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Data Management in Pricing Hard to Value Instruments

Presentation at the 3rd Annual Derivatives Operations & Processing

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Subprime Mortgage Crisis

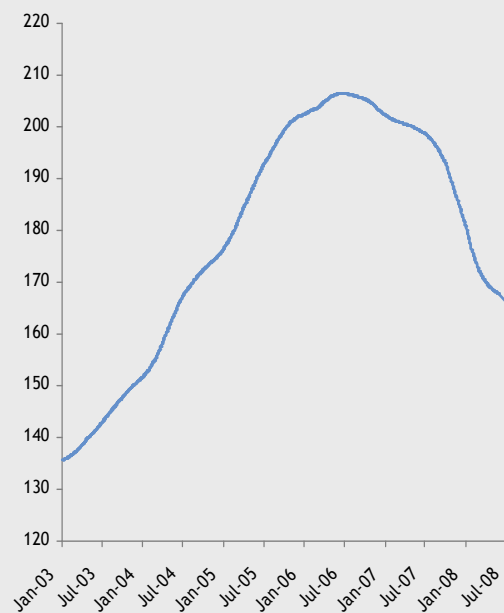
Mortgage Crisis

- Subprime ARMs with easy initial terms and rising housing prices
- US housing bubble
- 2006-2008 housing prices drop
 - Fallen 19% since July 2006
- Increased defaults & foreclosures

Risks

- Securitization via MBS & CDOs
- Credit risk held by
 - Mortgage lenders
 - Investors
 - Insurers

S&P/Case-Shiller Housing Price Index



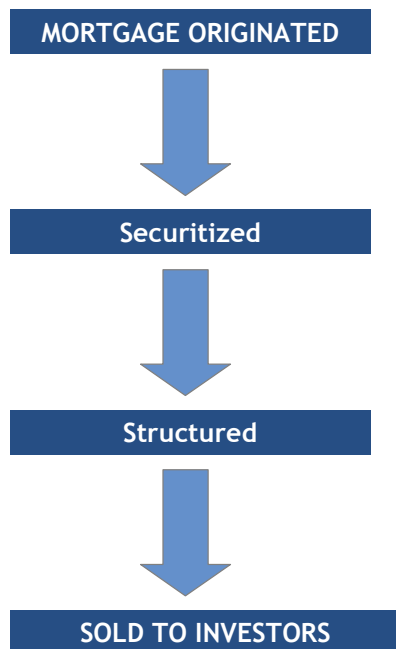
Source: Standard & Poor's at http://www2.standardandpoors.com/spf/pdf/index/CSHomePrice_History_093042.xls

Product Innovation

Affordability Products to Lower Initial Financing Costs

- Option ARMs: Negative amortization limit and recast frequency
- Hybrid ARMs: Fixed and floating
 - Prime 5/1 ARM: 5 years fixed rate, remainder floating rate
 - Subprime 2/28 ARM: 2 years fixed rate, 28 years floating rate
- Interest Only for a period of time
- Piggy back to finance down payment
 - Increased LTV

Current Issues Facing Investors



Challenges

- Illiquid markets
- Investors doesn't understand what they own
- Complex structuring process
- All AAAs are not equal
- Lack of adequate credit oversight

Hard-to-Value Securities

- Definition
 - Hard to Model
 - Hard to Value
 - Hard to Find Market Intelligence
- Security Types
 - ABS, CDOs, CLOs, RMBS, CMBS
- Collateral Types: Distressed Debt
 - Non-Agency: Prime Jumbo, Alt-A, Subprime
- Loan Types
 - Fixed, Floating, Hybrid

Comprehensive Data Management in Valuation

- Loan Level Data
 - Borrower's FICO Credit Scores
 - Mortgage Insurance
 - Loan Documentation
 - LTV, MSA
- Collateral Performance
 - Delinquencies weighted average by group
 - CDR and severities weighted average by group
- Deal Attributes
 - Vintage, Shelf
- Bond Level Data
 - Structure original and current behavior
 - Credit Enhancement
 - Current Losses

