Structured Finance and the Market Crisis

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What is Structured Finance?

What is the Goal of Structured Finance?

- Structured finance is designed to move assets off of company balance sheets by distributing the risk into securities that meet investor needs.
- The simplest form is a pass-through, often used in residential securitization:

• Mortgages on single-family homes are originated.

Loan Pool

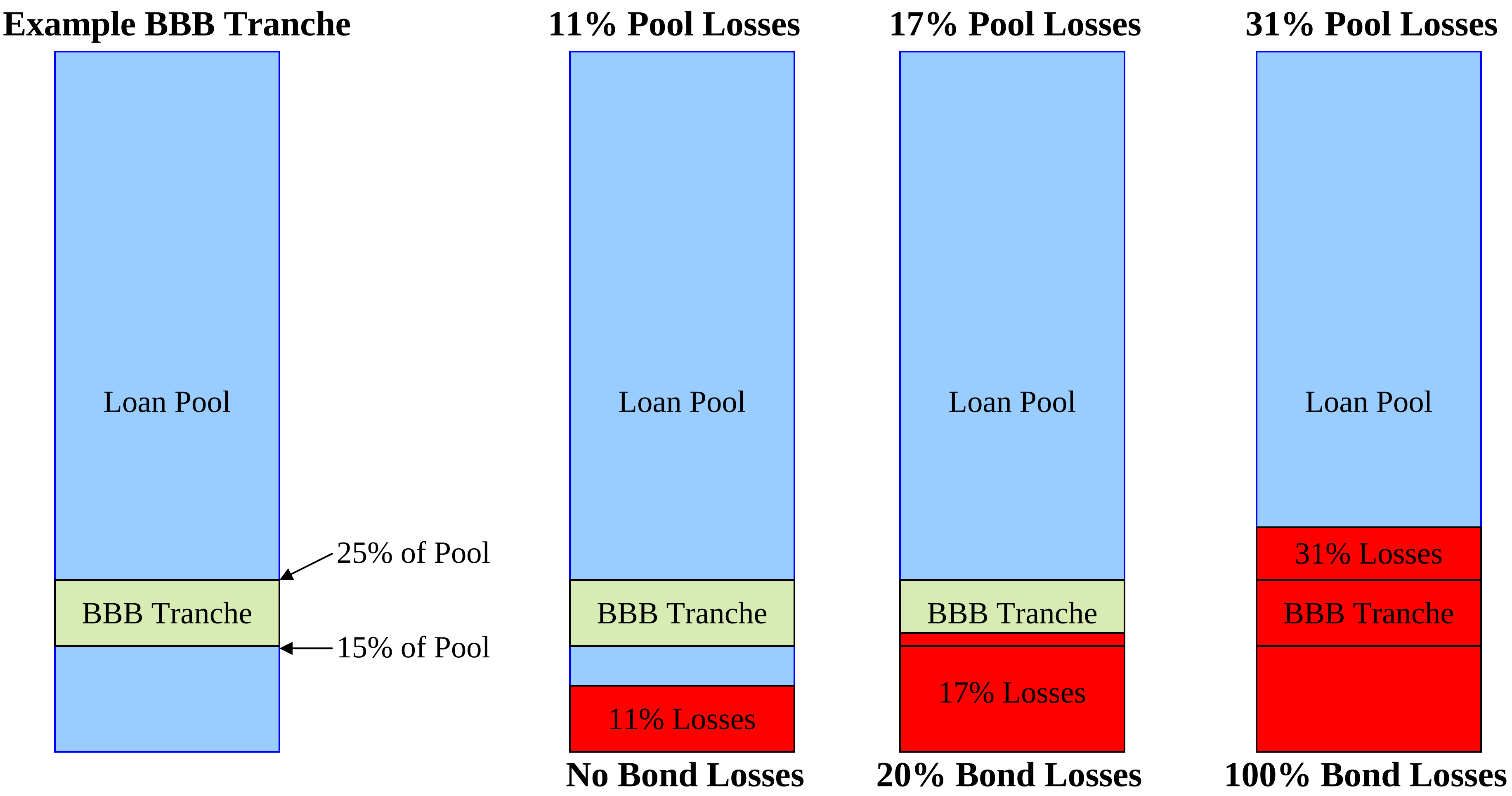
• The mortgages are gathered together into a pool.

Pass Thru

• A pass-through certificate representing the mortgage's cash flows can then be sold in the securities market.

What is a Tranche?

- The "structured" part of structured finance refers to the way that losses are distributed.
- A "tranche" (or slice) is the simplest from of structuring.
- The "subordination rate" or "credit enhancement" is the level of cushion protecting you



What are Commercial Mortgage-Backed Securities (CMBS)?

