

MBS: New Realities

MBA National Secondary Market Conference and
Expo
Boston
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Production Trends

- ◆ Over the past year, mortgage issuance has gone from a majority non-agency to almost entirely agency market. This reflects the fact that the jumbo market is quite stressed, while the Alt A and subprime markets are shut. In the conforming agency market, lending standards have been tightened appreciably. This will contribute to the housing turndown.
- ◆ We expect Jumbo agency origination to be limited.
- ◆ GNMA production is up considerably, conventional production is down considerably
- ◆ It will be a very long time before Alt A or subprime loans are created, and subprime is apt to come back before Alt A

Residential MBS Issuance

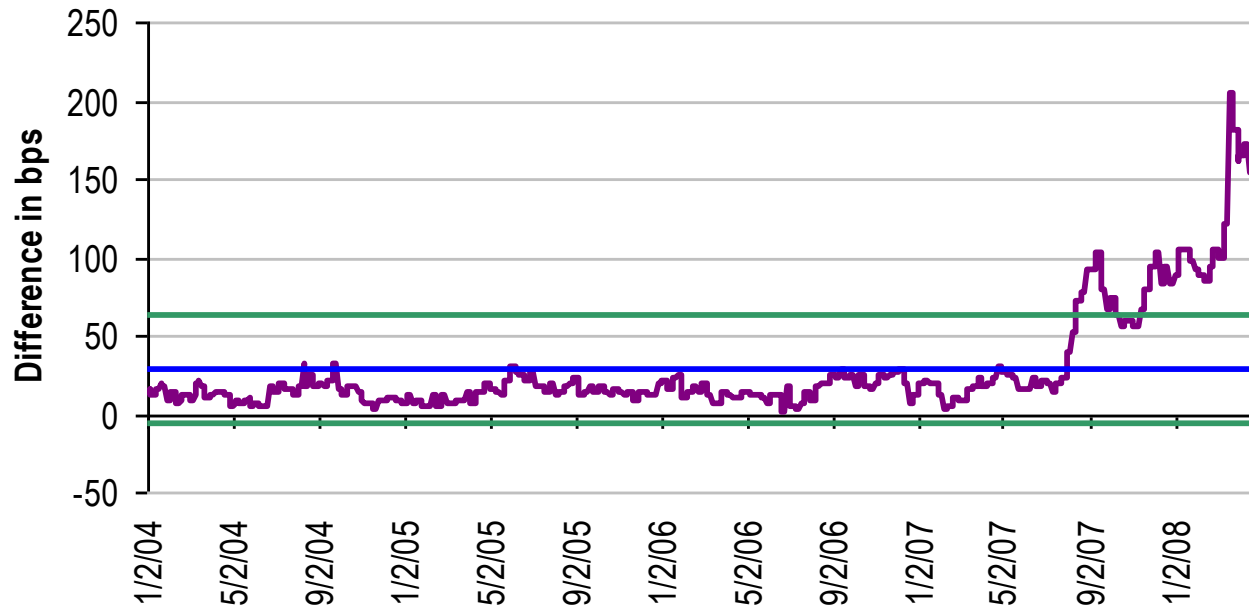
Date	Total MBS (\$million)	% of Total					
		Agency	Alt-A	Jumbo	Subprime	Other	Non-Agency
1995	318,058	84.6	0.2	8.1	5.6	1.5	15.4
1996	440,541	84.1	0.4	7.1	7.0	1.3	15.9
1997	487,016	75.5	1.3	10.3	11.7	1.2	24.5
1998	929,163	78.1	2.3	10.5	8.2	0.9	21.9
1999	832,977	82.2	1.4	9.0	6.7	0.6	17.8
2000	614,970	77.9	2.7	8.7	8.5	2.2	22.1
2001	1,354,819	80.3	0.8	10.5	6.4	2.0	19.7
2002	1,858,381	77.7	2.9	9.2	6.6	3.6	22.3
2003	2,718,170	78.4	2.7	8.7	7.2	2.9	21.6
2004	1,882,836	54.1	8.4	12.4	19.3	5.8	45.9
2005	2,156,007	44.7	15.4	13.0	21.6	5.3	55.3
2006	2,070,089	44.7	17.7	10.6	21.7	5.4	55.3
2007	1,878,585	62.4	13.3	9.6	10.7	4.0	37.6
2007-Q1	537,189	49.4	18.0	11.2	16.5	4.9	50.6
2007-Q2	548,161	52.8	18.4	11.0	13.6	4.1	47.2
2007-Q3	432,948	71.3	8.8	9.3	6.2	4.4	28.7
2007-Q4	360,286	85.4	3.8	5.3	3.2	2.2	14.6
2008-Q1	340,189	93.7	0.1	1.7	0.6	3.9	6.3
Jan-08	101,271	89.3	0.0	2.4	2.1	6.3	10.7
Feb-08	132,028	93.9	0.3	1.5	0.0	4.3	6.1
Mar-08	106,793	97.6	0.0	1.2	0.0	1.1	2.4
Where Are We Going?							
2008-09 Projections	1,400,000	91.0	1.0	3.0	1.0	4.0	9.0

Source: Inside MBS & ABS, and UBS.

Estimates in italics.



30yr Jumbo Fixed Rate – 30yr Conv Fixed Rate



Source: UBS, Bloomberg

Increased Agency Loan Limit—Refi Eligible Loans

(% newly conforming balances >\$417k ÷ % balances > \$417k)

Orig. Year	Jumbo Prime (Fit New Conforming Loan Limit)	Alt-A (Fit New Conforming Loan Limit)	Subprime (Fit New Conforming Loan Limit)	Jumbo Prime (Fit Agency Underwriting)*	Alt-A (Fit Agency Underwriting)*	Subprime (Fit Agency Underwriting)*
2001	36%	45%	46%	28%	32%	16%
2002	45%	50%	50%	39%	38%	20%
2003	50%	54%	66%	44%	40%	32%
2004	49%	54%	71%	44%	36%	24%
2005	46%	53%	71%	34%	21%	8%
2006	41%	50%	66%	16%	7%	2%
2007	38%	46%	63%	12%	7%	1%
All	44%	50%	67%	28%	14%	5%
All (\$ billion)	214	252	103	136	68	8

Overall refi; 8.6% of outstanding non-agency balance

\$212 billion x 20% CPR = \$42.4 billion (appx. \$3.5 billion/month)

Source: Loan Performance

* Agency Underwriting

Current LTV<=75

Current CLTV<=95

FICO>=660

No delinquency in last 12 months

No multi unit and manufactured housing

Increased Loan Limits—Purchase Loans

Purchase-Eligible Loans

	Prime	Subprime	Alt-A
New Conforming Limit	42%	69%	51%
New Conforming Limit & FN Eligible	26%	5%	14%

Source: UBS NOTE: All purchase, owner-occupied loans originated in 2006 >\$417k loan size.

Full doc

FICO \geq 700, CLTV \leq 90

660 \leq FICO < 700, CLTV \leq 80

Overall purchase = 7% of non-agency purchase

Total 2006 non-agency origination = \$1 billion, purchase 45%, 7% qualify,

which implies new supply = \$1 billion x 45% x 7% = \$35.1 billion or \$2.6 billion/month

Given tighter underwriting and continued HPD, we reduce this estimate by 20% which suggests \$2.1 billion/month in larger loan purchases.

So \$3.5 billion + 2.1 billion gives us \$5.6 billion/month net new Agency supply.

High LTV/Low FICO (% of Issuance)