Collateral Performance

Collateral Performance									
GRAB									
Enter 2<go> - 9<go> for loan level details									
Group	All Collateral	Table	1)	Expand All	AABST 2006-1		Collateral Performance		
	USD Bal wgt'd	04/2008	03/2008	02/2008	01/2008	12/2007	11/2007	10/2007	09/2007
	Balance (M)	432,983	440,217	444,666	451,216	455,155	459,965	464,955	471,184
	Pool Factor	0.825	0.838	0.847	0.859	0.867	0.876	0.886	0.897
	# of Loans	2,344	2,380	2,414	2,456	2,480	2,515	2,547	2,592
	WAC	8.031	8.038	8.049	8.051	8.055	8.063	8.070	8.083
	WAM/Age	336/ 19	338/ 18	339/ 17	340/ 16	341/ 15	342/ 14	343/ 13	344/ 12
	WALTV (Amort)	77.10%	77.09%	77.00%	76.90%	76.84%	76.64%	76.62%	76.39%
2)	Delinq 30 days	6.80%	6.06%	6.89%	6.74%	5.75%	6.20%	6.94%	5.34%
3)	Delinq 60 days	3.20%	4.08%	3.76%	3.82%	4.11%	4.72%	3.84%	2.96%
4)	Delinq 90 days	8.92%	8.04%	5.79%	5.00%	4.12%	4.77%	6.28%	4.64%
5)	Bankruptcy	1.37%	1.31%	1.44%	0.89%	0.82%	0.59%	0.46%	0.45%
6)	Foreclosure	10.19%	10.32%	11.58%	10.87%	9.75%	7.30%	3.97%	4.13%
7)	REO	5.88%	5.17%	4.30%	3.80%	3.36%	2.50%	1.92%	1.71%
8)	Delinq. 60+	28.19%	27.61%	25.43%	23.49%	21.34%	19.29%	16.01%	13.44%
9)	Delinq. 90+	24.99%	23.53%	21.67%	19.67%	17.23%	14.57%	12.17%	10.48%
	Cum. Loss	-	1.470%	1.224%	0.977%	0.862%	0.673%	0.596%	-
	Full Document.	65.90%	65.58%	65.48%	65.52%	65.53%	65.53%	65.51%	65.53%
	Arm Collat. %	68.20	-	-	-	-	-	-	-
	Credit Score	628	628	628	628	628	627	627	627
	Balance < 417	84.99	-	-	-	-	-	-	-
	1 Mo. CPR	17.50	11.70	15.50	9.30	11.30	11.60	14.20	6.50

