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Global Securitized Products Weekly

Securitized Products: Research Roundup

- **Agency MBS** Ankur Mehta, Anurag Bhardwaj, Huaxin Lu **2-25**

  We maintain an underweight on the MBS basis as near term risks remain substantial. We expect refinancing activity to exceed levels in February if rates stay here. The attractiveness of dollar assets versus alternatives will lead to strong Japanese demand but this may not be sufficient to absorb supply. Bank demand is likely to be subdued as the rally forces them to stay in cash or add agency CMBS if spreads widen. Money managers may maintain MBS overweights as Brexit introduces uncertainty and credit risk. We will look to turn neutral on a 3-5 tick underperformance as the longer-term environment for MBS remains favorable

- **Non-Agency MBS** Roger Ashworth, Raja Narayanan, Chris Marazzo **26-33**

  NPLs, RPLs, and Seasoned Deals — Although it's a $65+ BN market, the collateral performance trends and relative value of NPLs, RPLs, and seasoned deals is not widely reported. This week, we look at their performance and share our views on relative value.

  Consumer ABS Mary E. Kane, Eugene Belostotsky **34-44**

  Boring Beats Sexy — A fundamental decision is whether to seek out higher-carry ABS (franchise ABS) or stick with lower yielding, more stable ABS (prime auto ABS). Volatility tolerance resolves the decision but, in our mind, slow-and-steady would win the race.

- **CMBS** Jeff Berenbaum, Stav Gaon, Iris Tang **45-46**

  Wider Spreads on Brexit — CMBS has often overreacted to broad macro events, with underperformance in the short run. While it's too early to tell how impactful Brexit will be in the coming days and weeks to the CMBS market, we recommend being on the lookout for high quality opportunities. For example, short duration, legacy AMs and AJs at current lower dollar prices are attractive.

- **Securitized Products Roundtable Conference Call Every Monday, 11:00 AM EDT. Dial-In: (719) 457-6856 -- Passcode: 4826 717**

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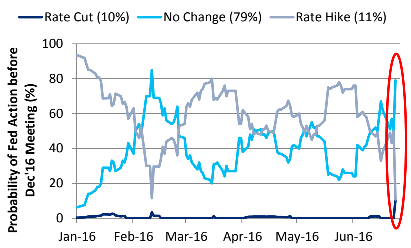
Market Overview

We maintain an underweight on the MBS basis as near-term risks remain substantial. We expect refinancing activity to exceed levels in February if rates stay here. The attractiveness of dollar assets versus alternatives will lead to strong Japanese demand, but this may not be sufficient to absorb supply. Bank demand is likely to be subdued as the rally forces them to stay in cash or add agency CMBS if spreads widen. Money managers may maintain MBS overweights as Brexit introduces uncertainty and credit risk. We will look to turn neutral on a 3-5 tick underperformance as the longer-term environment for MBS remains favorable.

When the Levee Breaks

The outcome of the Brexit vote stunned global markets as investors went from pricing in near certainty of a remain vote to pricing in an exit in a span of 24 hours. 10-year Treasury yields traded in a 35bp range between the closing of polls and the results. Investors had already reduced the likelihood of a hike after Chair Yellen's dovish speech to Congress on Tuesday (see FOMC Edition: Chair Yellen Testifies Structural Headwinds Hold Down Rates for details) but Fed fund futures are now pricing in a 10% likelihood of a rate cut after the Brexit vote (Figure 1).

Figure 1. Fed fund futures are now pricing in a 10% likelihood of a rate cut in 2016

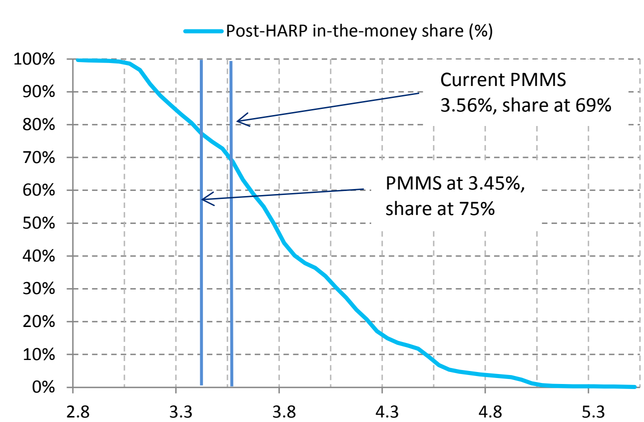


Source: Citi Research

While the longer-term environment for MBS certainly becomes more favorable due to the monetary policy implications and the lack of credit exposure, near-term risks remain substantial. Originators are likely to widen out primary/secondary spreads into this sharp rally but 30-year mortgage rates should gradually decline to 3.45% if 10y Treasury yields stay close to 1.55%. This will increase the refinanceability of the post-HARP MBS universe from 69% to 75% (Figure 2). Although the rally will increase in-the-moneyness of MBS to higher than during the refi wave in 2015, media effect is expected to remain meaningfully lower (Figure 3).

