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THE DECLINE AND FALL OF THE SECURITIZATION MARKETS

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J.P.Morgan

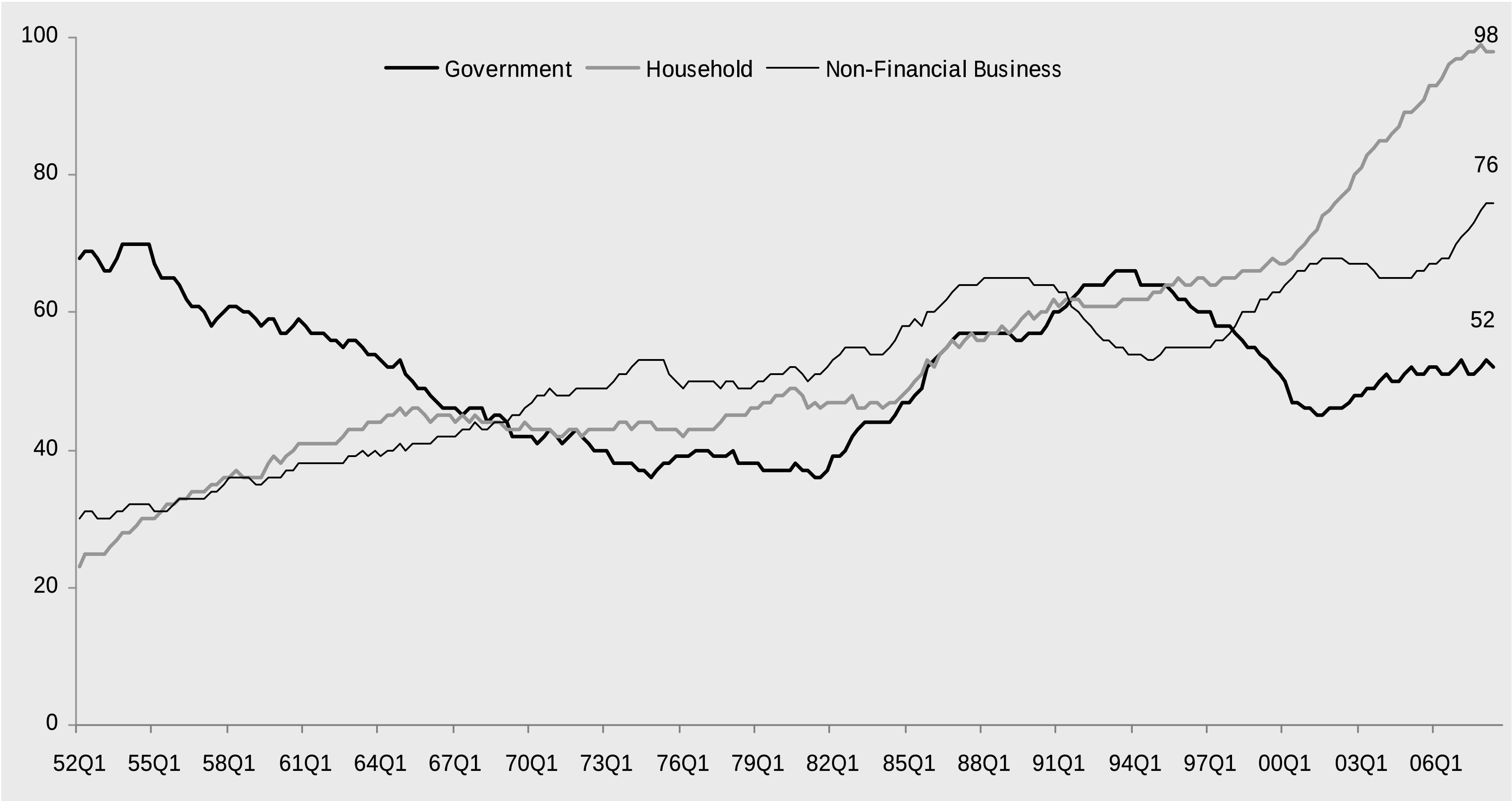
Overview

- The global ‘liquidity glut’ sought out yield and ‘Fed’ the housing bubble.
- Risk-based capital requirements and off-balance sheet accounting led to an explosion of securitization.
- CDOs offered diversification and credit tranching but repackaged increasingly levered securities; correlation was massively underestimated.
- Subprime and CDO losses triggered a system-wide de-leveraging process; securitization (the unregulated banking system) is in peril. Financial disclosure, accounting and regulatory capital rules will be revised.
- A broad-based recapitalization of banks, guarantors, and conduits is required (halfway completed). Earlier negative returns and the spectre of nationalization discourages private investment.
- Spillover into markets such as Alt-A, HELOCs, credit cards, auto loans, student loans and commercial mortgages. Corporate lending is down as well.

Agenda

Household leverage increased massively over time

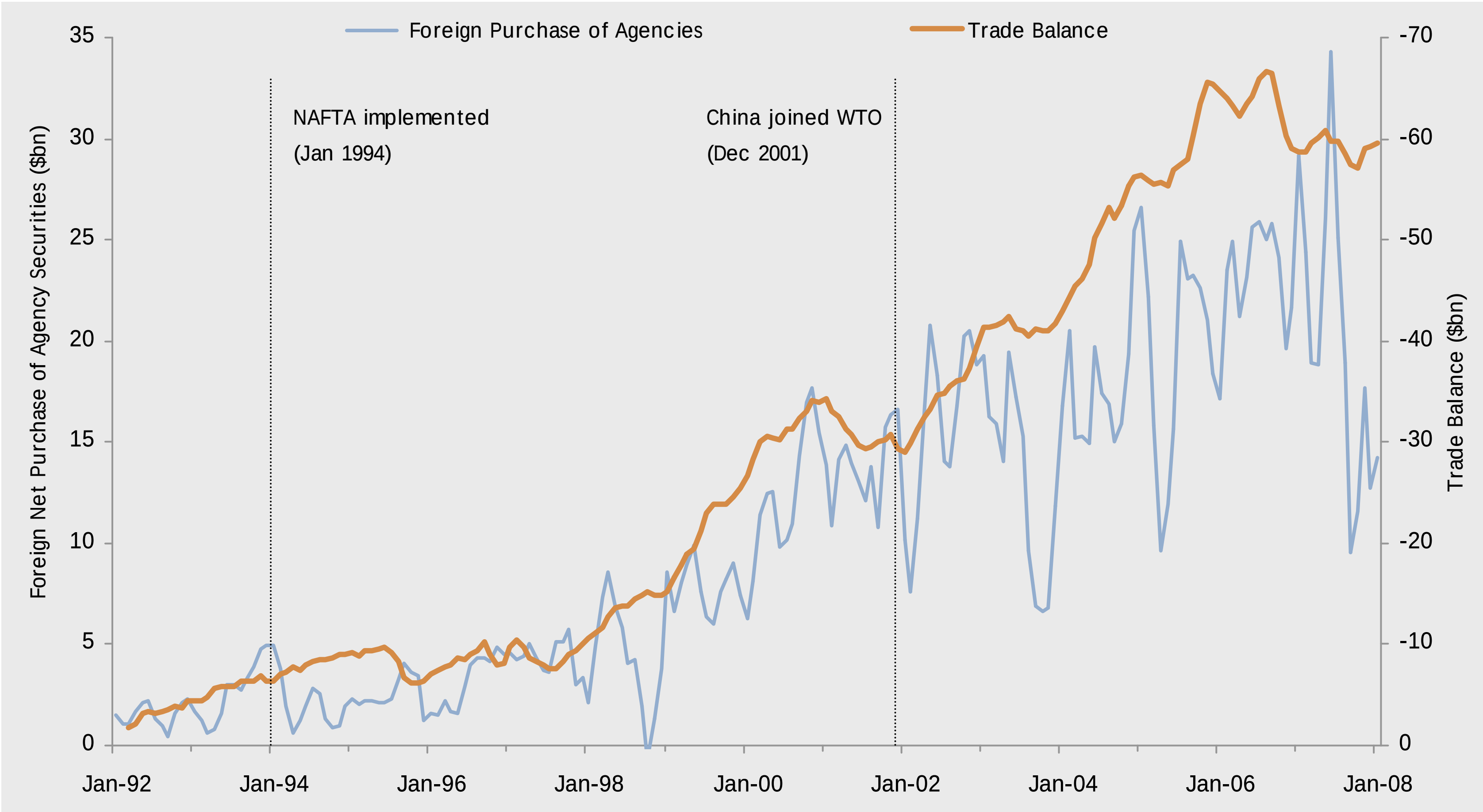
Debt outstanding as percent of nominal GDP



Source: Federal Reserve. As of 2008 Q2.

...fed by the global liquidity glut

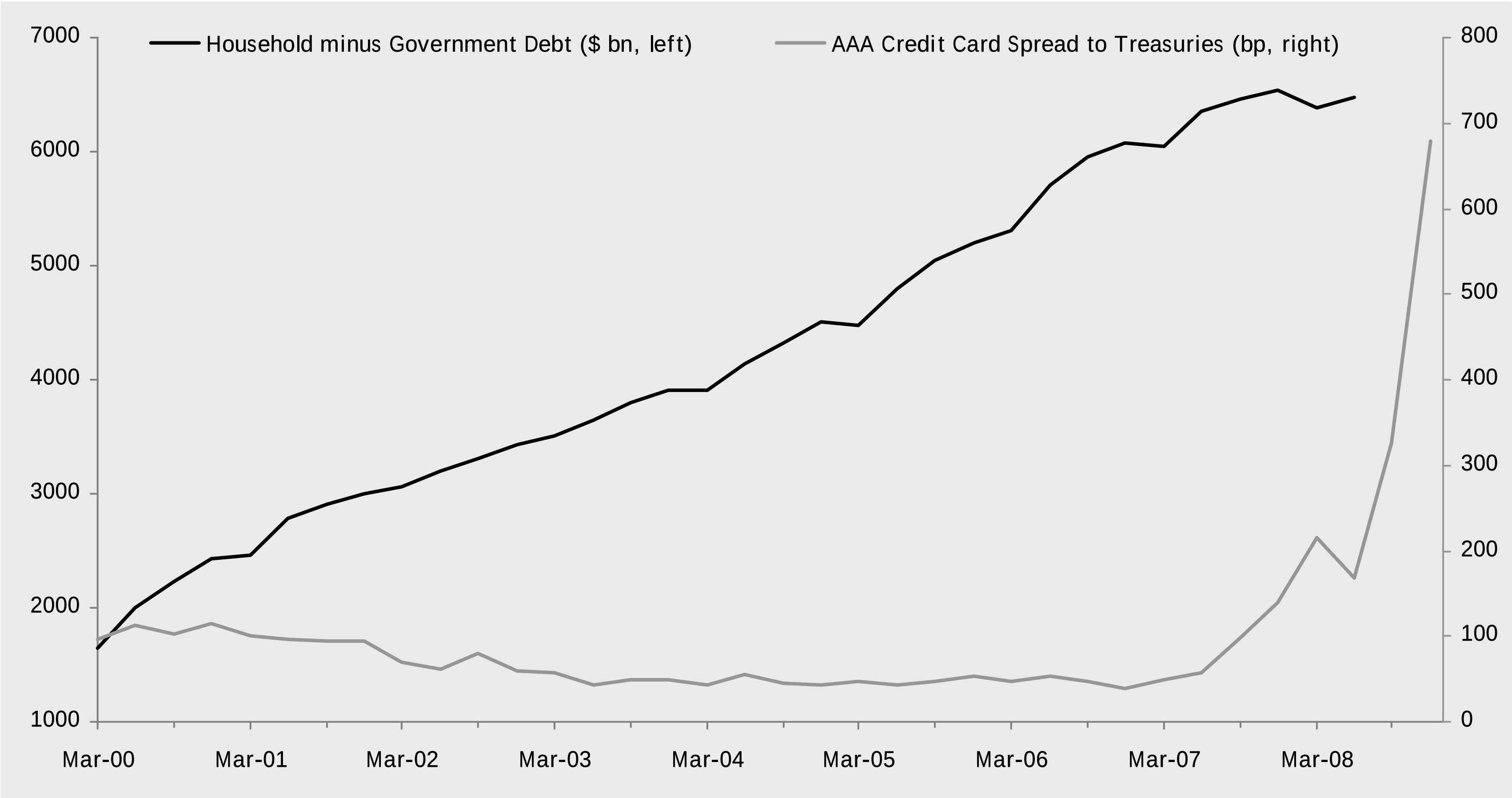
Trade balance and foreign purchases of agencies. Foreign net purchases of agencies and the US trade balance. 3-month avg.



Source: JPMorgan, US Census, TIC

The "virtuous credit cycle" kept spreads tight for a long time

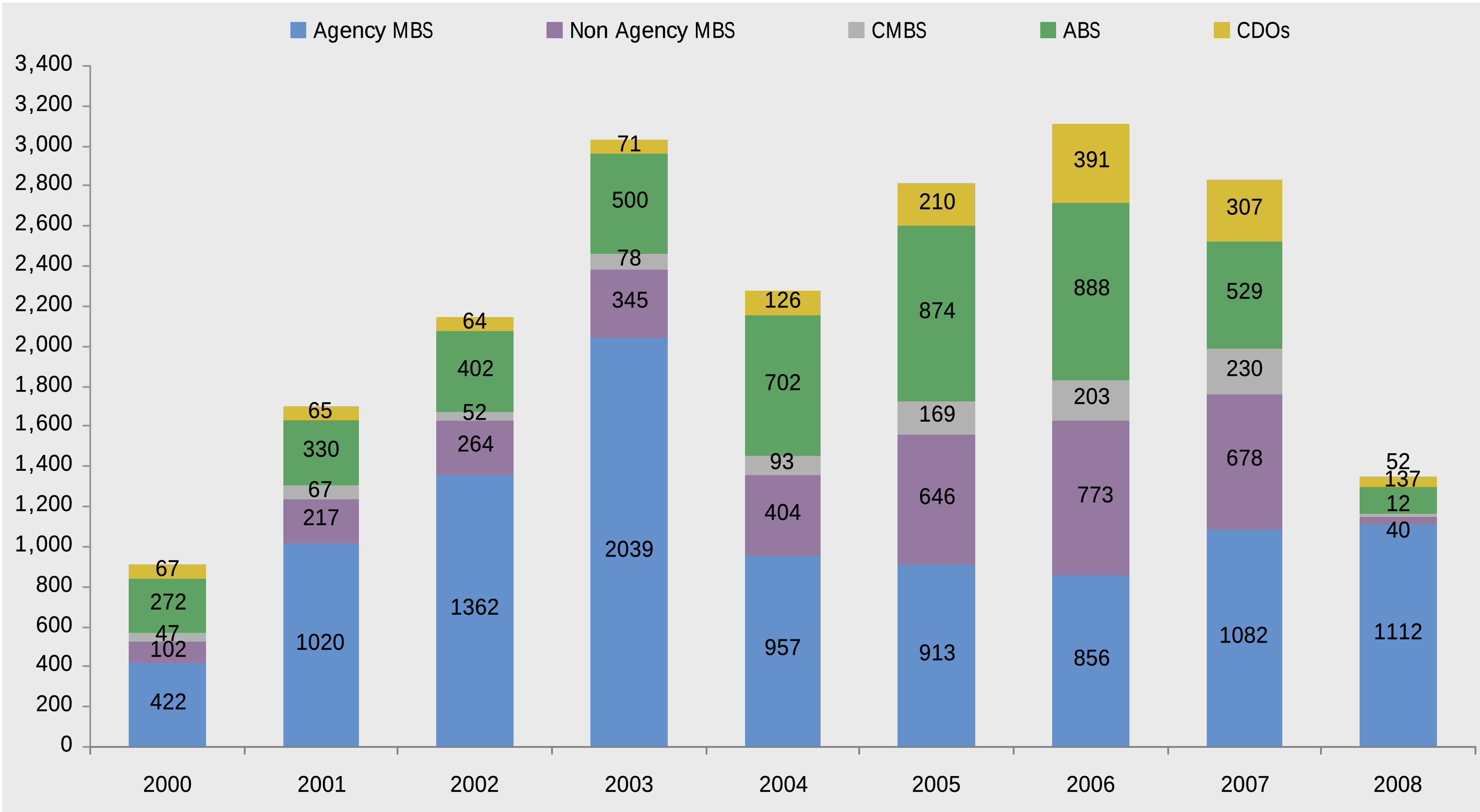
Credit spreads and household to government debt gap



Source: J.P. Morgan, Federal Reserve

Securitization drove US credit expansion

Supply ($ Billions)



* Non-Agency MBS through Nov. 2008
Sources: J.P. Morgan, SIFMA

CREDIT EXPANSION

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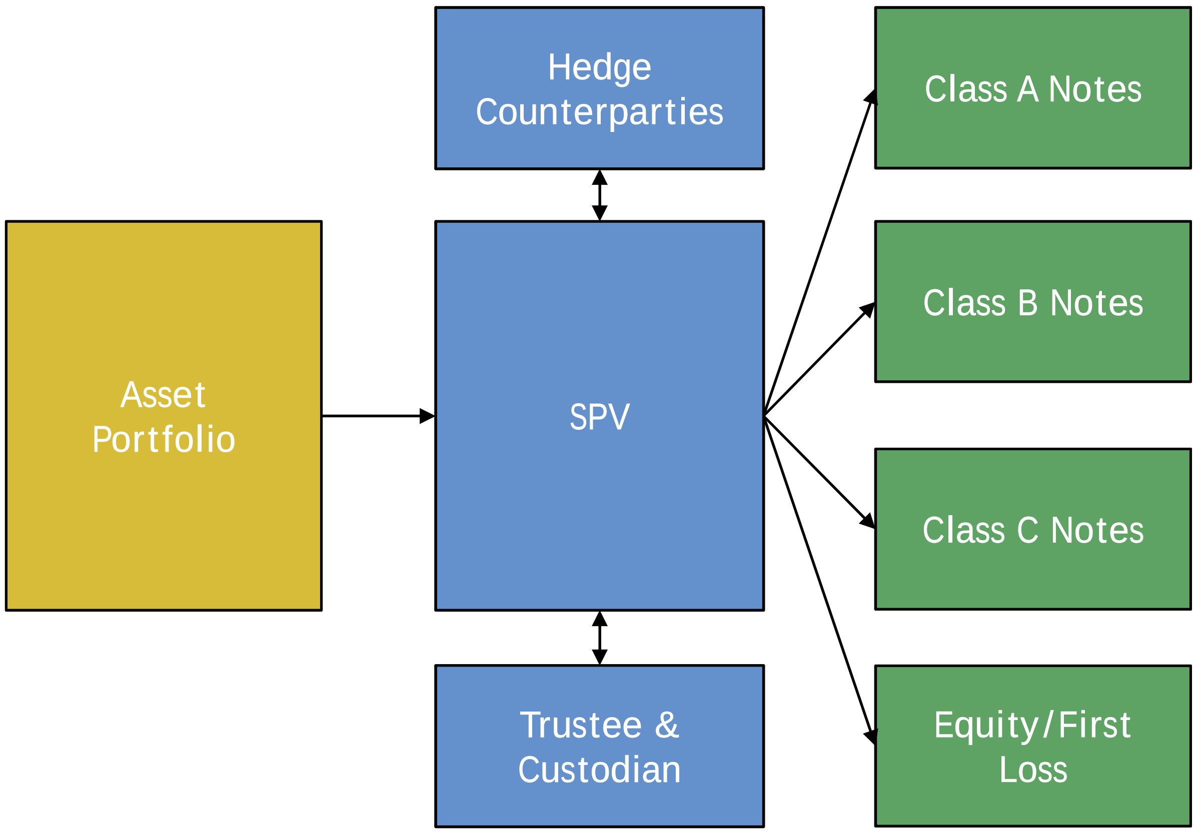
Securitization example: Pooled credit, tranched risk

- Cash transactions involve outright purchase (true sale) of assets and funded issuance of notes
- Assets sourced in the market (dealer warehouses) or from balance sheet of originator
- Repayment of the ABS is derived from cash flow generated by the underlying assets
- Broad theme for structured credit: expanding markets, increasing liquidity, distributing risk



How do ABS issued get AAA Ratings?

