

# The Great “Whodunit”: What Caused The Panic of 2007?



“When you have eliminated the impossible, whatever remains, however improbable, must be the truth.”

--Arthur Conan Doyle, Sr., creator of the detective Sherlock Holmes

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# Disclaimer

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# Motivation

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## The Meltdown Remains a Whodunit

*The housing bust is well understood; the global financial panic isn't.*



By HOLMAN W. JENKINS, JR.

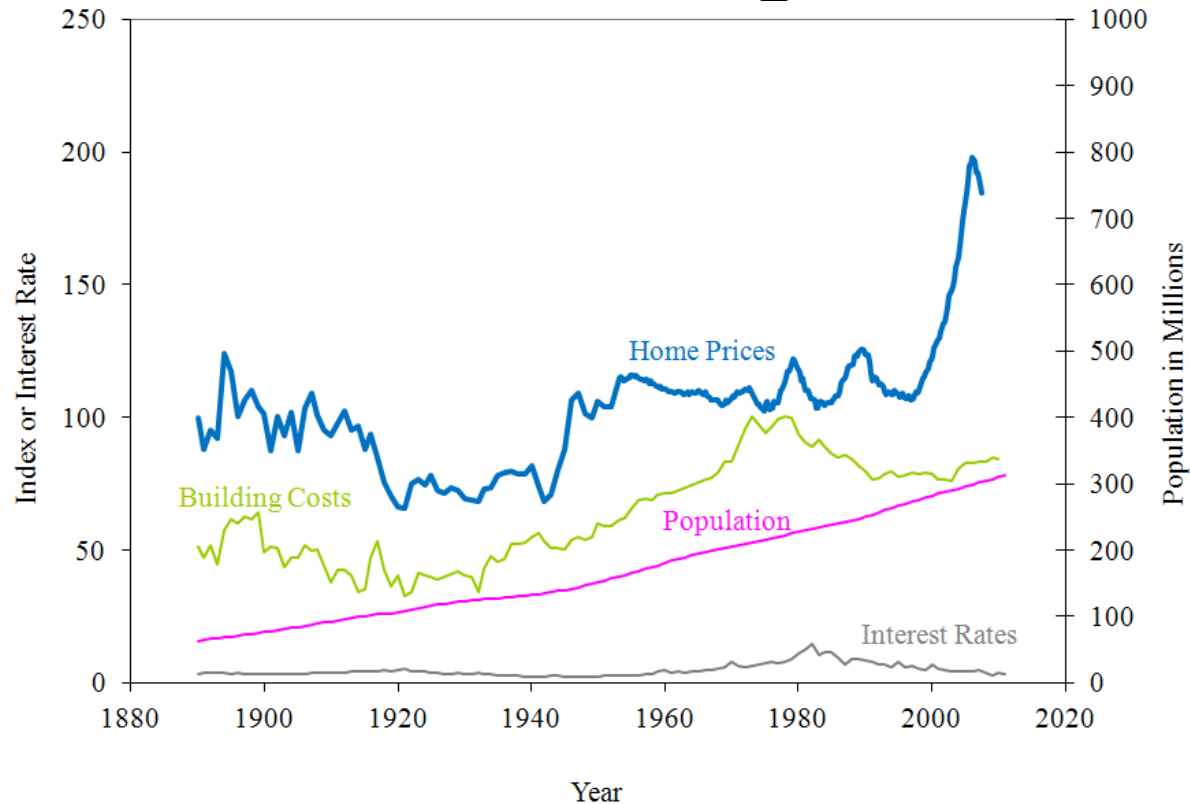
# What Caused the Panic of 2007?

- What caused the Panic of 2007 that emanated from U.S. financial markets, erupted on August 9, 2007, and put financial markets into turmoil?
- Even more importantly, what are the lessons learned?

# Bring in the Suspects

1. Was it the housing bubble?
2. Was it affordable housing goals and the GSEs?
3. Was it deposit insurance and 'Too Big to Fail' banks?
4. Was it the subprime mortgage backed securities (MBS)?
5. Was it the regulators and the Basel Accords?
6. Was it the subprime collateralized debt obligations (CDOs) and the credit default swaps (CDSs)?
7. Was it the rating agencies?
8. Or, like in "The Murder on the Orient Express", was it everyone in the room?