Commercial mortgage-backed securities (CMBS) take commercial mortgages, gather them into pools, and securitize them.

- CMBS issuers securitize loans that they originated through their own borrower relationships, or were originated by a third party to their standards, or were purchased externally. Often, multiple issuers will pool loans together and cooperate to securitize them.

CMBS Conduit Structure Diagram

Principal

Class	Pct of Deal	Subordination
Class A-1 (AAA)	10.0%	30.0%
Class A-2 (AAA)	10.0%	30.0%
Class A-3 (AAA)	10.0%	30.0%
Class A-4 (AAA)	40.0%	30.0%
Class AM (AAA)	10.0%	20.0%
Class AJ (AAA)	7.0%	13.0%
Class B (AA)	3.0%	10.0%
Class C (A)	2.5%	7.5%
Class D (BBB)	3.0%	4.5%
Class E (BB)	2.0%	2.5%
Class F (B)	1.0%	1.5%
Class G (UR)	1.5%	0.0%

Losses

CMBS Bonds

Loan Pool

- The underlying mortgages cover almost any kind of commercial property imaginable, but center on a small number of standard property types: retail, industrial, office, apartment, and hotel.
- The most common securitizations involve non-recourse, senior mortgages on income-generating properties.

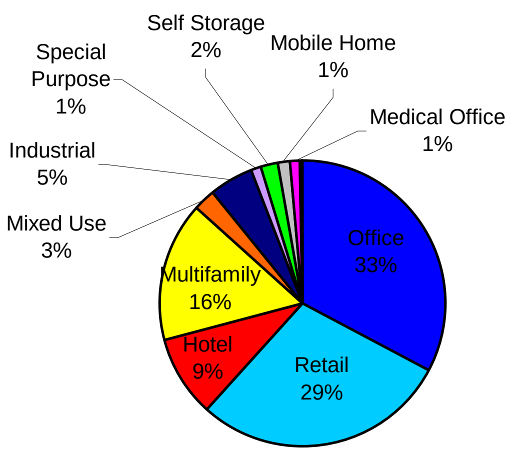
- Almost all CMBS deals are structured into tranches with various levels of credit and duration risk. The highest risk portions are purchased by specialized investors who exert some influence on the quality of the loans in the deal. A diverse group of buyers purchase bonds from the tranches with investment-grade ratings.

CMBS Property Types

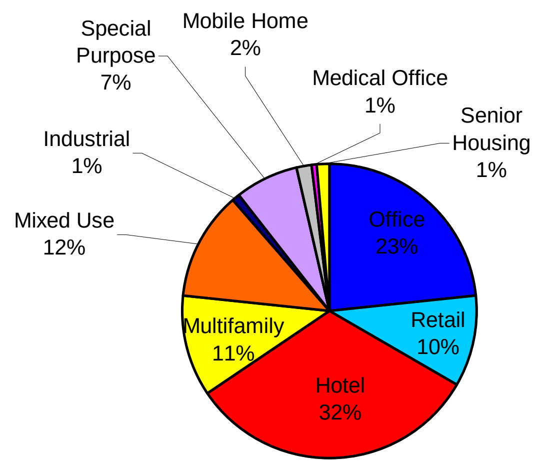
- Over 75% of loans are collateralized by three property types: retail, office, and multifamily.
- Offices, hotels, and malls are common in large loan and single borrower issues.

Major Property Types:	**Minor Property Types:**	**Special Purpose Property Type Examples:**
Office	Senior Housing	Movie Theaters
Retail	Mobile Home Parks	Parking Garages
Multifamily	Medical Office	Health & Fitness Clubs
Industrial	Self-Storage	Golf Courses
Hotel	Mixed Use	Child Care Centers
		Cell Phone Towers
		Timberland

Property Distribution - 2005-2007
Conduit/Fusion



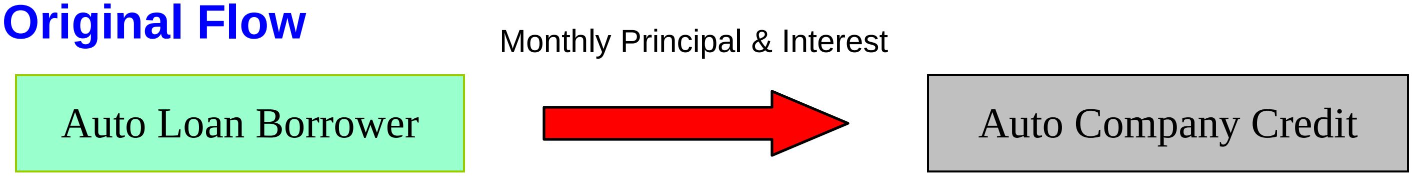
Property Distribution - 2005-2007
Non-Conduit/Fusion