	Fixed 30	Fixed IO (10/20)	5/1 Hybrid	All Hybrid	Fixed 30	Fixed IO (10/20)	5/1 Hybrid	All Hybrid	Fixed 30	Fixed IO (10/20)	5/1 Hybrid	All Hybrid	Fixed 30	Fixed IO (10/20)	5/1 Hybrid	All Hybrid
	% LTV>80				% LTV>90				% FICO<700				% FICO<660			
2003	5%	0%	2%	2%	1%	0%	1%	1%	10%	2%	3%	3%	2%	0%	0%	0%
2004	9%	1%	5%	4%	2%	0%	2%	1%	15%	9%	6%	5%	3%	0%	1%	1%
2005	8%	2%	4%	4%	2%	0%	1%	1%	12%	5%	4%	4%	3%	0%	1%	1%
2006	10%	3%	2%	5%	2%	0%	0%	0%	12%	8%	4%	3%	2%	1%	0%	0%
2007	19%	22%	5%	8%	5%	4%	3%	4%	16%	8%	9%	8%	4%	0%	1%	1%
Jan-07	9%	3%	2%	13%	2%	1%	0%	2%	13%	10%	9%	7%	2%	0%	0%	0%
Feb-07	9%	4%	1%	7%	3%	1%	0%	3%	11%	6%	7%	7%	2%	0%	0%	0%
Mar-07	9%	7%	3%	5%	3%	1%	0%	1%	12%	7%	12%	12%	2%	0%	0%	0%
Apr-07	13%	10%	2%	5%	4%	2%	0%	0%	15%	6%	5%	5%	3%	1%	0%	0%
May-07	16%	25%	2%	5%	4%	4%	0%	3%	15%	9%	9%	9%	4%	1%	1%	1%
Jun-07	21%	30%	8%	10%	6%	4%	5%	6%	17%	10%	9%	9%	5%	0%	1%	1%
Jul-07	21%	36%	11%	8%	6%	7%	8%	6%	20%	11%	13%	11%	4%	0%	2%	2%
Aug-07	22%	27%	6%	5%	7%	9%	5%	3%	18%	11%	9%	6%	5%	1%	1%	1%
Sep-07	26%	27%	14%	15%	5%	6%	7%	9%	17%	6%	10%	7%	5%	0%	1%	0%
Oct-07	25%	29%	8%	9%	6%	6%	6%	4%	18%	8%	9%	7%	5%	0%	1%	1%
Nov-07	23%	24%	5%	8%	5%	5%	3%	3%	17%	3%	6%	8%	6%	0%	0%	1%
Dec-07	21%	26%	7%	7%	5%	1%	4%	3%	16%	2%	4%	4%	5%	0%	0%	0%
Jan-08	19%	27%	4%	3%	5%	3%	2%	1%	15%	4%	1%	1%	4%	0%	0%	0%
Feb-08	15%	22%	5%	5%	5%	4%	1%	1%	12%	4%	1%	1%	3%	0%	0%	0%
Mar-08	9%	13%	3%*	2%*	3%	0%	0%*	0%*	7%	2%	1%*	1%*	2%	0%	0%*	0%*
	% FICO<700 & LTV>80				% FICO<700 & LTV>90				% FICO<660 & LTV>80				% FICO<660 & LTV>90			
2003	3%	0%	1%	1%	1%	0%	1%	0%	1%	0%	0%	0%	0%	0%	0%	0%
2004	7%	0%	3%	2%	2%	0%	2%	1%	2%	0%	1%	1%	0%	0%	1%	0%
2005	5%	1%	1%	1%	1%	0%	1%	1%	1%	0%	0%	0%	0%	0%	0%	0%
2006	5%	1%	1%	1%	1%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
2007	11%	5%	2%	2%	3%	3%	1%	1%	3%	0%	0%	0%	1%	0%	0%	0%
Jan-07	5%	1%	0%	0%	2%	0%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Feb-07	5%	2%	0%	0%	2%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Mar-07	5%	3%	1%	2%	2%	1%	0%	0%	2%	0%	0%	0%	1%	0%	0%	0%
Apr-07	7%	2%	0%	0%	3%	2%	0%	0%	2%	0%	0%	0%	1%	0%	0%	0%
May-07	10%	5%	0%	1%	3%	4%	0%	0%	3%	0%	0%	0%	1%	0%	0%	0%
Jun-07	14%	9%	3%	3%	5%	3%	2%	1%	4%	0%	0%	0%	1%	0%	0%	0%
Jul-07	14%	8%	5%	4%	5%	5%	5%	3%	3%	0%	1%	0%	1%	0%	1%	0%
Aug-07	14%	9%	4%	2%	5%	6%	3%	2%	4%	1%	0%	0%	1%	0%	0%	0%
Sep-07	13%	5%	5%	3%	3%	4%	4%	2%	4%	0%	1%	0%	1%	0%	0%	0%
Oct-07	14%	5%	3%	2%	4%	3%	2%	1%	5%	0%	0%	0%	1%	0%	0%	0%
Nov-07	11%	2%	2%	2%	3%	1%	1%	1%	4%	0%	0%	0%	1%	0%	0%	0%
Dec-07	11%	2%	1%	1%	3%	1%	1%	0%	4%	0%	0%	0%	1%	0%	0%	0%
Jan-08	9%	4%	0%	0%	3%	2%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%
Feb-08	7%	4%	0%	0%	2%	2%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Mar-08	4%	0%	0%*	0%*	1%	0%	0%*	0%*	1%	0%	0%*	0%*	0%	0%	0%*	0%*

Source: Fannie Mae & Freddie Mac



New Agency Issuance (\$Millions)

Month	Ginnie Fixed		Fannie Fixed		Freddie Fixed		Agency Fixed		Agency ARMs		Total Agency	
	Gross	Net	Gross	Net	Gross	Net	Gross	Net	Gross	Net	Gross	Net
Oct-06	6,094	951	39,915	18,326	21,780	7,081	67,790	26,357	14,225	4,553	82,015	30,910
Nov-06	7,125	2,076	33,911	13,246	20,880	6,543	61,916	21,865	11,281	2,266	73,197	24,131
Dec-06	6,046	1,000	35,788	13,192	27,312	11,992	69,146	26,184	9,636	-33	78,782	26,152
Jan-07	6,583	1,833	37,492	15,801	24,085	9,789	68,160	27,423	19,177	10,211	87,337	37,634
Feb-07	5,451	757	38,109	17,537	29,962	16,302	73,523	34,596	12,235	4,377	85,758	38,973
Mar-07	5,894	1,015	39,174	16,129	29,677	14,171	74,745	31,315	14,642	4,377	89,387	35,692
Apr-07	6,316	1,272	40,942	17,603	28,320	12,402	75,578	31,277	11,970	1,824	87,548	33,101
May-07	7,275	2,088	48,122	24,400	31,871	15,247	87,269	41,735	11,724	903	98,993	42,638
Jun-07	7,784	2,642	48,675	26,563	31,188	15,387	87,648	44,592	12,743	2,509	100,391	47,101
Jul-07	8,185	3,519	51,423	30,817	27,505	12,717	87,113	47,053	9,957	533	97,069	47,586
Aug-07	9,281	4,718	47,809	27,750	31,483	17,006	88,573	49,474	9,755	677	98,328	50,151
Sep-07	8,140	3,856	48,880	31,765	32,569	20,456	89,588	56,076	13,310	6,073	102,899	62,150
Oct-07	9,612	5,331	45,302	25,906	27,127	13,348	82,040	44,585	12,439	4,060	94,479	48,645
Nov-07	9,402	5,256	48,233	29,973	31,625	18,431	89,260	53,659	6,832	-1,234	96,091	52,425
Dec-07	11,400	7,004	57,993	37,386	28,325	14,051	97,718	58,441	9,012	910	106,730	59,351
Jan-08	11,791	6,777	45,965	24,136	27,159	12,091	84,915	43,004	5,351	-2,058	90,266	40,946
Feb-08	11,805	5,005	65,758	30,961	40,209	16,450	117,773	52,417	6,385	-2,157	117,773	52,417
Mar-08	15,098	8,562	45,011	13,378	37,802	14,381	97,911	36,321	7,849	-3,452	97,911	36,321
Annual												
2003	205,719	-59,946	1,064,971	268,338	646,688	57,942	1,917,379	266,334	199,132	87,396	2,116,510	353,730
2004	104,685	-40,417	408,156	-22,520	303,209	29,090	816,049	-33,846	187,398	82,837	1,003,448	48,991
2005	77,563	-29,088	387,411	30,002	316,860	88,084	781,834	88,997	179,585	56,802	961,419	145,800
2006	79,899	15,153	398,490	147,468	280,781	110,605	759,171	273,227	152,462	41,073	911,633	314,300
2007	95,323	39,292	552,154	301,628	353,738	179,307	1,001,215	520,227	143,795	35,221	1,145,010	555,448

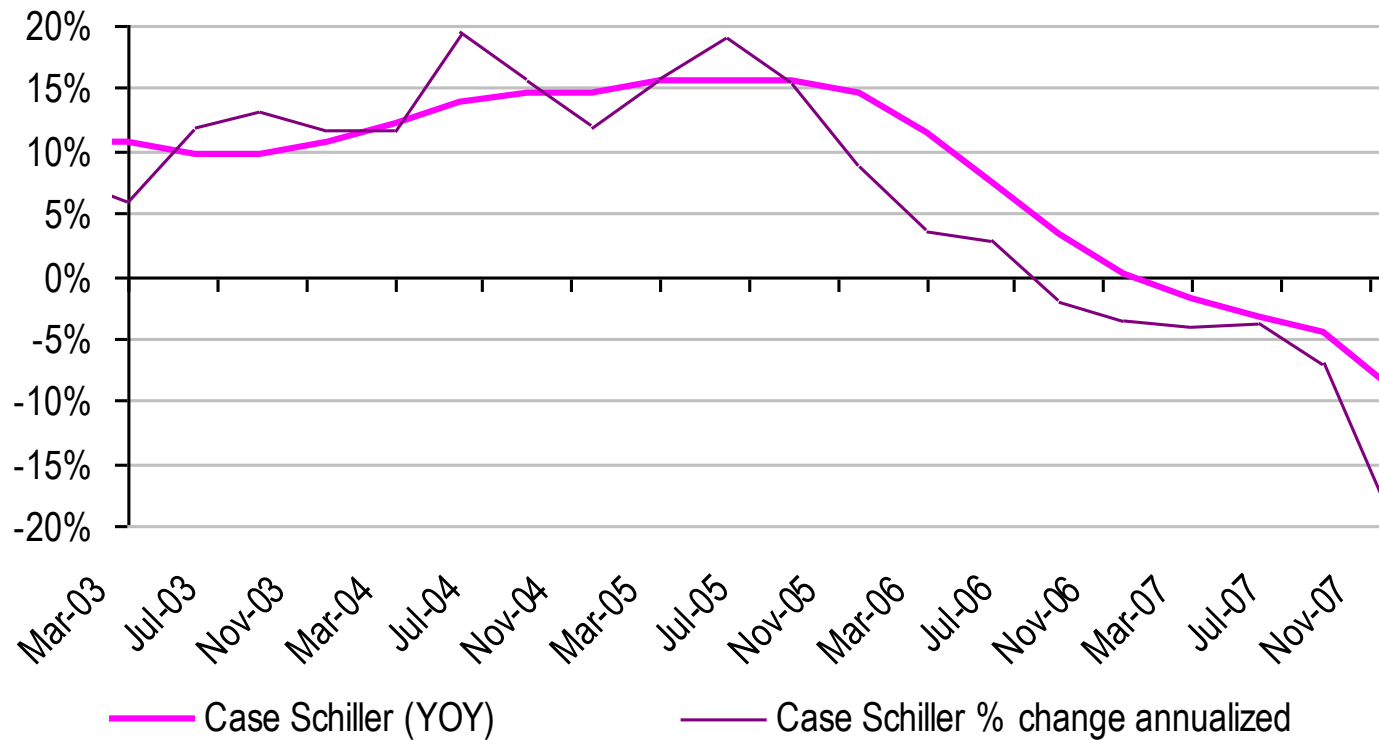
Source: Fannie Mae, Freddie Mac, Ginnie Mae