Trust Structure

- Bankruptcy Remote Vehicle
- Insulates Investor from Issuer

Payout Events / Performance Triggers

- Protects investors from adverse credit developments

AAA Rating

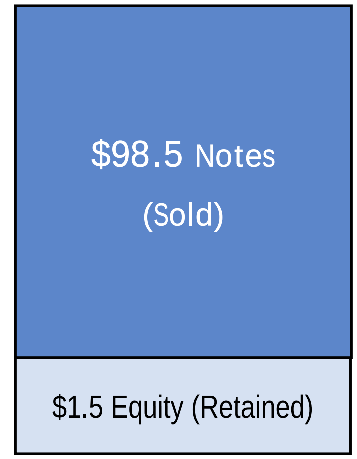
Credit Enhancement

- Internal
  - Excess Spread
  - Subordination
  - Reserve Fund
  - Spread Account
  - Overcollateralization
- External
  - AAA-rated Monoline Insurer
  - Mortgage Insurance (Lender Paid)

Agenda

Basel 1 promoted securitization through regulatory arbitrage

	Balance Sheet	Post-Securitization
Assets	$100 Mortgages	$98.50 Notes
Risk weight	x 50%	x 0% (No capital against sold tranches)
Capital charge	x 8%	x 8%
Capital requirement	$ 4.00	$ 0.00
Assets	-	$1.5 Equity tranche
Capital charge	-	x 100%
Capital requirement	-	$ 1.50
Total Capital requirement	**$ 4.00**	**$ 1.50**



Basel 1

- Capital requirement = flat 8% capital charge * risk-weighted assets (RWA)
- Risk weight categories overly broad, capital charge not aligned to underlying economic risk
- Rating agency capital requirement less than regulatory capital charge leads to capital arbitrage via securitization

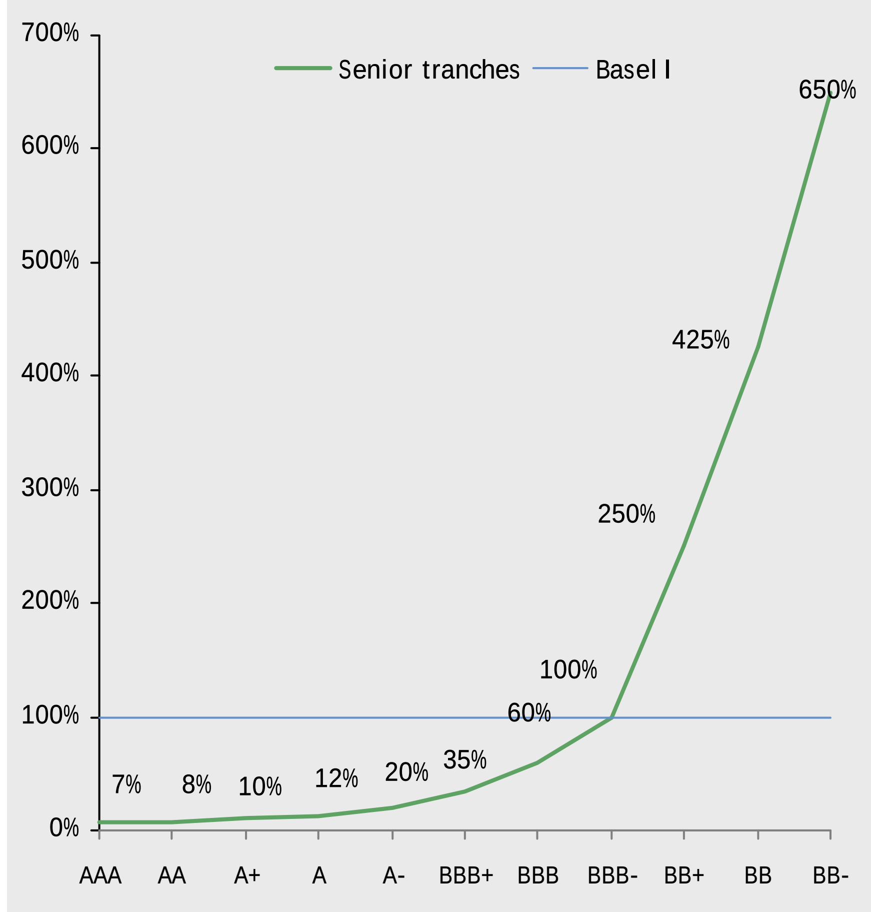
Basel II lowered risk weights for highly rated assets, encouraging banks to invest in ABS and increasing the role of rating agencies

Risk weights under Basel II Standardized Approach (%)

Rating	Corporates	Securitization	Resid Mortgages (Prime)*
AAA-AA	20	20	35
Single-A	50	50	35
BBB	100	100	35
BB	100	350	35
Single-B	150	**	35
Below	150	**	35
NR	100	**	35
Basel I	100	100	50

Source: BIS, June 2004. *Ratings not applicable. *Deduction/Supervisory formula.

For IRB banks, increased reliance on external ratings to determine capital charge (risk weights by rating)



Source: BIS, June 2004.

DRIVERS OF SECURITIZATION

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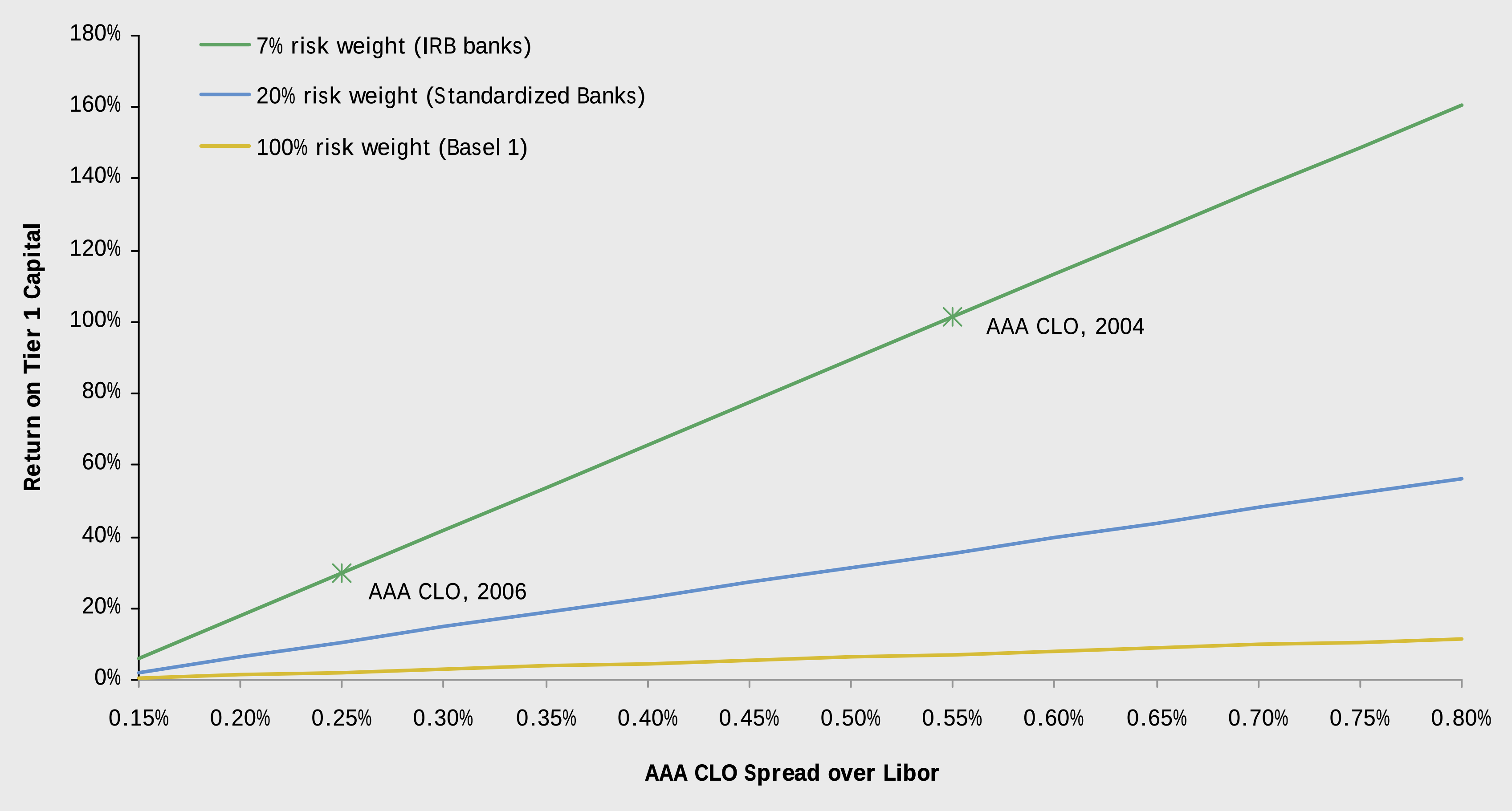
As allowable leverage increased, AAA spreads narrowed (and non-bank investors were priced out)

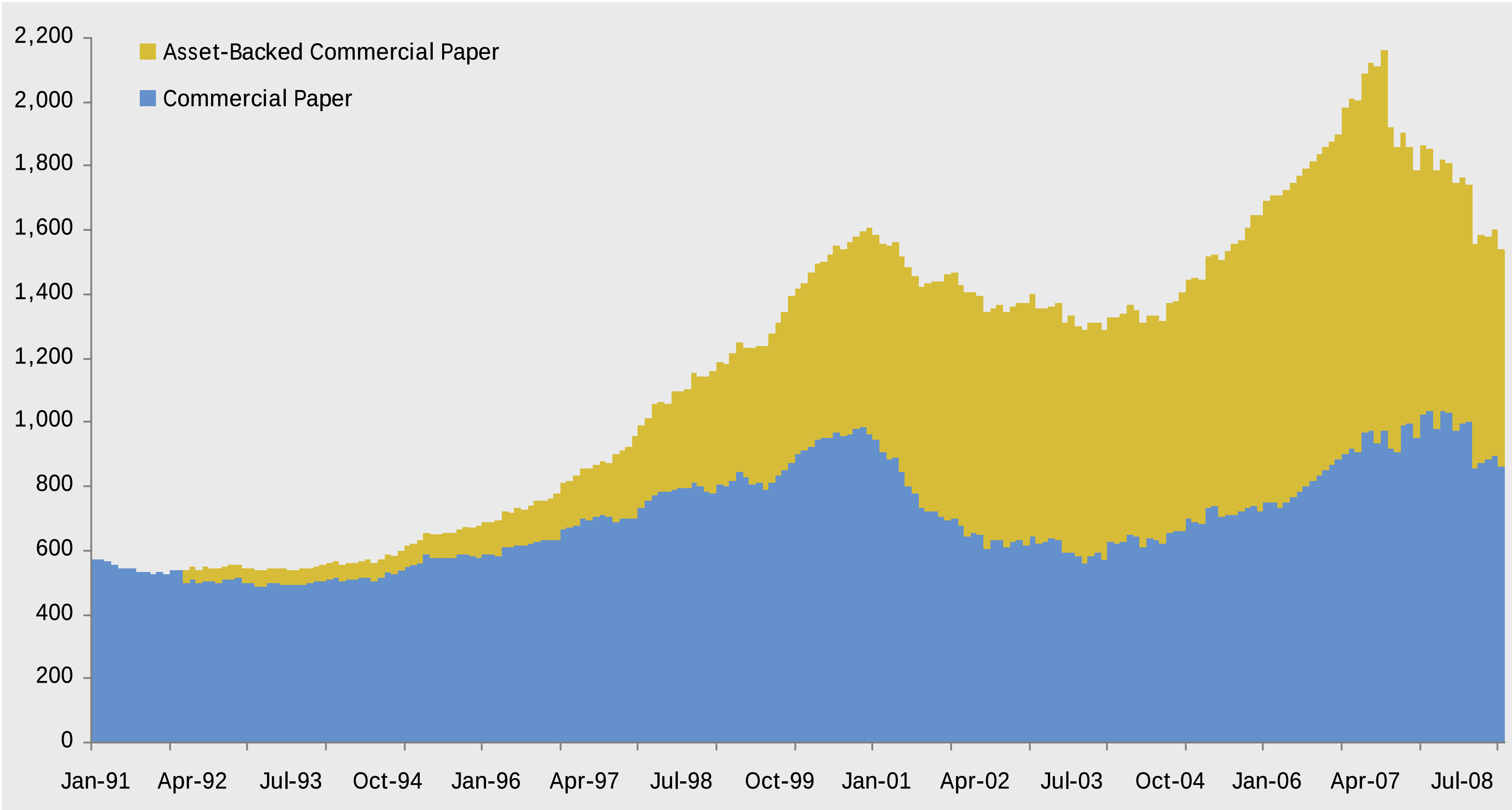
Lower capital requirement => much higher leverage on AAA ABS/CDO => very attractive Return on Equity



Source: JPMorgan. Returns assume bank capital structure of 90% senior debt, 4% Tier II capital, and 6% Tier I capital. Cost of funding: 12.5 bp spread to Libor on senior debt and 20bp spread to Libor on Tier II capital (average from June 2005-June 2007).

CP markets offered non-term financing at cheap rates, aided by regulatory treatment of liquidity facilities (0% risk weighting)

CP outstanding ($ billions)

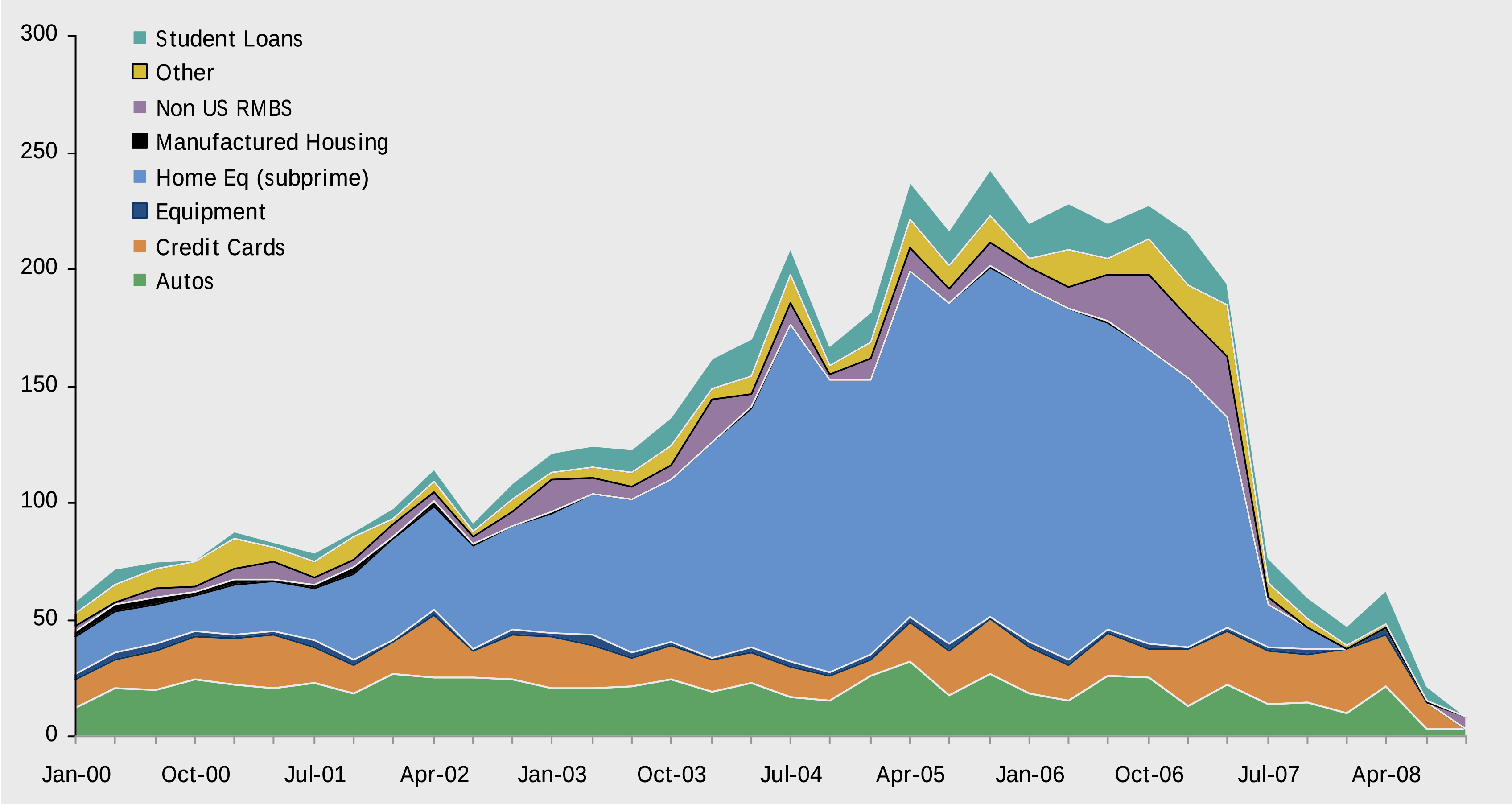


Sources: Federal Reserve

Agenda

ABS product types

Global ABS issuance by collateral type ($bn)