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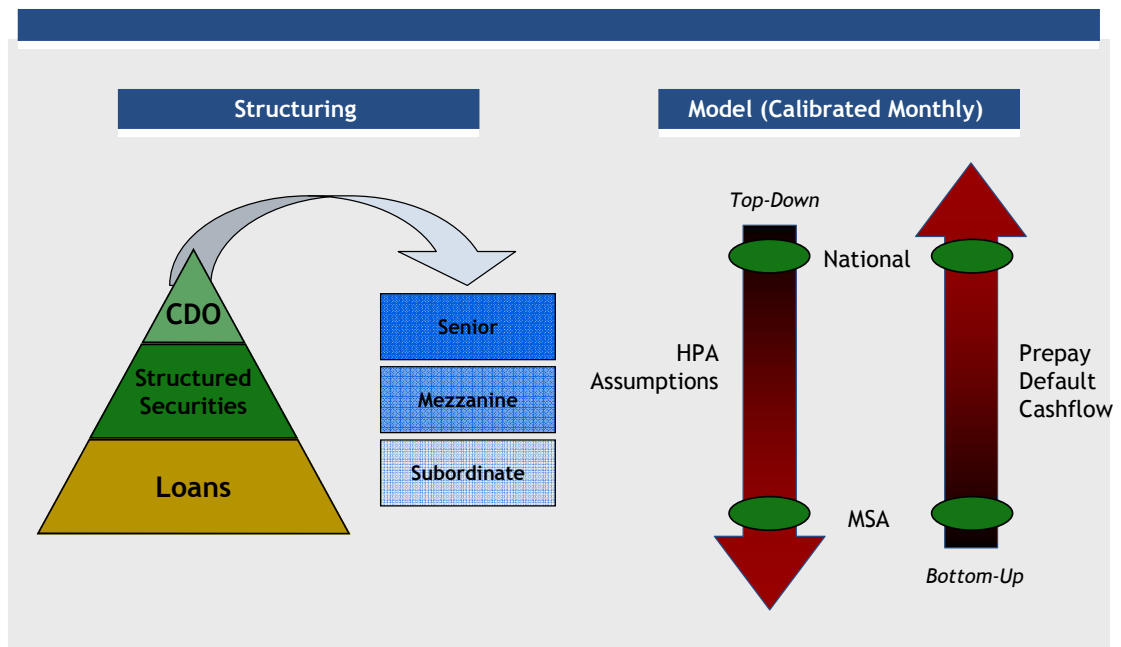
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Valuation Process

- Receive Information about Benchmark Securities from JPMorgan traders
 - Vintage, Weighted Average Life (WALA), Delinquencies, Credit Support, Price
- Compare individual bond to the benchmark security provided by trader
 - Use information given to determine position of bond in the market
- Determine Home Price Affordability (HPA) Scenarios
 - Compare Vintage, Delinquencies
 - Adjust delinquencies for bond WALA
 - Determine severity of losses
 - Adjust credit support for benchmark
- Determine Price

HTV & CDO Securities - Structuring and Modeling



Collateralized Debt Obligations

CDO Structure

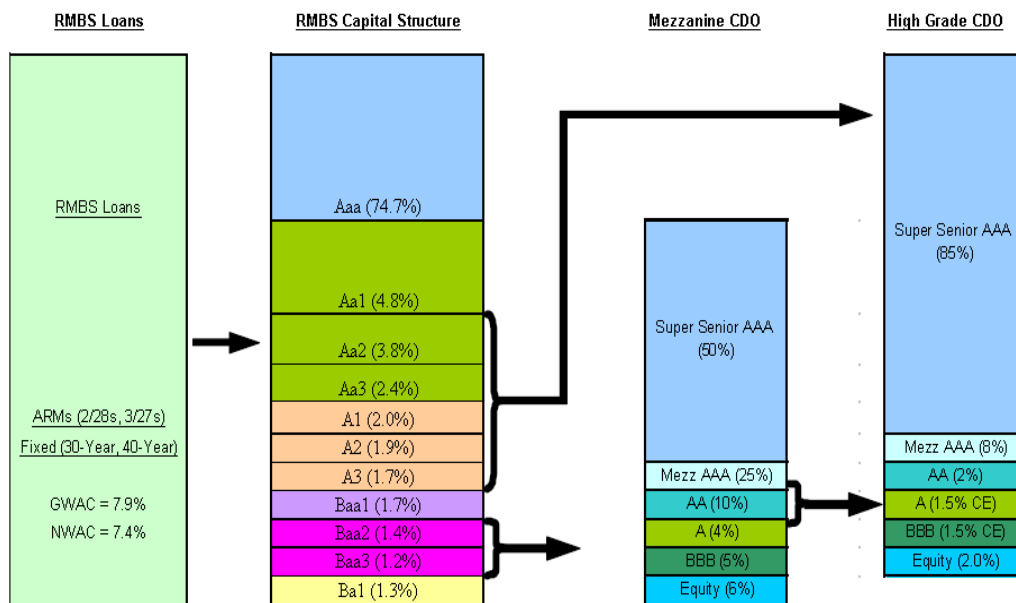
- Asset pools structured into several classes of securities with different risk profiles
- Collateral
 - Corporate
 - MBS
 - ABS bonds
- Tranches
 - Senior
 - Mezzanine
 - Subordinate
 - Equity
- Payments
 - Distributed as per prospectus