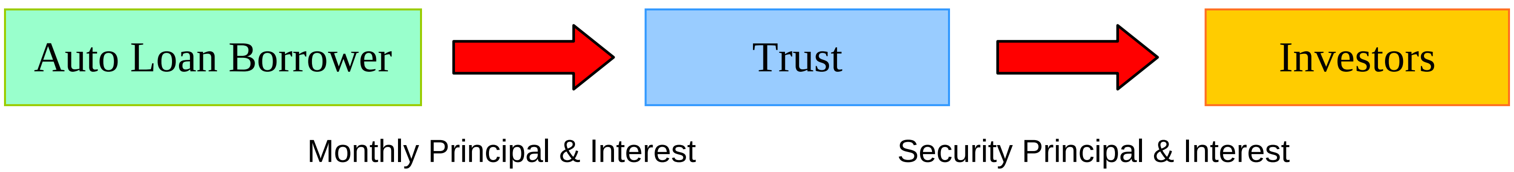
How Does Consumer ABS Work?

Loans (or loan receivables) are gathered into pools, and securities are created backed by those pools.

Original Flow



Flow After Structuring



- In a typical amortizing ABS deal, the Auto Lender/Builder transfers its rights to a specified pool of receivables into an Owner trust.
  - Owner trusts may reallocate cash flow into senior and subordinate tranches, and typically have sequential paydowns.
  - Grantor trusts, less common in new transactions, are a pass-through structure and make pro-rata payments
- Proceeds from the specified pool of auto loan borrowers will go to the trust. The trust will take the cashflow and direct it to various tranches in the form of principal and interest payments.
- The auto company is no longer entitled to the receivables. If the auto company were to be sued or file bankruptcy, the trust assets would not be directly affected because they are no longer assets of the auto company.

How Does a CDO Work?

- CDOs at their best further slice risk to separate out risk from “tail” or outlier events and sell investors securities with small or large amounts of outlier risk based upon their needs.

- CDOs at their worst are simple rating agency arbitrage and obfuscate the actual risk. Given the inaccuracy of rating agency ratings and investors’ insistence of buying on yield rather than real understanding, this can be dangerous.

- Assets, often structured securities, are accumulated by the CDO sponsor.

ABS BBB HEQ

Pass Thru

CMBS BBB- Bond

Pool of Securities

- The securities are transferred to a Cayman Island corporation where they can be managed.

- Securities are sold backed by the assets, often actively managed by a CDO manager (usually the sponsor).

CDO Structure Diagram

Principal

Class	Pct of Deal	Subordination
Class A-1 (AAA)	10.0%	55.0%
Class A-2 (AAA)	10.0%	55.0%
Class A-3 (AAA)	10.0%	55.0%
Class A-4 (AAA)	25.0%	55.0%
Class B (AA)	10.0%	45.0%
Class C (A)	10.0%	35.0%
Class D (BBB)	10.0%	25.0%
Class E (BB)	5.0%	20.0%
Class F (B)	5.0%	15.0%
Equity	15.0%	0.0%

Losses at the AAA level are allocated pro rata so all AAA classes have the same sub rate.

Losses

How Did the Crisis Occur?

Starting with Subprime...

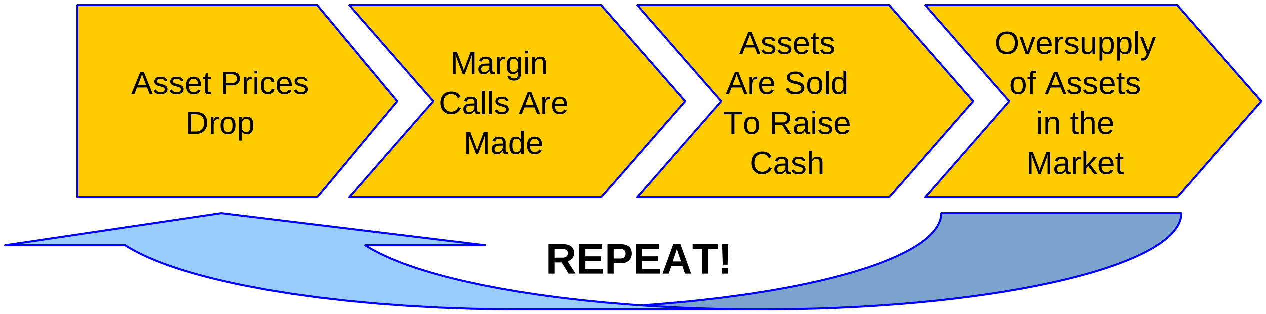
- The single-family home mortgage market is broken into a number of segments
  - Prime
  - Jumbo
  - Alt-A
  - Subprime
- The subprime loans are the highest risk loans and only represent a small fraction of residential lending
  - They returned the highest yields because of their risk.
  - Some of the risk stemmed from loose underwriting ("no doc" or "stated income" loans) and dishonesty in various parts of the origination process.
  - Rating agencies grossly underestimated the risks and did not consider the reliability of the data they analyzed.
  - Investors ignored obvious risks in exchange for returns less than 1% higher than much safer prime residential loans.
- The true nature of subprime credit became clear in early 2007 and markets weakened rapidly in the face of deteriorating credit.
  - The ABX index, measuring subprime credit, rapidly weakened.
  - Trading in the bonds deteriorated rapidly.