Estimates are in italics.

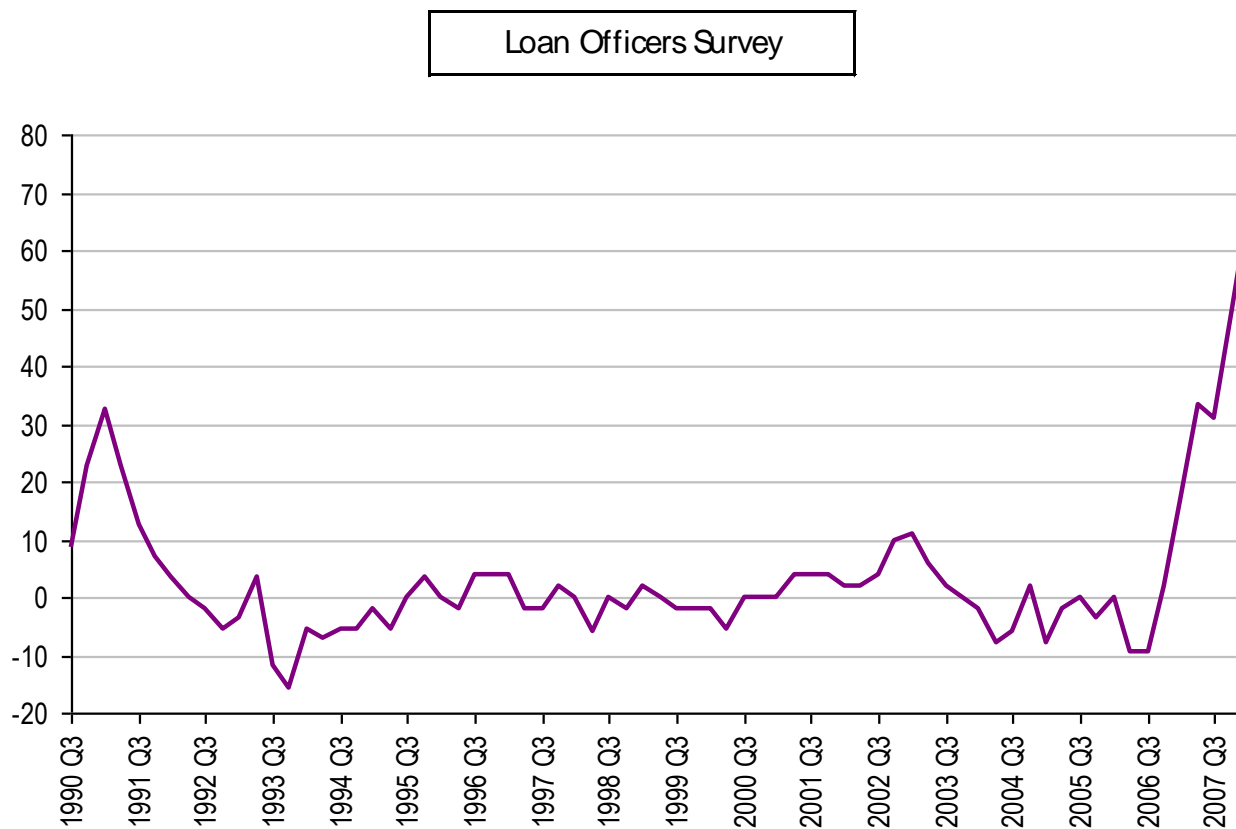
How Does the Crises Play Out From Here?

- ◆ We believe that further home price declines are inevitable. This reflects the shutdown of the non-Agency market, the tightening of lending standards by the banks and GSEs, and the impact of a recession.
- ◆ However, financial asset prices have run well ahead of the real side of the economy, and in mid- to late-March reached the level where mortgage paper was cheap to “worst case” housing scenarios. Since then, mortgage paper has gone up in price, in some cases by as much as 10 points. It now looks fair to cheap, depending on the sector.
- ◆ Currently, all bonds of a particular vintage and type are trading very similar. As time goes on, we think there will begin to be more differentiation between bonds of a given genre and vintage, and security selection will become more important.
- ◆ That financial asset prices have hit a low has important implications for financial institutions—most mark-to-market losses have been taken. Liquidity injections by the Federal Reserve, as well as lower fed funds have also helped financials. However, financial institutions are not yet out of the woods; numerous “slow bleed” items will hinder income—losses on mortgage loans in portfolio, losses on consumer receivables, losses on commercial real estate, losses from FGIC and XL, and inevitable losses from some mortgage insurers.
- ◆ Implications for Refi Activity: The fed will continue to ease, mortgages that can refi will. Those that are credit constrained will be very slow. Pay-ups on prepayment protected specified pools are apt to rise.