Subordination Levels

- Subordination - the amount of debt that falls below a particular tranche
- To obtain a certain rating, a particular level of subordination is required
- Typical prime deals have subordination levels of 4% to 5%.
- In the subprime area, the subordination levels approach or even exceed 25%
- \$1 billion of prime mortgages would net upwards of \$950 million of AAA securities
- \$1 billion of subprime loans may only net \$750 million AAA securities because of the subordination required

The Main Risk Faced by Investors: The Mezzanine ABS CDO

Typical RMBS & ABS CDO Capital Structure



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ABS CDO Modeling Methodology

Modeling Process

- Preliminary analysis provides approximated ABS CDO tranche writedown based on projected loss of underlying assets
 - “Model Proxy” does not include credit enhancements in the ABS CDO structure
 - This is completed quickly for a fast assessment or deal/portfolio risk
- Model in BondStudio®
 - ABS CDOs utilize models for underlying structured debt of all asset types
- Run HPA scenarios on each underlying asset
 - Stress scenarios are multiples of the existing HPA scenarios
- Output of models includes:
 - Collateral Reports - breakout of delinquency, projected default and loss on each asset
 - Cashflows - sources and uses of cash and effect of credit enhancing structures (OC/IC, interest diversion)
 - Summary reports across all HPA scenarios (yield tables)

ABS CDO Modeling Methodology

Results

- Projected tranche loss for each scenario
- Projected writedown on the collateral pool
- Projected loss for assets shown in detail in collateral reports

							Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5	
ABS CDO 1							\$ Writedown	\$ Writedown	\$ Writedown	\$ Writedown	\$ Writedown	
Collateral Balance							172,843,571	181,206,788	234,355,638	271,451,188	323,915,844	
							1,198,757,057					
							% Writedown	% Writedown	% Writedown	% Writedown	% Writedown	
							14.42%	15.12%	19.55%	22.64%	27.02%	
Tranche	Cusip	Current Tranche Balance	Moody's	S&P	Par Sub	Detachment	Thickness	Tranche Loss	Tranche Loss	Tranche Loss	Tranche Loss	Tranche Loss
SPR_SNR		948,757,057	Aaa	AAA	20.85%	100.00%	79.15%	0.00%	0.00%	0.00%	2.26%	7.79%
A1		72,500,000	Aaa	AAA	14.81%	20.85%	6.05%	0.00%	5.11%	78.42%	100.00%	100.00%
A2		40,000,000	Aa1	AAA	11.47%	14.81%	3.34%	88.36%	100.00%	100.00%	100.00%	100.00%
A3		20,000,000	Aa2	AAA	9.80%	11.47%	1.67%	100.00%	100.00%	100.00%	100.00%	100.00%
B		39,375,000	Aa3	AA-	6.52%	9.80%	3.28%	100.00%	100.00%	100.00%	100.00%	100.00%
C		26,125,000			4.17%	6.52%	2.35%	100.00%	100.00%	100.00%	100.00%	100.00%
D		12,500,000			3.13%	4.17%	1.04%	100.00%	100.00%	100.00%	100.00%	100.00%
E		21,875,000			1.30%	3.13%	1.82%	100.00%	100.00%	100.00%	100.00%	100.00%
F		15,625,000			0.00%	1.30%	1.30%	100.00%	100.00%	100.00%	100.00%	100.00%
Portfolio Makeup												
ABS	RMBS	CDO	CLO	CMBS	Other							
87,500,000	780,504,370	180,752,687	0	150,000,000	0							

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