Atlanta Actuarial Club

December 3, 2009

Non-Agency Residential Mortgage Backed Securities: Where Do We Go From Here?

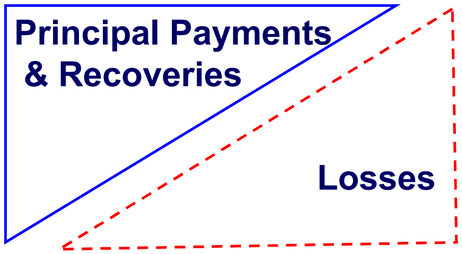
Dave Goodson
Jake Lowery

RMBS Basics: Structures and Collateral

What are Non-Agency RMBS?

Pools of individual Residential Mortgages, whose aggregate cashflows are divided among many bondholders according to a pre-determined structure

Class	Rating	Subordination	÷	Expected Loan Loss	=	Required to Incur Loss (%)
A1	AAA	11.82%		50%		20-25%
A2	AAA	11.82%		50%		20-25%
M	AA	5.88%		50%		11.76%
B1	A	3.46%		50%		6.92%
B2	BBB	2.00%		50%		4.00%
B3	CCC	0.79%		50%		1.58%
B4	D	-		50%		0.00%



*For simplicity, breakeven defaults computed here as amount of defaults needed to exceed subordination (11.82%) at our assumed loss severity; range allows for variance in collateral performance.

- Losses are allocated sequentially, starting with the most subordinate class (B4). Senior tranches (A1, A2) generally share in losses pro-rata.
- Many possible structures to determine principal payment priority for senior tranches.
  - Sequential: simple “time tranching” where senior tranches are assigned sequential priorities for principal
  - Passthrough: senior tranches receive a pro-rata interest in principal payments
  - Others Include PAC, NAS, AD, and Z structures, all of which accelerate some tranches at others’ expense
- Potential for prepayments enhances yield of RMBS when purchased at a discount.

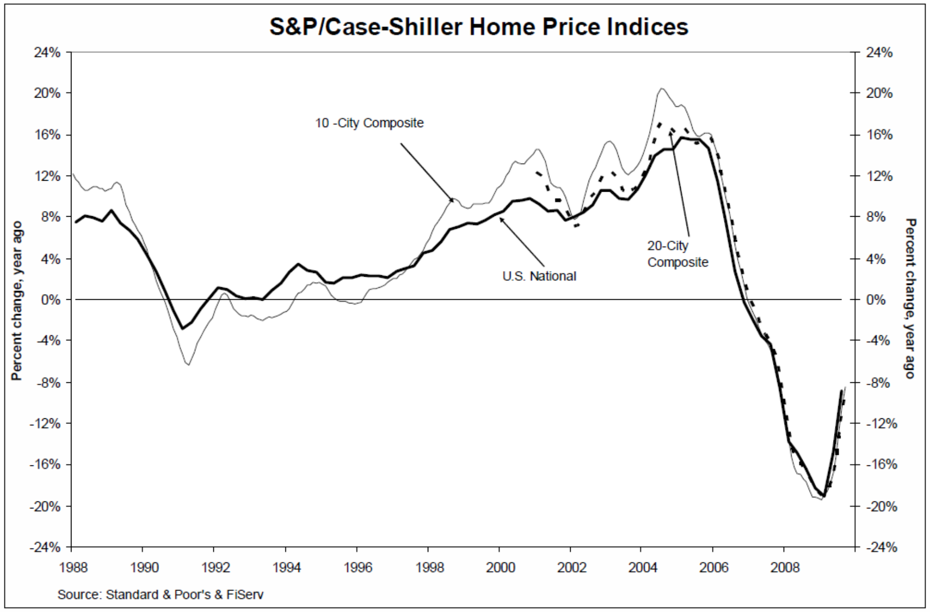
Remaining Non-Agency RMBS Market

	Current Balance	FICO	Fixed Rate %	Full Doc %	Owner Occ %
Prime	$392 billion	739	56.20%	60.70%	93.50%
Near-Prime and Alt-A	$722 billion	712	36.50%	25.90%	81.40%
Option ARMs	$220 billion				
Non-Option ARMs	$502 billion				
Subprime	$464 billion	628	25.30%	60.50%	93.70%
Total	**$1.578 trillion**				

- Roughly $1.5 trillion remains in the Non-Agency RMBS market after 2 years with virtually no new issuance.
  - Insurance companies hold roughly $460 billion (15.1% of insurers' invested assets)
- The market is segmented between Prime, Alt-A, and Subprime based on borrower traits such as credit scores, as well as loan attributes such as limited documentation which are associated with riskier credits.
- Option ARMs allow borrowers to make a monthly payment which is less than the interest rate on their mortgage, leading to negative amortization until an eventual recast date.
  - These securities have a much different risk profile than other Alt-A securities.

Causes of the Crash

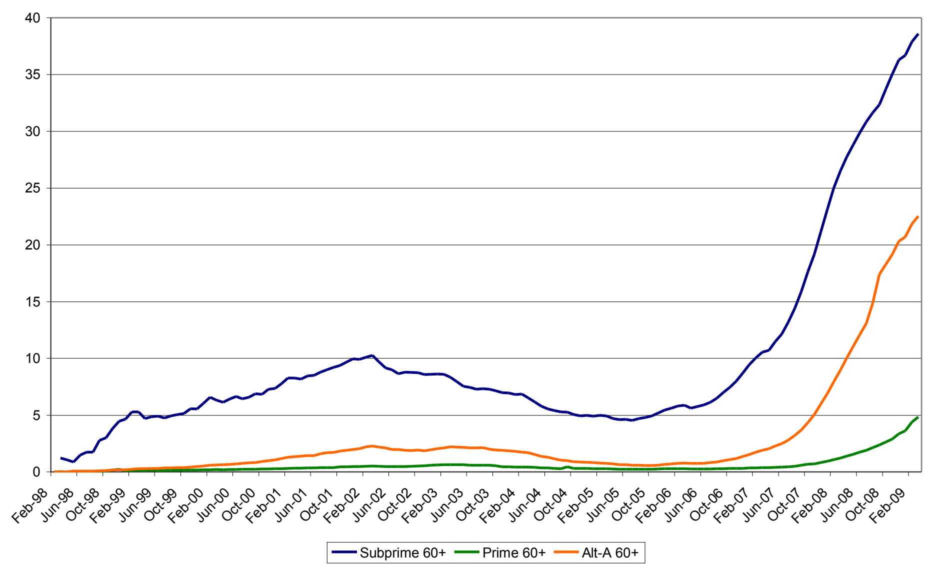
RMBS – How Did We Get Here



Home prices plummeted, wiping out many borrowers' equity in their homes.

- Down 31%, the housing market has dropped dramatically from its 2006-2007 peak.
- The worst year-over-year declines were realized early this year, with 20% annual declines in real estate values.
- Improvement since then, on the back of positive seasonals and government intervention, has been marginal but impactful.