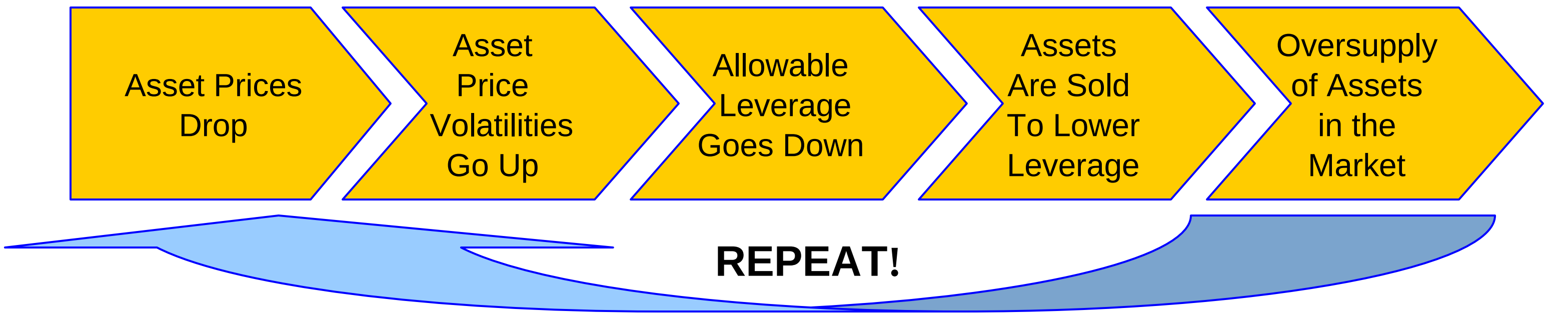
...Then Everything Else Structured...

- By late summer 2007, the liquidity crisis rapidly spread to other asset classes:
  - Student Loans
  - Credit Cards
  - Autos
  - Commercial Mortgages (CMBS)
- As balance sheets where forced to absorb losses and anticipated losses on subprime, other assets had to be sold to generate cash to cover those losses.
- As those assets were sold to generate cash, this greatly raised the supply of assets in the market and weakened asset prices.
  - Weakening asset prices forced firms to raise further cash to cover margin calls on loans and meet capital requirements. Assets were sold to generate this cash.
  - Weakening asset prices increased the measured volatility of prices
  - Volatility is used by risk groups to help determine how much leverage is acceptable. This led risk groups to lower the amount of allowable leverage.
  - Assets had to be sold in order to unwind the existing leverage.

...Then Things Started to Spiral...

- As assets were sold to generate cash, this greatly raised the supply of assets in the market and weakened asset prices.





Selling often took place within the same departments where the subprime securities were held, and often centered on the healthiest assets (because they could be sold).

…Opportunists Piled On with Shorts…

- Legitimate shorts in ABX encouraged aggressive shorting.
- People saw a similarly-named real estate index in CMBX, saw what had occurred in ABX and began shorting aggressively
- Despite the fact that the two indices were very different in composition…
  - Borrower Quality
    - ABX is entirely exposed to the worst borrowers in the residential space
    - CMBX has borrowers who span from subprime-like to those of the highest quality
  - Level of fraud and dishonesty
    - Appears to be endemic in subprime residential loans
    - Appears to be rare, but not totally absent, from CMBS
  - Duration/Maturity
    - ABX is a product with a much shorter life that significantly shortens when defaults rise
    - CMBX has a much more stable duration, that does not shift significantly until extraordinary stresses are applied. This gives it a much higher dollar value, even when the principal is written off, and only an IO is assumed
- It didn't matter – creating fear in the marketplace still made money for the firms who created the fear!