Source: JPMorgan, MCM, Bloomberg, CreditFlux, IFR, Moody's, S&P, Fitch

Types of Home Equity Loans

Types of Mortgage Loans

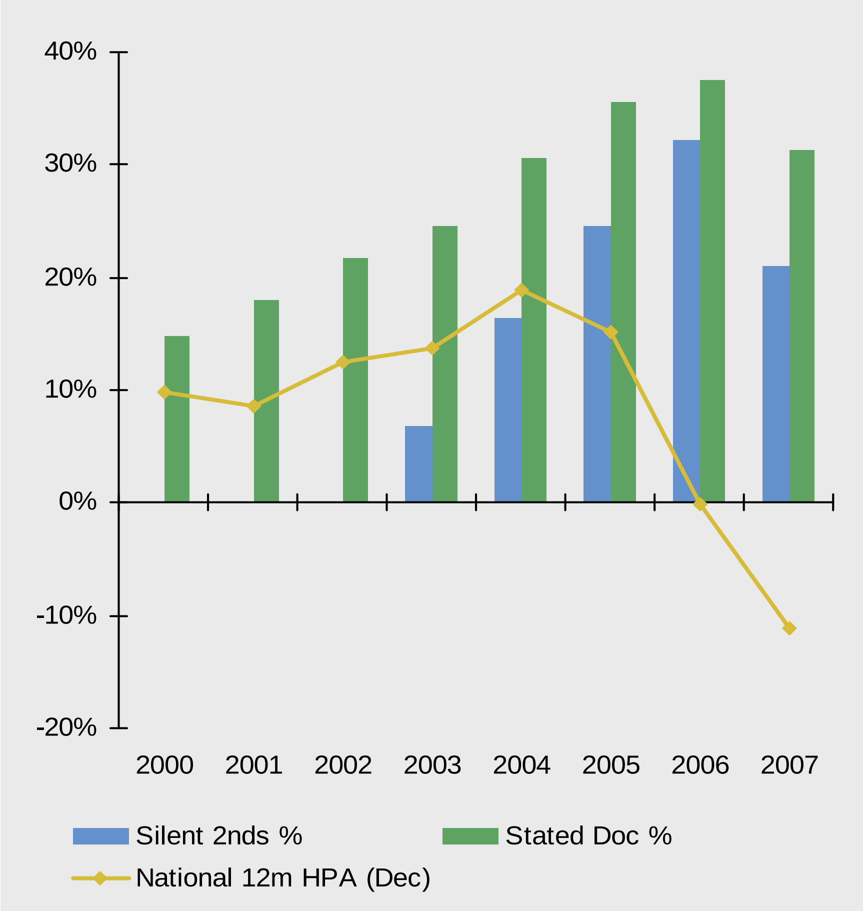
	2nd Lien		1st Lien			
	2nd Lien/ High LTV	**Home Equity Line of Credit**	**Subprime B&C**	**Alt-B**	**Alt-A**	**PrimeJumbo A**
Borrower	Prime Near Prime	Prime	Credit Impaired	Near Prime	Prime Documentation Property Type	Prime
Lien	2nd	2nd	1st	1st	1st	1st
LTV	2nd: 90% HLTV: 115%	90%-100%	80%-85%	80%-85%	75%	70%
WAC	2nd: 8%-10% HLTV: 12%	6%	7%-8%	6.5%-7.5%	6.5%	6.25%
FICO	690-715	715	600-625	650-700	715	725
Originators	Countrywide CSFB (HEMT) GMAC RFC (RFMS2)	Countrywide GreenPoint RFC (RFMS2) Wachovia	Ameriquest Countrywide Option One RFC	Ameriquest Impac RFC (RAMP)	Countrywide IndyMac RFC (RALI)	Chase Countrywide Wells Fargo WaMu

Asset Backed Home Equity

Mortgage Backed

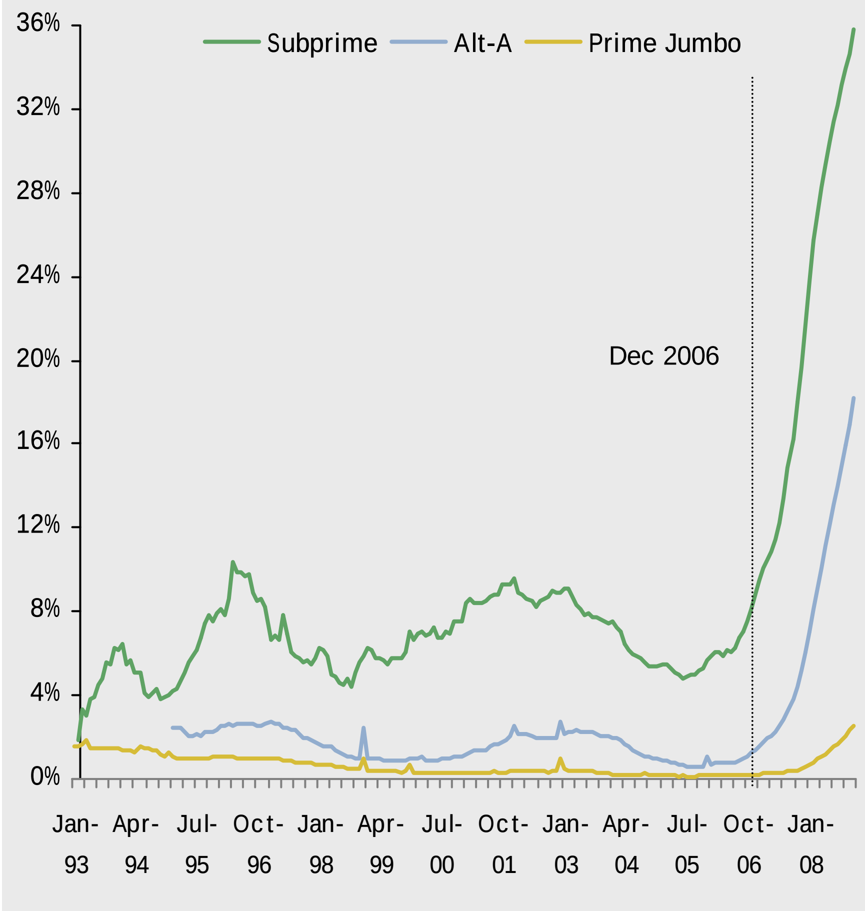
Fuel for the fire: declining credit standards, increased reliance on refi, and a burst of the real estate bubble

Increases in 2nd's and low documentation



Source: JPMorgan, National Mortgage News, FARES, LoanPerfromance.

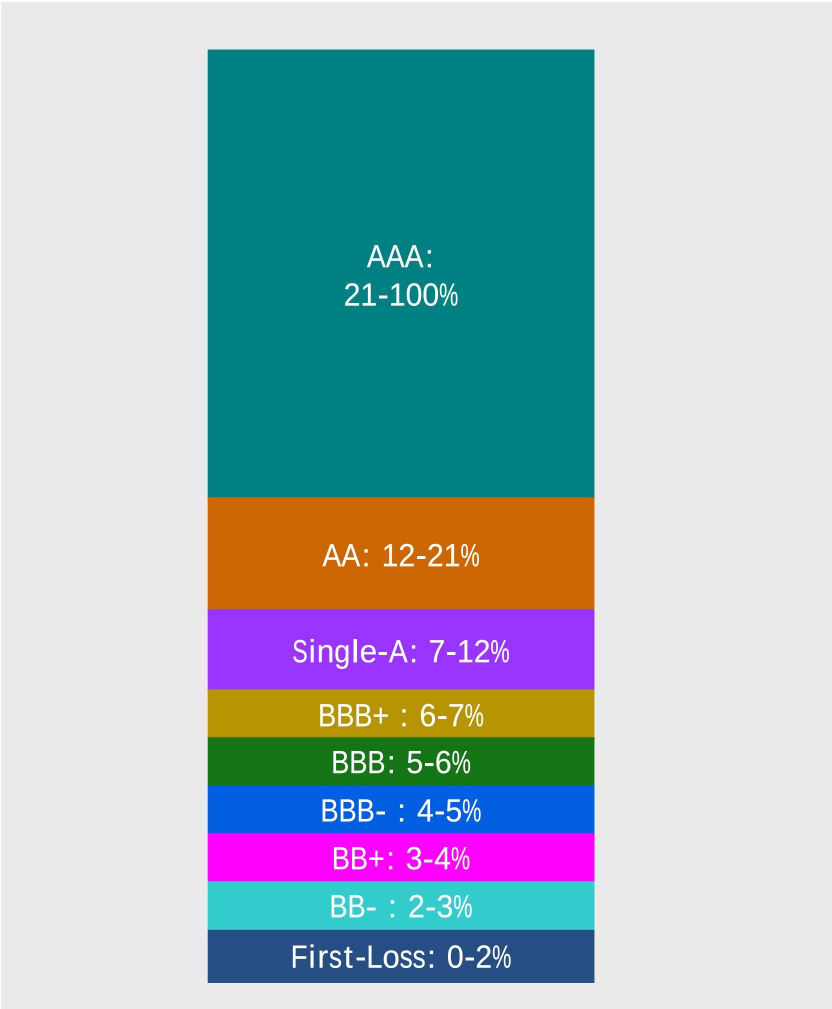
Subprime and Alt-A delinquencies on the rise (60+ del as % current balance)



Source: JPMorgan, Loan Performance.

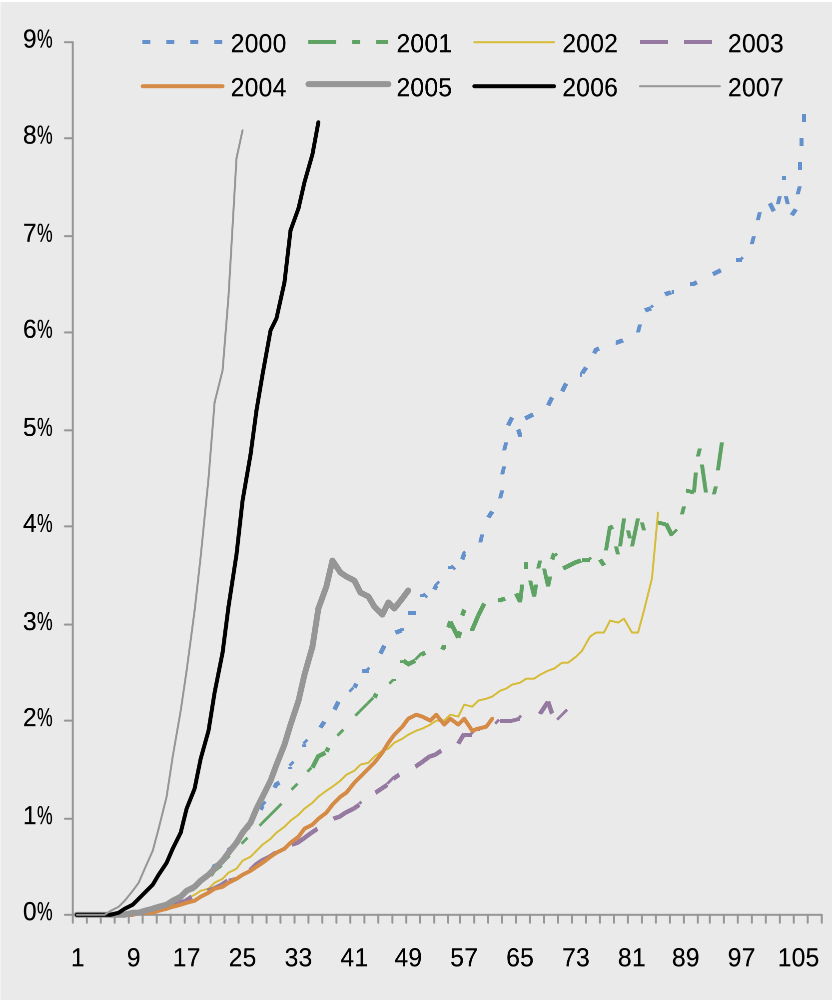
Basecase collateral loss estimates were around 4-5%

Typical HEL ABS Structure



Source: JPMorgan

HEL ABS ARM cumulative losses by loan age (months)



Source: JPMorgan,Intex, Deal documents.

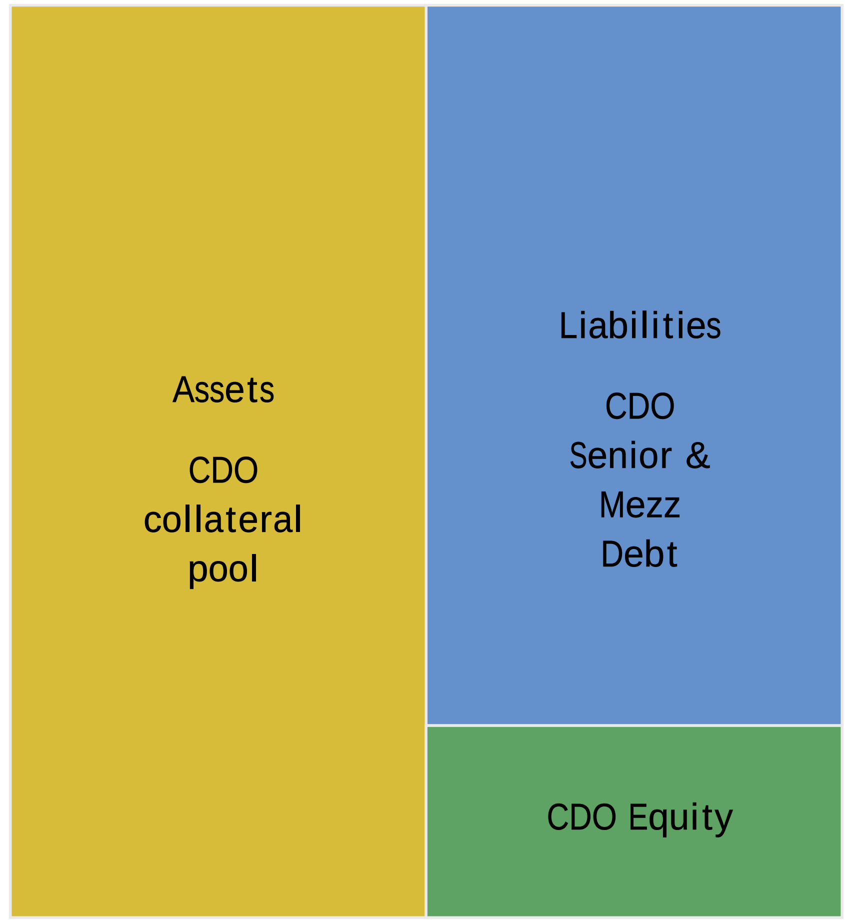
Agenda

What is a CDO?

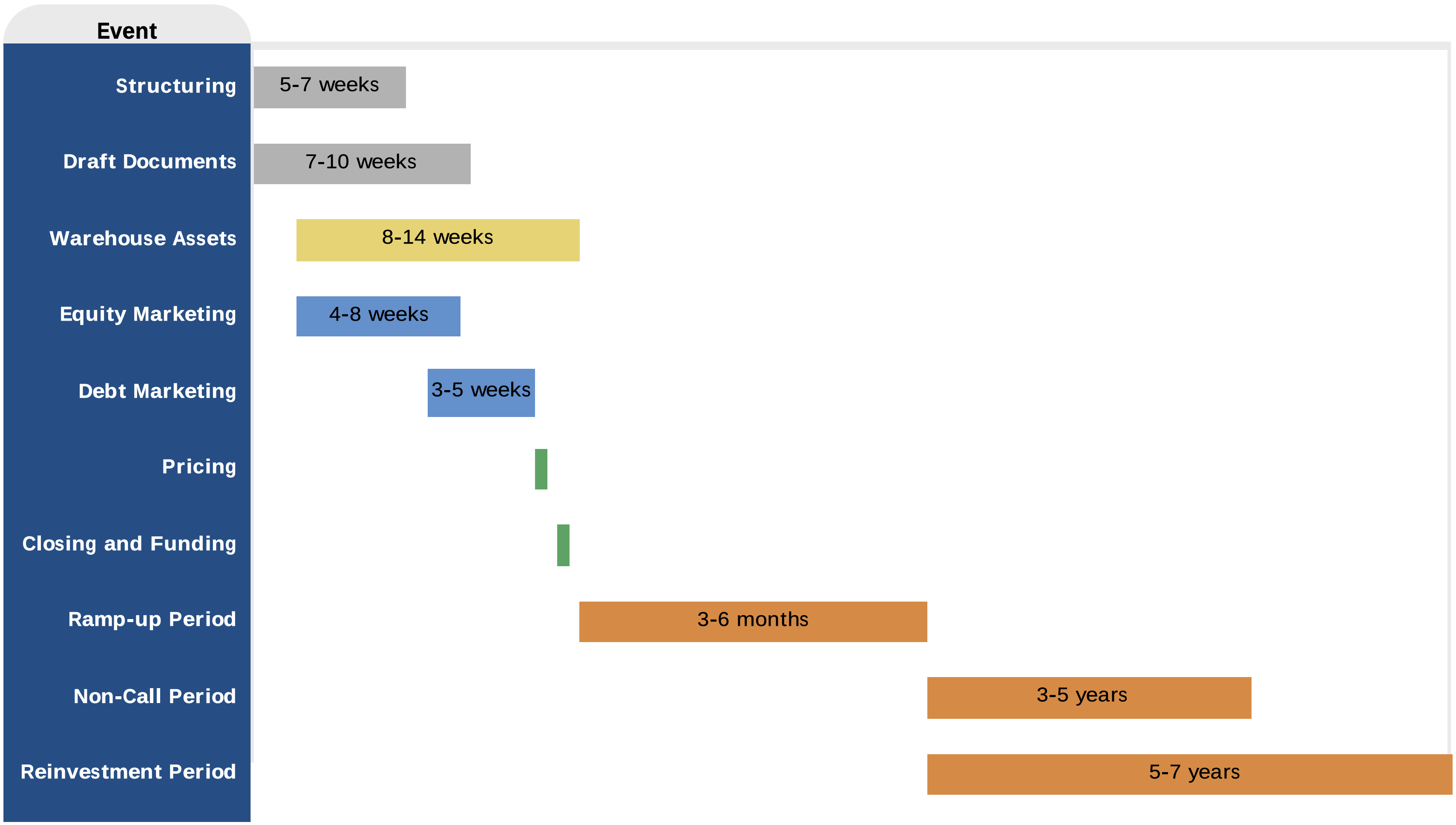
Basic Accounting

- A CDO is a tranched investment fund
- Comparable to a finance company
  - Borrows money (liabilities)
  - Invests in collateral (assets)
  - Has residual value (equity)
- Equity represents an ownership stake and first loss position
- Typically managed by a seasoned asset manager with a strong track record in the respective asset class
- Repayment of liabilities relies on the performance of the underlying collateral
- Credit enhancement and tranching created different rating levels, allowing involvement of a wide investor base
- Equity investors look for monetization of illiquidity premia and ratings arbitrage