# Was It the Housing Bubble?



- We had a “housing bubble.” House price declines were a *necessary condition* for the Panic.
- House prices had clearly started coming down by Q207, but only by 3.5%.
- The housing bubble was an international phenomenon. Prices were also going down elsewhere, sooner and by bigger amounts.
- Q: What was uniquely American about housing markets that could set off the Panic?

# Was It Affordable Housing and the GSEs?

- Peter Wallison: It's the GSEs and affordable housing that caused the bubble and the Panic of 2008.
- But the Panic began on August 9, 2007.
  - Fannie Mae's stock price: \$66
  - Freddie Mac's stock price: \$62
- The GSEs were buying mortgages in August 2007, viewed as *stabilizers* of the financial markets:
  - “There is little to no liquidity in the mortgage market with the exception of Fannie and Freddie...” (Email from Countrywide CEO Angelo Mizilo to Lyle Gramley, 8/1/07).
- GSEs problems would come in 2008, when the financial crisis was much bigger and deeper.

# Was It Deposit Insurance and TBTF?

- Access to deposit insurance or gov't. guarantees resulted in more highly levered banks and increased incentives to take on more risk, especially at the big banks. The Panic was dominated by big banks in many countries.
- But of the lending took place in the U.S. “shadow banking system.” Investment banks did not have deposit insurance.
- Also, sr. mgt. at these banks were unaware of much of the risk taking.
- Insurance firms were also big players in the Panic. Only AIG was bailed out, under extraordinary circumstances.
- Story is more complicated, and interesting, than TBTF.



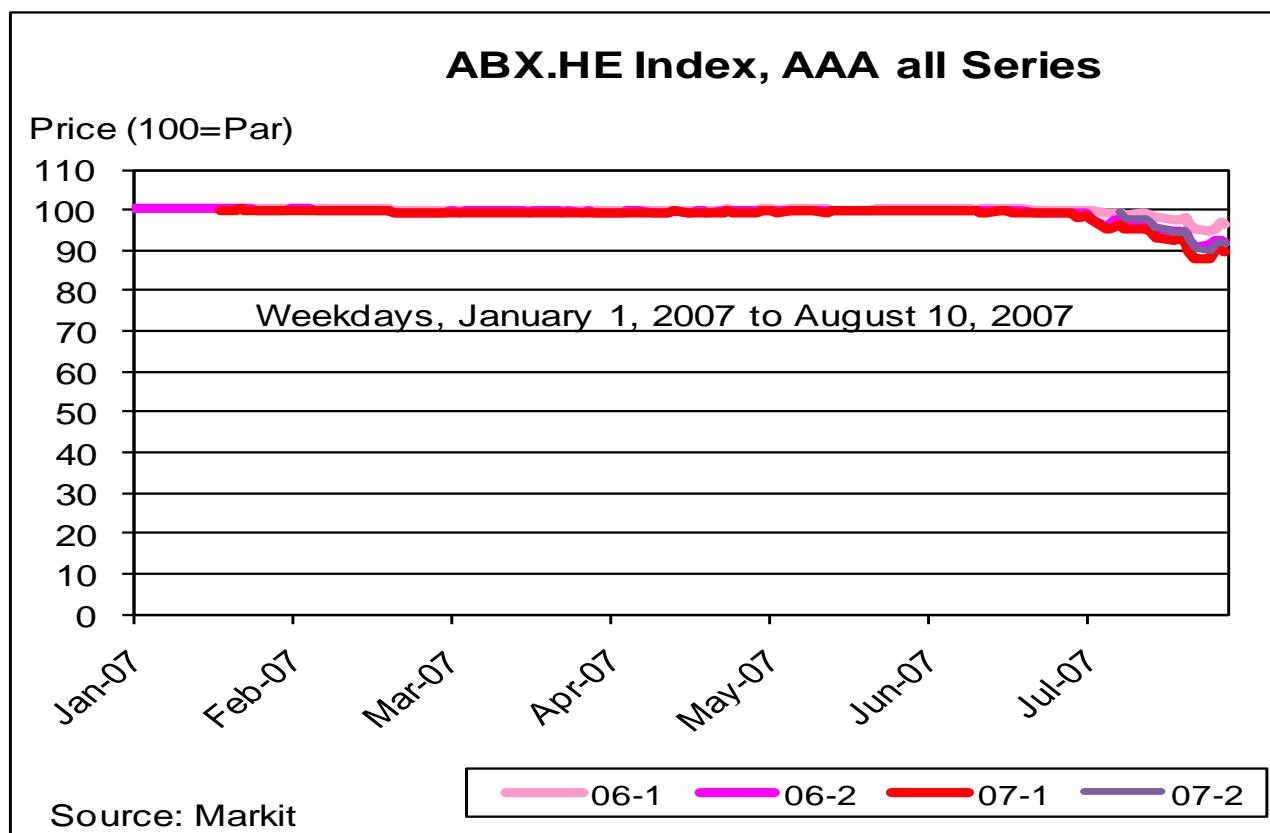
# Was It Subprime AAA MBS?