Mortgage Delinquency Rates by Borrower Type

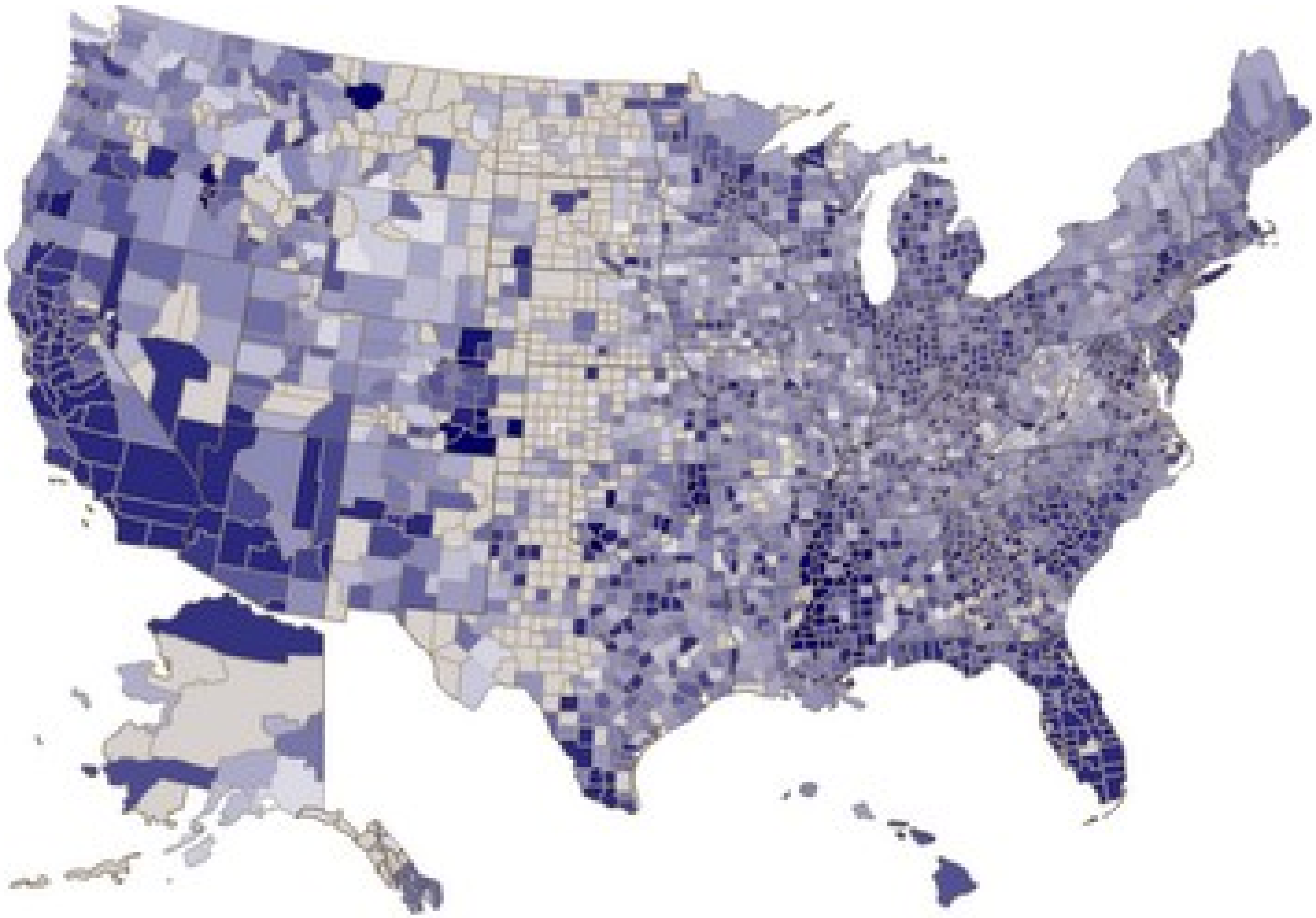


The steep move downward in home prices has devastated some trust delinquency profiles

- This "pipeline" of losses will either be "flushed" from the trusts as defaults or see their loan terms modified
- Transactions with larger loss pipelines have greater cashflow uncertainty, commanding higher risk premiums
- The return of liquidity has allowed differentiation, with stronger performing, seasoned collateral and highly structure bonds outperforming

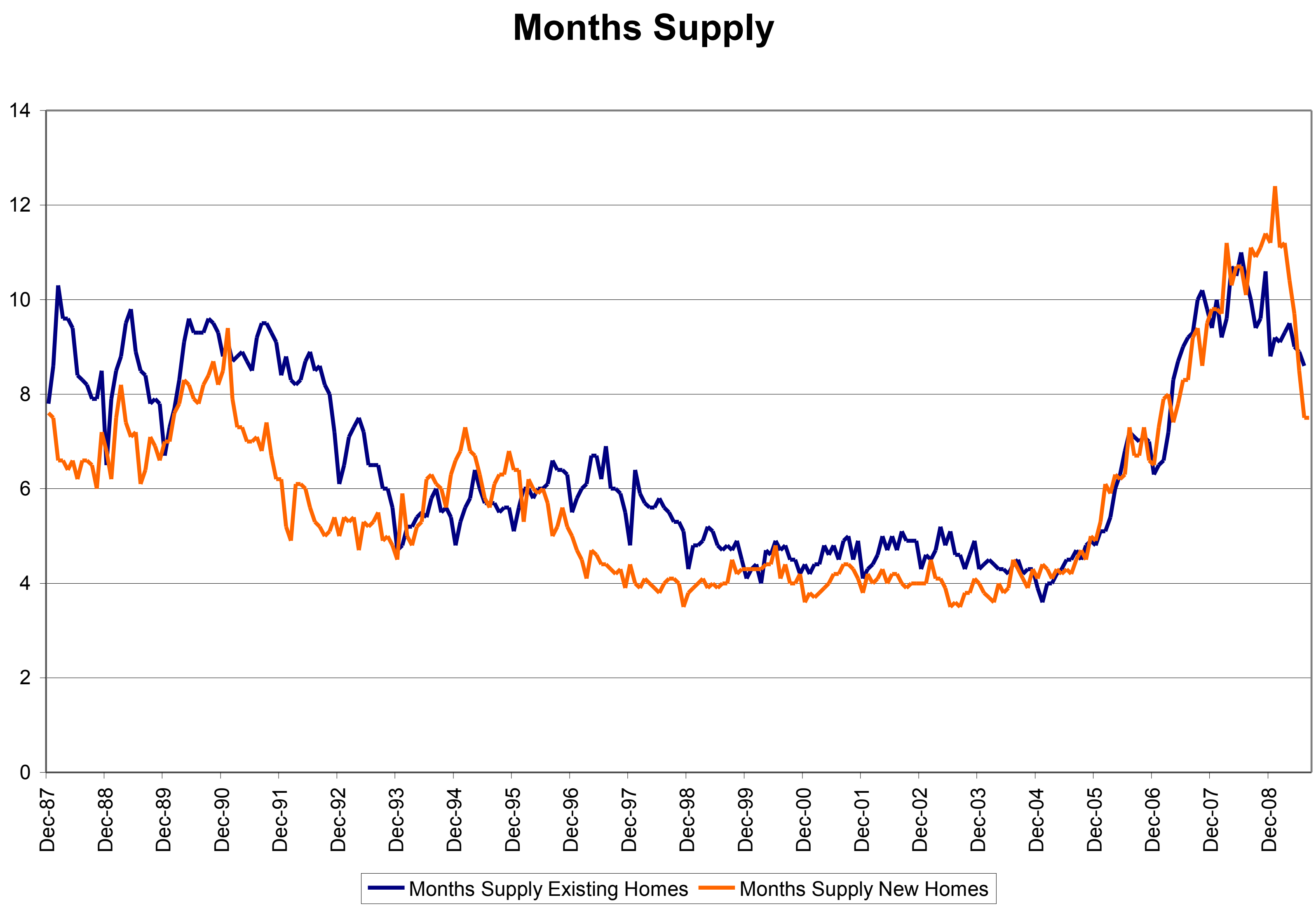
RMBS Delinquencies Differ Markedly by Geography