Home Prices Are Collapsing

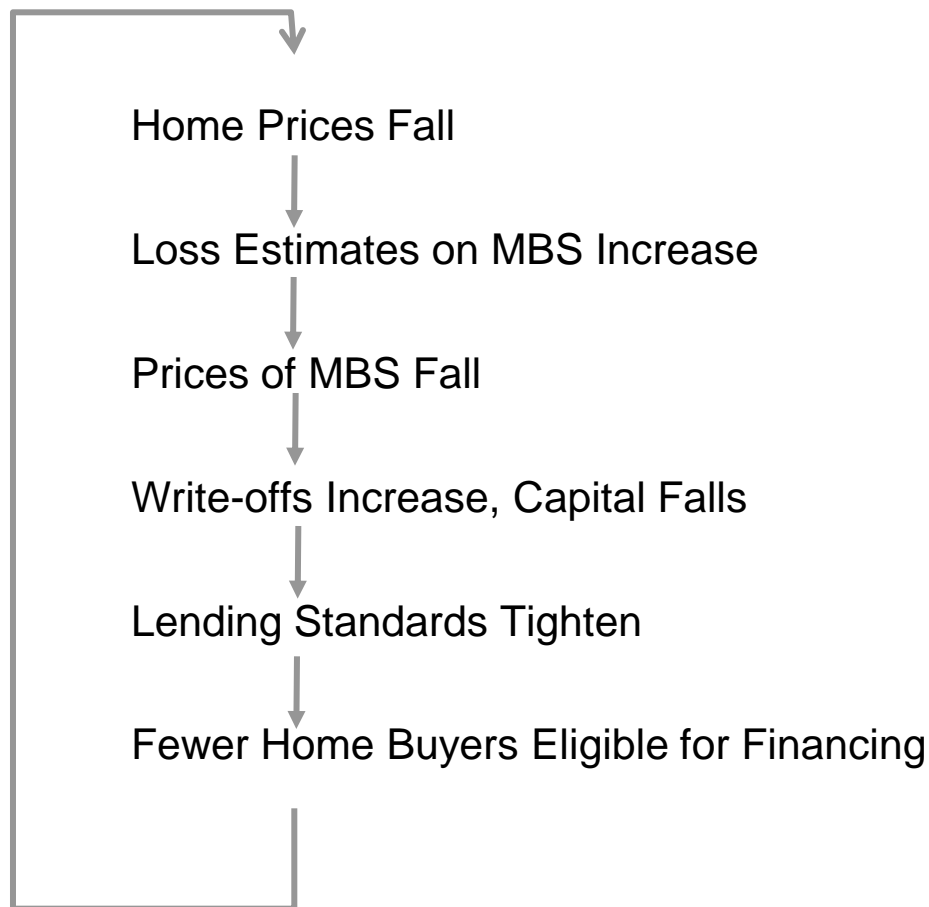


Banks are Tightening Mortgage Lending

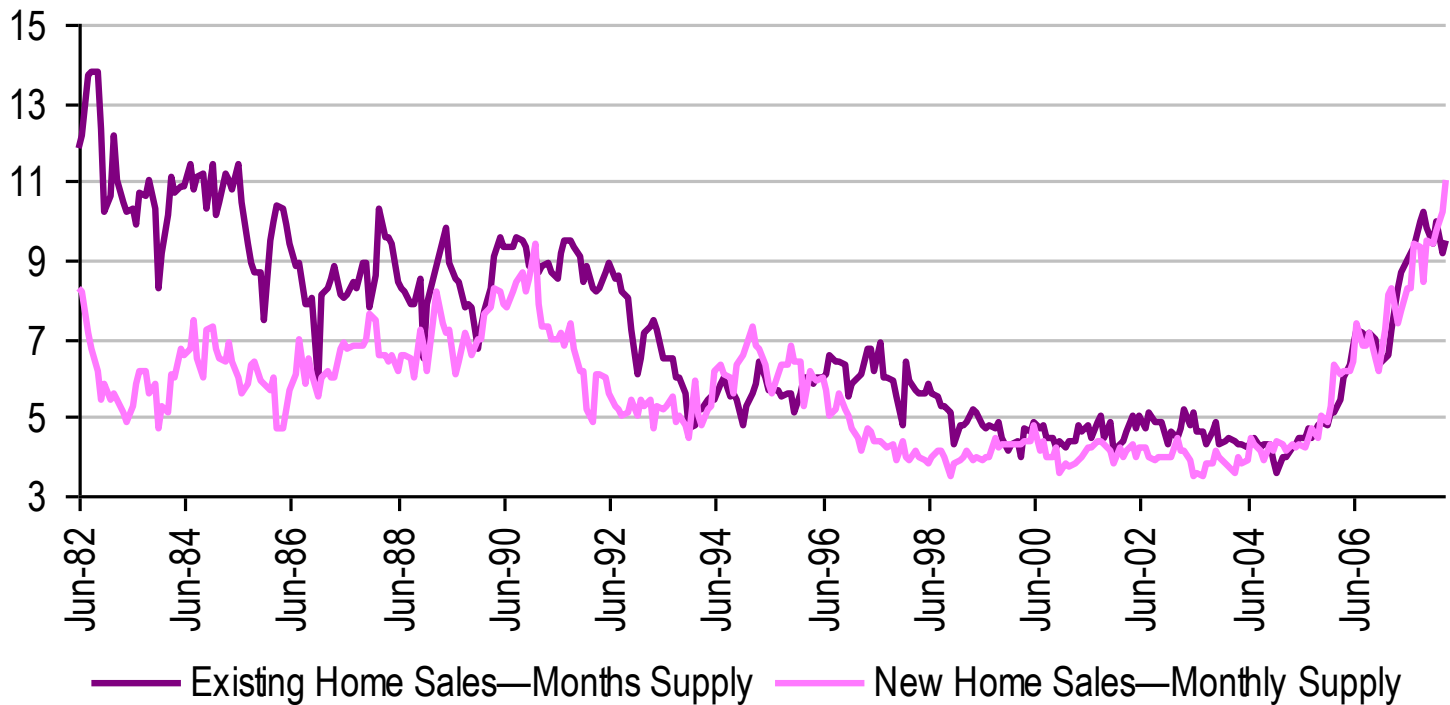


Source: Federal Reserve Board, Loan Officers Survey

“ Vicious ” Housing / Mortgage / Credit Cycle

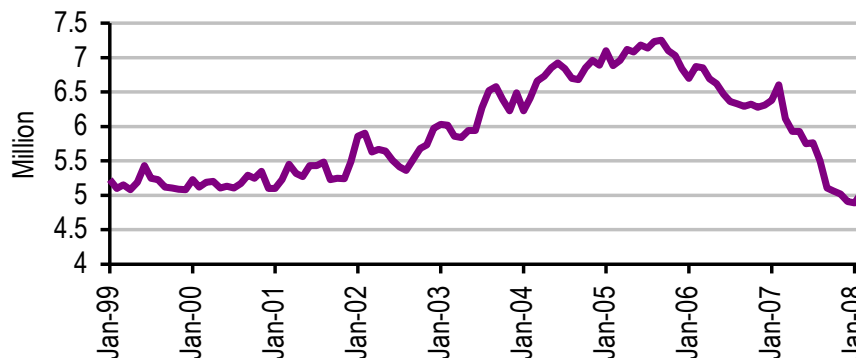


Existing and New Home Sales—Months Supply

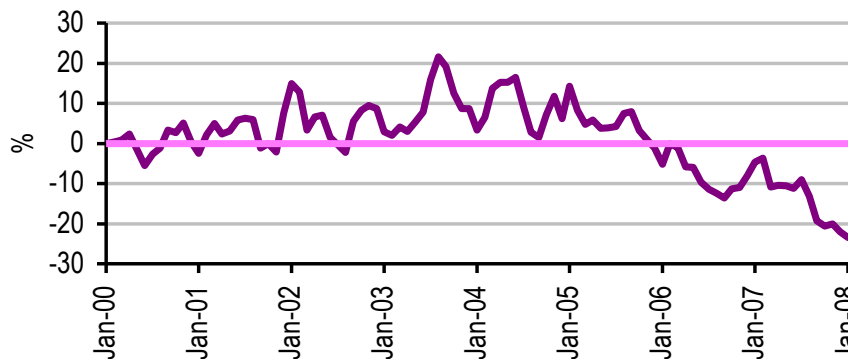


Housing Market Weaker: Existing Home Sales Down

Annual Rate

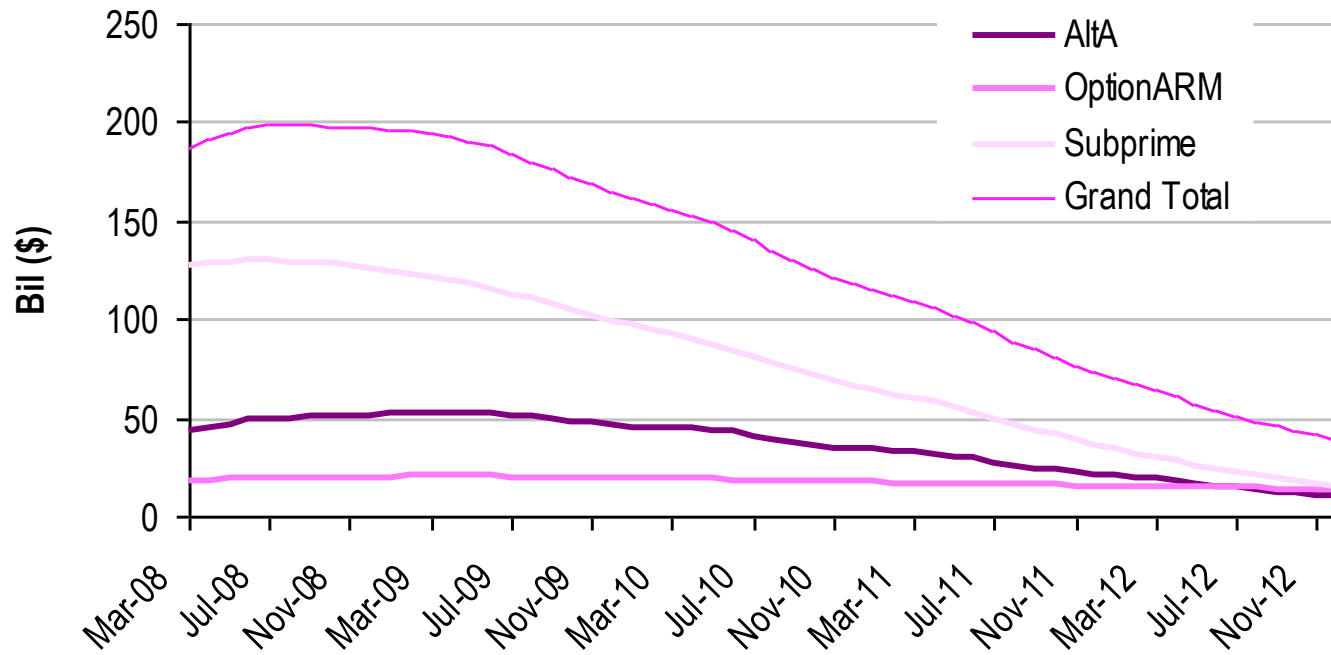


% Change YOY



Last date: 3/29/08

Foreclosure Schedule— 5% Liquidation Rate



Transition of the Buyer Base

AAA HEQ Floaters

◆ Then:

- ABCP Conduit/SIVs
- Investors who dollar roll
- Fannie/Freddie
- High Grade CDOs
- Mortgage hedge funds and prop desks (with high leverage)

◆ Now:

- Hedge Funds or those who seek hedge fund like returns with moderate leverage

- ◆ Prices have fallen to the point where they are attractive to this investor base.