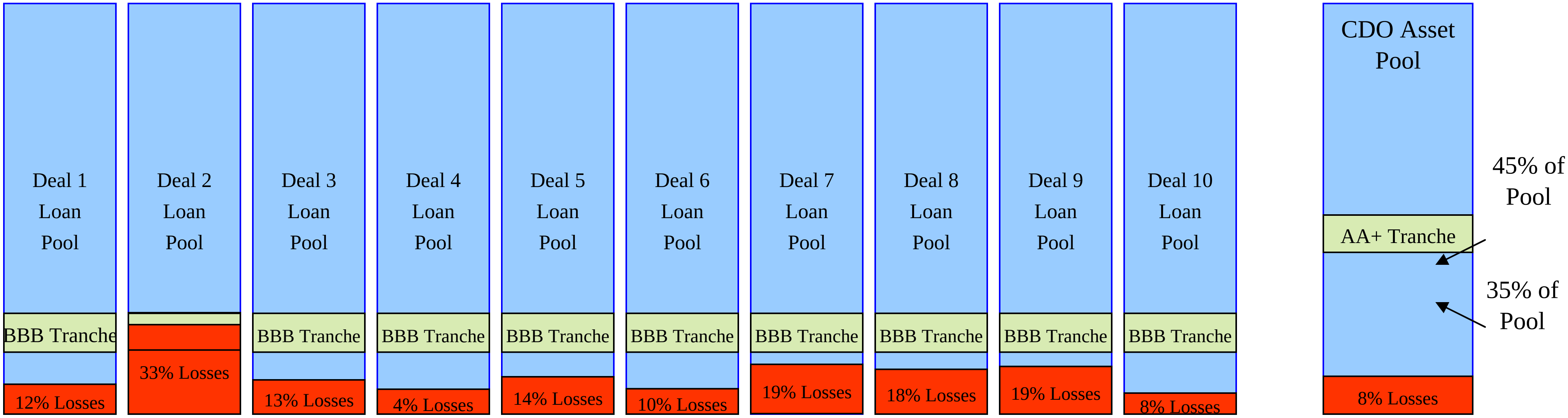
…Leaving the Markets Volatile and Stalled

- Initial actions came from the SEC and were deeply troubling:
  - Misguided ratings reform that would have complicated things greatly
    - Instead of asking the rating agencies to fix their ratings, the SEC pushed for a separate ratings scale for subprime.
    - They requested higher transparency, which will perversely drive down credit quality by enabling gaming of the system.
  - Pressure on the FASB who oversee accounting to make rapid changes despite a history of troubled decisions
    - The accounting structures used to describe securitization had been abused in Enron, and led to calls for change.
    - Over the intervening years, FASB has made numerous problematic suggestions for change.
    - Such drastic moves will be expensive, endanger securitization, and encourage attempts to bypass the rules.
- Marginal domestic investors still carry return expectations from a bull market (20%+)
  - Such expectations can't be met in a low-leverage market or in a bear economic cycle
  - Such expectations are absurd when both are true.

Why did CDOs Perform so Badly?

- Imagine a CDO made up of equal amounts of 10 BBB tranches.
- A change in collateral performance can have a huge effect on bond performance.

Consider a 15% average loss on the underlying collateral



At a 15% collateral loss level, the pool looks like it has over 4x the protection it needs!

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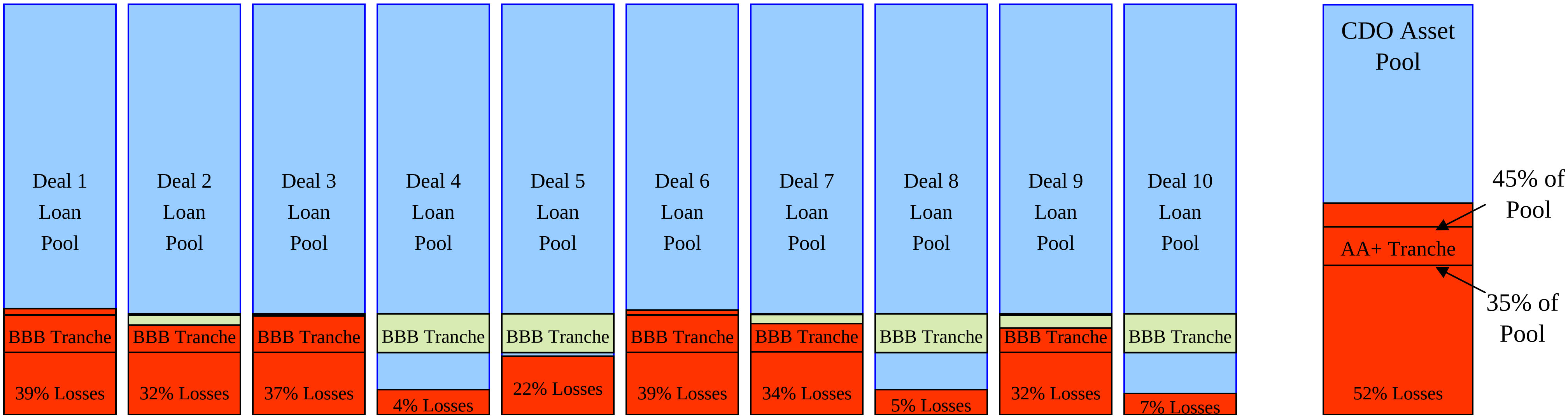
Why did CDOs Perform so Badly?

