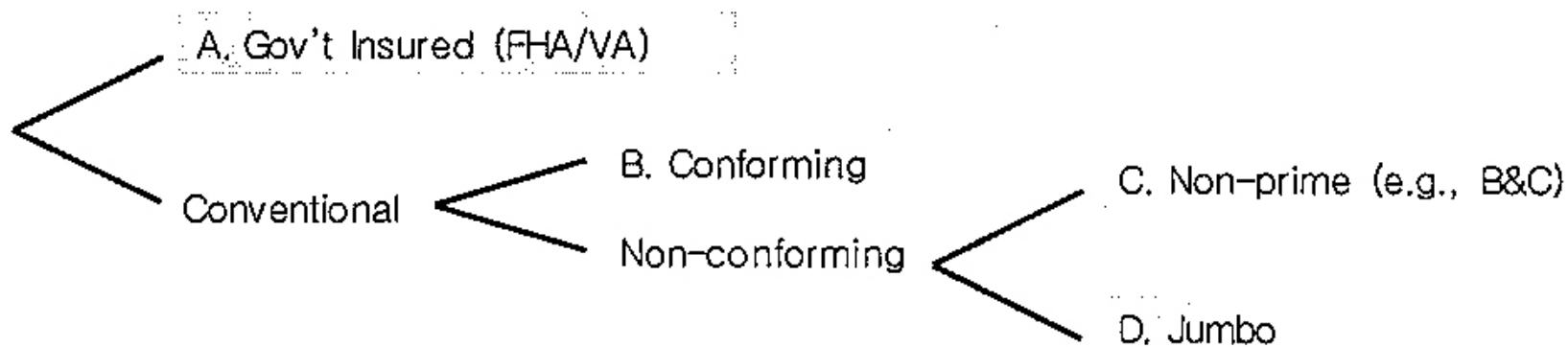
Data source: Fed Flow of Funds

\* Including residential and commercial mortgages

\*\* Compounded Annual Growth Rate



## 그림 6. 미국 모기지시장의 분할



- A. Gov't-insured (FHA/VA): Explicit gov't guarantee; Securitized by Ginnie Mae
- B. Conforming conventional: Implicit gov't guarantee; Securitized by GSEs
- C. Non-conforming, non-prime: No gov't guarantee; Securitized by Private Labels (PLs) via CDO & CDO-Squared
- D. Non-conforming, jumbo: No gov't guarantee, Securitized by PLs