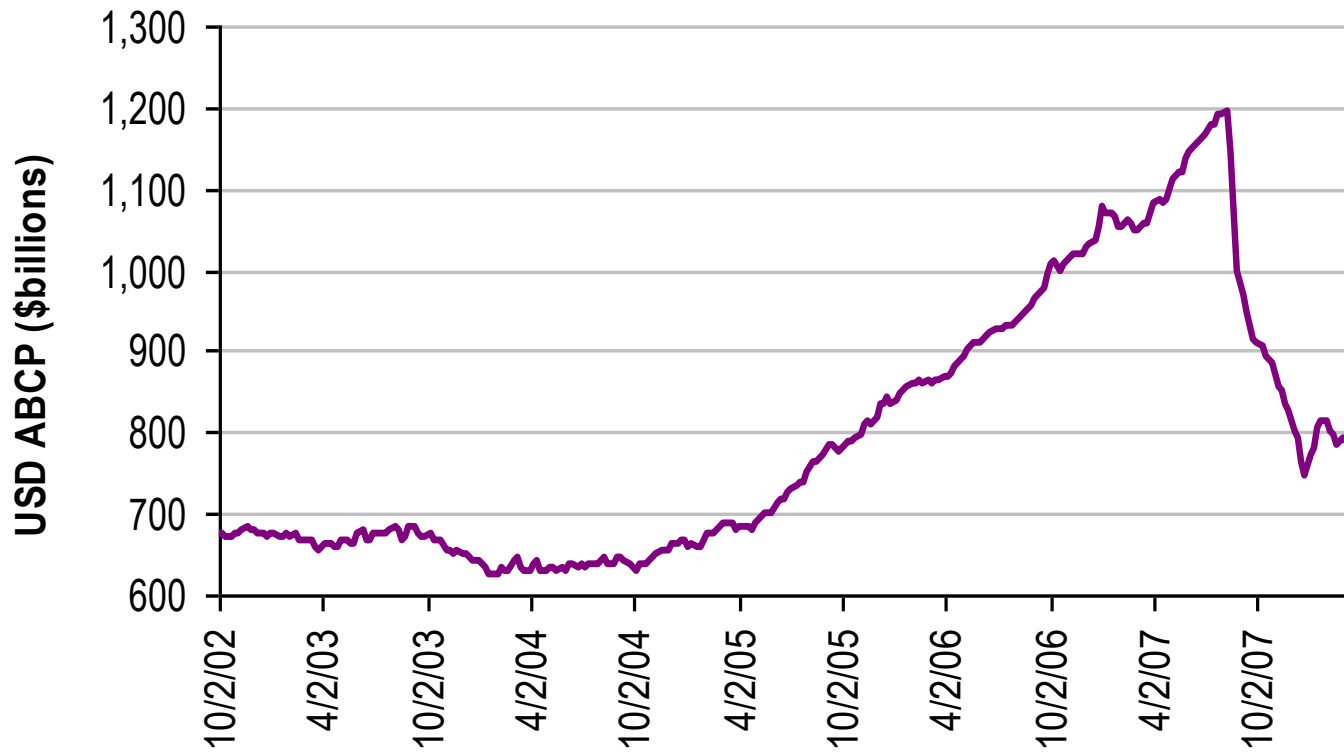
Investment Grade Residential Mortgage Securities

(Spreads / dollar price / price spreads to agency pass throughs)

	2006 3rd Pay Subprime Floaters	2006 Alt-A Hybrid Floaters	Alt-A Hybrid P/T	Alt-A Non- Agency Fixed Pass-thru	Prime Non- Agency Fixed Pass-thru	MTA Floaters
Then — January 11, 2007						
AAA	L+14	L+18	N+39	-16 ticks	-20 ticks	L+19
Super Senior		L+17	N+36	-13 ticks	-19 ticks	L+17
Mezz		L+25	N+46	-1.5 pts	-1 pt	L+21/25
Now — May 1, 2008						
AAA	\$72	-	-	-	-	-
Super Senior		\$74	\$78-80	-12pts	-5pts	\$81
Mezz		-	-	-	-	\$68/\$50

Source: UBS

ABCP Outstandings (\$ billions)



Source: Federal Reserve

Agency Portfolios

		Portfolio	Net Change in Portfolio Balance			
			Agency MBS	Non-Agy MBS	Mtg Loans	Total
Fannie Mae	2005 Total	727,545	-151,000	-26,010		-177,010
	2006 Total	724,400	-43,244	16,302	23,797	-3,145
	2007 H1	722,475	-24,068	8,291	13,851	-1,926
	2007 H2	723,976	-17,728	-10,790	30,019	1,501
	2008 YTD*	721,579	-5,947	-1,762	5,312	-2,397
	Total	-	-241,987	-13,969	72,979	-182,977
Freddie Mac	2005 Total	710,017	-10,463	67,423	121	57,081
	2006 Total	703,959	-6,303	-4,121	4,366	-6,058
	2007 H1	712,136	-3,075	8,056	3,196	8,177
	2007 H2	720,813	8,234	-12,672	13,115	8,677
	2008 YTD*	709,523	-7,879	-7,148	3,737	-11,290
	Total	-	-19,486	51,538	24,535	56,587
Combined	2005 Total	1,437,562	-161,463	41,413	121	-119,929
	2006 Total	1,428,359	-49,547	12,181	28,163	-9,203
	2007 H1	1,434,611	-27,143	16,347	17,047	6,251
	2007 H2	1,444,789	-9,494	-23,462	43,134	10,178
	2008 YTD*	1,431,102	-13,826	-8,910	9,049	-13,687
	Total	-	-261,473	37,569	97,514	-126,390

Source: Fannie Mae and Freddie Mac

* Through Feb-2008

Changes in the Financing Landscape

Haircut & Funding Rates For AAA & Agency

	May 2007 "Old"		Now "Stressed"	
	Haircut	Funding	Haircut	Funding
AAA**	5%	4	20-35%	25-30
AA	7%	6	40%	50
A*	10%	10	50%	50
Agency	3%	-3	5-7%	-10

Source: UBS

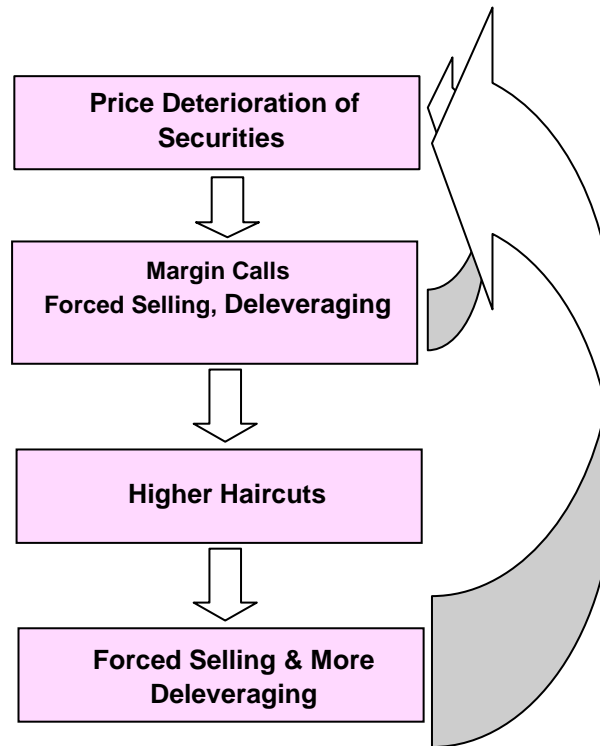
* Agency

P/T	5%
ARMS	5%
CMOS	7%
Derivatives	
Trust	15%
Others	20%

** AAA

Prime	20-25%
Alt-A	25-30%
Subprime	30-35%

Vicious Circle—De-leveraging in a Stressed Market



Source: UBS

Representative Alt-A Super Senior Yield Table

		Assumed Price 78-00					
		Terminal CPR (Ramp used in calculations)					
		2.5%	5.0%	7.5%	10.0%	12.5%	
Terminal CDR (Ramp used in calculations)	2%	%Loss	8.49	6.94	5.79	4.93	4.27
		%Yield	9.905	10.476	11.125	11.801	12.553
		WAL	13.8	10.8	8.6	7.1	6.0
		%Writedown	0.08	0.01	0.00	0.00	0.00
		Prin. Window	Jun08 to Jul36	Jun08 to Jul36	Jun08 to Jul36	Jun08 to Jul36	Jun08 to Jul36
	3%	%Loss	11.48	9.42	7.89	6.72	5.82
		%Yield	9.934	10.533	11.190	11.911	12.708
		WAL	13.2	10.5	8.5	6.9	5.6
		%Writedown	2.49	0.96	0.16	0.00	0.00
		Prin. Window	Jun08 to Jul36	Jun08 to Jul36	Jun08 to Jul36	Jun08 to Jul36	Jun08 to Mar33
	4%	%Loss	13.99	11.55	9.72	8.32	7.22
		%Yield	9.887	10.529	11.216	11.952	12.746
		WAL	12.5	10.1	8.3	6.9	5.7
		%Writedown	5.80	3.23	1.58	0.55	0.00
		Prin. Window	Jun08 to Jul36	Jun08 to Jul36	Jun08 to Jun36	Jun08 to Jun36	Jun08 to Jul36
	5%	%Loss	16.10	13.40	11.34	9.75	8.50
		%Yield	9.788	10.471	11.192	11.954	12.761
		WAL	11.7	9.6	8.0	6.7	5.7
		%Writedown	8.97	5.67	3.42	1.87	0.83
		Prin. Window	Jun08 to Jul36	Jun08 to Jul36	Jun08 to Jun36	Jun08 to Jun36	Jun08 to Jun36
6%	%Loss	17.88	14.99	12.77	11.04	9.66	
	%Yield	9.655	10.374	11.128	11.917	12.743	
	WAL	11.0	9.1	7.7	6.5	5.6	
	%Writedown	11.82	8.00	5.30	3.37	1.99	
	Prin. Window	Jun08 to Jul36	Jun08 to Jun36	Jun08 to Jun36	Jun08 to Jun36	Jun08 to May36	
7%	%Loss	19.39	16.38	14.04	12.20	10.72	
	%Yield	9.498	10.248	11.032	11.849	12.699	
	WAL	10.3	8.6	7.3	6.3	5.5	
	%Writedown	14.32	10.15	7.11	4.87	3.23	
	Prin. Window	Jun08 to Jul36	Jun08 to Jun36	Jun08 to Jun36	Jun08 to Jun36	Jun08 to May36	
8%	%Loss	20.68	17.59	15.17	13.25	11.70	
	%Yield	9.327	10.104	10.914	11.754	12.625	
	WAL	9.7	8.2	7.0	6.1	5.3	
	%Writedown	16.49	12.08	8.80	6.34	4.49	
	Prin. Window	Jun08 to Jul36	Jun08 to Jun36	Jun08 to Jun36	Jun08 to May36	Jun08 to May36	