- Now imagine that conditions get worse, but not even twice as bad.

Consider a 25% average loss on the underlying collateral



At a 25% collateral loss level, the bond takes a 100% loss and the pool takes further losses stretching up into the AAA part of the stack

Why did the Collapse Occur?

Reasonable Efforts to Increase Home Ownership Got the Ball Rolling

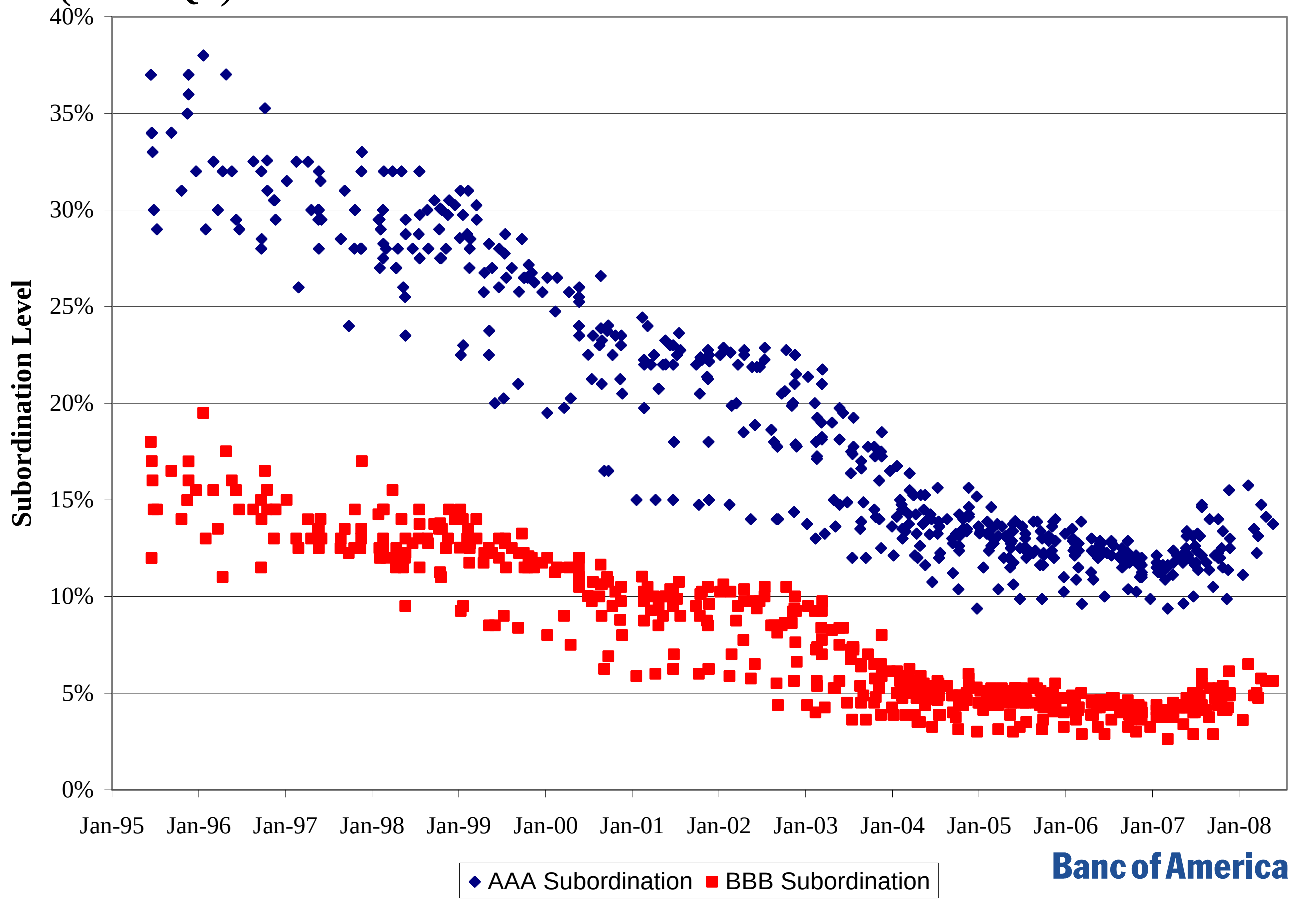
- Initial legislative efforts were made to encourage loans to marginal borrowers in order to encourage home ownership.
  - Loans were made to poor credit borrowers and to those who would have trouble gathering adequate documentation (contractors, artisans, etc.).
  - Made in small volume to properly chosen buyers, these loans should have been fine…
- But the loans grew in scope quickly, and led to many inappropriate loans:
  - The home borrowers liked them because they allowed them to buy homes they couldn't have otherwise obtained.
  - The investing community liked the interest generated by subprime mortgage-backed bonds and asked for more and more of the loans.
  - Originators liked the fees that they could generate originating these loans.
  - Mortgage brokers and investment banks made fees handling the loans and reselling them.
  - Rating agencies made money rating the securitizations of the loans.
  - Legislators, government agencies, and the GSEs looked good as home ownership rose.
- Only the risk buyers (the investors) had any economic reason to worry about the credit issues, and these did not stop them from buying them, partly because the decision makers' incentives discouraged them from doing so.