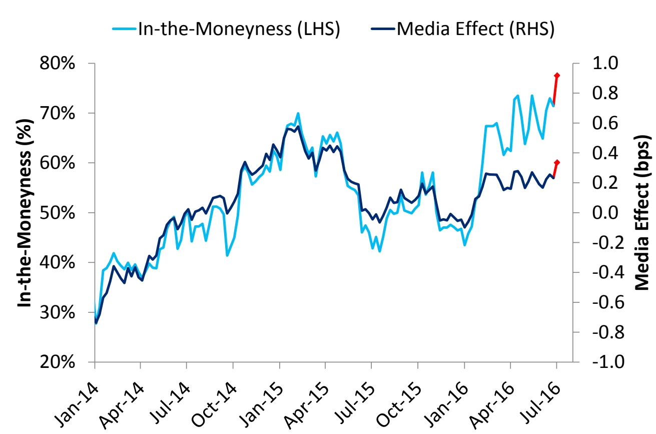
Overall, we think the refinancing activity will be stronger than in February of this year, but less than at the peak of the refi wave in 2015. In the medium term, the increased refinancings will lead to an increase in Fed demand through reinvestments. However, in the short term, overseas investors and money managers will need to absorb the pickup in origination supply.

Figure 2. Refinanceability of the post-HARP MBS universe is expected to increase from 69% to 75% if mortgage rates rally to 3.45%



Source: Citi Research, 1010Data

Figure 3. Media effect is lower than last year even though in-the-money percentage is higher

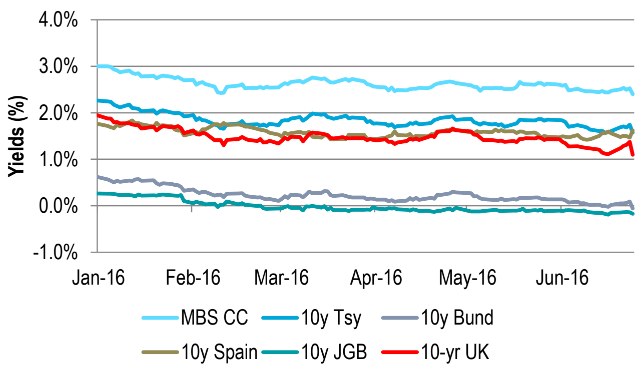


Source: Citi Research, 1010Data

Overseas Flows Supportive for MBS

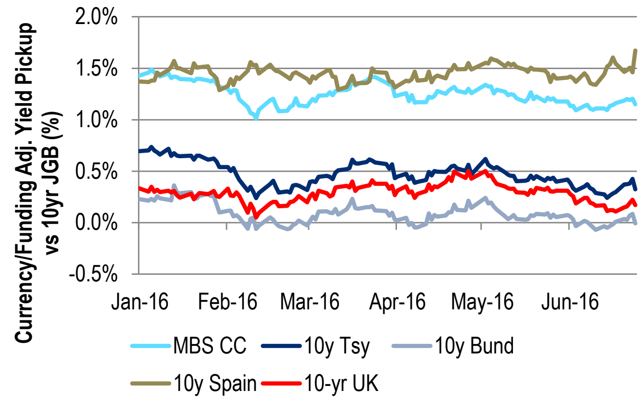
The rally in global yields coupled with the strength of the Yen versus the dollar suggests that Japanese investors will continue to add Treasuries and MBS. Absolute yield levels on dollar assets remain high, particularly in MBS (Figure 4). Even after hedging for currency risk, MBS and Treasuries are looking attractively priced for Japanese investors (Figure 5) versus JGBs, Bunds, Gilts and Spanish debt (see US Agency MBS Focus - Green Shoots in Foreign MBS Demand for a detailed discussion on how to calculate currency hedged returns). We expect Japanese investors to add dollar assets given their relative attractiveness. Although they did show a preference for Treasuries over MBS in March, this is likely to reverse given the low absolute yields. That said, the sharp weakening in the pound could increase their incentive to buy Gilts as well.