Alt-A Shutdown Loss Projections (by Issuance Year)

	2006		2007	
	ARM	FIX	ARM	FIX
1st Quartile	3.76	2.77	4.44	3.01
2nd Quartile	8.96	5.43	13.15	6.60
3rd Quartile	13.82	8.44	23.12	9.60
4th Quartile	22.06	14.10	31.59	19.28
Average	12.15	7.69	18.07	9.62

Source: UBS

Subprime Bank Losses (in \$billions)

Firm	Write-down	Credit Loss	Total
Citigroup	35.3	5.6	40.9
UBS	38.0		38.0
Merrill Lynch	31.7		31.7
Royal Bank of Scotland	14.9		14.9
Bank of America	9.2	5.7	14.9
Morgan Stanley	12.6		12.6
HSBC	3.0	9.4	12.4
JPMorgan Chase	5.5	4.2	9.7
Credit Suisse	9.6		9.6
IKB Deutsche	9.0		9.0
Washington Mutual	0.3	8.0	8.3
Deutsche Bank	7.4		7.4
Wachovia	4.9	2.4	7.3
Credit Agricole	6.5		6.5
Mizuho Financial Group	5.4		5.4
Canadian Imperial (CIBC)	4.1		4.1
Societe Generale	3.8		3.8
Bayerische Landesbank	3.6		3.6
Wells Fargo	0.9	2.7	3.6
E*Trade	2.5	0.9	3.4
Lehman Brothers	3.3		3.3
Barclays	3.3		3.3
WestLB	3.2		3.2
Bear Stearns	3.2		3.2
National City	0.5	2.6	3.1
Goldman Sachs	3.0		3.0
Dresdner	2.7		2.7
Nomura Holdings	2.5		2.5
ABN Amro	2.4		2.4
Fortis	2.3		2.3
HSH Nordbank	2.3		2.3
Bank of China	2.0		2.0
LB Baden-Wuerttemberg	2.0		2.0
Natixis	1.9		1.9
BNP Paribas	1.3	0.3	1.6
UniCredit	1.6		1.6
DZ Bank	1.5		1.5
Caisse d'Epargne	1.3		1.3
Gulf International	1.0		1.0
European banks not listed above	9.4		9.4
Asian banks not listed above	6.9	0.4	7.3
North American banks not listed above	2.8	0.9	3.7
Totals*	268.6	43.1 **	311.7

* Totals reflects figures before rounding. Some company names have been abbreviated for space.

** The difference between write-down and credit loss: Investment banks and the investment-banking units of financial conglomerates mark their assets to market values, whether they're loans, securities or collateralized debt obligations, and label that a "write-down" when values decline. Commercial banks take charge-offs on loans that have defaulted and increase reserves for loans they expect to go bad, which they label "credit losses." Commercial banks can have write-downs on holdings of bonds or CDOs as well.

Source: Bloomberg - "Subprime Bank Losses Reach \$312 Billion With RBS, Nomura", 4/28/08, by Yalman Onaran

Banking Crisis-Related Capital Raising (US\$ bn)

	Country	Date	Capital	Investor	Comments
Countrywide	US	22-Aug-07	2.0	Bank of America	Preferred stock convertible
Citi	US	27-Nov-07	7.5	Abu Dhabi Investment Authority	Mandatory convertible equity units paying 11% pa
Freddie Mac	US	27-Nov-07	6.0	Public offering	Sale of preferred stock at a dividend rate of 8.375% for fixed 5 years
Fannie Mae	US	04-Dec-07	7.0	Public offering	Sale of preferred stock
WAMU	US	09-Dec-07	3.0	Public offering	Preferred stock issuance
MBIA	US	09-Dec-07	1.0	Warburg Pincus	Common stock
UBS	Switzerland	10-Dec-07	11.5	GIC (US\$9.75bn); M-East Investor (US\$1.75bn)	Mandatory convertible equity units paying 9% pa
Morgan Stanley	US	19-Dec-07	5.6	China Investment Corp	Mandatory convertible equity units paying 9% pa
Merrill Lynch	US	23-Dec-07	6.2	Temasek (US\$4.2bn); Davis Select (US\$1.2bn) Temasek option (US\$0.6bn)	Newly issued common stock
Sallie Mae	US	27-Dec-07	2.5	Public offering	Sale of common and convertible stock
MBIA	MBIA	11-Jan-08	1.0	Private placement	New capital paying 14% interest per annum
CIBC	Canada	14-Jan-08	2.7	Public offering	Newly issued common stock
Citi	US	15-Jan-08	12.5	GIC, Kuwait Investment Authorities (KIA), others	Mandatory convertible preferred stock paying 7% pa
Citi	US	15-Jan-08	3.2	Public offering	Convert Preferred, paying 6.5%
Citi	US	15-Jan-08	3.7	Public offering	Straight preferred, paying 8.125%
Merill Lynch	US	11-Jan-08	6.6	Korea Investment Corp; KIA; Mizuho	Mandatory convertible preferred stock paying 9% pa
Bank of America	US	24-Jan-08	12.0	Public offering	Sale of preferred & converted stock
Soc Gen	France	24-Jan-08	7.9	Rights issue	Newly issued common stock
National City	US	24-Jan-08	0.2	Public offering	Non cumulative preferred stock (LIBOR + 633bps)
Wachovia	US	06-Feb-08	3.5	Public offering	Sale of preferred stock
MBIA	MBIA	07-Feb-08	1.0	Private placement	Common stock
Gulf International	Bahrain	20-Feb-08	1.0	Public offering	Newly issued common stock
Paragon Group	UK	21-Feb-08	0.6	Public offering	Newly issued common stock
AMBAC	US	14-Mar-08	1.5	Private placement	Common stock
Thornburg Mtg	US	24-Mar-08	1.4	Private placement	Bonds with warrants
MTG	US	28-Mar-08	0.8	Public offering	Common stock and convertibles
UBS	Switzerland	01-Apr-08	15.0	Rights issue	Newly issued common stock
Lehman Brothers	US	01-Apr-08	4.0	Public offering	Non cumulative perpetual convert preferred with c7.5% coupon
WAMU	US	07-Apr-08	7.0	TPG	Common- and preferred-stock offering
Wachovia	US	14-Apr-08	7.0	Public offering	Non-cumulative perpetual Convertible Preferred
HBAN	US	15-Apr-08	0.5	Public offering	Convertible preferred
JPM	US	16-Apr-08	6.0	Public offering	Perpetual preferred
Hypo Real Estate	Germany	16-Apr-08	1.8	J.C. Flowers	Newly issued common stock
Citi	US	21-Apr-08	6.0	Public offering	Non-cumulative perpetual preferred shares
National City	US	21-Apr-08	7.0	Corsair Capital	Newly issued common stock
CIT Group	US	21-Apr-08	1.5	Public offering	Common and preferred stock
RBS	UK	22-Apr-08	23.8	Rights issue	Newly issued common stock
Total			191.4		

Source: company data; UBS Global I/O: Banking Crisis, April 25, 2008.