# VS

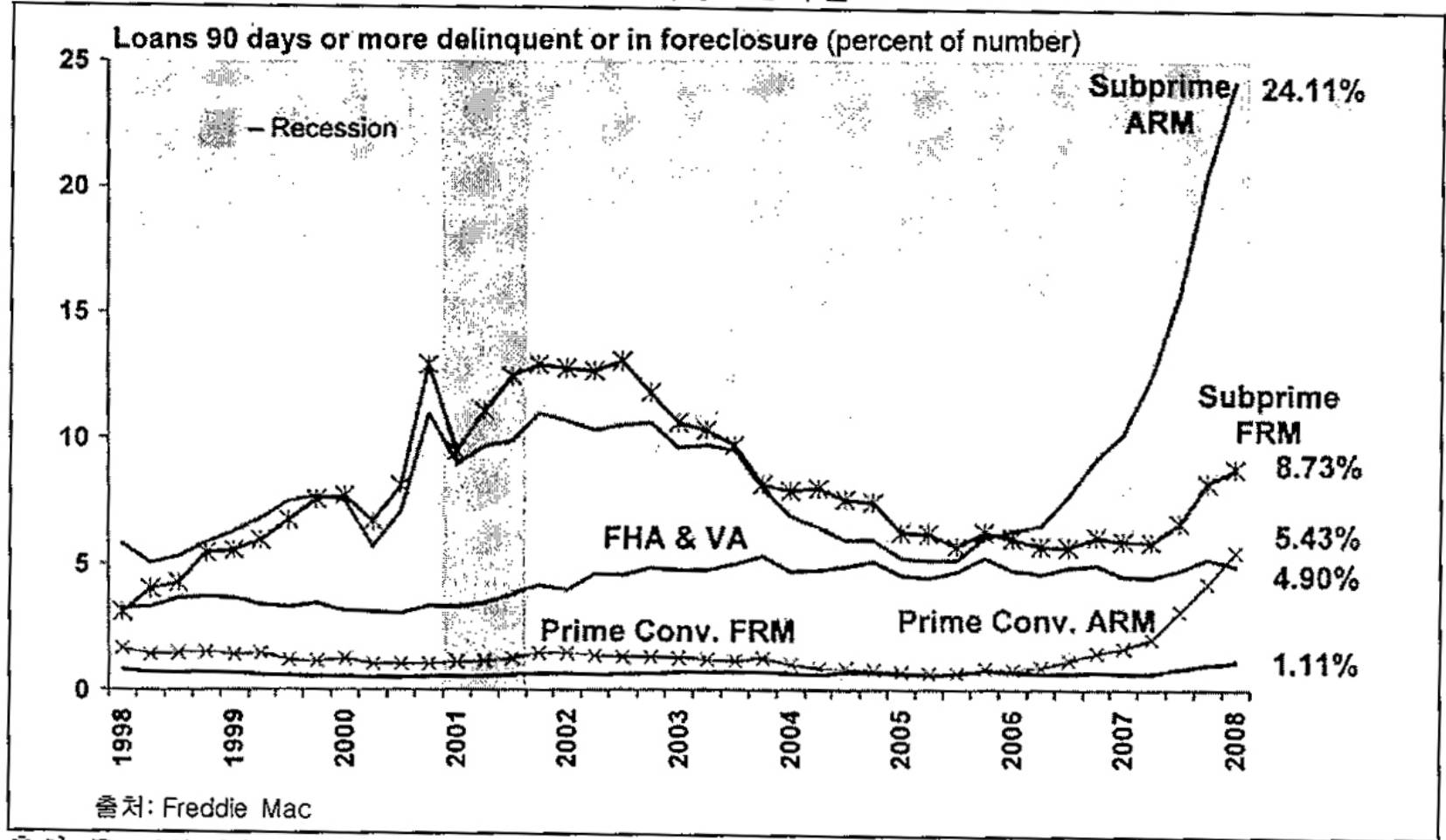


표 3. 프라임 MBS 와 서브프라임 MBS 의 차이점

	Prime MBS	Subprime ABS
담보	<ul style="list-style-type: none"> <li>▪ 약 90%가 15 과 30 년 고정금리 모기지("plain vanilla" 대출)의 두가지 형태의 모기지론에 의해 담보</li> <li>▪ 대부분 조기 상환 벌금이 없음</li> <li>▪ 최근 수익 증명을 낮은 수준으로 요구 또는 요구하지 않는 대출 증가 (NINA/SISA)</li> </ul>	<ul style="list-style-type: none"> <li>▪ 약 90%가 변동금리 모기지 또는 혼합모기지(예 2/28 ARM, Option ARM, IO-ARM) 에 의해 담보</li> <li>▪ 아주 낮은 초기 이자율</li> <li>▪ 대부분 수익증명 요구가 없거나 낮은 수준의 대출이 많은 부분 차지 (최근 약 50%에 다다름)</li> </ul>
구조	<ul style="list-style-type: none"> <li>▪ Pass-Through(정부보증 모기지업체), CMO. 그리고 Stripped MBS(IO-PO)</li> <li>- 조기상환 위험 관리를 위한 구조화(순차적 상환구조-Sequential-pay, PAC, TAC 와 같은 다양한 CMO 구조를 통해)</li> </ul>	<ul style="list-style-type: none"> <li>▪ 선/중/후순위 tranche 를 갖는 CDO, CDO-squared 구조</li> <li>▪ 신용위험을 관리하기 위해 구조화 또는 규모화 : tranche 등급별 신용등급은 중요한 시장 메이커로서 작용</li> </ul>
리스크 관리	<ul style="list-style-type: none"> <li>▪ <u>신용위험</u>: 공적, 민간 모기지 보험과 정부 채무불이행 보증을 통한 외부 신용보강, 고위험 대출에 대해서는 보험료 부과 (보험 제공회사의 경쟁으로 결정되어진 보험료 부과에 대한" 가시장가")</li> <li>▪ <u>조기상환위험</u>: 발행 당시 사전적 위험 지표로서 PSA 배수, CMO tranche 의 상대적 가치를 측정하는 도구로서의 옵션조정스프레드, 이자율 스왑 옵션 헤지도구로 사용되어지는 캡, MBS 발행자의 자산 풀 특징에 대하여 월간 정보 공개</li> </ul>	<ul style="list-style-type: none"> <li>▪ <u>신용위험</u> : 구조화를 통한 내부 신용보강 을 통해 관리(CDO tranche 와 연동되어지는 신용 리스크 시장 지수 ABX 에 의해 신용위험 측정됨),</li> <li>▪ <u>조기상환위험</u> 담보에 대한 조기상환벌금에 의해 관리</li> </ul>