- Geographic dimension a dominant factor, with bubble housing states disproportionately impacted with higher delinquencies (darker colors indicate higher percentages of delinquencies)



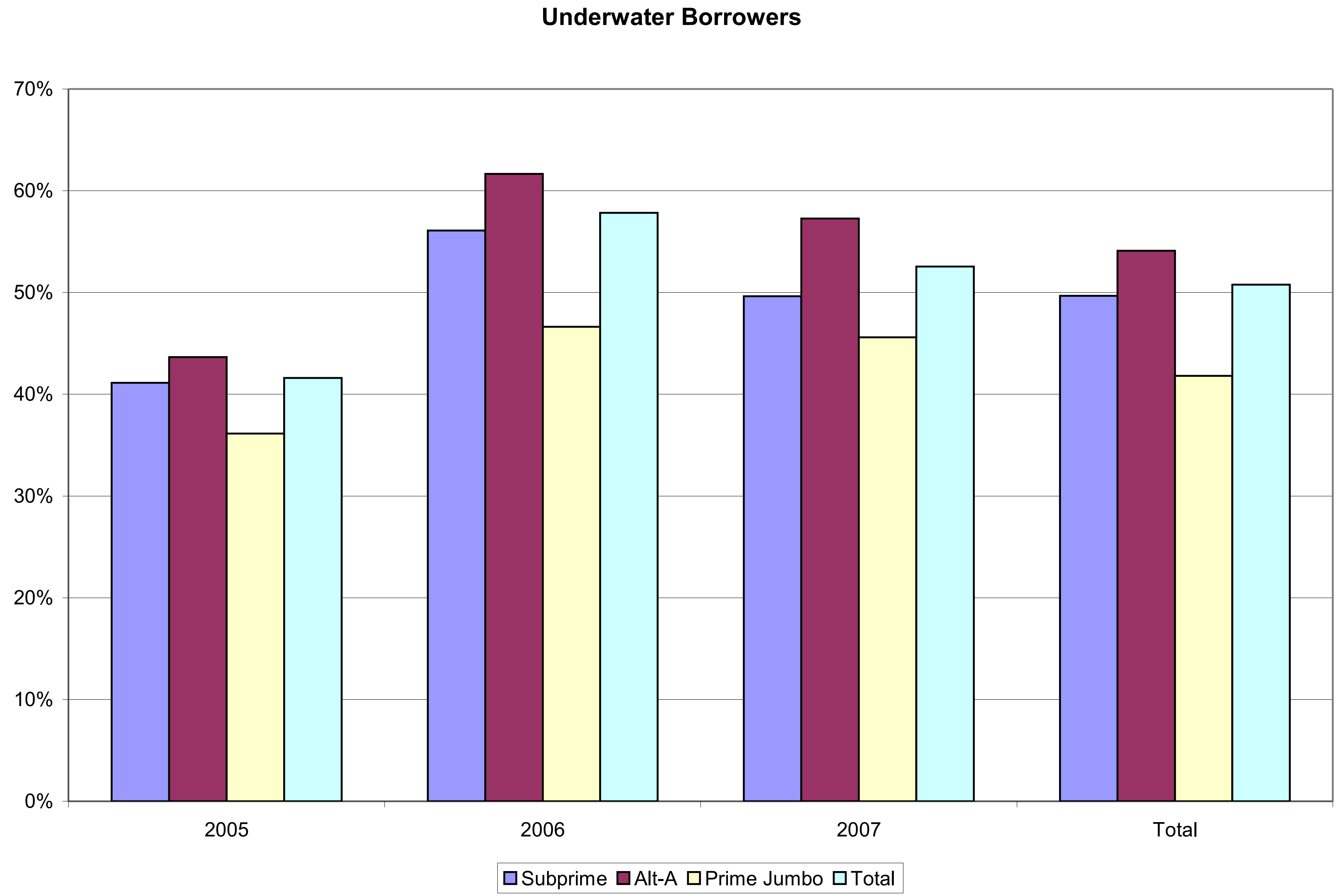
Source: New York Fed

What Continues: Months Supply of Housing Points to Further Weakness



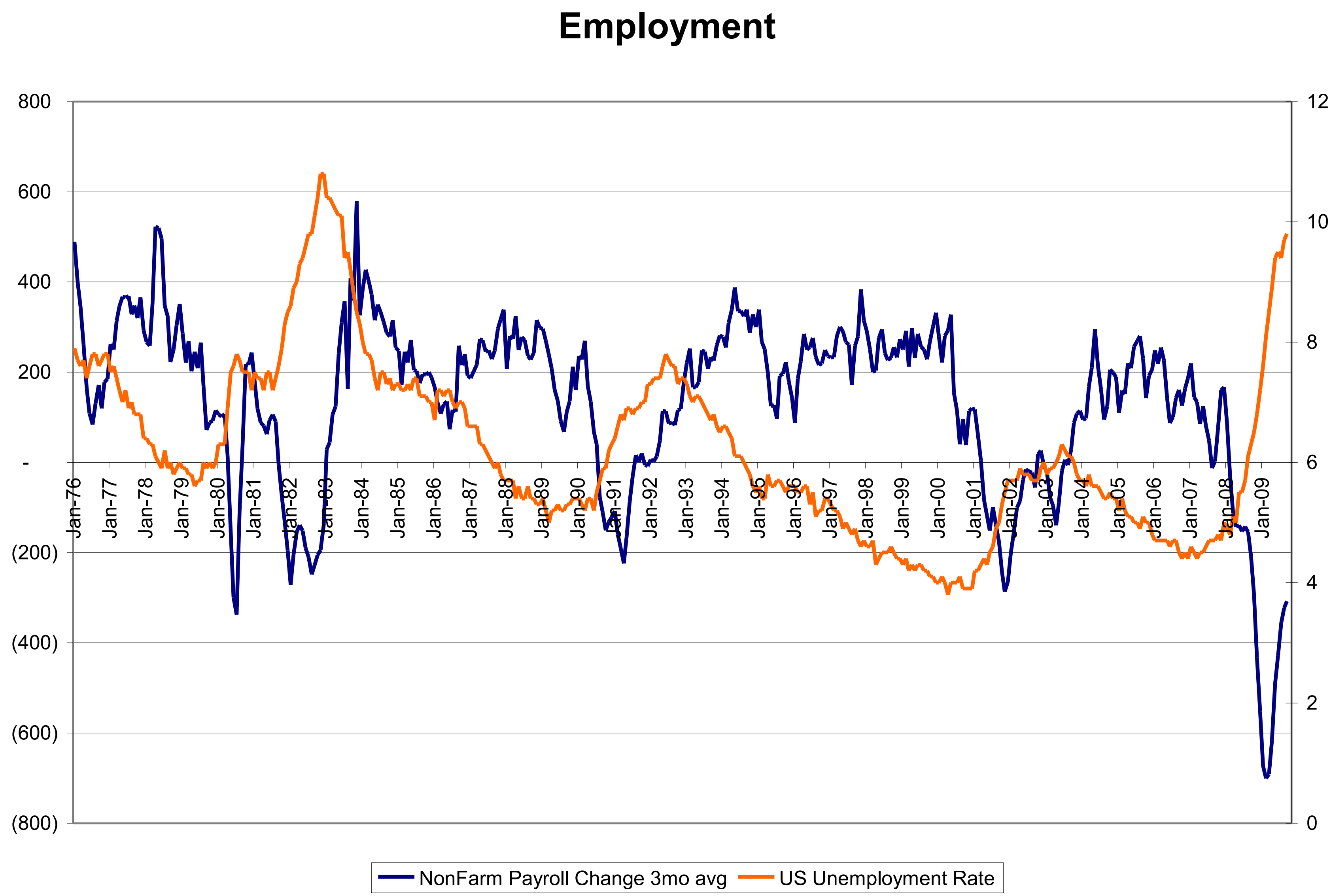
Source: Bloomberg

What Continues: Willingness to Pay – Borrowers' Equity Position is Challenged



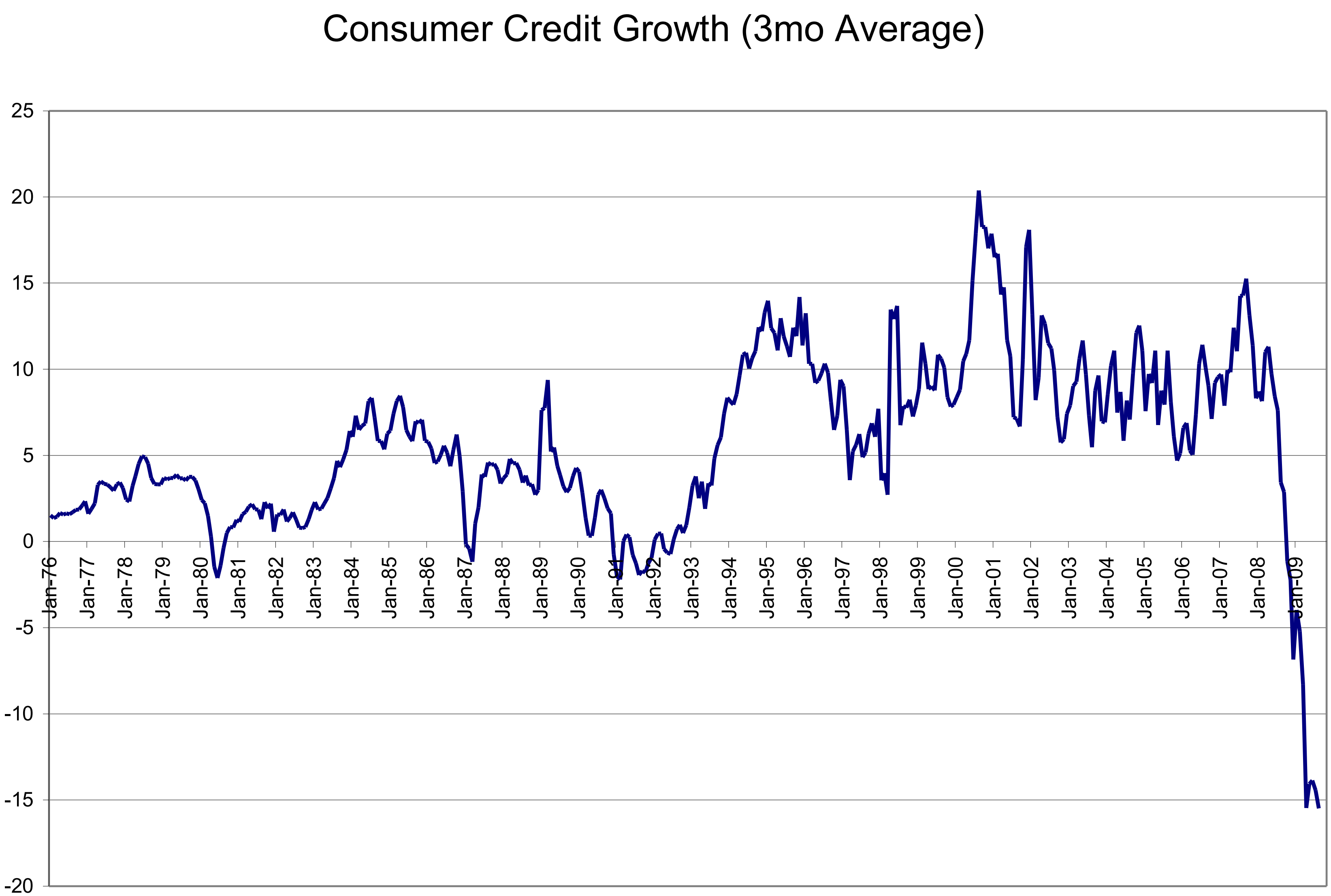
Source: JPMorgan

What Continues: Capacity to Pay – Borrowers' Income is Challenged



Source: Bloomberg

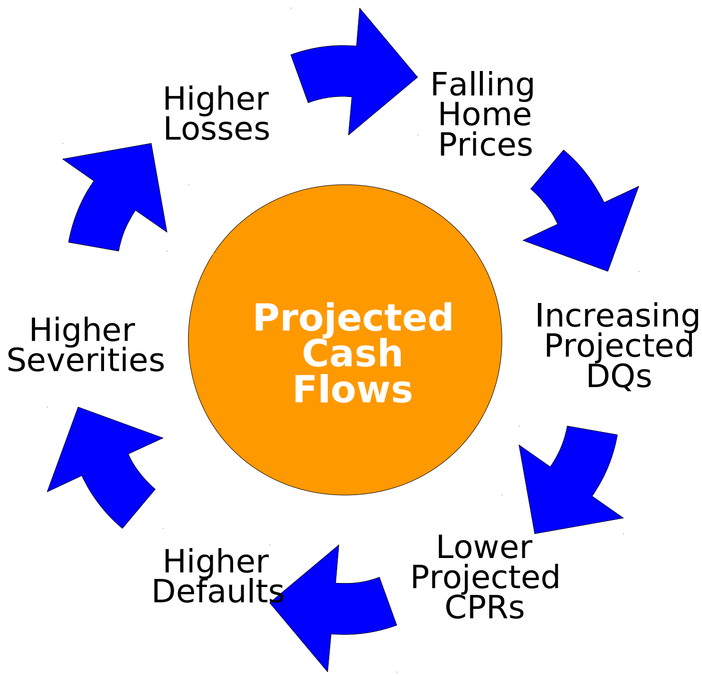
What Continues: Capacity to Pay – Borrowers’ Access to Credit is Limited



Source: Federal Reserve

The Vicious Cycle

- Increasing loss expectations in MBS are driven by the below vicious cycle:
  - High delinquency levels lead to future defaults/foreclosures and distressed sales of properties
  - High REO supply and distressed sales decrease property prices
  - Falling prices reduce borrowers' equity, increasing delinquencies and defaults