Figure 4. Absolute yield levels on MBS and Treasuries are attractive versus other sovereign debt



Source: Citi Research

Figure 5. The attractiveness of Treasuries and MBS declines once Japanese investors hedge currency risk, but they still offer higher returns than alternative sovereign debt



Source: Citi Research

Bank Demand to Subside

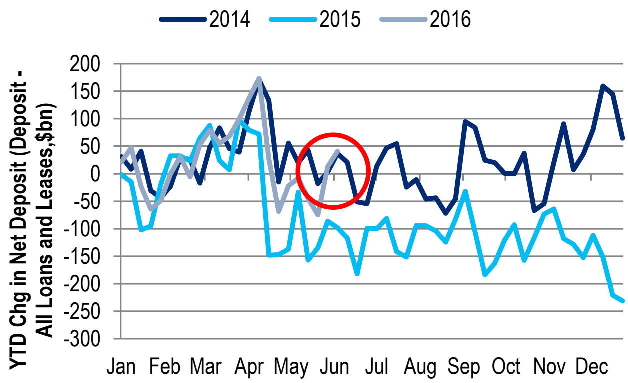
Banks added MBS aggressively in April-early May but are likely to remain on the sidelines at current yields (Figure 6). Although net deposit growth (deposits – loans) has been stronger this year than 2015 (Figure 7), we think that banks will be more inclined to sit on cash at current yields like they did in Q1. Banks have aggressively bought agency CMBS over the last two quarters, adding $14-15bn in Q4 2015 and Q1 2016, as spreads widened in that sector (Figure 8). If agency CMBS spreads widen into the risk off, banks may take this opportunity to add, further cannibalizing any demand for residential MBS.

Figure 6. Yield levels are a lot less attractive than they were in April-early May

	2016Q1	2016 Apr - May 6th	Jun 24th
5y Tsy (%)	1.36	1.25	1.08
10y Tsy (%)	1.91	1.80	1.56
CC Yield (%)	2.68	2.55	2.40
CC Yield vs 5s/10s (bps)	104	103	108

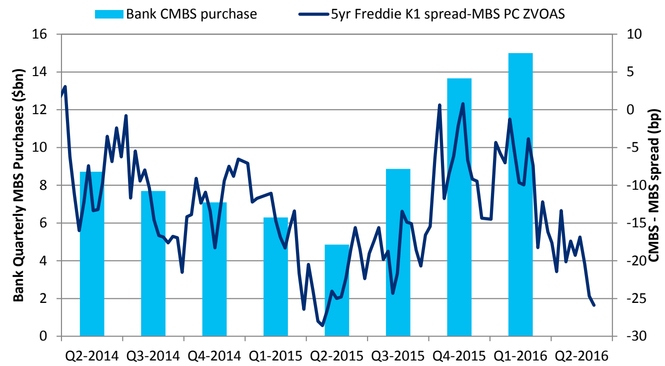
Source: Citi Research

Figure 7. Net deposit growth this year has outpaced 2015



Source: Citi Research, Federal Reserve

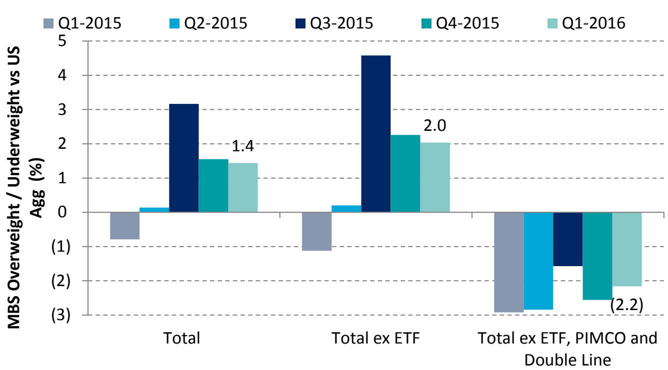
Figure 8. Banks may choose to add agency CMBS over MBS if spreads in the sector widen