CDO Balance Sheet



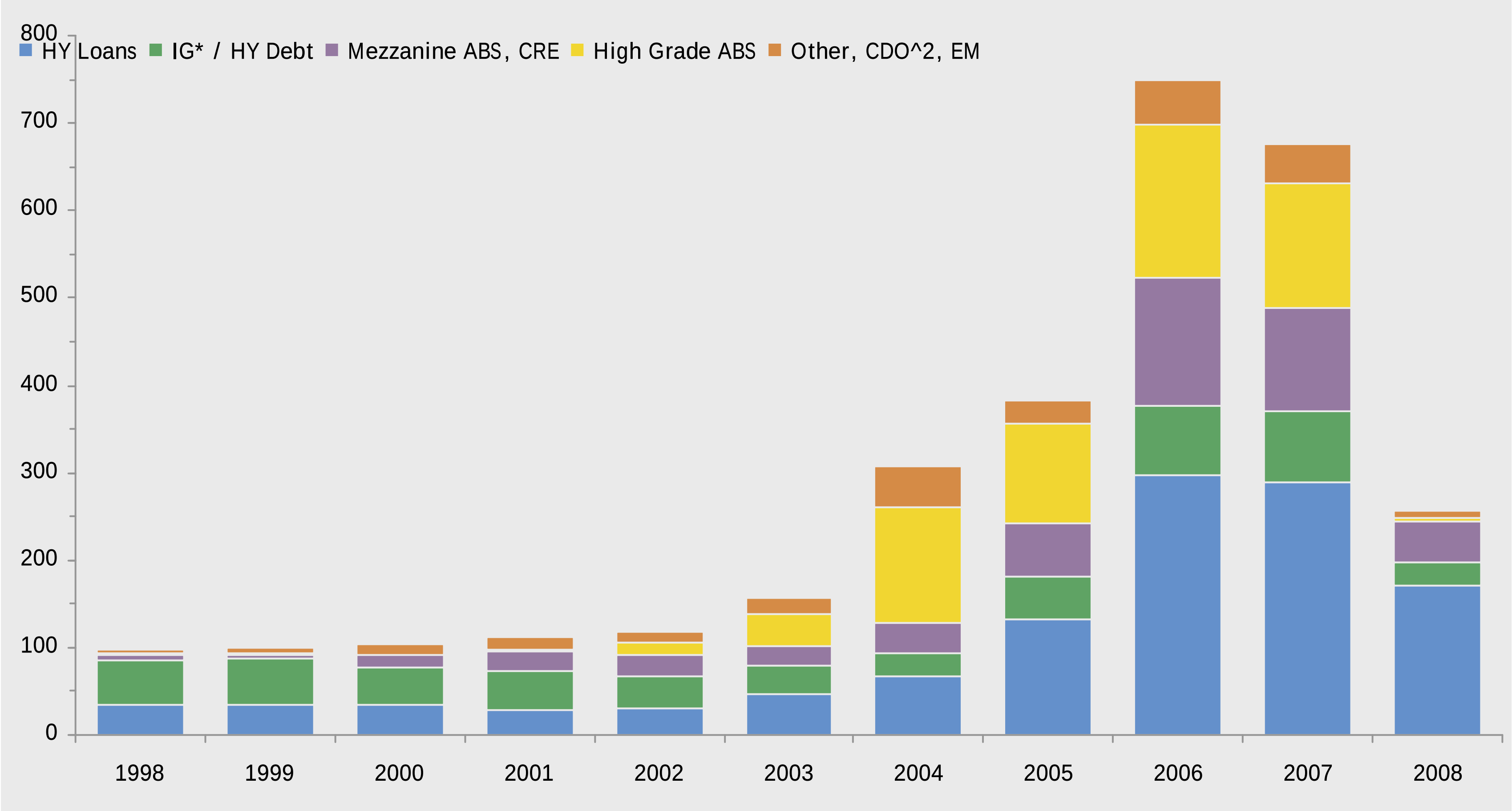
Indicative CDO timeline



Note: The information presented above is indicative and subject to change. The timeline of an actual CDO may vary significantly from the information set forth above.

The CDO market boom (and bust) cycle

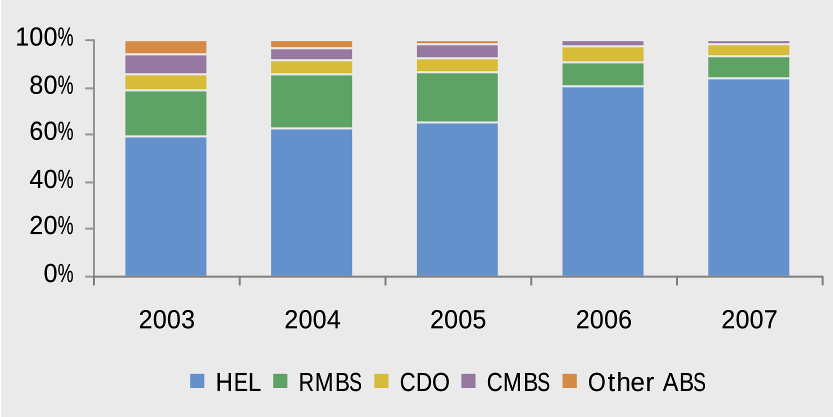
Global issuance by collateral type ($bn)



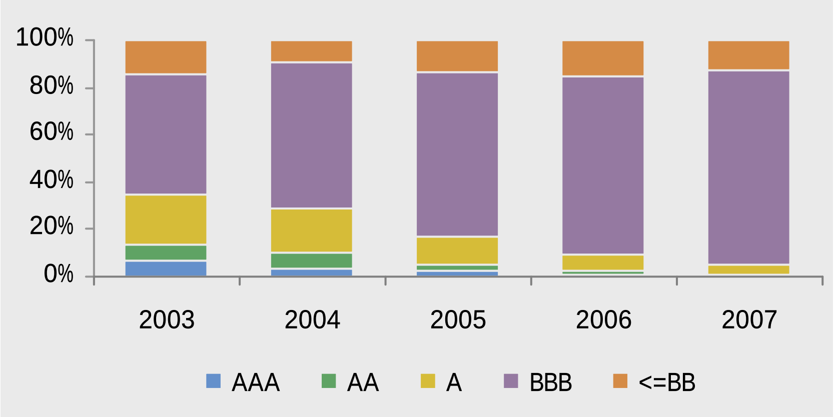
Source: JPMorgan, MCM, Bloomberg, CreditFlux, IFR, Moody's, S&P, Fitch.
*Excludes unfunded IG corporate exposure

ABS CDOs hold other Asset-Backed Securities

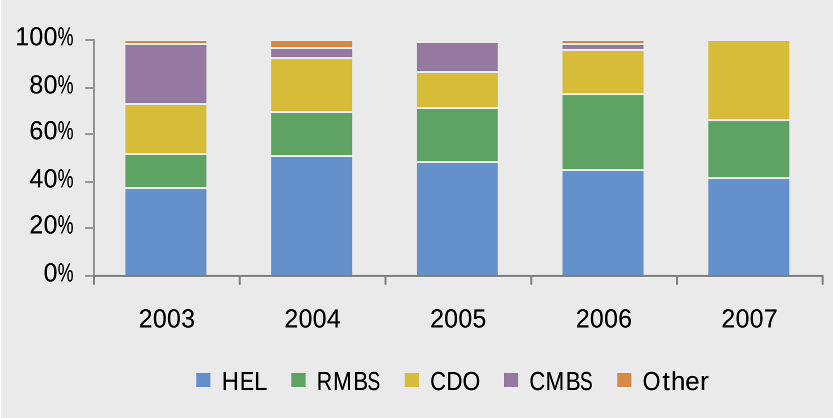
Mezz ABS collateral by sector (x-axis: vintage)



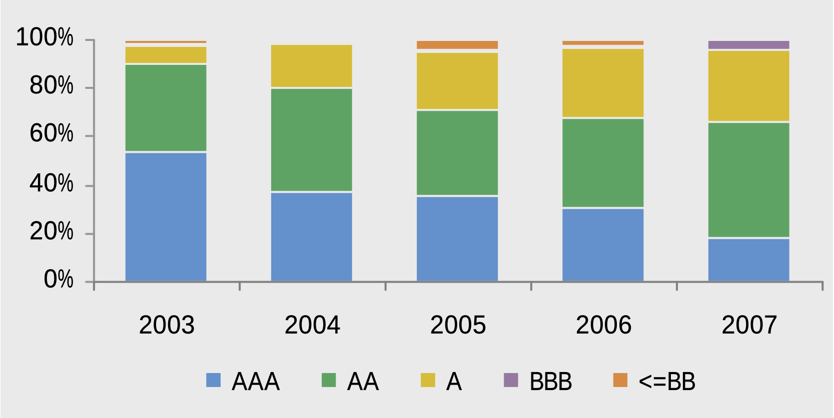
Mezz ABS collateral by rating (x-axis: vintage)



High Grade ABS collateral by sector (x-axis: vintage)



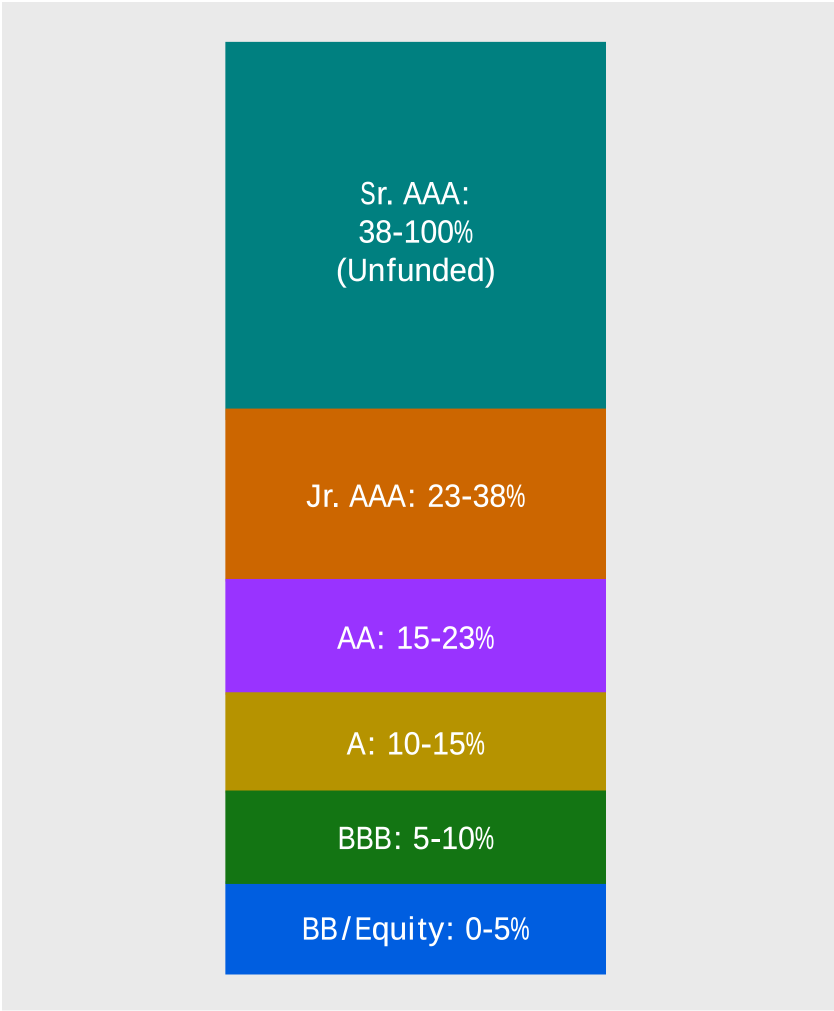
High Grade ABS collateral by rating (x-axis: vintage)



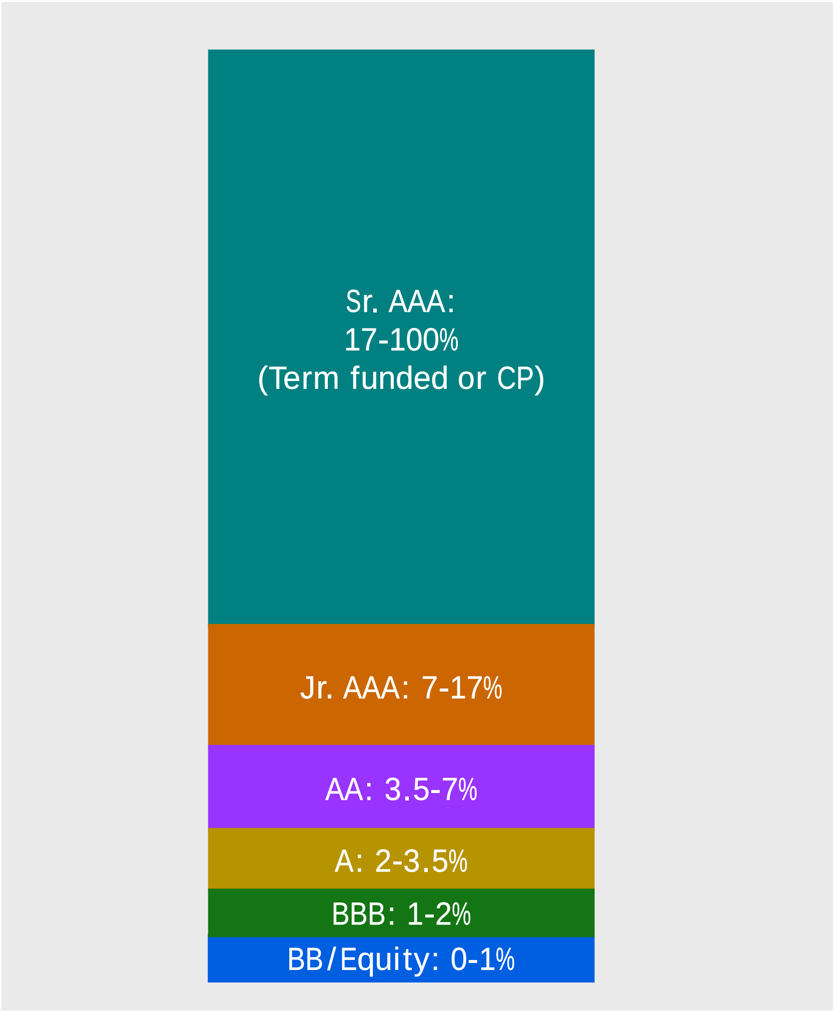
Source: Intex, JPMorgan

Higher rated assets allow higher leverage

Typical Mezzanine ABS CDO Structure



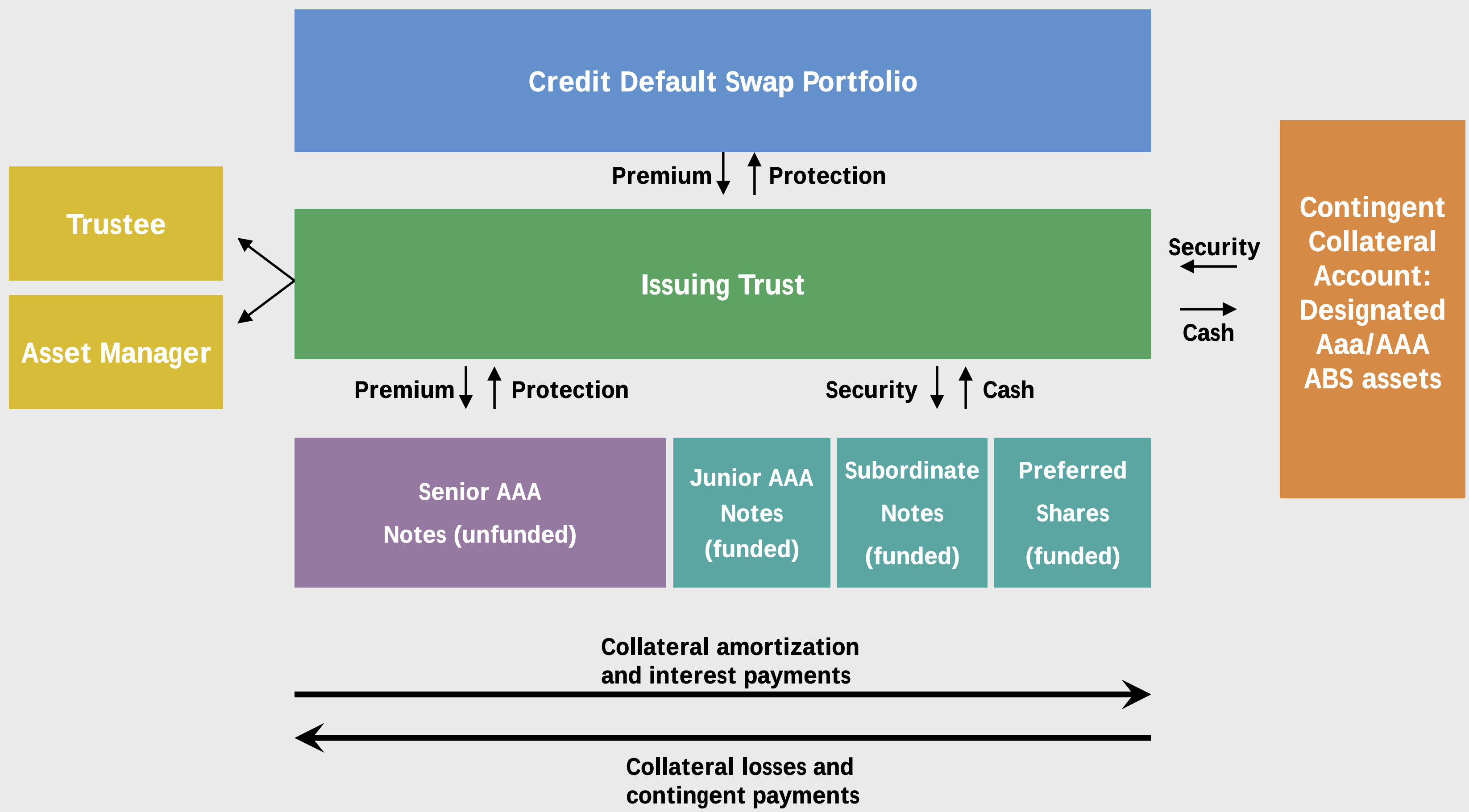
Typical High Grade ABS CDO Structure



Source: JPMorgan

Securitization can be "synthetic"