- Example: California Jumbo Mortgage Market



What Has Changed

Government Initiatives try to Break the Vicious Cycle

Breakdown of $15 Trillion U.S. Government Initiatives by Agency and Program

Federal Reserve ($7.4 trn, 49.7%)

$ (billion)	Max	Used	Page #
CP Funding Facility (CPFF)	**1,800.0**	**142.6**	**92**
Term Auction Facility (TAF)	900.0	372.5	88
Term ABS Loan Facility (TALF)	**1,000.0**	**28.5**	**64**
Currency Swaps / Other Assets	602.0	246.5	-
Money Market Investor Funding Facility (MMIFF)	540.0	0.0	88
MBS Purchase Program	1,250.0	798.7	94
U.S. Treasuries Purchase Program	300.0	145.5	93
Term Securities Lending Facility (TSLF)	250.0	27.4	88
AIG Credit Extensions	103.3	79.8	103
GSE Debt Purchase Program	200.0	81.9	95
Primary Credit Discount	110.7	42.1	-
Primary Dealer and Others (PDCF)	147.0	0.0	88
Maiden Lane LLC (Bear Stearns)	29.5	25.8	-
ABCP Money Market Fund Liquidity (AMLF)	152.1	23.6	88
Securities Lending Overnight	10.0	8.8	-
Secondary Credit	0.2	0.0	-
Subtotal	**7,394.8**	**2,023.7**	
% of combined $14.9 trn / % or utilization	49.7%	27.4%	