Source: Citi Research, SNL

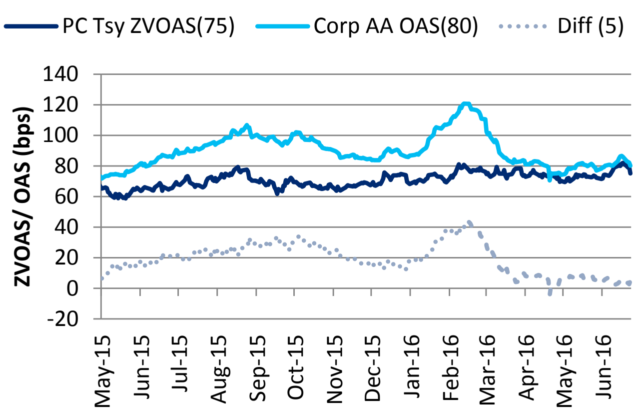
Money managers have benefitted from the rally in rates this year as it has led to steady inflows into fixed income funds. This will continue as the uncertainty from Brexit incentivizes investors to prefer bonds over equities. The potential for an increase in credit risk will also incentivize money managers to maintain their MBS overweights (Figure 9). Both these factors are a positive for mortgages. That said, the cuspiness of MBS and the prospect of heavy supply would probably prevent money managers from increasing their MBS overweights meaningfully from here.

Figure 9. Large indexed money managers may remain overweight MBS given the uncertainties introduced from the Brexit vote



Source: Citi Research, Fund Filings

Figure 10. IG corporate spreads have remained stable so far, but could widen out going forward



Source: Citi Research, Yieldbook

Summary & valuations

We present a summary of our views across the agency MBS sectors in Figure 11

Figure 11. Summary of views across agency MBS sectors

	Summary View/ Risks	Reference Report
Basis	Maintain a modest underweight on the basis	Current report
Trade Recommendations	None	Current report
Supply	Base case net supply forecast increased from \$150bn to \$225bn. Gross supply of \$1.55 trillion at 3.5% mortgage rate and 1.27 trillion at 4% mortgage rate.	Agency MBS Weekly - Modest Underweight
Demand	We lower our bank demand projections from \$100bn to \$75bn given current rate and spread levels. Foreign demand projections revised up from \$20bn to \$35bn. Demand from money managers is unlikely to be sufficient to meet elevated supply.	Agency MBS Weekly - Trumped by Cruising Supply
Speed Projections	30-yr FNCLs for June: +7% MoM, for July: -10% MoM	Agency MBS Weekly: Brexit, Bremain and Brally
Coupon Stack	FN 4.0s look attractively priced to FN 4.0s. Neutral on G2 coupon stack	Current report
G2/FN	Maintain underweight on G2/FN swaps as lower yields and risk of MIP cut weigh on the sector	Current report
Specified Pools	We continue to recommend that investors limit further allocation to specified pools unless they have a high-conviction view that rates will rally further. Such investors should find the best value in LLB-HLB 3.5s.	Agency MBS Weekly: Brexit, Bremain and Brally
15s/30s	Maintain neutral on 15s/30s as hedged-carry remains positive and risks to rates are skewed towards a rally, but cautious on rich valuations and recent carry decline	Agency MBS Weekly: She Doves Me, She Doves Me Not
20s/30s	Neutral on 20s/30s; Recommend 20y 3.0s for investors with modest steepening bias and 20y 3.5s for investors anticipating a larger rate move in either direction	Agency MBS Weekly - Doves Take off Their Gloves
Hybrid ARMs	Underweight vs. 15s. Return to neutral on 5/1s vs. 7/1s. Prefer Tier 1 servicers over Tier 2 and Quicken	Agency MBS Weekly - Doves Take off Their Gloves

Source: Citi Research

FN 4.0s look attractively priced to FN 3.5s

Figure 12 shows MBS performance across the stack and sectors. 30-yr FNs were + to 1 tick tighter to Treasury hedges while lower coupon G2s outperformed by 3+ to 5 ticks. Figure 13 and Figure 14 show valuations on the 30-year FN and G2 coupon stack as of yesterdays close. Up in coupon is underperforming meaningfully as the sharp rally in rates ignites prepay fears. We have highlighted before that the deliverable in FN 3.5s is particularly vulnerable at current rate levels and see downside risk to coupon if rates stay here. We prefer owning FN 4.0s across the stack in spite of the rally as the higher SATO on the underlying borrowers should limit the prepay risk on the coupon. However, FN 4.0s could continue to underperform if rates rally further.