Restructuring of Large Bank Balance Sheets

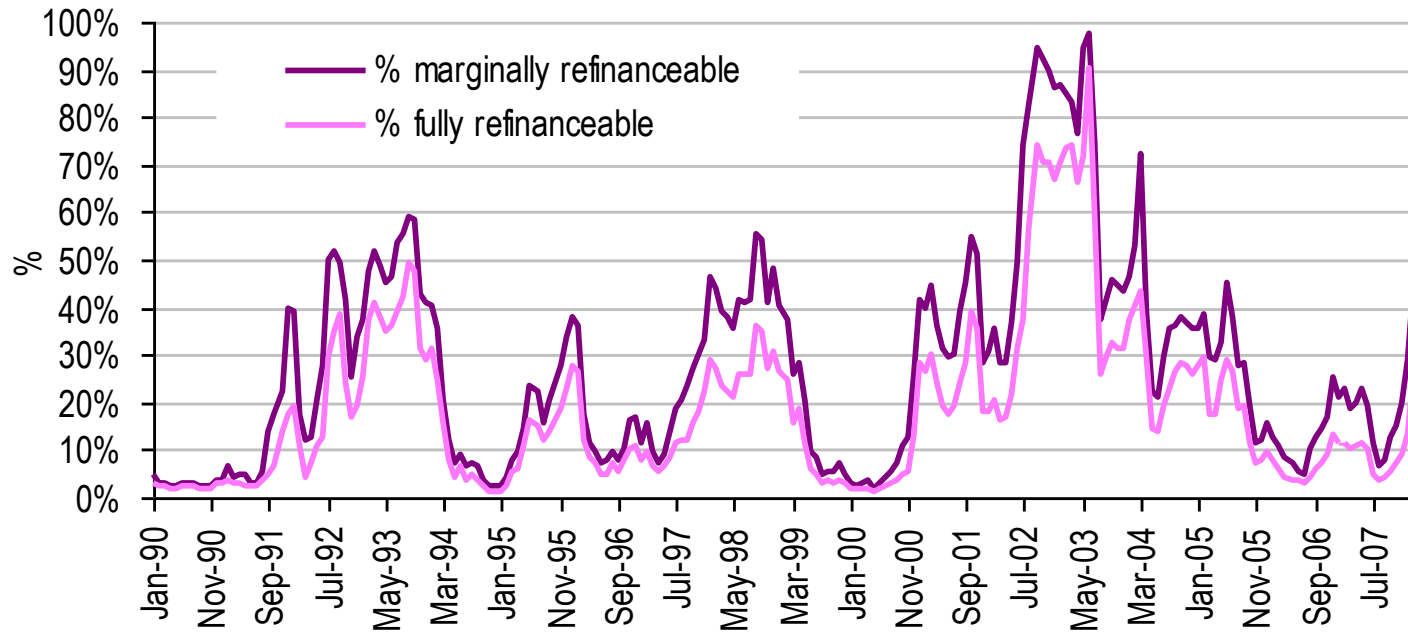
	% of Total Assets								Difference from 6/27/07	Difference from 12/27/00
	12/27/00	12/29/04	12/28/05	12/27/06	6/27/07	12/26/07	4/16/08			
Agency MBS	6.87	10.62	10.29	10.04	9.58	7.58	7.68	-1.90	0.81	
Other Securities	6.47	8.24	9.08	9.60	9.98	11.10	12.91	2.92	6.43	
Revolving Home Equity	2.55	6.51	6.74	6.70	6.66	6.45	6.50	-0.16	3.95	
Other Residential	<u>13.90</u>	<u>14.76</u>	<u>15.62</u>	<u>17.54</u>	<u>18.13</u>	<u>17.04</u>	<u>16.27</u>	-1.87	2.36	
Subtotal	29.80	40.13	41.72	43.88	44.36	42.17	43.36	-1.00	13.56	
	Balance (\$billions)								Difference from 6/27/07	Difference from 12/27/00
	12/27/00	12/29/04	12/28/05	12/27/06	6/27/07	12/26/07	4/16/08			
Agency MBS	267.3	507.4	519.1	561.3	541.9	468.0	482.7	-59.2	215.4	
Other Securities	251.7	393.5	458.1	537.1	564.6	685.3	810.8	246.2	559.1	
Revolving Home Equity	99.0	310.9	340.0	374.7	376.8	398.2	408.4	31.6	309.4	
Other Residential	<u>540.6</u>	<u>705.2</u>	<u>788.3</u>	<u>981.1</u>	<u>1,025.7</u>	<u>1,051.8</u>	<u>1,022.0</u>	-3.7	481.4	
Subtotal	1,158.6	1,917.0	2,105.5	2,454.2	2,509.0	2,603.3	2,723.9	214.9	1,565.3	
Total Assets	3,888.5	4,777.3	5,046.8	5,593.1	5,656.6	6,173.2	6,282.5	625.9	2,394.0	

Source: The Federal Reserve Board

Refinanceability of 30-yr FN & FH Universe

Mtg. Rate	Refinanceability									
	Marginally (+20bps)				Fully (+50bps)				median oltv	multiplier
	Rate	Amount (\$MM)	% of Total	% of Total (HPD and Tight Credit)	Rate	Amount (\$MM)	% of Total	% of Total (HPD and Tight Credit)		
4.64	4.84	2,565,977	100.0%	97.0%	5.14	2,551,170	99.4%	87.5%	77.1	0.97
4.74	4.94	2,565,355	100.0%	95.0%	5.24	2,517,916	98.1%	82.9%	77.1	0.95
4.84	5.04	2,564,671	99.9%	91.4%	5.34	2,489,607	97.0%	78.6%	77.1	0.915
4.94	5.14	2,551,170	99.4%	87.5%	5.44	2,415,892	94.1%	73.0%	77.2	0.88
5.04	5.24	2,517,916	98.1%	82.9%	5.54	2,291,091	89.3%	66.1%	77.2	0.845
5.14	5.34	2,489,607	97.0%	78.6%	5.64	2,161,596	84.2%	59.4%	77.3	0.81
5.24	5.44	2,415,892	94.1%	73.0%	5.74	2,058,482	80.2%	53.7%	77.4	0.775
5.34	5.54	2,291,091	89.3%	66.1%	5.84	1,934,155	75.4%	47.9%	77.7	0.74
5.44	5.64	2,161,596	84.2%	59.4%	5.94	1,691,363	65.9%	39.5%	77.9	0.705
5.54	5.74	2,058,482	80.2%	53.7%	6.04	1,432,817	55.8%	32.9%	78.0	0.67
5.64	5.84	1,934,155	75.4%	47.9%	6.14	1,273,801	49.6%	28.8%	78.2	0.635
5.74	5.94	1,691,363	65.9%	39.5%	6.24	1,139,729	44.4%	25.3%	78.6	0.6
5.84	6.04	1,432,817	55.8%	32.9%	6.34	999,651	39.0%	21.8%	79.1	0.59
5.94	6.14	1,273,801	49.6%	28.8%	6.44	841,390	32.8%	18.0%	79.4	0.58
6.04	6.24	1,139,729	44.4%	25.3%	6.54	668,363	26.0%	14.1%	79.6	0.57
6.14	6.34	999,651	39.0%	21.8%	6.64	518,874	20.2%	10.7%	79.9	0.56
6.24	6.44	841,390	32.8%	18.0%	6.74	398,442	15.5%	8.1%	80.3	0.55
6.34	6.54	668,363	26.0%	14.1%	6.84	320,319	12.5%	6.4%	80.7	0.54
6.44	6.64	518,874	20.2%	10.7%	6.94	239,809	9.3%	4.7%	81.1	0.53
6.54	6.74	398,442	15.5%	8.1%	7.04	177,498	6.9%	3.4%	81.6	0.52
6.64	6.84	320,319	12.5%	6.4%	7.14	141,579	5.5%	2.6%	81.9	0.51
6.74	6.94	239,809	9.3%	4.7%	7.24	116,129	4.5%	2.1%	82.5	0.5
6.84	7.04	177,498	6.9%	3.4%	7.34	98,750	3.8%	1.8%	82.9	0.49
6.94	7.14	141,579	5.5%	2.6%	7.44	80,927	3.2%	1.4%	83.0	0.48
7.04	7.24	116,129	4.5%	2.1%	7.54	61,960	2.4%	1.0%	83.0	0.47
7.14	7.34	98,750	3.8%	1.8%	7.64	50,539	2.0%	0.7%	83.1	0.46
7.24	7.44	80,927	3.2%	1.4%	7.74	41,279	1.6%	0.4%	83.1	0.45

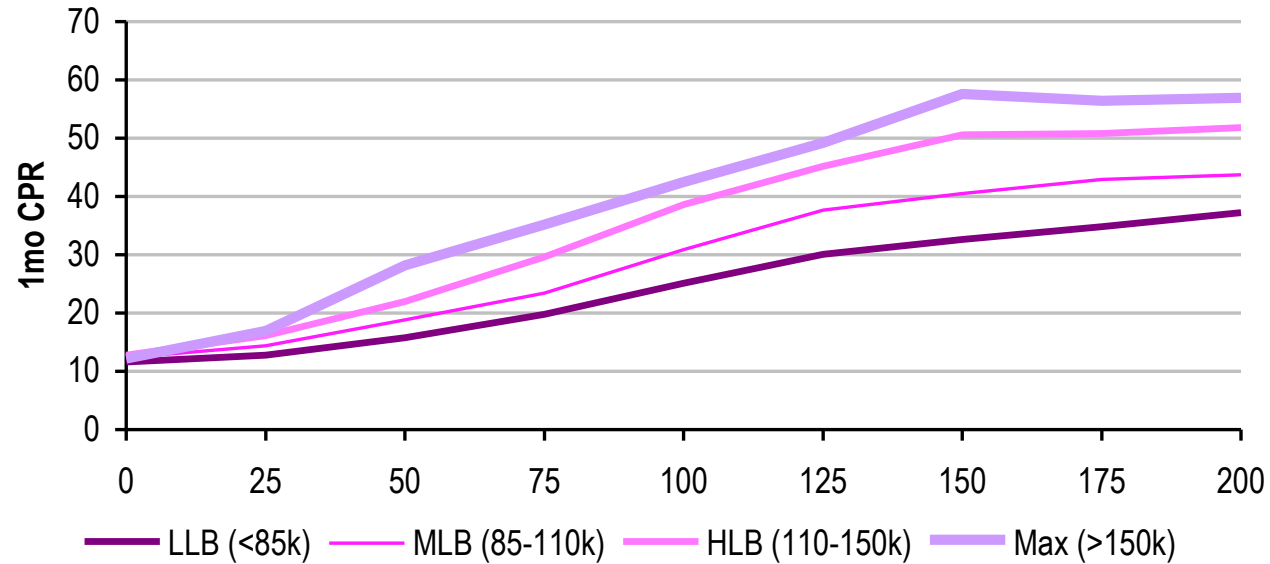
% of Market that is Refinanceable (30-yr FN & FH)