Sources: Fed, FDIC and Treasury websites, WSJ and other public articles (as of 6/4/09)

Treasury ($5.2 trn, 34.9%)

$ (billion)	Max	Used	Page #
Money Market Mutual Funds (1)	3,000.0	0.0	-
New Stimulus Package (2)	**787.0**	**787.0**	**-**
Troubled Asset Relief Program (TARP) (3)	**700.0**	**595.0**	**-**
Fannie Mae / Freddie Mac Bailout	400.0	85.1	-
Prior Stimulus Package	168.0	168.0	-
Student Loan Purchases	60.0	0.0	-
Treasury Exchange Stabilization Fund (ESF)	50.0	50.0	-
Tax breaks for banks	29.0	29.0	-
Subtotal	**5,194.0**	**1,714.1**	
% of combined $14.9 trn / % or utilization	34.9%	33.0%	

FDIC ($2.3 trn, 15.4%)

$ (billion)	Max	Used	Page #
Public-Private Investment Program (PPIP) (4)	**1,000.0**	**0.0**	**33**
Debt Guarantees for TLG Program (5)	**940.0**	**258.5**	**89**
Asset Guarantee to Citigroup / Bank of America (6)	346.5	346.5	90
Subtotal	**2,286.5**	**605.0**	
% of combined $14.9 trn / % or utilization	15.4%	26.5%	

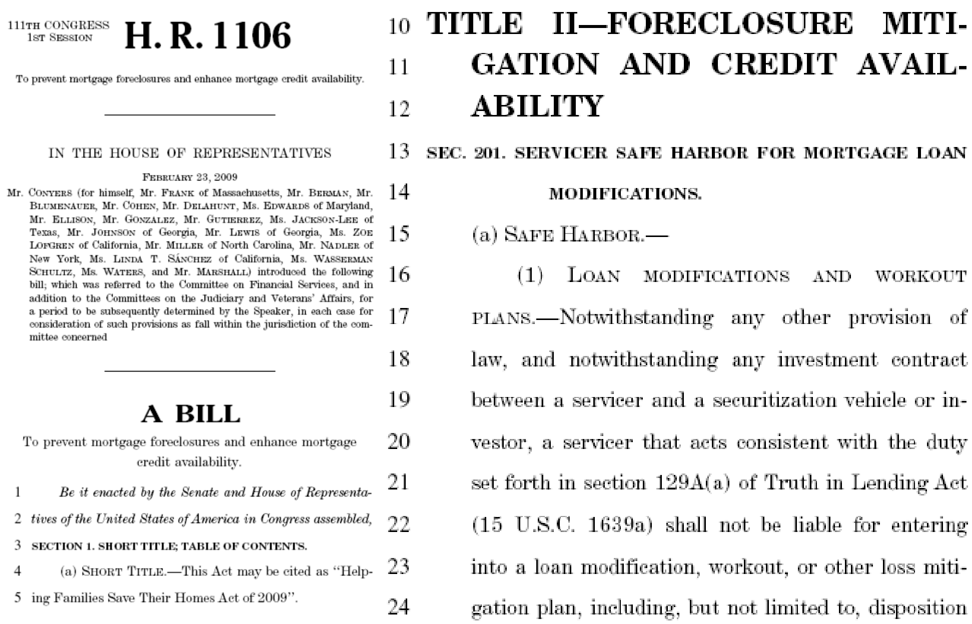
($bn)	Max	Used
Fed	7,394.8	2,023.7
Treasury	5,194.0	1,714.1
FDIC	2,286.5	605.0
Total	**14,875.3**	**4,342.8**

1) As disclosed in WSJ, December 2008. With no losses to date, Program extended to 9/19/09 from 4/30/09.
2) Funds may come from various Government Agencies.
3) As disclosed by U.S. Treasury. Includes commitments under CPP, TALF, PPIF, Auto and Housing Plan.
4) Total program size up to $1 trillion. Substantive portion of government debt and equity will also be borne by Treasury/Fed
5) $940 bn cap based on Opt-In entities as disclosed by FDIC. Used includes notes only (excludes CP)
6) Portion of guarantee being covered by Treasury. $306 bn (Citi) / $118 bn (BofA) in guarantees with loss sharing. First losses to be borne by Citi ($39.5 bn incl. $9.5 bn existing loan loss reserves) / BofA ($10 bn) and additional losses are split 90% U.S. Government and 10% Citi / BofA.

Government Program Summaries

Program	Summary
Public/Private Investment Program (PPIP) Legacy Loans Program	Joint and equal equity partnership between Treasury and private investors to purchase existing real estate loans from bank balance sheets; FDIC facilitates financing through a debt guarantee of up to 6:1 leverage First trade closed mid-September, done off resi loans from a failed TX bank; second trade on construction loan portfolio done in October (failed Chorus Bank assets)
Public/Private Investment Program (PPIP) Legacy Securities Program	Joint and equal equity partnership between the Treasury and private investors to purchase secondary market CMBS and RMBS, with potential additional financing by Treasury; expands the scope of TALF; 2 different leverage options: 1:1 (full turn) or 1:0.5 (half turn) plus ability to use TALF Up to $40bn of purchasing power began to be put into action in October, expected to target RMBS and CMBS bonds originally rated AAA, targeting leveraged yields north of 12%
Term Asset-Backed Loan Facility (TALF 1.0) New Issue TALF	FRBNY will make up to $200bn of non-recourse loans to private investors at 5-15% haircut to purchase new issue consumer ABS and CMBS Only used in ABS markets; $90B in TALF issuance YTD). 0 deals in CMBS, although rumors for 10+ transactions to get marketed in coming weeks Program extended from original expiration date of 12/31 to 3/31 for ABS and 6/30 for CMBS
Term Asset-Backed Loan Facility (TALF 2.0) Legacy TALF	FRBNY will make up to $1tn of non-recourse loans (3-5 years) to private investors at 15% haircut to purchase CMBS rated AAA and not on negative outlook by the rating agencies Under PPIP, TALF (2.0) program size extended up to $1tn, targeted towards CMBS 4 funding dates so far, $6.2B in loans to date; expiration extended from 12/31 to 3/31
IRS Regulations "Modifications of Commercial Mortgage Loans Held by a REMIC" 2009-79, 2009-45	On September 15, the IRS issued regulations removing adverse tax consequences associated with modifying CMBS loans prior to default. This will make widespread modification more likely for more troubled loans within CMBS trusts. Middle mezz tranches have rallied sharply on the announcement, with the market projecting longer IO streams and improved chances for return of principal.

Government and Regulatory Intervention


111TH CONGRESS
1ST SESSION
H. R. 1106

To prevent mortgage foreclosures and enhance mortgage credit availability.