- The decline in underwriting standards and the subprime mortgages originated in the U.S. were, like the housing bubble, a necessary condition for the crisis
- Friedman and Kraus (2011) conclude that “capital adequacy regulations created incentives to load up on assets the regulators considered safe, such as PLMBS rated AAA.”
- The problem with this argument, as Jenkins correctly points out, is that the AAA bonds of the PLMBS “largely performed as advertised.”
- According to Moody’s, only 4% of AAA-rated subprime securities from 2005-07 will be impaired.

Figure taken from Larry Cordell, Yilin Huang and Meredith Williams, “Collateral Damage: Sizing and Assessing the Subprime CDO Crisis”, Federal Reserve Bank of Philadelphia Working Paper 11-30, p. 46. Accessed at <http://www.philadelphiafed.org/research-and-data/publications/working-papers/2011/wp11-30.pdf> , last accessed February 1, 2012.

# Was It Subprime MBS?

- The AAA ABX Index of synthetic benchmark securities traded between 90—97 clear through August 10<sup>th</sup>, not nearly enough to set off the Panic.



# What About Lower-Rated Tranches and the CDOs?

- One problem: No one knew for sure at start of the Panic which CDOs traded on the “ABS desks” that went haywire.
- Creditflux put it at \$1 trillion.
- Cordell, Huang and Williams got the correct figure: \$641 billion!

SF ABS CDO Cash and Synthetic Collateral by Vintage				
1999-2000				
Year	Cash	Synthetic	Total	% Synthetic
1999	304	-	304	0%
2000	6,391	600	6,991	9%
2001	14,891	-	14,891	0%
2002	14,456	3,000	17,456	17%
2003	25,431	130	25,561	1%
2004	52,502	6,056	58,558	10%
2005H1	25,633	3,827	29,460	13%
2005H2	64,071	15,346	79,417	19%
2006H1	52,608	18,501	71,109	26%
2006H2	83,287	77,315	160,602	48%
2007H1	73,948	49,065	123,013	40%
2007H2	26,230	27,516	53,746	51%
<b>Total</b>	<b>439,751</b>	<b>201,356</b>	<b>641,107</b>	<b>31%</b>