Poor Underwriting Standards in Portions of the RMBS Market

- Elaborate variable-rate structures obfuscated borrowers inability to pay.
- No-doc and low doc loans encouraged dishonesty.
- Lack of proper economic incentives discouraged anyone from flagging the problem.
- Easier-to-obtain mortgages drove up demand for homes, and helped introduce a bubble in home prices and demand

Weakening Rating Standards – CMBS Example

- The subordination rate in a structured deal is set by the rating agencies.
  - These levels have trended lower over most of the history of the market, as collateral has performed well and rating agencies have lowered their default expectations.
  - In the example below, CMBS subordination rates drop for rational reasons from 1995-2000, stabilize at reasonable levels for 2000-2002, and then drop to levels that are hard to justify.
  - Issuers responded to investor concerns by creating 20% AAA classes (2004 Q4) and then 30% AAA classes (2005 Q2).



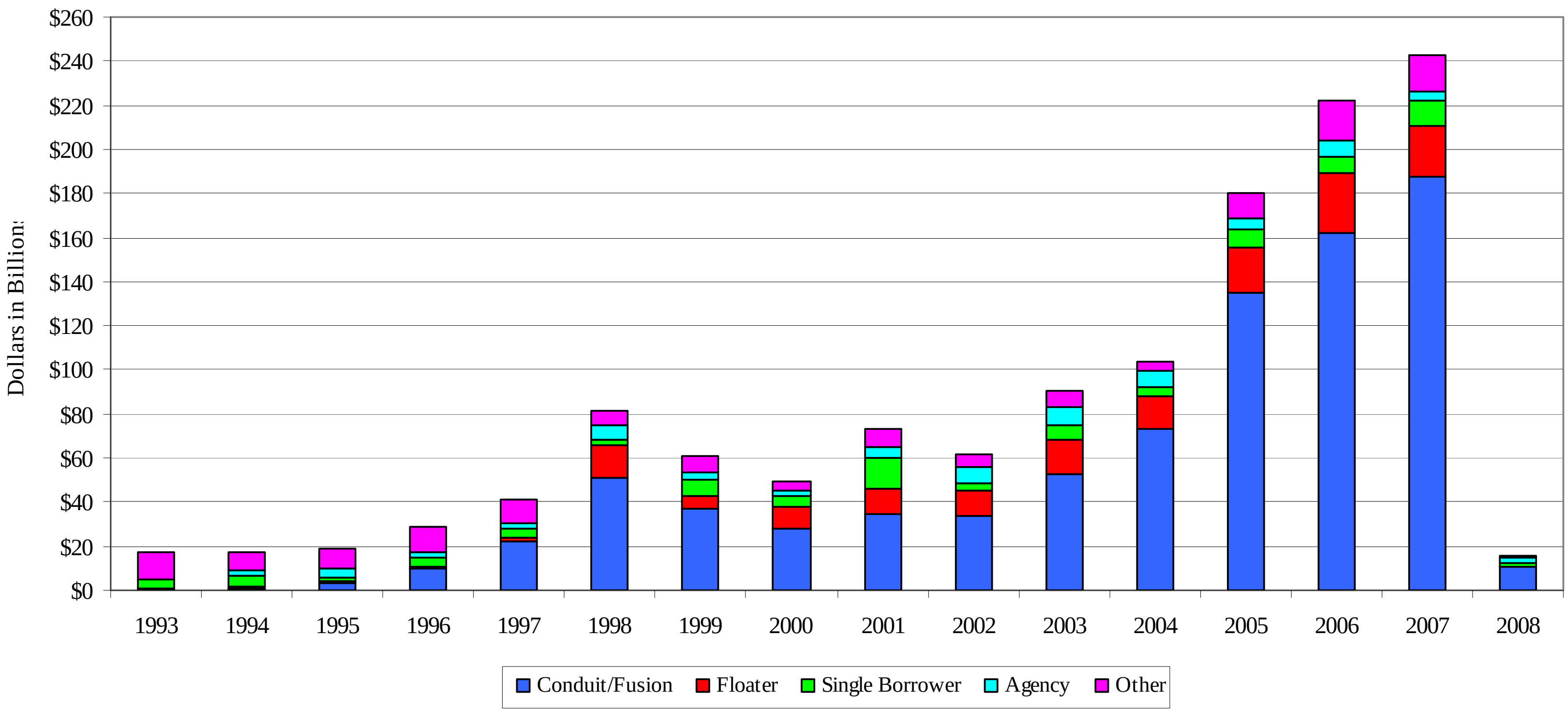
Source: Intex, Trepp, and Bank of America Securities LLC