IN THE HOUSE OF REPRESENTATIVES

FEBRUARY 23, 2009

Mr. CONYERS (for himself, Mr. FRANK of Massachusetts, Mr. BERMAN, Mr. BLUMENAUER, Mr. COHEN, Mr. DELAHUNT, Ms. EDWARDS of Maryland, Mr. ELLISON, Mr. GONZALEZ, Mr. GUTIERREZ, Ms. JACKSON-LEE of Texas, Mr. JOHNSON of Georgia, Mr. LEWIS of Georgia, Ms. ZOE LOFGREN of California, Mr. MILLER of North Carolina, Mr. NADLER of New York, Ms. LINDA T. SÁNCHEZ of California, Ms. WASSERMAN SCHULTZ, Ms. WATERS, and Mr. MARSHALL) introduced the following bill; which was referred to the Committee on Financial Services, and in addition to the Committees on the Judiciary and Veterans' Affairs, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned

A BILL

To prevent mortgage foreclosures and enhance mortgage credit availability.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as "Helping Families Save Their Homes Act of 2009".

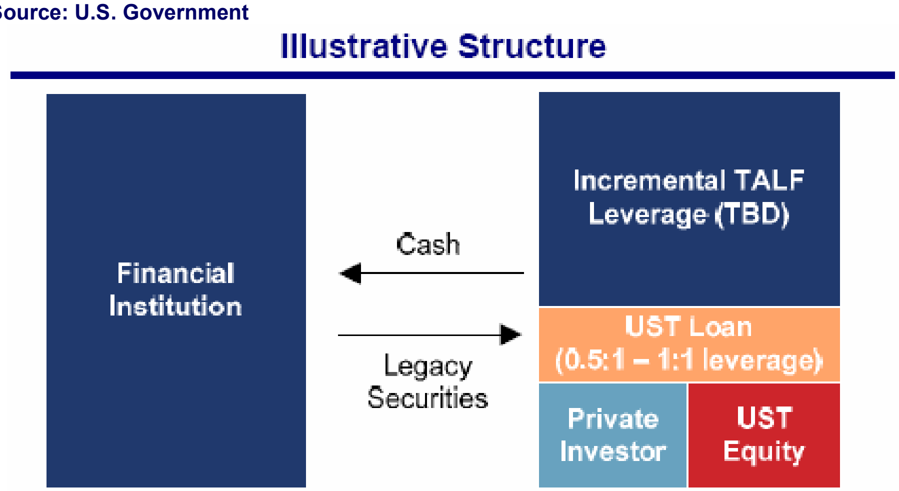
TITLE II—FORECLOSURE MITIGATION AND CREDIT AVAILABILITY

SEC. 201. SERVICER SAFE HARBOR FOR MORTGAGE LOAN MODIFICATIONS.

(a) SAFE HARBOR.—

(1) LOAN MODIFICATIONS AND WORKOUT PLANS.—Notwithstanding any other provision of law, and notwithstanding any investment contract between a servicer and a securitization vehicle or investor, a servicer that acts consistent with the duty set forth in section 129A(a) of Truth in Lending Act (15 U.S.C. 1639a) shall not be liable for entering into a loan modification, workout, or other loss mitigation plan, including, but not limited to, disposition

Source: U.S. Government



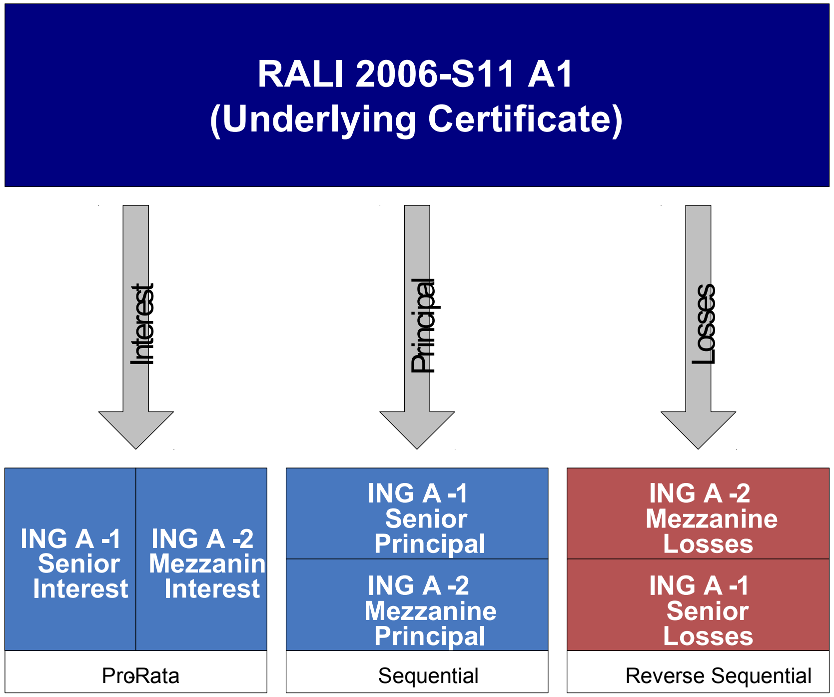
Source: internal generation

- Government interventions can dramatically impact performance fundamentals and market conditions for structured credit
  - Liquidity impacted by commitment of government funding: Quantitative easing, TARP, TALF, PPIP
  - Fundamentals affected by government legislation impacting bankruptcies, modifications, foreclosure, refinancing, mortgage rates
- We monitor potential legislation and changes in regulatory/accounting guidelines in several ways:
  - Monitoring political developments through relationships with lobbyists and industry groups, as well as direct lobbying efforts (i.e. ACLI)
  - Prioritizing analysis of potential bills, press releases, and treasury initiatives to assess their impact on the market
  - Deepening our understanding of TALF and PPIP impacts through direct investment proposals

What Has Changed – Capital Concerns Alleviated

➢ "Re-REMICs" Developed Into a Capital Market

- Over 80% of Prime and 90% of Alt-A/Option ARMs bonds have been downgraded (source: Bloomberg).
- A Re-REMIC'd bond protects against downgrades with more subordination and accelerated repayment
- A Re-REMIC is a re-securitization of an existing bond (or bonds) into a new structure, recapturing investment grade ratings for a portion of the bond(s) that has been downgraded
- A new super senior position (typically 70%-90%), appealing to ratings sensitive buyers, and a mezzanine position (remaining 10%-30%) are created, appealing to more levered buyers like hedge funds:



What Has Changed – Capital Concerns Alleviated

➢ NAIC adopts ACLI proposal to ease capital treatment of downgraded RMBS

- Old system: ratings agency downgrades translated directly into punitive capital charges:

NAIC Rating	S&P Rating	Capital Charge
NAIC 1	AAA, AA, A	0.67%
NAIC 2	BBB	2.17%
NAIC 3	BB	7.67%
NAIC 4	B	16.68%
NAIC 5	CCC, CC, C	38.36%
NAIC 6	D	44.10%

  – Expected magnitude of loss not taken into account; only consideration was probability of loss.

  – Result: over $3 billion in additional C1 capital required for insurance companies' RMBS holdings.

- New system: a third party (PIMCO) projects bond outcomes under 5 scenarios; NAIC rating and capital requirement are based on expected loss.