Projected Speeds

<i>coupon</i>	<i>orig. year</i>	<i>mean OLTV</i>	<i>median OLTV</i>	<i>Wac</i>	<i>SATO (bps)</i>	<i>Historical Speeds at Similar Incentives</i>	<i>Proj 1Yr Speeds</i>	<i>Last Month's CPR</i>
5	2007	70	74	5.76	-45	12	7.3	6.9
	2006	69	73	5.80	-51	12	8.6	9.6
	2005	70	75	5.64	-13	11	8.0	8.5
5.5	2007	73	77	6.13	-13	29	14.2	14.3
	2006	71	76	6.15	-19	19	12.0	17.6
	2005	73	76	5.98	15	15	9.8	11.6
6	2007	77	80	6.57	18	41	21.6	19.3
	2006	74	78	6.55	10	33	20.9	23.7
	2005	79	81	6.50	63	22	15.8	16.4
6.5	2007	83	85	7.10	66	43	18.1	18.1
	2006	79	81	7.02	52	38	16.0	24.1
	2005	81	83	6.98	105	34	19.8	18.2

ITM S-Curve (0-5% HPA) — FH & FN 30-year (post Jan-99, 30-60 WALA)



Source: Freddie Mac, Fannie Mae, UBS

Value in Lower Loan Balance Collateral

Cpn	Description	WAC/WAM/WALA	Loan Size	Price	Pay-Up	Yield	Dur	Cnvx	OAS	=OAS Pay-up	Pay-up Diff	% of = OAS Pay-up
FN 5.0	TBA	5.62 / 353 / 6	252,693	98:25	-	5.186	4.98	-2.64	22			
	Low Loan Balance	5.62 / 353 / 6	72,000	98:26	0:01	5.182	6.11	-1.23	47	1:19+	1:18+	1.9
	Mod Loan Balance	5.62 / 353 / 6	90,000	98:25	0:00	5.187	5.99	-1.37	44	1:12	1:12	0.0
	High Loan Balance	5.62 / 353 / 6	125,000	98:25	0:00	5.187	5.76	-1.75	38	0:31	0:31	0.0
FN 5.5	TBA	6.09 / 352 / 7	247,179	100:28	-	5.306	3.45	-3.20	18			
	Low Loan Balance	6.09 / 352 / 7	72,000	101:04	0:08	5.322	5.01	-2.13	51	2:04+	1:28+	11.7
	Mod Loan Balance	6.09 / 352 / 7	90,000	100:31	0:03	5.345	4.84	-2.28	50	1:26+	1:23+	5.1
	High Loan Balance	6.09 / 352 / 7	125,000	100:29	0:01	5.350	4.48	-2.55	42	1:09	1:08	2.4
FN 6.0	TBA	6.57 / 351 / 8	234,402	102:15	-	5.101	2.14	-3.83	19			
	Low Loan Balance	6.57 / 351 / 8	72,000	103:03	0:20	5.345	3.82	-2.65	54	2:13	1:25	26.0
	Mod Loan Balance	6.57 / 351 / 8	90,000	102:25	0:10	5.371	3.66	-2.75	54	2:01	1:23	15.4
	High Loan Balance	6.57 / 351 / 8	125,000	102:22	0:07	5.315	3.20	-3.08	44	1:11+	1:04+	16.1
FN 6.5	TBA	7.10 / 347 / 12	208,658	103:20+	-	5.024	2.10	-2.92	47			
	Low Loan Balance	7.10 / 347 / 12	72,000	104:20+	1:00	5.371	3.36	-2.51	71	2:06	1:06	45.7
	Mod Loan Balance	7.10 / 347 / 12	90,000	104:06+	0:18	5.399	3.24	-2.56	74	1:26	1:08	31.0
	High Loan Balance	7.10 / 347 / 12	125,000	103:29+	0:09	5.327	2.90	-2.73	67	1:05	0:28	24.3
GD 6.5	TBA	7.01 / 351 / 7	241,581	103:23	-	4.729	1.36	-3.05	28			
	Low Loan Balance	7.01 / 351 / 7	72,000	105:02	1:11	5.238	3.02	-2.68	60	2:28	1:17	46.7
	Mod Loan Balance	7.01 / 351 / 7	90,000	104:16	0:25	5.282	2.90	-2.72	64	2:13+	1:20+	32.3
	High Loan Balance	7.01 / 351 / 7	125,000	103:30	0:07	5.260	2.58	-2.90	62	1:21	1:14	13.2

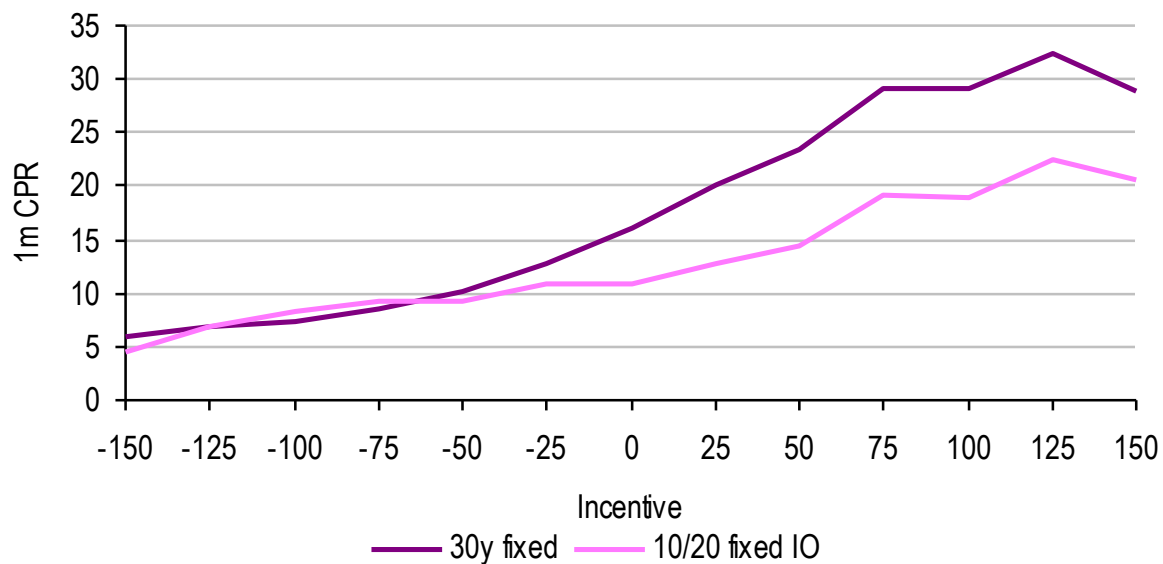
Source: Citigroup Yield Book Model V14.

NOTE: While there is value in new issue LLB, MLB, and HLB 5 and 5.5s, supply is limited.

Prices are as of the close on Monday, April 14, 2008.



S-Curve (FNMA, WALA 12-30, original loan size 200-250)—Q12005- Q12008 sample period



Source: Fannie Mae

Valuation—Fixed Rate Agency 10/20 IO vs. TBA

Description	Description	Price	Coupon	Spread to TBA	WAC/ WAM/ WALA	CLS	FICO	Pricing		Yield Book				
								Yield	Avg Life	Dur	OAS	Option Cost	Payup to Equal OAS	Ticks Cheap
FN 925233	Agy 10/20	100-07	5.5	-1:02	6.250/353/7	283	740	5.44	6.5	4.12	24	105	-0:16	0-18
FNCL 5.5	TBA 5.5	101-09	5.5		6.130/354/6	247	729	5.13	4.7	3.03	11	103		
FN 949095	Agy 10/20	101-28+	6.0	-0:28	6.500/353/8	269	749	5.34	3.7	2.76	29	127	-0:07	0-21
FNCL 6.0	TBA 6.0	102-24+	6.0		6.570/351/9	234	720	4.85	2.9	1.72	11	123		
FN 918830	Agy 10/20	103-01	6.5	-0:28	7.072/348/12	231	746	4.77	2.1	2.43	59	123	-0:06	0-22
FNCL 6.5	TBA 6.5	103-29	6.5		7.100/347/13	208	702	4.43	2.2	1.82	41	117		

Prices are as of the close on Monday, April 11, 2008.

Source: UBS, Yield Book Current Model.

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