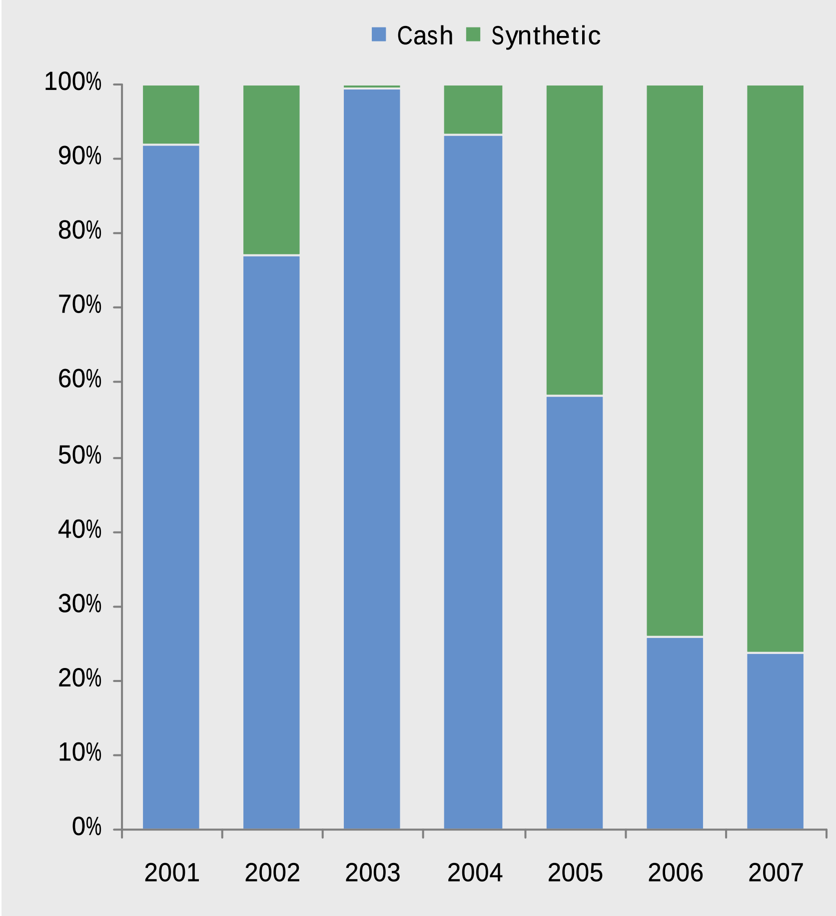
Illustrative synthetic ABS CDO structure



Source: JPMorgan

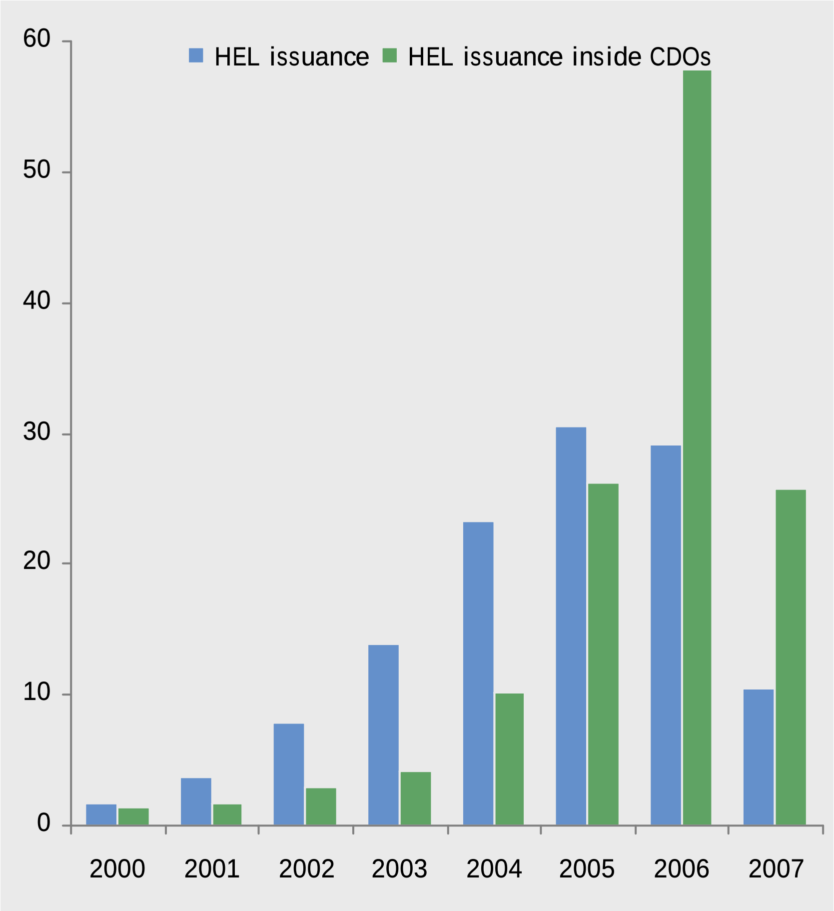
Synthetics facilitated the growth of ABS CDOs beyond the cash market

% of US Mezz ABS CDO issuance in synthetic format



Source: JPMorgan, MCM, Bloomberg, CreditFlux, IFR, Moody's, S&P, Fitch.

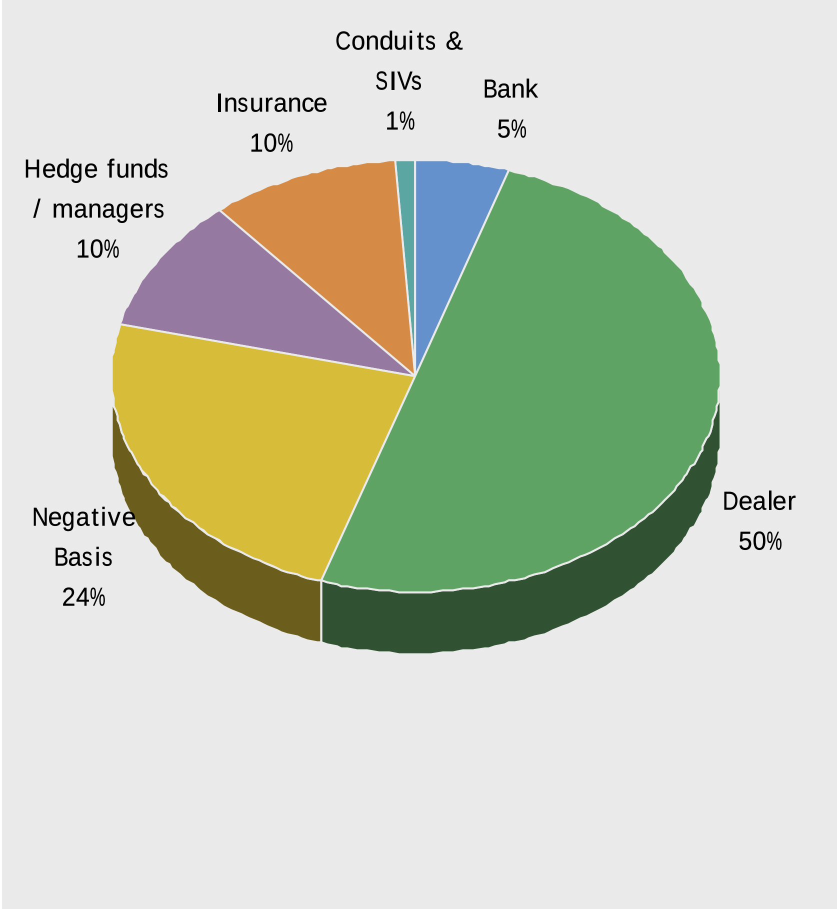
Total Mezz ABS CDO volume* vs US BBB/BB HEL ABS issuance ($ billions)



Source: JPMorgan, MCM, Bloomberg, CreditFlux, IFR, Moody's, S&P, Fitch. *ABS CDO volume scaled by typical HEL share of portfolio.

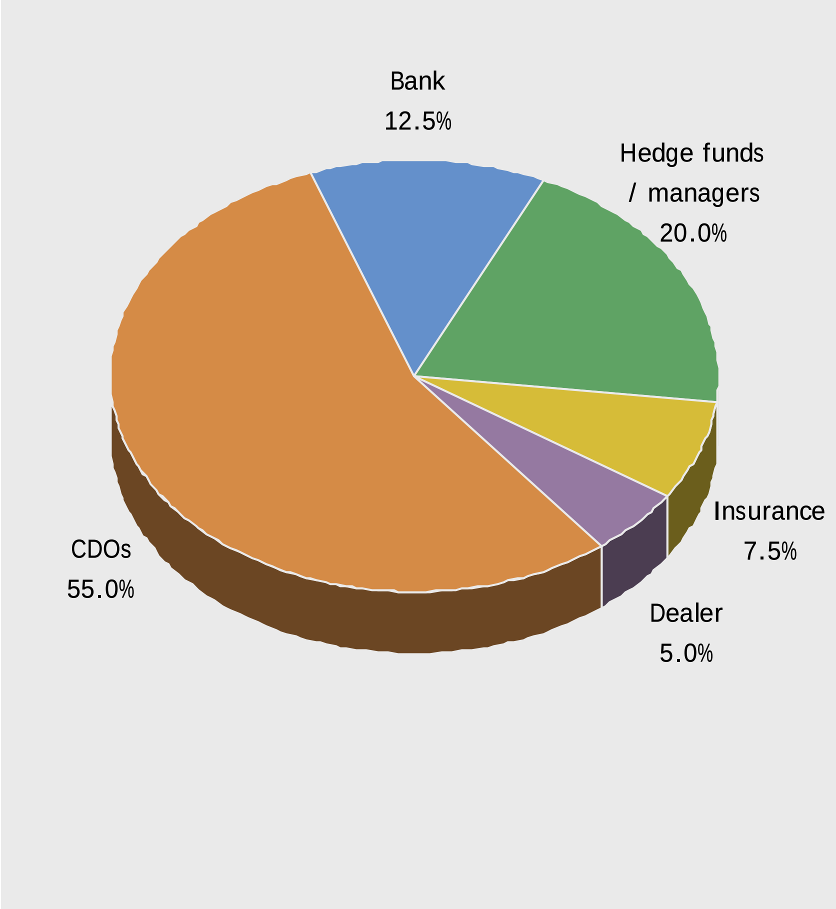
Who bought CDOs?

Estimated Supersenior ABS CDO investors by type



Source: JPMorgan

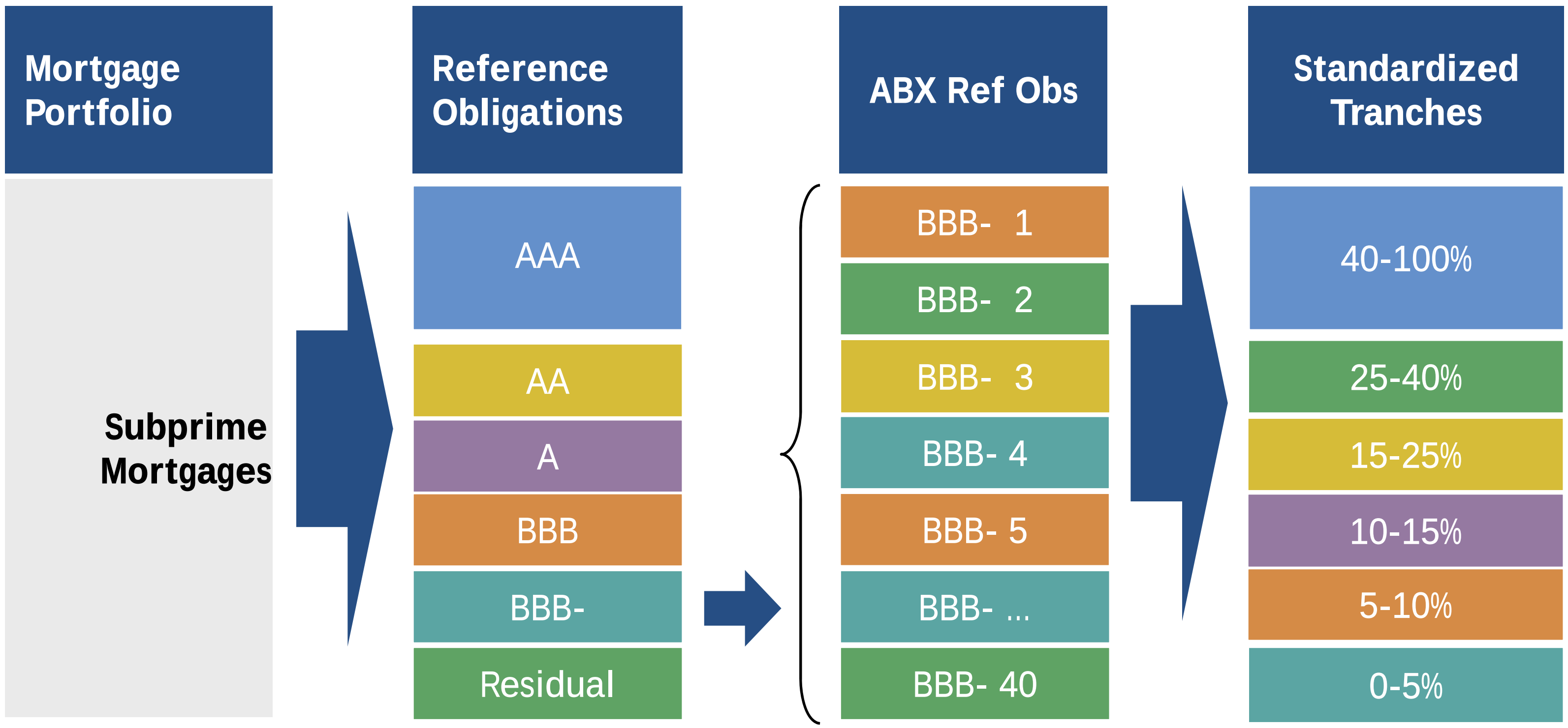
Estimated Jr. AAA to BBB ABS CDO investors by type



Source: JPMorgan

ABX and TABX: new benchmarks for ABS and CDOs

Each TABX series composed of 40 underlying reference obligations (06-2 = 20 of ABX 06-2 and 20 of ABX 06-1)