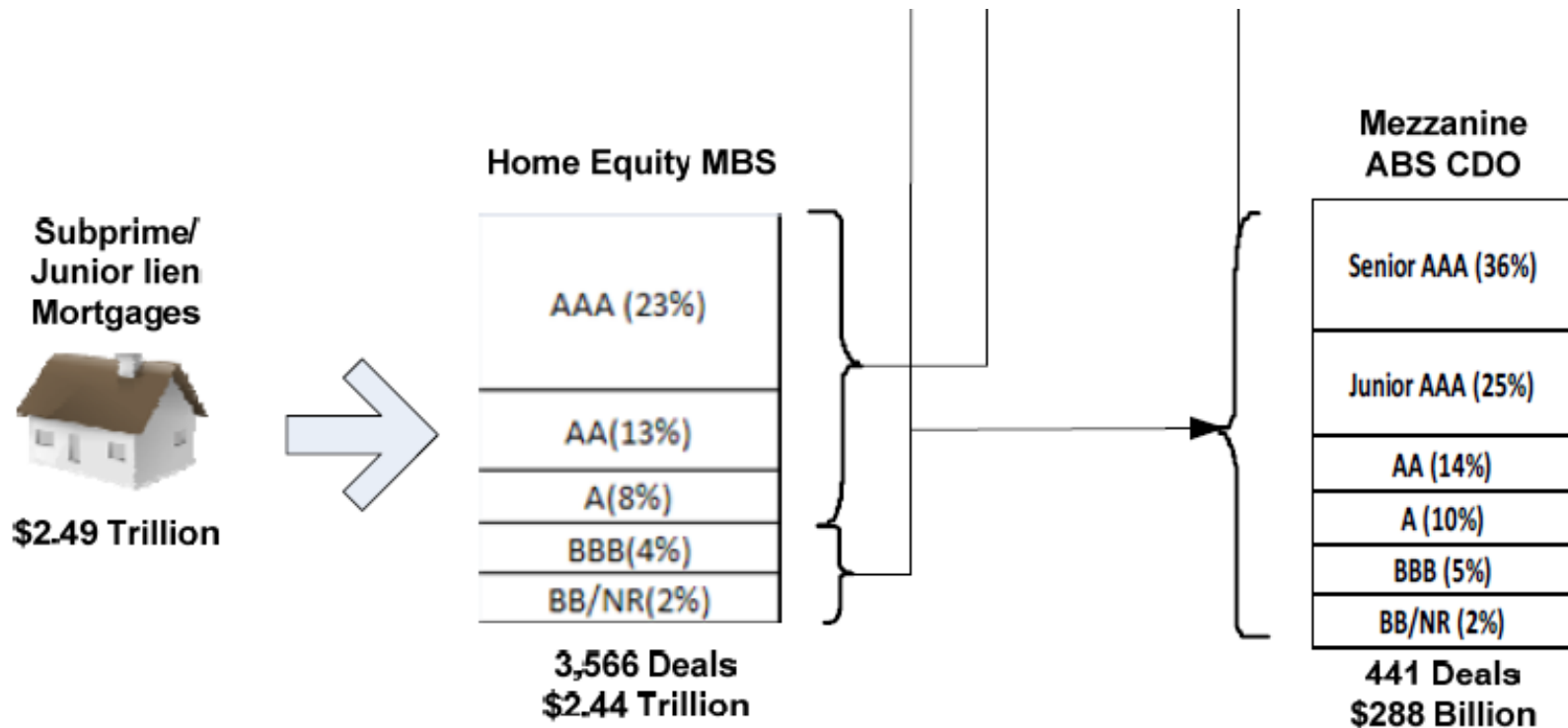
Notes: This table breaks out SF ABS CDO issuance between cash and synthetic by year through 2004, then semi-annually from 2005. SF ABS CDOs = Structured Finance Asset-Backed Securities Collateralized Debt Obligations.

# How Big Were the Losses on the CDOs?

Actual and Expected Pay-down and Write-down for All SF ABS CDOs					
SF ABS CDOs	Pay Down (\$ million)	Write-down (\$ million)	Total Balance (\$ million)	% Loss Rate	Write-down as % of Total Write-down
<b><u>Liquidated Deals</u></b>	46,454	162,015	208,469	78%	39%
<b><u>Active Deals</u></b>					
Already Pay-down	75,904	-	75,904	0%	
Already Writen-down	-	134,444	134,444	100%	32%
Current Collateral (Expected)	<u>98,937</u>	<u>123,353</u>	<u>222,290</u>	55%	29%
<b>Subtotal for Active Deals</b>	<b>174,841</b>	<b>257,797</b>	<b>432,638</b>	<b>60%</b>	<b>61%</b>
<b>Total SF ABS CDOs</b>	<b>221,295</b>	<b>419,812</b>	<b>641,107</b>	<b>65%</b>	<b>100%</b>
Notes: This table summarizes cumulative/expected pay-down/write-down for all SF ABS CDOs (as of March 2011). SF ABS CDOs = Structured Finance CDOs. Implied Write-down: most SF ABS CDOs do not explicitly writedown when the underlying collateral experiences losses. Implied Write-down is used to measure the losses that would hit the SF ABS CDOS if they do write down.					
Source: Intex, Bloomberg, RBS (2011)					

# What About Lower Rated Subprime Securities?

- Where did these go?