출처: Cho (2008)

그림 5. 미국 주택담보대출의 90일 이상 연체율



출처: Freddie Mac

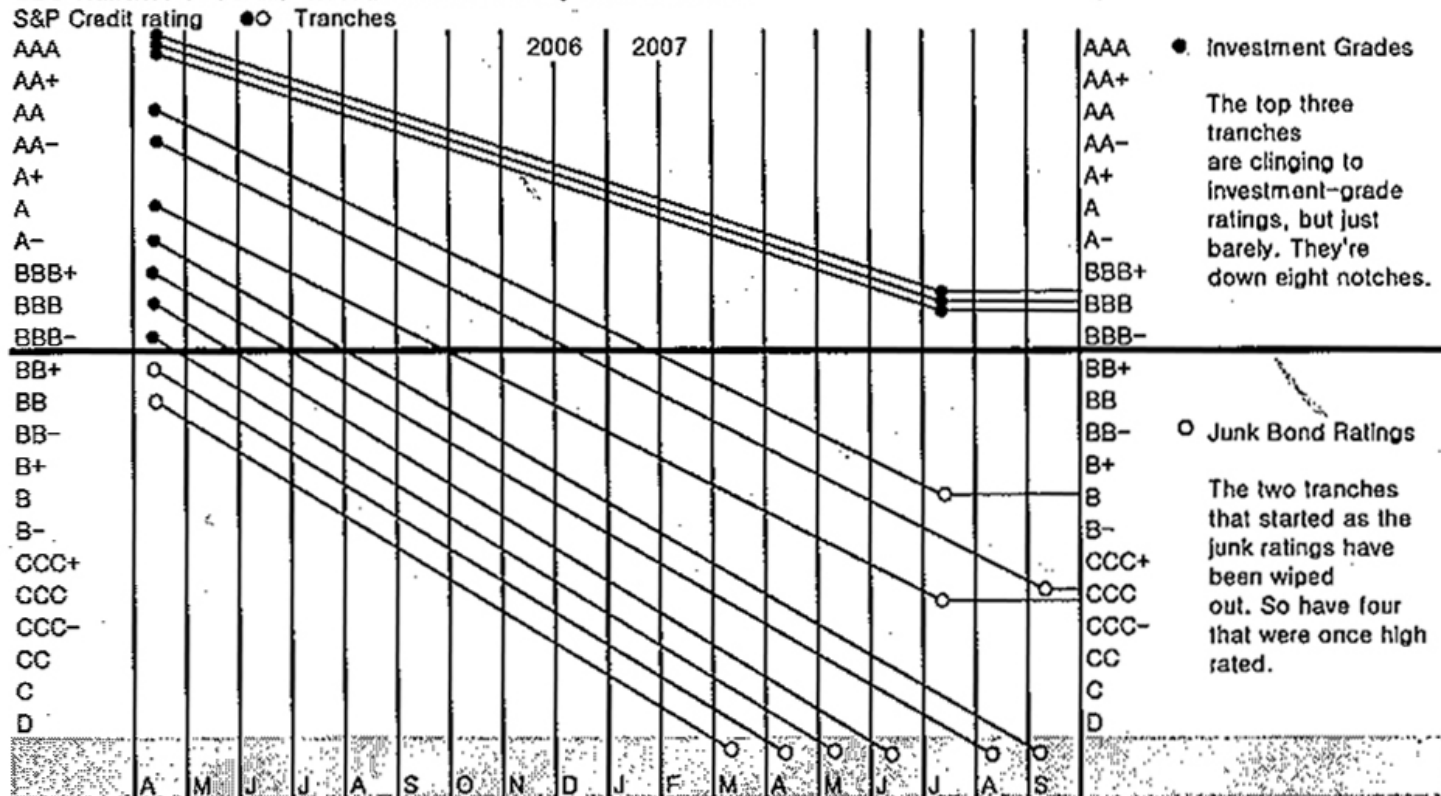


# CDO



## Goldman Sachs CDO Deal (GSAMP 