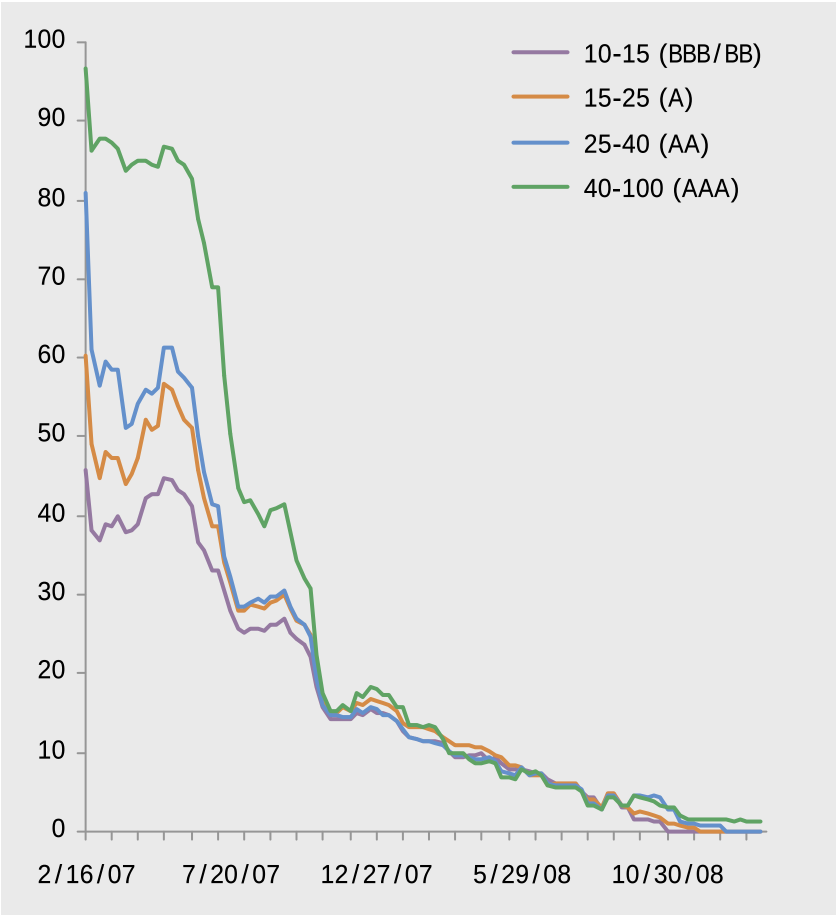


Liquid synthetic benchmarks helped to re-price risk quickly

ABX 06-2 index prices

Source: JPMorgan, Markit

TABX BBB- 06-2/06-1 index prices

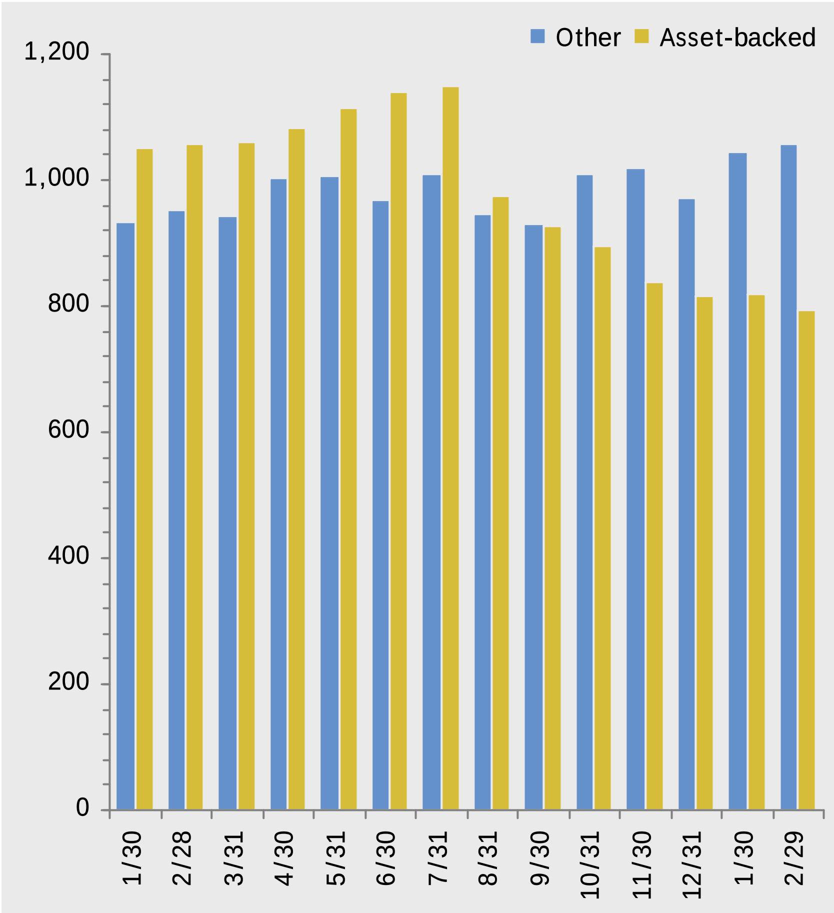


Source: JPMorgan, Markit

Agenda

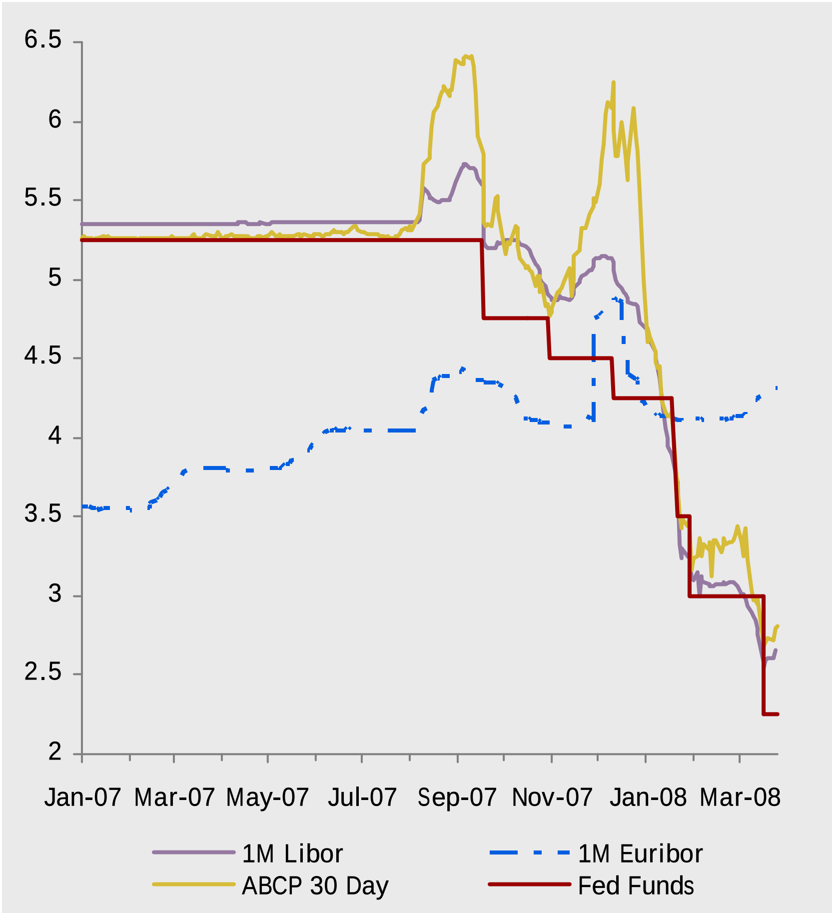
Turmoil in the short-term markets implies balance sheet squeeze, even liquidation

ABCP outstandings ($bn)



Source: Federal Reserve Board

Bank borrowing costs (%)



Source: JPMorgan

Off-balance sheet assets weren't far enough off balance sheet

15 largest global liquidity providers (as of 2007 Q1)

Issuer	$mn
ABN AMRO Bank N.V.	103,075
Citibank, N.A.	90,798
Bank of America Corp.	84,637
JPMorgan Chase Bank N.A	73,342
Morgan Stanley	64,764
Wachovia Bank N.A.	51,282
Barclays Bank PLC	49,866
Deutsche Bank AG	42,594
Bank of Scotland	42,121
Rabobank Nederland	41,669
Societe Generale	38,450
Lloyds TSB Bank PLC	32,583
Royal Bank of Scotland PLC	32,269
WestLB AG	30,390
Fortis Bank	29,201
Total	807,041

Source: Standard & Poors.

Estimated putable HG ABS CDO ABCP exposure (as of 08/2007)

Put provider	Outstandings ($mn)
Citi	$18,968
Barclays	$18,805
Soc Gen	$5,855
West LB	$5,777
BOA	$4,600
Credit Suisse	$4,022
Calyon	$4,020
Goldman Sachs	$3,865
Bear Stearns	$3,600
Wachovia	$2,293
UBS	$1,672
JPMorgan	$880
Rabobank	$880
AIG	$737
Merrill	$624
Morgan Stanley	$174
Total	$76,771

Source: JPMorgan, Moody's, S&P, Fitch, Bloomberg, MCM.

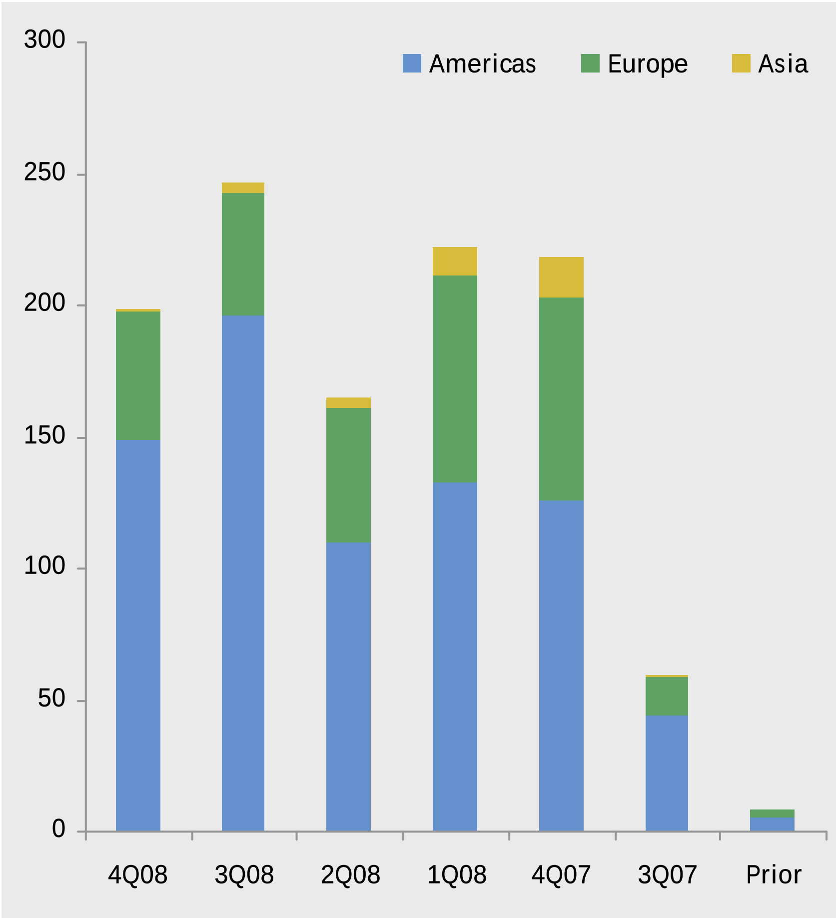
Into the vortex: declining asset prices pull equity prices ever downwards

ABX.07-1 AAA versus BKX* index prices

Source: J.P. Morgan, Markit, Bloomberg. *KBW bank stock index.

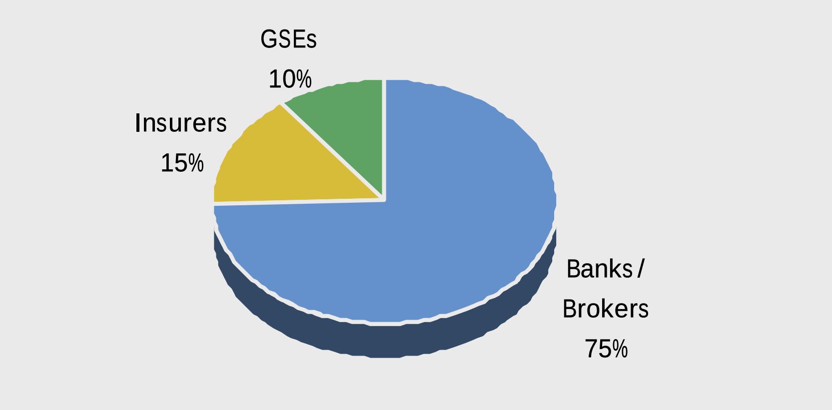
Structured Finance writedowns necessitate capital infusions across the bank and guarantor community

Financial writedowns and credit losses - $1.1tn and counting ($bn)

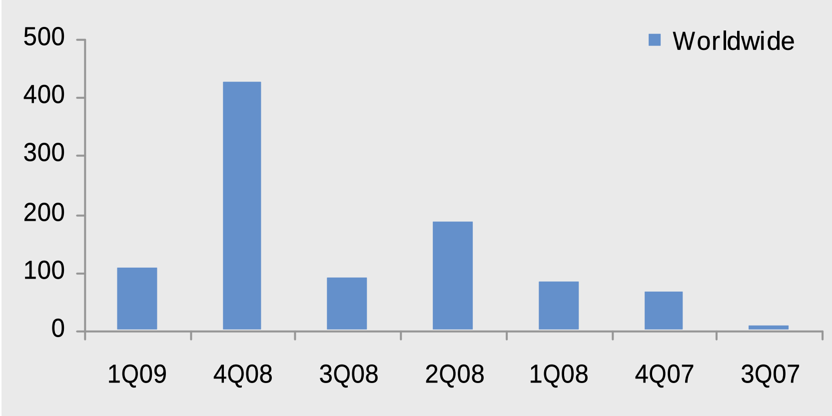


Source: Bloomberg. Does not include trading losses.

Share of losses taken worldwide by investor type



Financial capital raised - $1tn so far ($bn)



A decent chunk of banks' capital holes have been plugged, but $750-1000bn remains

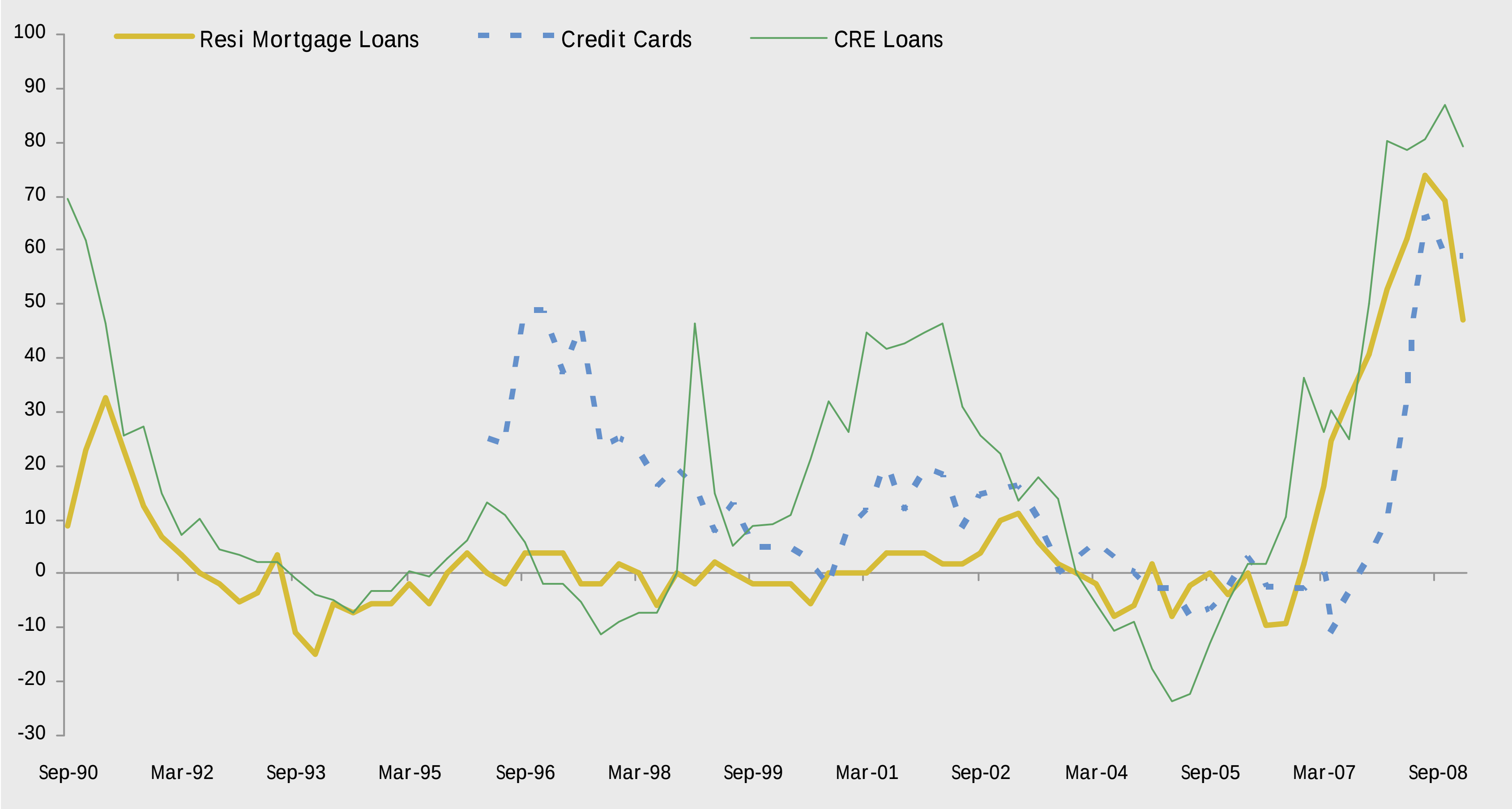
Estimates of financial sector potential losses as of October 2008 (in billions of US dollars)

			Breakdown of Losses				
	Out-standing	Estimated Losses on Loan & Mark-to-market Losses on Securities	Banks	Insurance	Pensions / Savings	GSEs & Government	Other (Hedge Funds, etc.)
Unsecuritized Loans							
Subprime	300	90					
Alt-A	600	100					
Prime	3,800	100					
Commercial real estate	2,400	60					
Consumer loans	1,400	40					
Corporate loans	3,700	75					
Leveraged loans	170	20					
Total for loans	12,370	485	215-280	20-40	20-40	60-100	80-100
Securities							
ABS	1,100	300					
ABS CDOs	400	300					
Prime MBS	3,800	150					
CMBS	940	300					
Consumer ABS	650	25					
High-grade corporate	3,000	50					
High-yield corporate	600	50					
CLOs	350	50					
Total for securities	10,840	1225	615-690	170-200	175-220	70-160	125-270
Total for loans & securities	**23,210**	**1,710**	**800-1,000**	**190-235**	**160-290**	**125-250**	**200-360**

Source: J.P. Morgan

The credit crunch remains in full swing

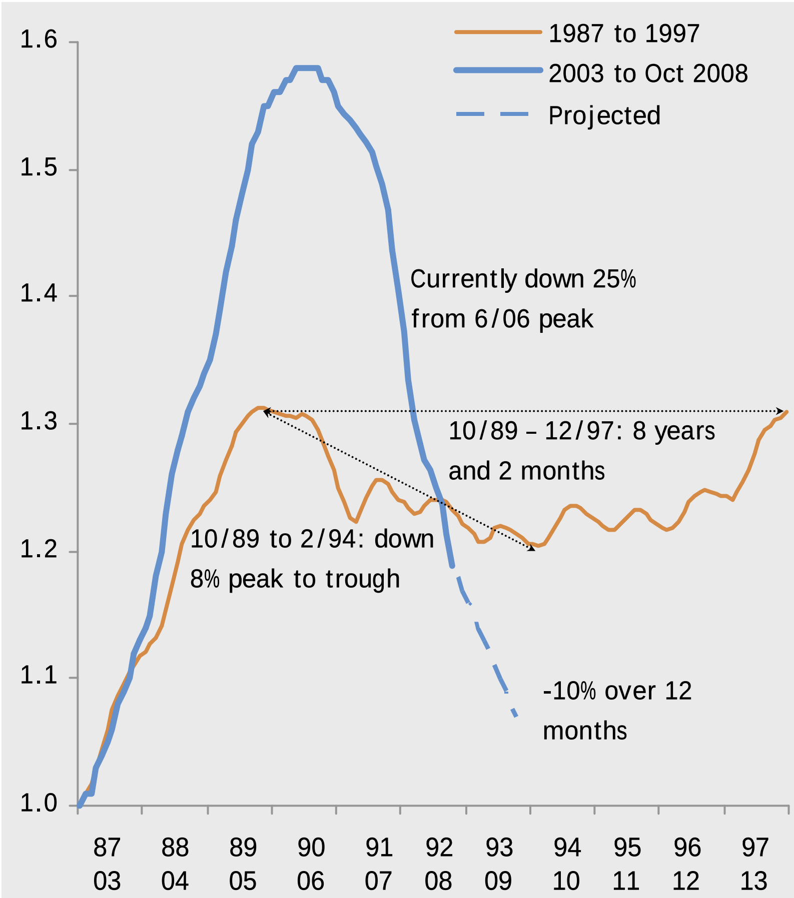
Net percentage of domestic respondents tightening lending standards



Source: Federal Reserve Board (Senior Loan Officer Survey)

Danger of overshooting on the way down

S&P/Case-Shiller home price index (composite-10)