Figure 12. WoW Performance in ticks

	FN	G2	DW
2.5s			-0.9
3s	1.1	3.5	2.5
3.5s	0.4	5.0	0.3
4s	1.5	9.7	
4.5s	4.9	16.3	

Source: Citi Research, Yieldbook

Unlike conventionals, speeds on G2 4.0s have been coming out fast due to the presence of very efficient servicers (Figure 14). Higher coupon G2s are also at risk to further news about FHA MIP cuts. We recommend a neutral stance on the GN stack.

Figure 13. Valuations on the 30-yr FNCL coupon stack

Coupon	WALA/WAC /ALS	Yield (%)	HAC (ticks)	zv-spread (bps)	OAS (bps)	Duration (yrs)	Convexity	1yr CPR (%)
FN 3.0s	13/3.76/316	2.49	3.6	75	5	4.6	-3.7	12
FN 3.5s	11/4.10/302	2.43	2.3	87	12	3.6	-3.8	19
FN 4.0s	10/4.60/279	2.26	1.4	88	21	3.1	-2.8	24
FN 4.5s	25/5.07/257	1.84	0.5	73	24	2.4	-1.8	26

Source: Citi Research, Yieldbook, June 23 2016 Closes

Figure 14. Valuations on the 30-yr G2SF coupon stack

Coupon	WALA/WAC/ ALS	Yield (%)	HAC (ticks)	zv-spread (bps)	OAS (bps)	Duration (yrs)	Convexity	1yr CPR (%)
G2 3.0s	12/3.46/270	2.30	4.0	61	-16	4.0	-4.2	11
G2 3.5s	10/3.87/254	2.18	3.3	70	-10	2.7	-4.0	19
G2 4.0s	9/4.36/235	1.95	-1.0	70	1	1.8	-3.1	28

Source: Citi Research, Yieldbook, June 23 2016 Closes

Duration hedged G2/FN swaps outperformed by 3 to 5 ticks over the past week. The carry on the swaps remains attractive but valuations continue to look rich (Figure 15). The strength in the Yen and relative attractiveness of dollar assets suggests that Japanese investors will continue to buy G2s in spite of rich valuations.

We recommend an underweight for buy and hold investors but do not recommend shorting the swaps.

Figure 15. Spread and carry differential along with recommended positioning on G2/FN swaps

G2/FN	Yield	z-spread	OAS	HR	HAC	Recommended Positioning
3.0s	-0.19	-13	-21	87%	0.9	Underweight
3.5s	-0.25	-16	-22	77%	1.7	Underweight
4.0s	-0.31	-17	-20	58%	-1.7	Underweight

Source: Citi Research, Yieldbook, June 23 2016 Closes

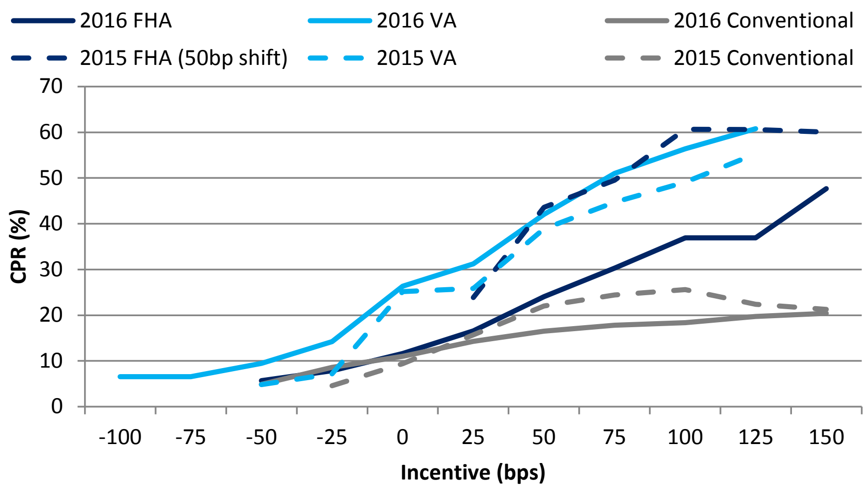
Gauging the Upside Risk to Prepays

As the rate rally today takes mortgage rates to new lows not seen since 1H 2013, we compare the prepay response in MBS this year to early 2015 for clues to potential upside risks to prepays in the coming months. FHA s-curves were sharply steeper last year, even after adjusting for the additional MIP incentive, but are unlikely to reach those levels again this year. Conventional s-curves were also steeper last year, which partly reflects collateral differences but also confirms the lower media effect so far this year, which could change in response to the current rally. VA s-curves on the other hand have been higher than last year due to the larger share of fast servicers. We also investigate the collateral characteristics across sectors in 2015-16 vintages that could differentiate prepays from the response seen last year.