2006-S3): An "Eye-Opening" Case of Rating Migrations

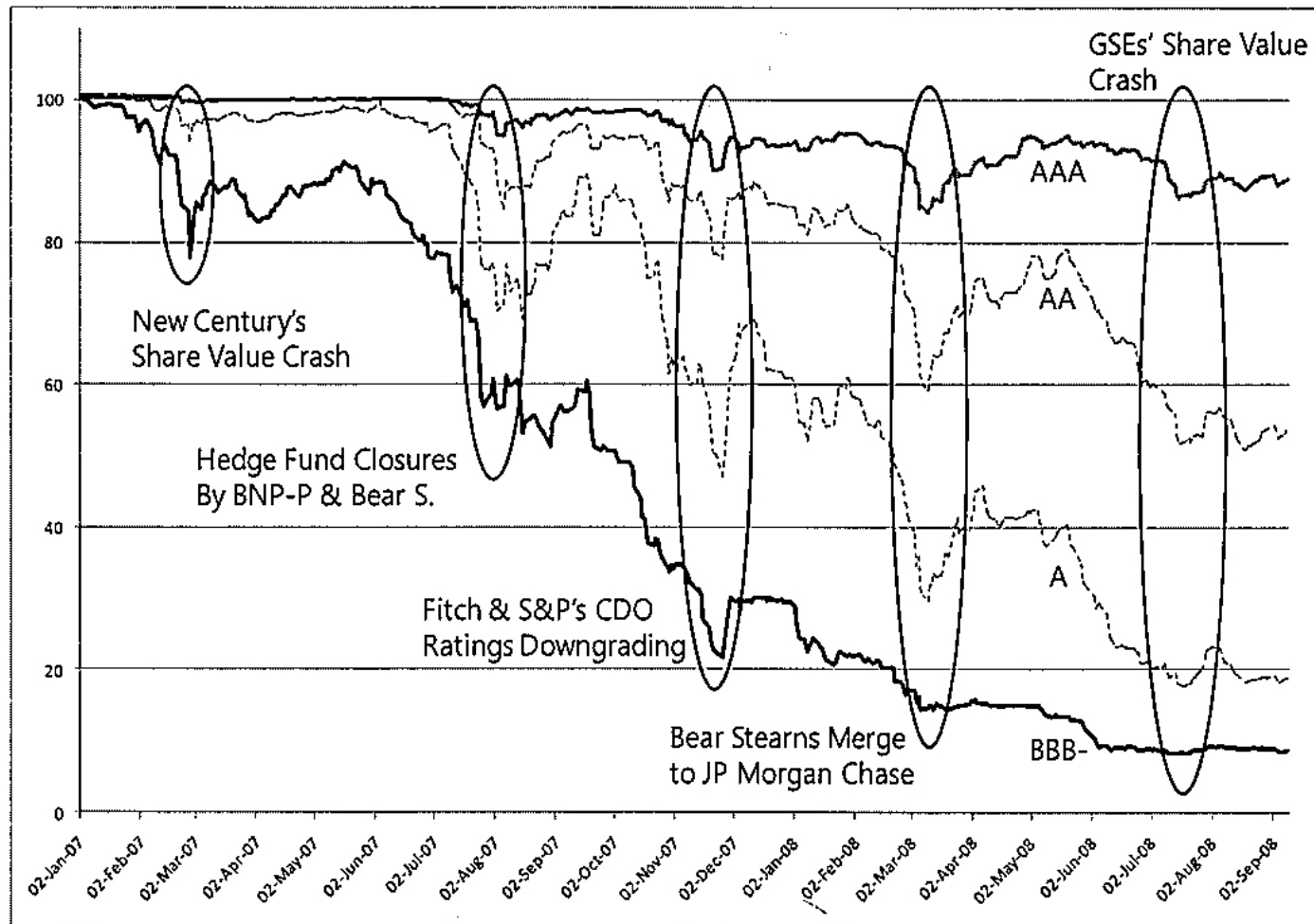
CDO Tranches of GSAMP Trust 2006 S3 Issued by Goldman Sachs