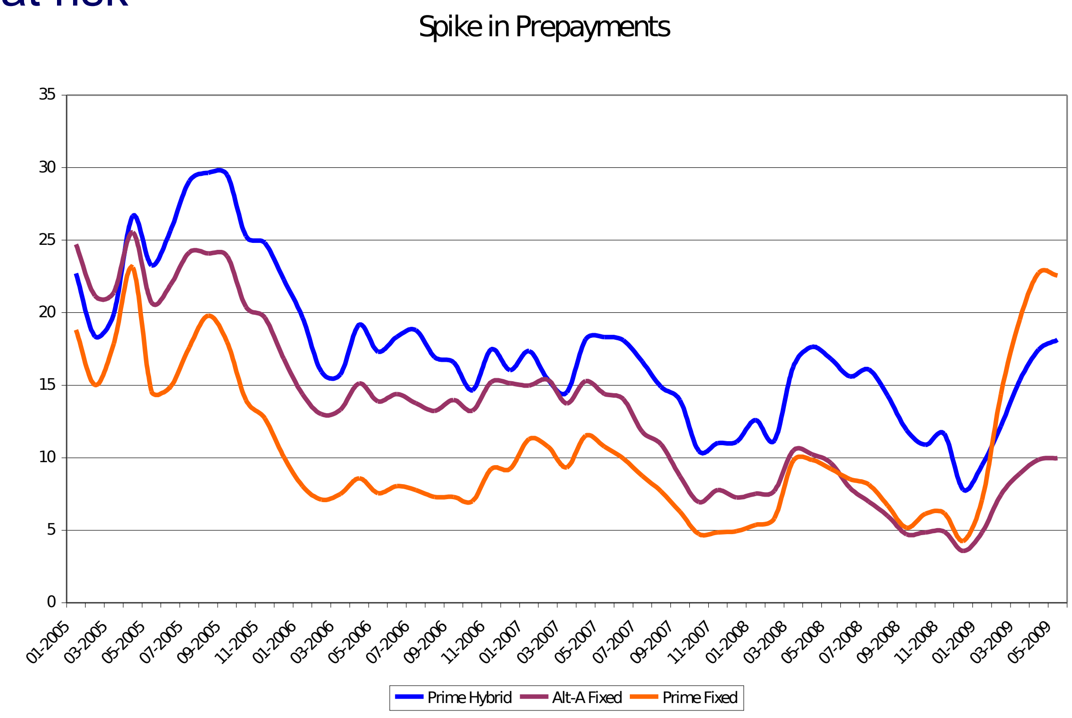
  – Major improvement: emphasis on degree of loss, not just probability of first dollar loss

  – Results:

    - Final modeling results still TBD, so degree of capital savings still unclear.
    - Substantial capital savings anticipated, due to low loss-given-default expected for many senior securities
      - Mitigates forced "de-risking"
      - Improves outlook for RMBS sectors with ratings uncertainty
      - Re-remic process seems less necessary for some insurers

What Has Changed – Prepayments

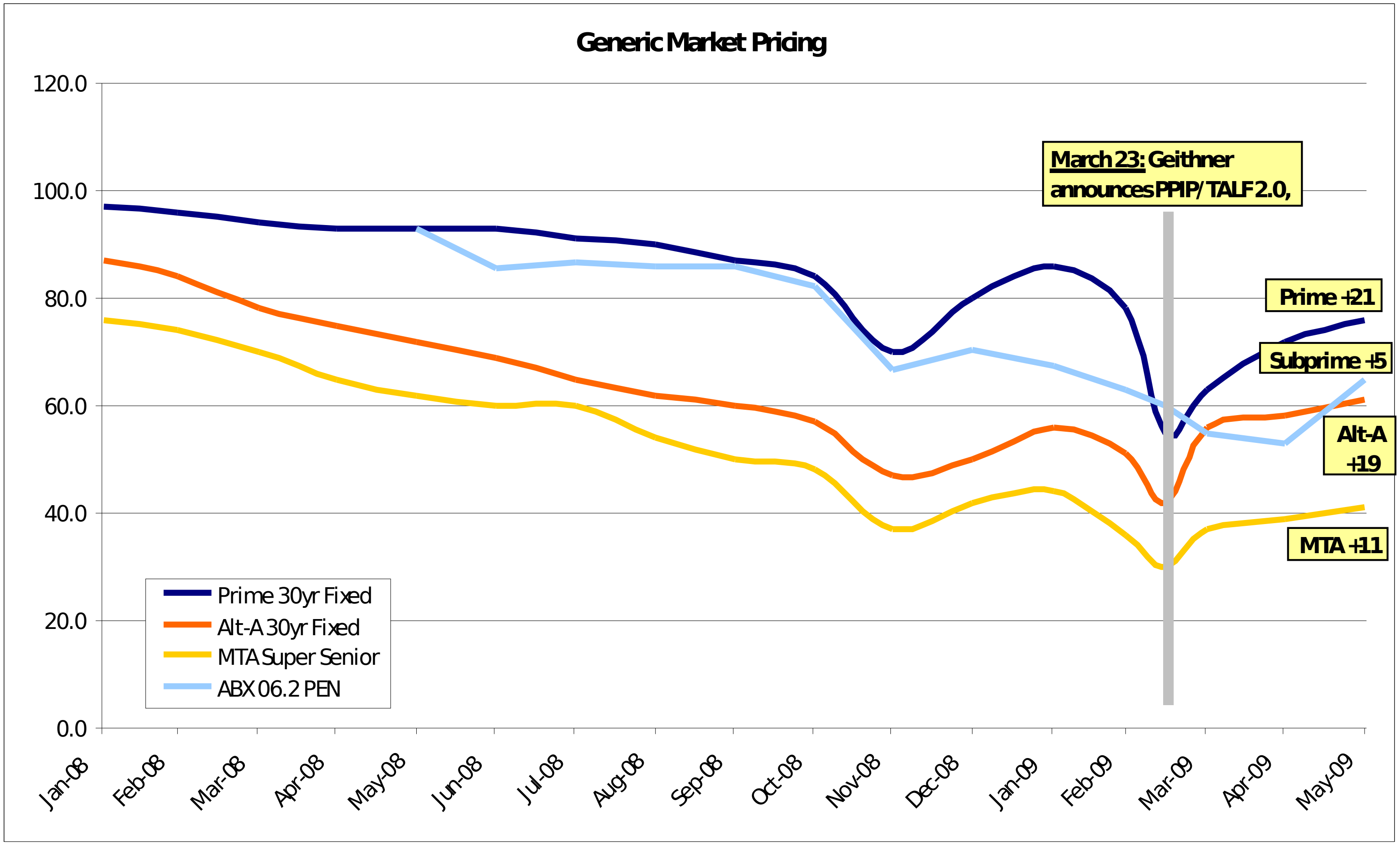
- Prepayments and prepayment expectations increased.
  - CPRs in Prime Fixed, Prime Hybrid, and Alt-A Fixed space have doubled since Q1
  - Prime prepayments are now at the highest levels since 2005
  - The change in seasonals and announced end to the Fed's MBS purchase program are put this at risk