# How Many BBB Subprime Bonds Went into CDOs?

- Answer: 182%! How???

BBB-Rated Home Equity Bonds Placed into SF ABS CDOs by Issuance Year 1998-2007						
Amounts (\$ Thousands)						
Time Period	BBB HE Bonds Issued	BBB HE Bonds Placed or Referenced in CDOs	% BBB Bonds Placed or Referenced in CDOs	BBB Bond Occurrences in CDOs	Share of \$ of BBB HE Occurrences to Total Issued	Share of \$ of BBB HE Occurrences to Total Placed in CDOs
1998	2,249	1,209	54%	603	27%	50%
1999	1,494	727	49%	435	29%	60%
2000	1,283	904	70%	792	62%	88%
2001	2,213	1,842	83%	1,708	77%	93%
2002	4,426	3,876	<b>88%</b>	3,443	<b>78%</b>	89%
2003	6,941	6,100	<b>88%</b>	6,985	<b>101%</b>	115%
2004	13,300	12,266	<b>92%</b>	21,898	<b>165%</b>	179%
2005H1	8,301	7,664	<b>92%</b>	25,254	<b>304%</b>	330%
2005H2	10,300	9,250	<b>90%</b>	29,934	<b>291%</b>	324%
2006H1	10,086	9,164	<b>91%</b>	34,060	<b>338%</b>	372%
2006H2	8,031	6,922	<b>86%</b>	12,124	<b>151%</b>	175%
2007H1	6,613	3,973	60%	2,706	41%	68%
2007H2	1,789	165	9%	104	6%	63%
Totals	77,025	<b>64,061</b>	83%	<b>140,046</b>	<b>182%</b>	219%

Notes: This table breaks out the total number and dollar balances of Home Equity (HE) originally BBB-rated securities that were either placed or referenced in SF ABS CDOs by vintage. It then computes the share of BBB-rated HE bonds that went into SF ABS CDOs, then computes the number of occurrences in the CDOs, then computes shares of occurrences per total bonds issued and per total placed in CDOs. SF ABS CDOs = Structured Finance Asset-Backed Security Collateralized Debt Obligations (SF ABS CDOs).

# How Many CDOs Went Into Other CDOs?

- Answer: Most all of them!
- Problem: Once house prices stopped increasing, this was not going to end well!

SF CDO Bonds Placed into CDOs by Original Rating 1998-2007						
Original Tranche Rating	Total \$ Issued	Total Placed in or Referenced in CDOs	% Placed or Referenced in CDOs	\$ Occurrences in CDOs	Share of \$ Occurrences to Total Issued	Share of \$ Occurrences to Total Placed in CDOs
Sr AAA	\$397,688	\$26,934	7%	\$1,490	0%	5.53%
Jr AAA	\$137,852	\$54,176	39%	\$18,915	14%	34.91%
AA	\$36,234	\$26,837	<b>74%</b>	\$23,387	65%	87.15%
<b>A</b>	<b>\$18,656</b>	<b>\$11,881</b>	<b>64%</b>	<b>\$21,193</b>	<b>114%</b>	<b>178.38%</b>
BBB	\$17,769	\$10,251	<b>58%</b>	\$9,731	55%	<b>94.93%</b>
BB/B	\$19,017	\$838	4%	\$506	3%	60.41%

# Who Was Holding the AAA-Rated CDOs?

- Answer: The big dealers—but not all!