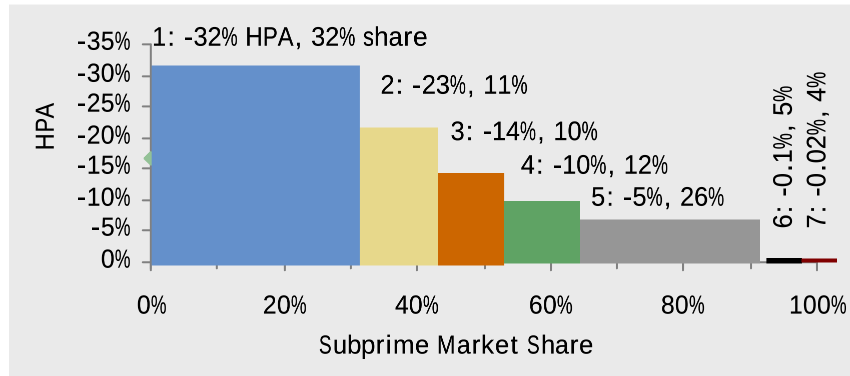
Source: J.P. Morgan, S&P/Case-Shiller

No. of borrowers (owner occupied, first lien mortgage) by CLTV

	Current CLTV				
	<80%	80-90%	90-100%	>100%	Borrowers underwater
Alt-A	931,310	478,112	521,972	1,357,584	41%
Subprime	1,438,821	715,026	738,104	1,476,263	34%
Jumbo	1,069,345	307,495	247,956	383,490	19%
Agency	20,100,000	6,900,000	2,100,000	1,200,000	4%
Total	23,539,476	8,400,633	3,608,033	4,417,338	11%

Source: J.P. Morgan, LoanPerformance

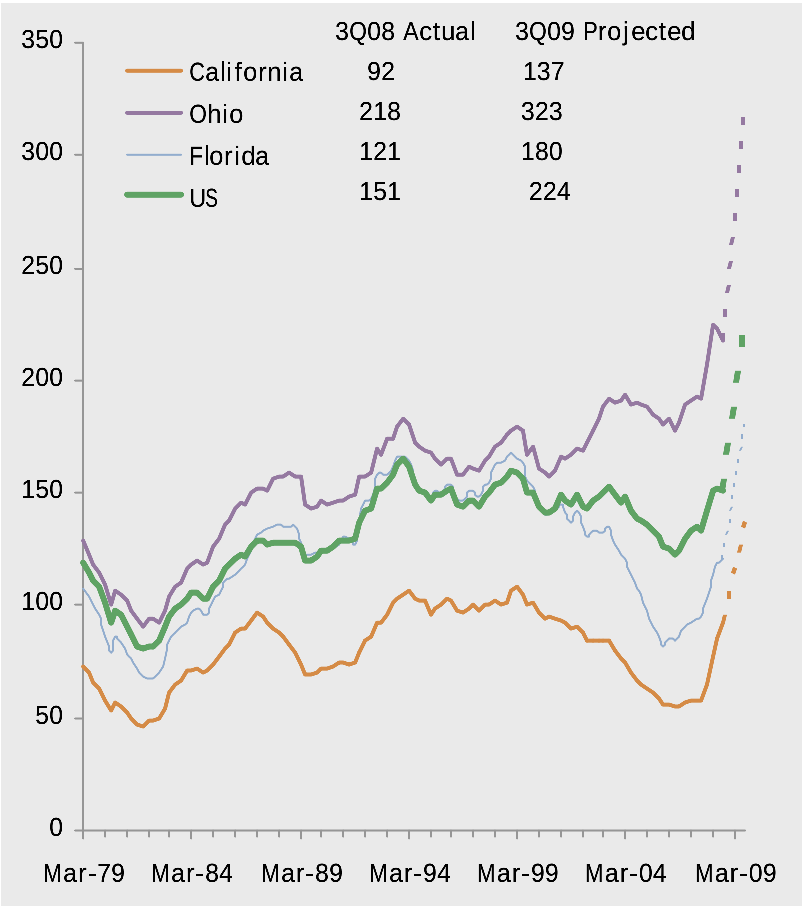
State HPA distribution (peak to current HPA, market share)



Group 1: CA, NV, AZ; Group 2: FL; Group 3: RI, MI, MA, NH, HI, OH, MN; Group 4: NY, MD, NJ; Group 5: WY, IL, VA, PA, WA, LA, DC, CT, ME, GA, WI, OR, AL, ND, CO, NE, VT, TN, AK, AR, NC, KY, DE, OK, WV, ID, UT; Group 6: TX; Group 7: NM, SC, IA, IN, KS, MO, MS, MT, SD.
As of June 2008
Source: J.P.Morgan, LoanPerformance

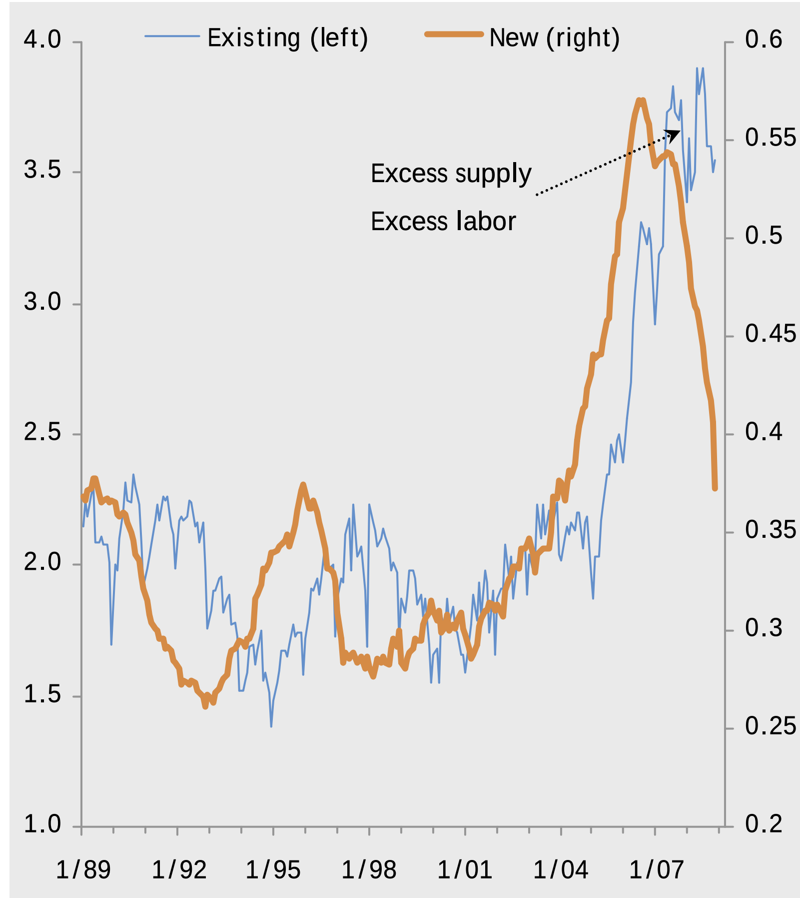
Inventory overhang remains; buyers' market

NAR Housing Affordability Index (as of 3Q08)



Source: JPMorgan, NAR, Moody's Economy.com

Inventory (mn units)

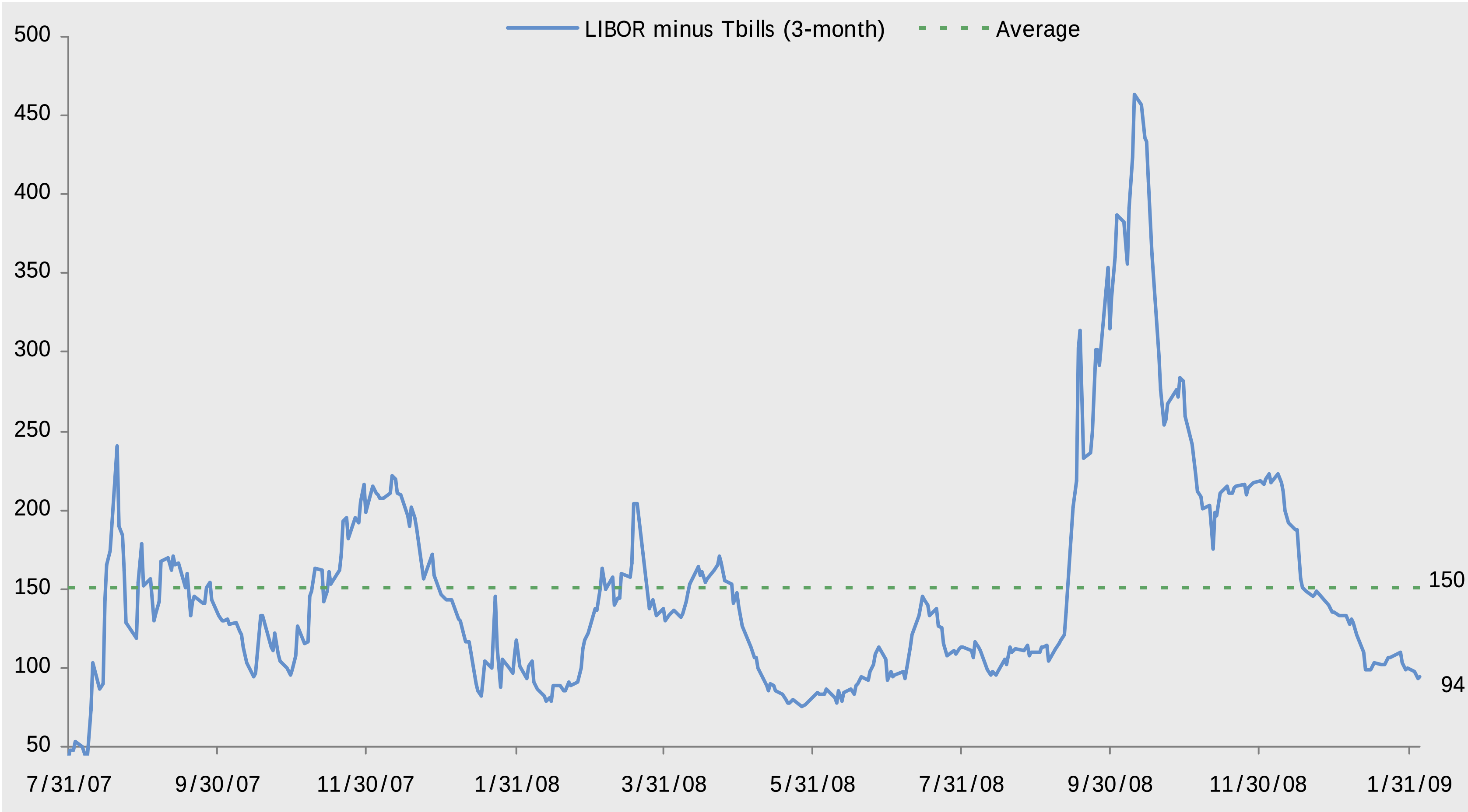


THE CREDIT CRUNCH IS NOT CONTAINED

J.P.Morgan

Bank funding pressure receding after government support

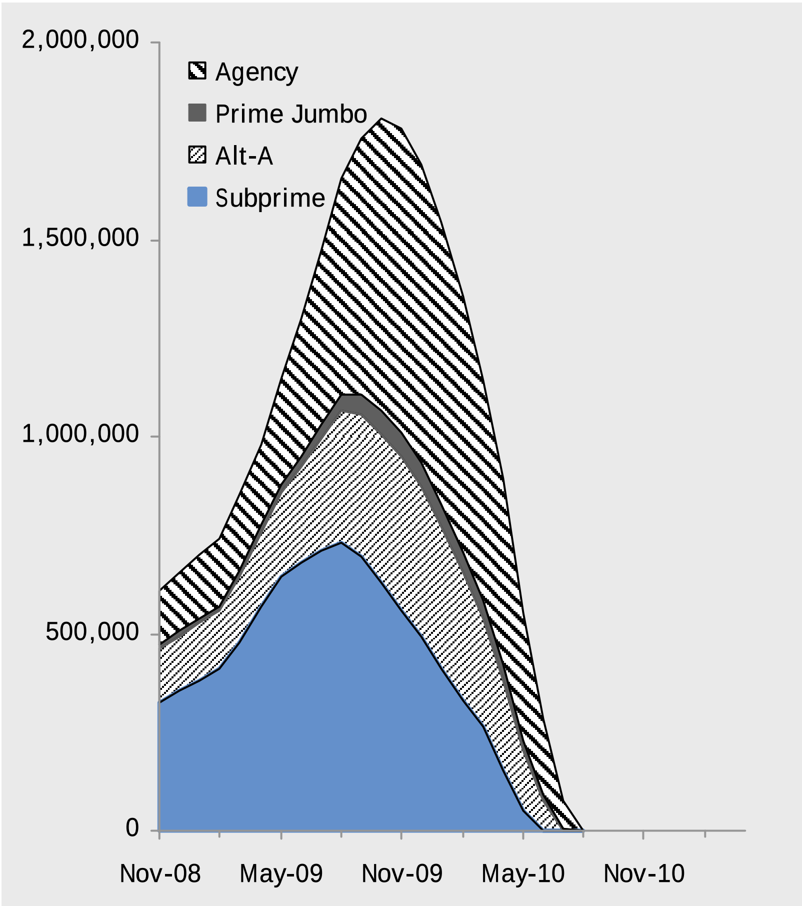
TED spread (3-month LIBOR minus 3-month TBills, bp)



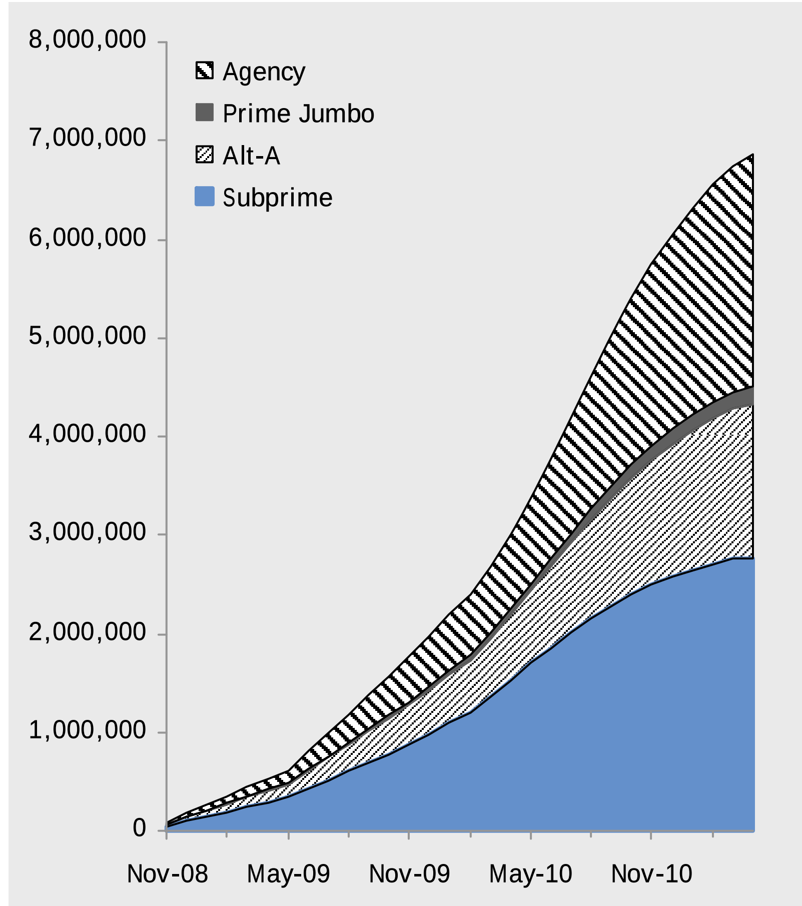
Source: J.P. Morgan, Bloomberg

Foreclosures will get much worse: 2010 explosion in liquidations

Foreclosure inventory (number of loans)



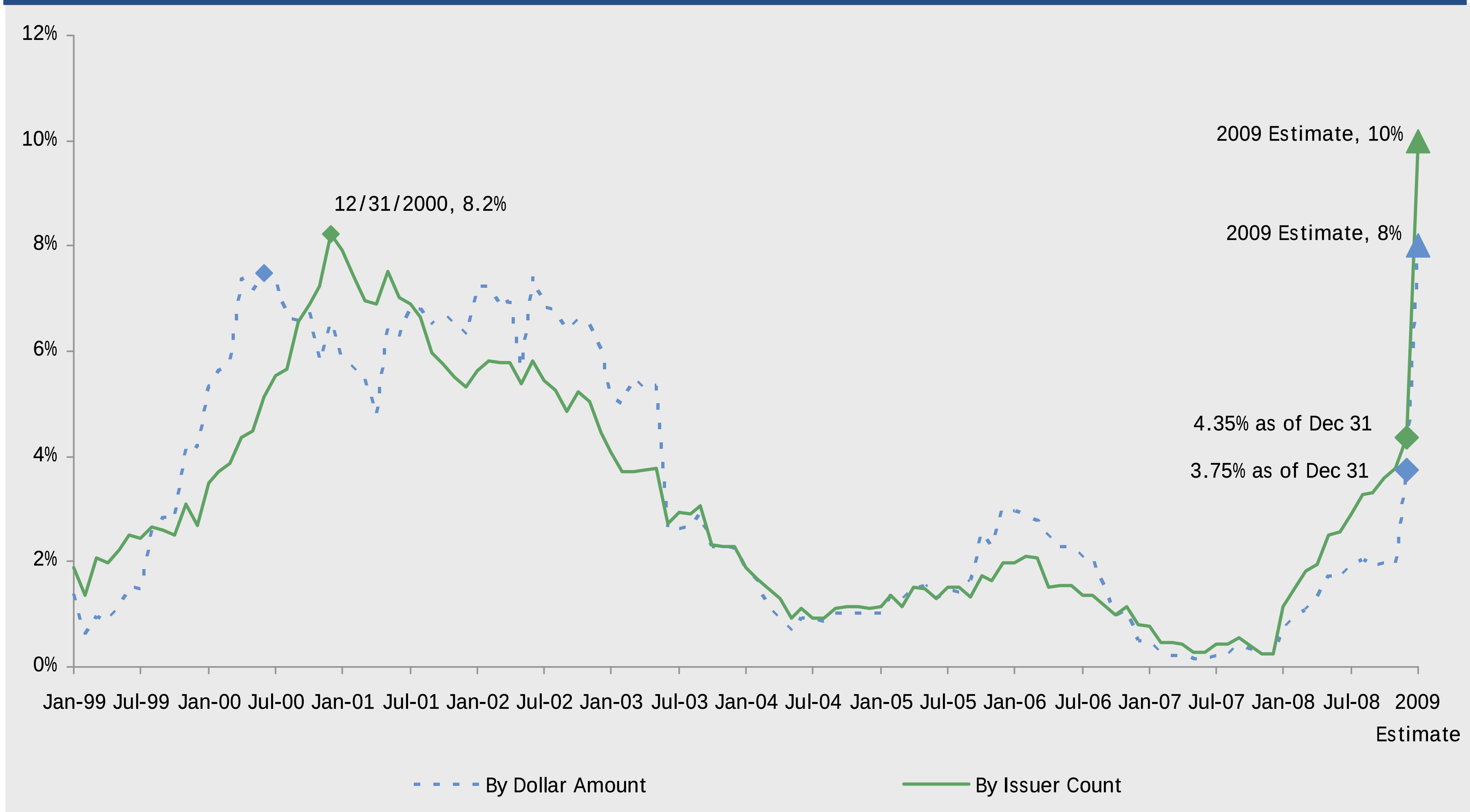
Cumulative liquidations (number of loans)