Issuance Expanded Rapidly – CMBS Example

- Issuance in the first half of 2007 was over $150 billion, but dropped to half that pace during the later part of the year, ending at only about $230 billion for the year.

- The lack of CMBS lending pulled issuance in 2008 down dramatically, to roughly $20 billion.

CMBS Issuance by Year (Dollars in Billions)



Source: Intex, Trepp, Commercial Mortgage Alert, CRE Direct, and Bank of America Securities LLC

Many Investors did not Understand Products Adequately

- In many markets, the investors did not appear to fully understand the products they were investing in:
  - Some seemed uninterested in the details of the products – especially if it had a high rating
  - Buyers of CDOs often seemed to have little interest in the details of the CDO or its underlying collateral
- The CMBS market was one of the only markets where experts in those products bought those products:
  - Pension Funds
  - Life Insurance Companies
  - Banks

  These companies typically had years of experience in direct lending and a great depth of real estate expertise.
- But this was the exception to the rule…

What's Next?

Accounting: Problem, Disaster, or Opportunity?

What is the function of accounting?

- Ideally accounting gives investors transparency to the business decisions being made in a company
- In a healthy marketplace some thought is given to how results appear through the lens of GAP accounting, but risk/return metrics remain in the driver's seat
- Perversely, accounting is driving a large number of business decisions in the current market – FASB denies that this is happening

Companies now must either:

  - Give up potential returns, or
  - Exert the effort to explain to investors the accounting issues

The current plan is currently set for a November 15, 2009 implementation date…

Accounting: Changes in the Rules on QSPEs and VIEs

- FASB has repetitively acted in ways that defy easy explanation.
  - The FAS 140 debate with CMBS is a prime example.
  - The “embedded options” mortgage debacle is more evidence of their issues.
- The SEC has pushed FASB to act sooner rather than later.
- Rushing FASB is clearly problematic and likely to lead to perverse problems
  - Can a bank or insurance company ever buy a junior class of a structured product given that there is always some chance they could have to consolidate the entire structure?
  - If the maximum exposure of a junior bond holder is a $15 M slice, is it actually illustrative to make them put $4 B on their balance sheet? Will the difference between the assets and liabilities introduced actually be $15 M?

Accounting: Mark-to-Market and Implied Mark-to-Market

- Many firms (insurance, pension, specialty real estate, and others) are facing a tricky decision:
  - Originate loans
    - Good underwriting standards
    - Historically high returns that have hovered in the T+500-700 area (~7-10% coupons)
    - But, plenty of idiosyncratic risk
    - Very poor liquidity
  - Buy senior CMBS
    - Very strong bonds due to subordination, despite weaker underwriting
    - Historically high returns that are over S+1000 for senior AAAs and over S+1800 for AMs (~12% and ~20% respectively)
    - Low idiosyncratic risk
    - Good liquidity

- From a risk-return tradeoff the decision is pretty clear, but…
  - Loans are easy to hold at par and pressure to take impairments is limited;
  - CMBS bonds, even in hold-to-maturity accounts, can be compared to current market prices and results in implied losses; and
  - When liquidity is needed, the better-returning CMBS is typically unloaded since the loans are illiquid.

Legislative Issues and Liquidity

- There are large legislative unknowns on the immediate horizon
  - Possible effects from the anticipated economic stimulus
  - Scope of TARP/TARF involvement in commercial real estate
  - Possible further suspension of mark-to-market or revision of rules
  - Possible insurance of assets
- The details of implementation are key

Further good could come out of legislation action that lessens the severity of the recession *(beyond the financial institution stabilization)* ***but much is currently uncertain.***

Shifts in the program over the past few months have unsettled financial markets.

How Do We Finance These Risks in the Future?

What Needs to Be Financed?

- Without structured finance, our economy will face challenges in financing:
  - Residential Real Estate
  - Credit Cards
  - Auto Loans
  - Student Loans
  - And more…
- Some method will have to be devised…

In CRE, high coupon lenders are appearing on the horizon…

Current Ideas for Future Financing

- Covered Bonds
  - Strengths
  - Weaknesses
- More “Retained Interests”
  - Strengths: Psychologically appealing
  - Weaknesses: Don’t work given the ability to balance fees with losses

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