Subprime and CDO Dealer Issuance Volumes and Losses on CDOs				
Dealers	Dealer Shelf HE Issuance (\$MM)	SF ABS CDO Issuance (\$MM)	Senior AAA Issuance (\$MM)	Credit Flux Writedowns (\$MM)*
Merrill Lynch	\$76,747	91,767	64,324	26,100
Citigroup	\$54,032	70,552	50,945	34,106
UBS Warburg	\$20,024	65,409	35,126	21,870
Goldman, Sachs & Co.	\$52,727	59,103	45,313	-
<b>Totals</b>	<b>\$880,507</b>	<b>\$571,826</b>	<b>\$373,516</b>	<b>\$125,572</b>

Notes: This table documents the vertical integration taking place in the subprime mortgage business by dealers. It documents the acquisition of subprime originators and servicers (along with dates where available); lists names of deal shelves run by each dealer; and sums the total issuance volumes in all shelves.

\*All writedowns are taken from the January 26, 2009 CreditFlux Writedown Report. Calyon Securities writedowns reflect those of Calyon's parent company Credit Agricole.



# Who Did the Dealers Sell AAA CDOs To?

- Answer: Many of the biggest financial firms in the world!

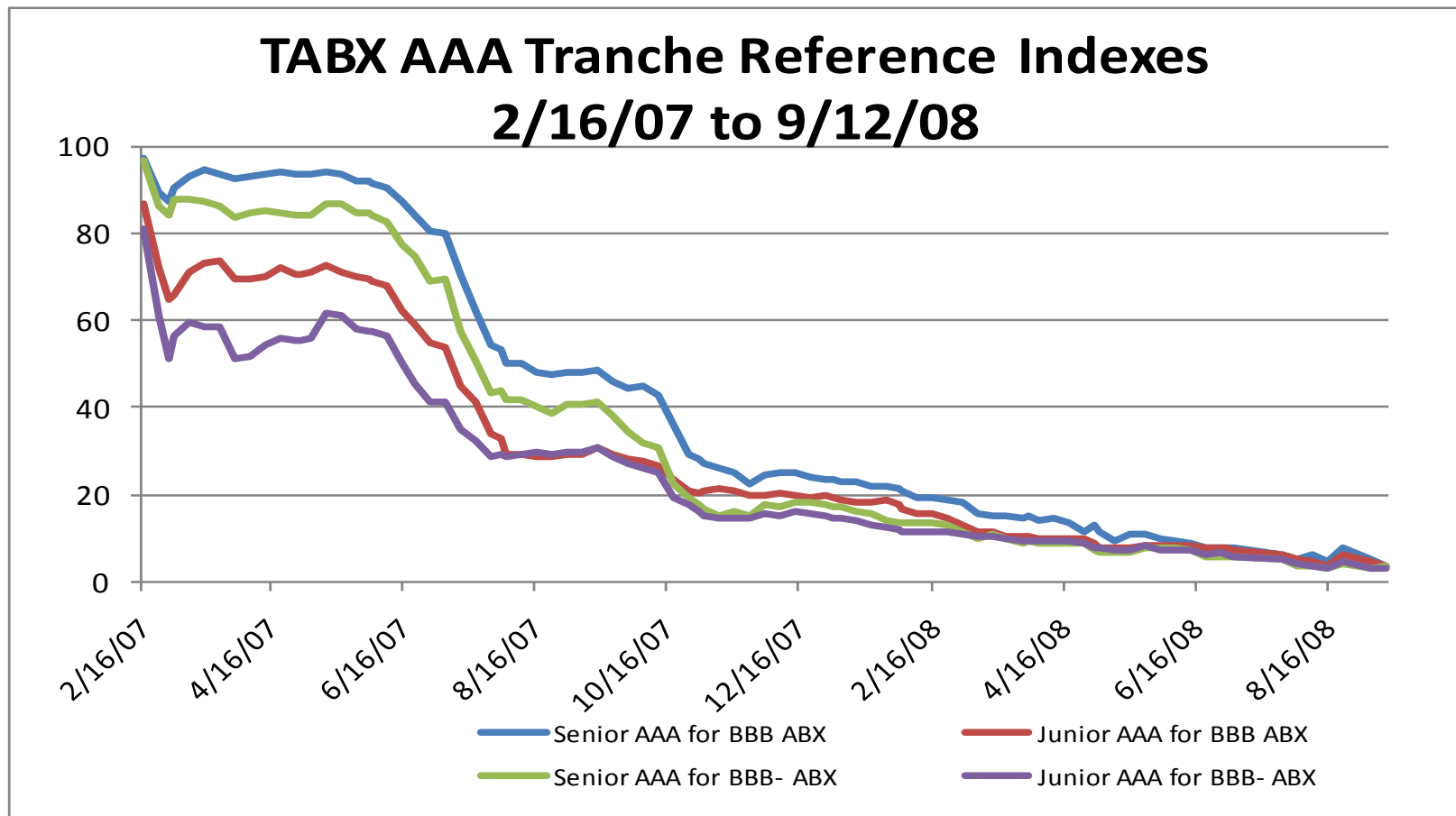
Crisis-Related SF ABS CDO Writedowns Through January 26, 2009 \$ Millions					
Firm Type	CDOs of ABS	Corporate Credit	RMBS Exposures	Other or Undefined	All Write Downs
Insurers/asset managers	61,074	6,320	10,386	38,347	116,126
North American banks	84,319	23,702	42,272	59,011	209,305
European banks	63,464	18,579	26,423	62,634	171,100
Asia/emerging market banks	9,358	4,724	5,728	3,743	23,553
Totals	<b>218,216</b>	53,324	84,810	163,735	<b>520,084</b>
% Total	<b>42%</b>	10%	16%	31%	