Source: J.P. Morgan, LoanPerformance

High-yield loan default rate expected to rise to 10% in 2009, base case, according to JPMorgan High Yield Strategy; risk is to upside

High-yield Loan Default Rate (%)

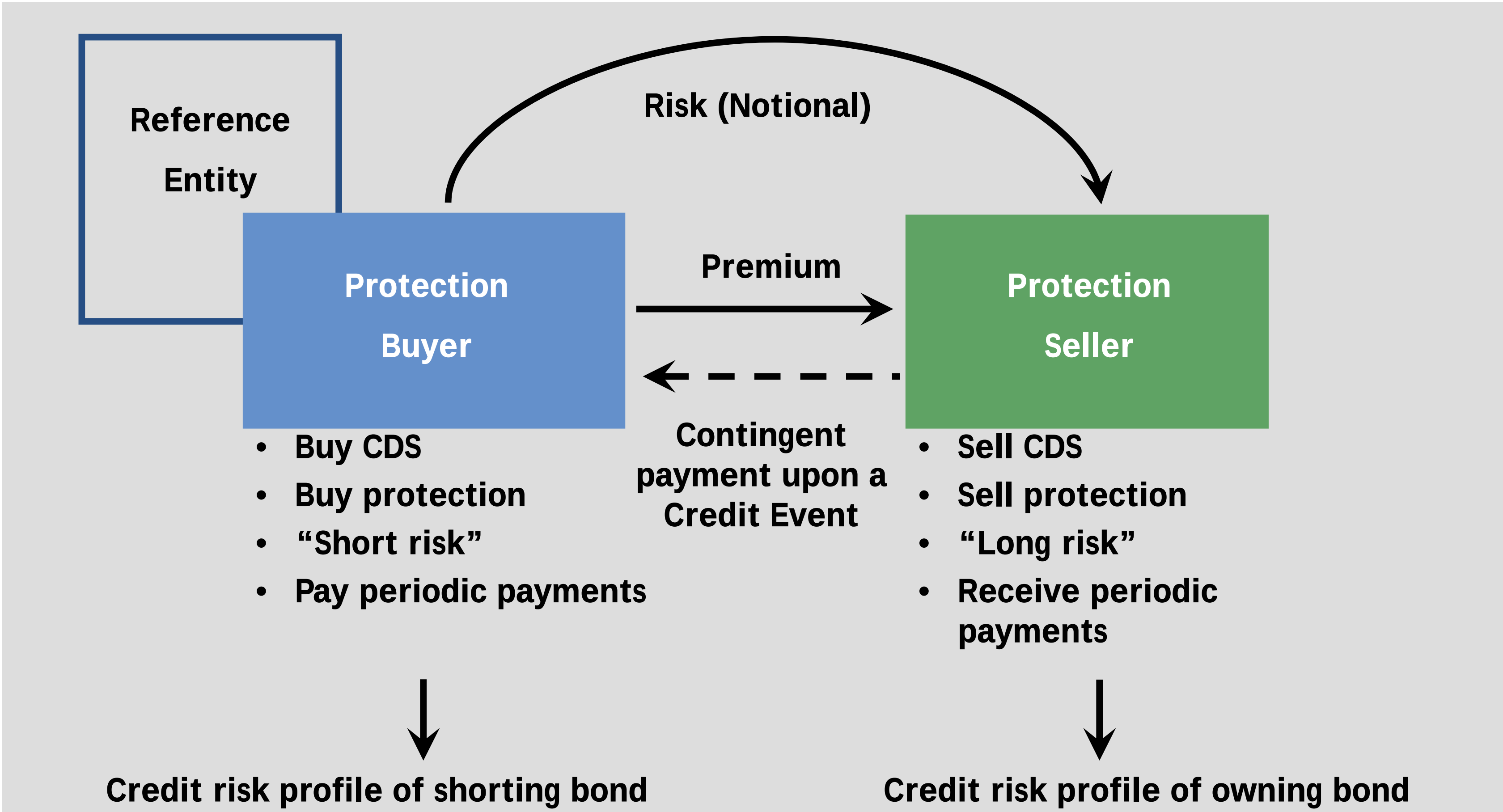


Source: S&P LCD, JPMorgan

Agenda

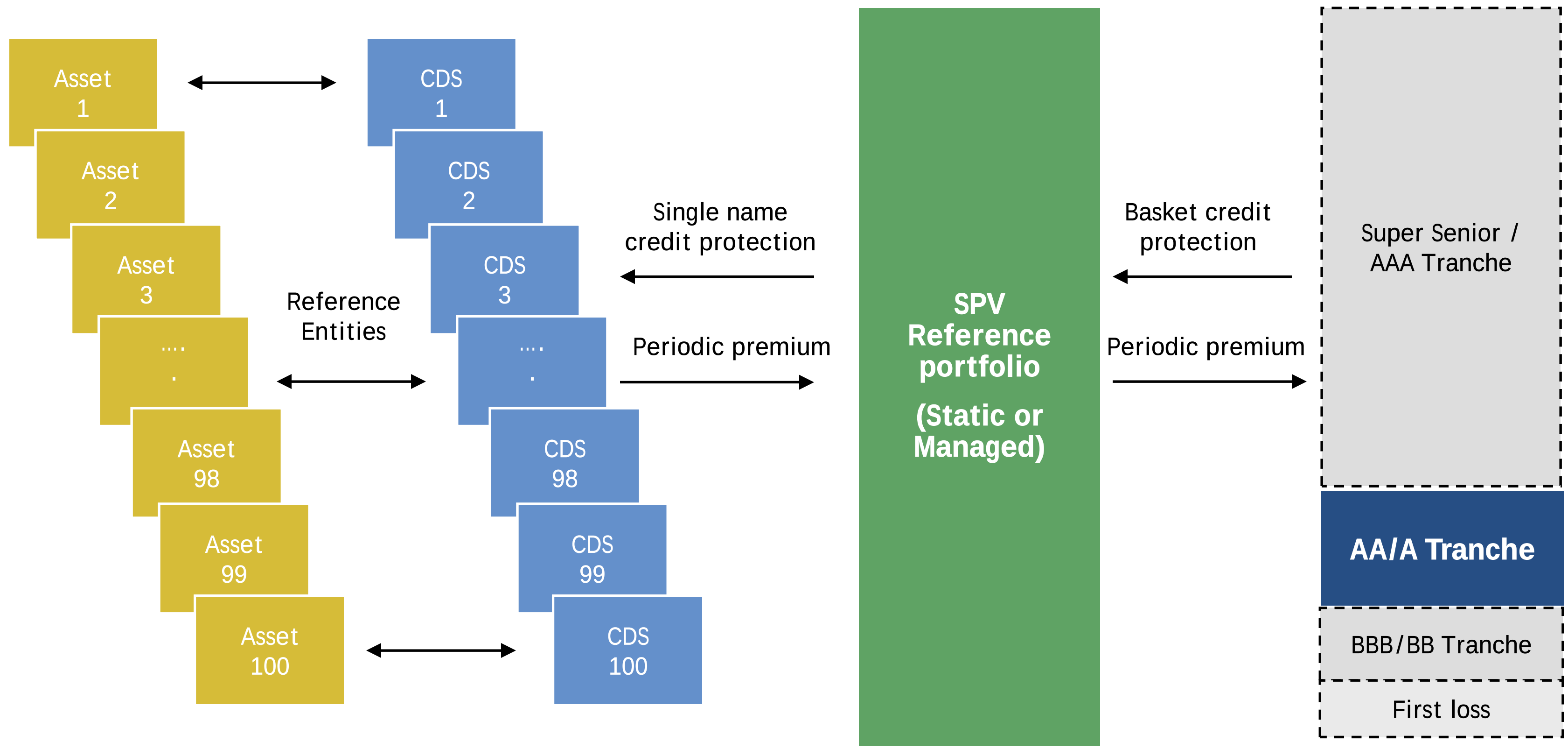
Single-Name CDS basics

Single name credit default swaps



Source: JPMS.

Synthetic Corporate Securitization

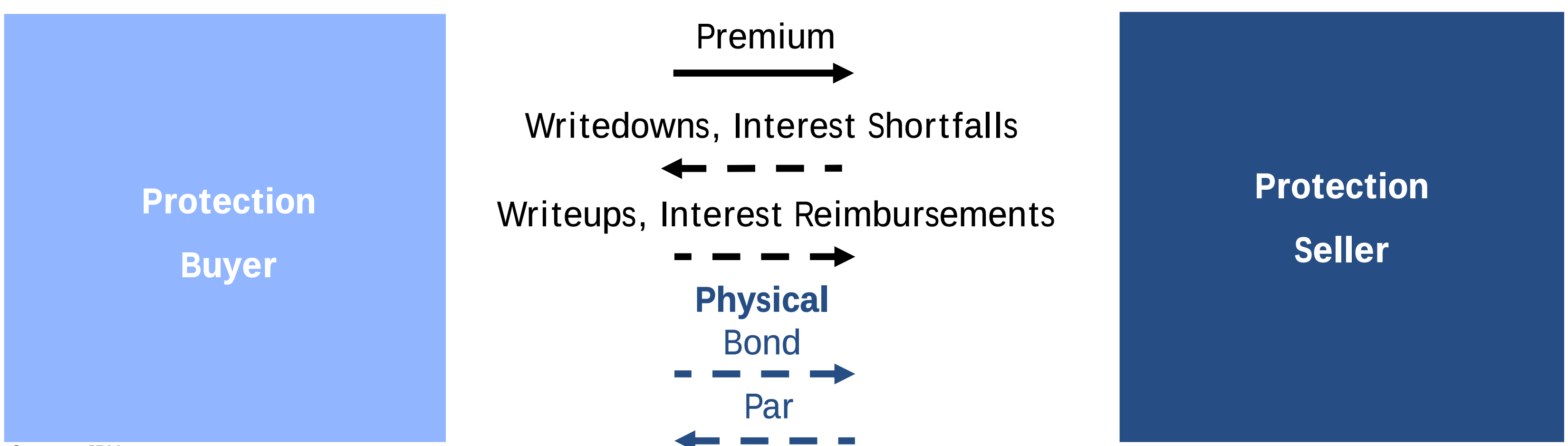


APPENDIX

"Pay-as-you-go" credit default swaps specifically designed for ABS securities

- Reference Obligation is cusip-specific: performance varies by trust, rating level
- Trade notional amortizes with the underlying
- After credit events protection buyer has the option to physically settle the contract
  - Option avoids risk of short squeeze – limited universe of deliverable obligations
  - Avoids reliance on cash valuation in less liquid markets
- Otherwise, pay-as-you-go settlement: contingent payments as writedowns and interest shortfalls occur
- Term extends to final maturity of the underlying

Pay as you go (PAYG) with physical settle option

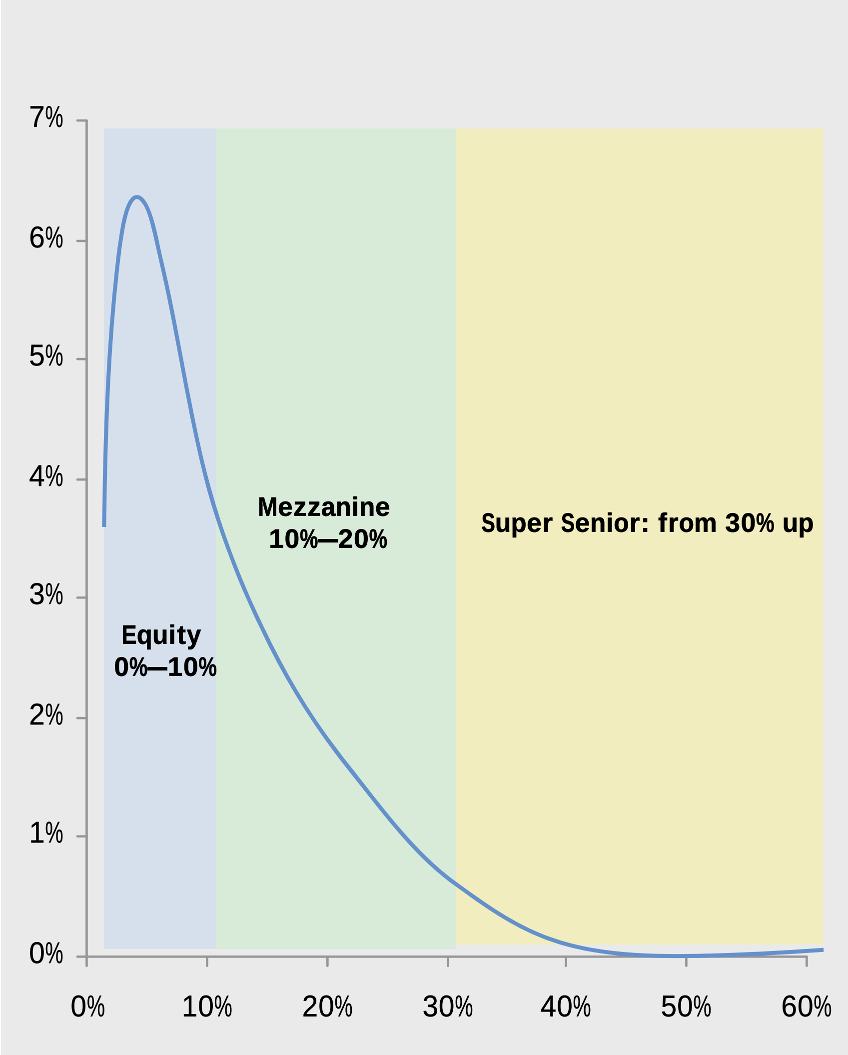


Source: JPMorgan.

CDO rating basics

- Most CDO tranches are rated by at least two, perhaps three, of Moody's, Standard & Poor's, and Fitch
- Rating agencies examine portfolio characteristics, structural parameters, legal documentation, and the CDO manager's track record and operational experience
- Rating process is to
  - model the portfolio
  - generate default distributions
  - run cashflow scenarios based off default assumptions and other factors (interest rates, default timing, etc.)
  - quantify tranche risk
- All three agencies have moved to a Monte-Carlo approach - assets are modeled with individual
  - default probabilities
  - recovery rates (possibly stochastic)
  - asset correlation factors to
    - industry / ABS sector
    - wider market
    - originator (ABS/CMBS) or manager (CDO)

Sample tranche loss distribution



APPENDIX

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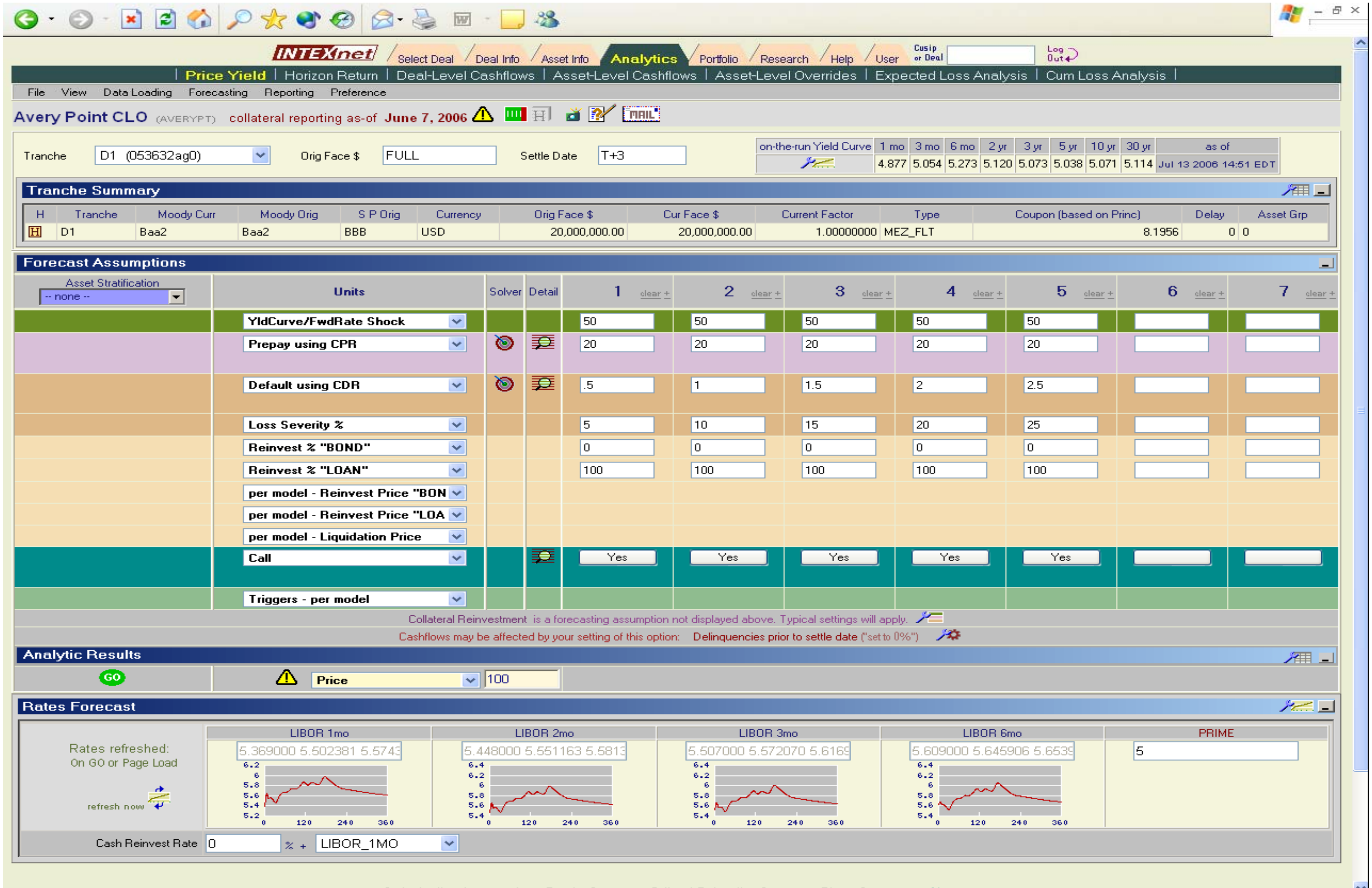
Intex is predominant cashflow modeling tool



APPENDIX

Typical debt scenario analysis

10% recovery rate (Trust Preferred CDO)