SOURCE : Reproduced from Allan Sloan's column in Washington Post (October 16, 2007)

# ABX

그림 9. ABX 지표의 가격변화, 채권등급별 추세 (2007년 1월 - 2008년 9월)







- 
- FSA ( ), FSA( ),  
( )

- 
- 6  
(OCC, FRB, FDIC, OTS, CFTC, SEC)

- 
- 
- → IB

# Edward Grammlich



- FRB Governor
  - 2007
  - *Subprime Mortgage: America's Latest Boom and Bust (2007)*
- Home Mortgage Disclosure Act(1975)
  - 
  -



- Richard Fuld
- CEO, Lehman Bros
- “Gorrila”

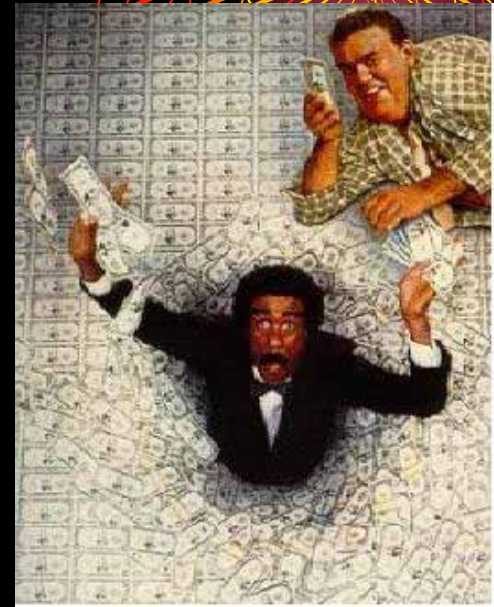


- Jimmy Cayne
- CEO, Bear Sterns
- Central Park 2





- Stanley O'Neal
- CEO, Merrill Lynch
- 



- Martin Sullivan
- CEO, AIG
- 





- Ken Thompson
- CEO, Wachovia
- Golden West Financial



- Kerry Killinger
- CEO, Washington Mutual





- Angelo Mozilo
- CEO, CountryFinancial



**Countrywide HOME LOANS**

**You Could Save \$\$\$ With The Combo Loan.**

**Home Loans Made Easy!**

- Low Monthly Payments
- 4 out of 5 Approved<sup>1</sup>
- No Up-Front Cost Or Obligation
- Loans for Homeowners With Less Than Perfect Credit

 A photograph of a man and a woman standing in front of a two-story house, both with their arms raised in celebration.

**Done to a turn**

It's hard to imagine things getting any hotter for Countrywide boss Angelo Mozilo amid more bad financial news and another subpoena, this one from Illinois.

 A large, dark, roasted pig with a human face that resembles Angelo Mozilo. The pig is skewered with metal rods.
 

**Countrywide**

 A line chart showing Countrywide's stock price from April to December. The price starts around \$35, peaks near \$40 in April, and then declines to around \$10 by December.
 

Month	Price (\$)
Apr. '07	~35
July	~25
Dec.	10.08

Close \$10.08 -45¢

**ANGRY HOMEOWNERS CONGRESS SEC ILLINOIS**

Bloomberg Post photo composite



- Daniel Mudd
- CEO, Fannie Mae
- (GE)



- Richard Syron
- CEO, Freddie Mac
- FRB