Source: Creditflux. All information based on publicly disclosed company information or on reliable press reports of public disclosures, compiled by Creditflux Ltd. For CDOs of ABS, Creditflux stated that write down stopped being separately reported in February 2008. Most firms by that point had written off or substantially written down their holdings.

- And others: In June 2007, [Goldman Sachs trader Fabrice] Tourre wrote in an email to his girlfriend: "Just made it to the country of your favorite clients!!! I'm managed (sic) to sell a few abacus bonds to widows and orphans that I ran into at the airport, apparently these Belgians adore synthetic ABS CDO<sup>2</sup>s."

# The TABX Index Was a Barometer of CDO Pricing

- The TABX Index dropped 38 points between July 10<sup>th</sup> and August 10<sup>th</sup>.



## So Who Was the Culprit?

- CDOs and CDSs were the culprit. But were they?
- Who created the CDOs and CDSs?

# Why We Can't Blame the Rating Agencies

“...any user of the information contained herein should not rely on any credit rating or other opinion contained herein in making any investment decision.”

– Usual disclaimer that is printed at the bottom of S&P's credit rating

- Rating agency models are public and were available to all investors.
- Rating agencies were accessories, not principals.

## Why We Might Blame Regulators...

“...an insured state savings association...may not acquire or retain any corporate debt securities not of investment grade.”

—12 Code of Federal Regulations § 362.11

- Regulations created incentives to create and hold AAA-rated securities.

## ...Or Not

- Regulations did require firms to use their own internal risk models.
- Regulators also required regulated firms to hold capital to survive a 0.01% stress event.
  - These CDOs could not survive even a slightly worse than expected loss event (1.5—2.5 time expected losses).

# The Real Culprit

- Understanding the failure of the CDOs leads us to the central failure in the Panic of 2007: a failure of risk management.
- No one compelled our largest financial firms to design, originate and invest in the CDOs that Warren Buffett in 2005 famously labeled “financial weapons of mass destruction.”
- Ultimately, these failures of risk management were the cause of the Panic of 2007.

# Lessons Learned

- The senior/subordinated structure of the PLMBS held up surprisingly well and should be the surviving form for attracting private capital back into the market.
- The “risk retention rule” can be easily circumvented.
- Fixing the regulatory structure is the easy part:
  - Dodd Frank Act “prohibits” regulators and banks from using ratings
  - Annual stress tests allow regulators to more closely monitor banks
  - RADAR Group at Philadelphia Fed set up to monitor markets.
  - Office of Financial Research (OFR) has the same role.
- Fixing the risk management practices at banks much more complicated:
  - Changes must come from within the organizations
  - Compensation practices incentivize risk-taking; these have not changed.
  - Cultural