Source: JP Morgan

What Has Changed – Prices have Rallied

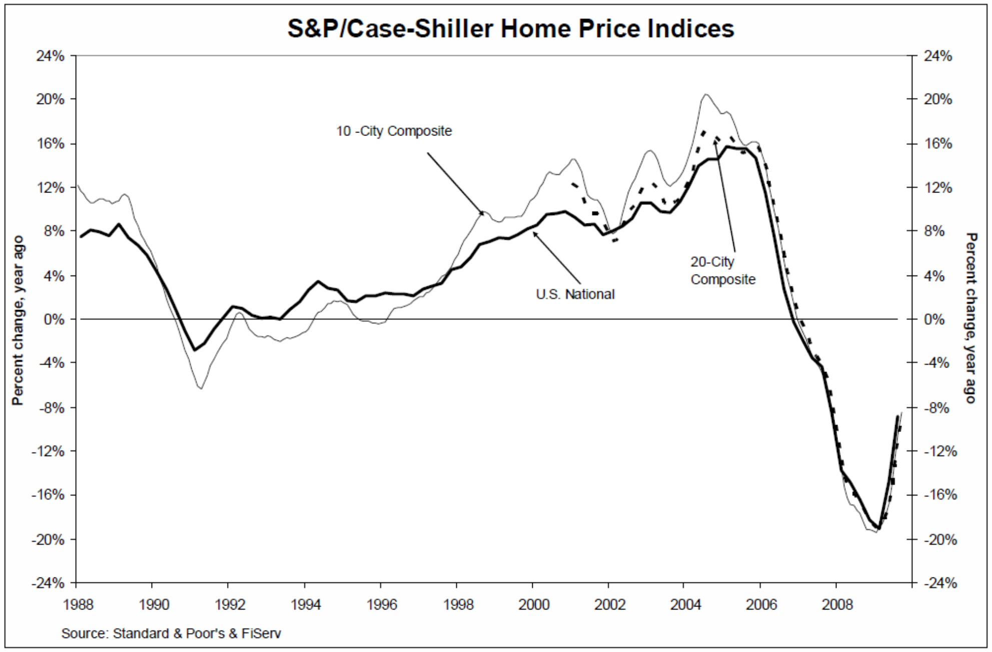
- Prices have rallied significantly, lead by higher quality borrower segments like Fixed Prime and Fixed Alt-A:

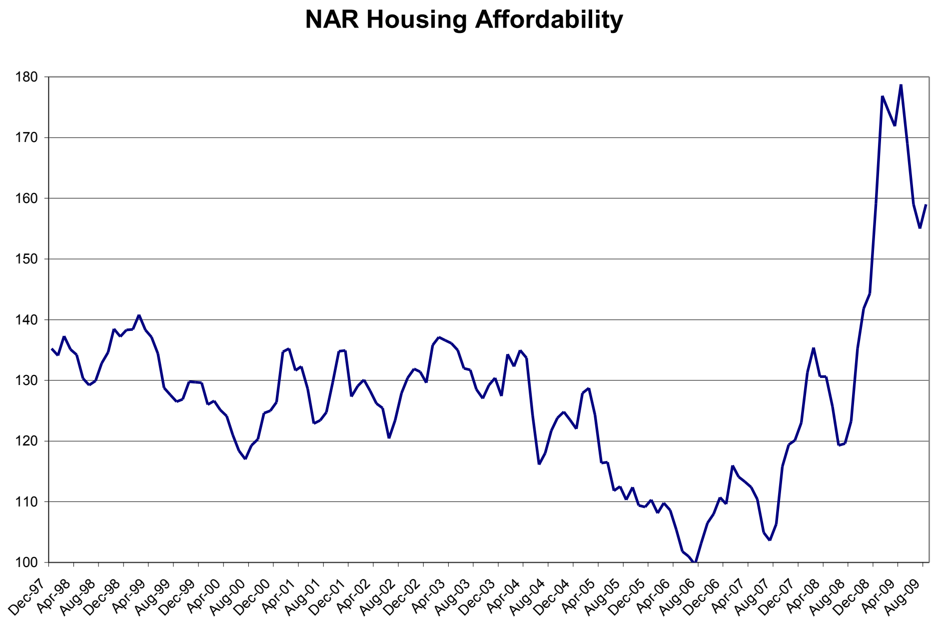


Source: Amherst Securities

Where Are We Going?

Housing Outlook

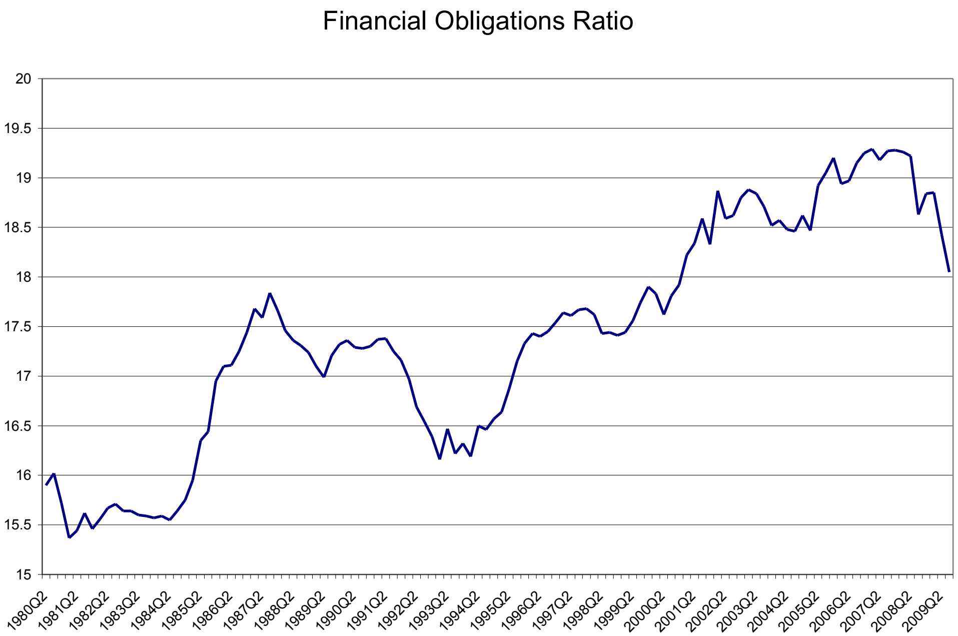




Home Prices have been a key driver of borrower behavior

- Home Prices are likely to continue to correct into 2010: **we forecast an additional ~10% decline from today's cumulative decline (-30%, late 2003 levels)**
- We attribute the likely additional decline to continuation of distressed sales, pressuring average prices lower.
- The recent slowing in the rate of year over year price declines is a sign that the housing market is bottoming. With improved affordability due to low mortgage rates, lower housing prices, and homebuyer tax credits, late 2010 or early 2011 is likely to bring a low point in housing.

Consumer Outlook



Consumers must continue to delever

- The rebound in the savings rate has led to a reduction in consumer leverage.
- However, savings and leverage have a long way to go if they are to return to more typical historical levels.
  - Short run impact: less consumer spending slows growth, some “savings” is actually tightening in credit availability
  - Long run impact: consumer creditworthiness increases

RMBS Outlook

- **The current environment presents a high degree of uncertainty for RMBS bond outcomes:**
  - Unprecedented levels of home price declines
  - Increasing and unprecedented levels of negative underlying borrower behavior: rising delinquencies, defaults and losses across borrower types
  - Likelihood of new, untested loss mitigation techniques by servicers (mods)
  - Rapidly increasing unemployment rate
  - Impact of government/regulatory intervention: Agency MBS Purchases, TARP, TALF, PPIP, HASP/HAMP, HR 1106/S. 896
- **This uncertainty is magnified in levered bonds, with leverage qualified in terms of structural and collateral characteristics:**
  - **Collateral:** Option ARM loans, interest-only loans, high delinquencies, low credit scores, investor properties, no income documentation, etc.
  - **Structure:** subordinated tranches, low principal payment priorities.
- **Uncertainty will lead to leveraged bonds being priced to their worst, consistently lagging rallies and leading sell-offs**
- **Bonds with low degrees of leverage offer loss-adjusted yields between 5% and 8%:**
  - Prices likely to outperform higher leverage non-agency RMBS
  - Yields attractive relative to Agency MBS