Potential for s-curve steepening on higher media effect

Borrower prepay response to the rate rally this year has significantly lagged that from a year ago. Figure 16 shows the s-curves for FHA/VA/conventional borrowers for Mar-May 2015/2016. Speeds are shown for pools issued in the prior year, excluding those in the last quarter to account for the 6-month refinancing lockout period in FHA and conventionals (Jan-Sep 2014 issuance for 2015 s-curves, and Jan-Sep 2015 issuance for 2016 s-curves). We only consider borrowers with 130-135bp MIP for 2015 FHA s-curves, and 80-85bp MIP for 2016 FHA s-curves. Also, we shift the 2015 FHA s-curve by 50bp to adjust for the MIP reduction last year for the 130-135bp MIP borrowers. We note that the average primary mortgage rate effective for Mar-May prepays are comparable in 2015 and 2016 at ~3.75% each.

Figure 16. 2016 s-curves much flatter than 2015 in FHA and conventionals, but higher in VA



Note: These s-curves are based on Mar-May speeds of the respective year, showing pools issued in the prior year, excluding those in the last quarter (Jan-Sep 2014 issuance for 2015 s-curves, and Jan-Sep 2015 issuance for 2016 s-curves). We only consider borrowers with 130-135bp MIP for 2015 FHA s-curves, and 80-85bp MIP for 2016 FHA s-curves. Also, 2015 FHA s-curve is shifted by 50bp to adjust for the MIP reduction last year.

Source: Citi Research, 1010data, Freddie Mac PMMS survey

We note the following trends from the above chart:

- FHA speeds have declined sharply YoY, even adjusted for the 50bp MIP incentive. This signifies the strong media effect in the FHA space last year, which resulted in 20-25 CPR higher speeds for ITM collateral last year than today. It is highly unlikely that level of media effect will be matched this year in absence of a large MIP cut.

- Conventional s-curve has also flattened significantly albeit much less than FHA. While the flattening for slightly in-the-money cohorts likely reflects a lower media effect, high SATO and high share of investors in 4.0s and 4.5s of 2015 are likely the more important drivers for the flattening of deep in-the-money points on the s-curve, as we discuss below. Given the collateral differences, the conventional s-curve is unlikely to steepen to the levels from 2015 at the current rate level, but the response in lower coupons could be comparable.

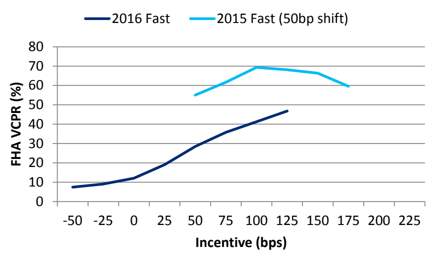
- VA s-curves remain steep and are actually higher YoY, breaking from the trend in FHA and conventionals. This suggests that VA borrower response is less contingent on media effect, and more a function of high share of fast servicers, collateral characteristics, and streamline refinancing program parameters.

- FHA s-curves remain steeper than conventionals, albeit less so given the sharp flattening in the former from last year.

FHA speeds have high upside risk, but unlikely to match the MIP-effect last year

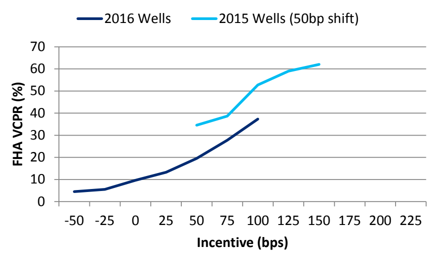
It is no surprise that FHA s-curves are flatter from a year ago. The coincident MIP-cut and rate rally in early 2015 created a strong media effect that propelled FHA s-curves to speeds not previously seen in the sector since the introduction of FHA HARP. Besides the broader media effect, involvement of certain aggressive servicers in the space resulted in speeds faster than generally anticipated. This in turn resulted in a greater share for these faster servicers in the 2015 vintage than the 2014 vintage. Nevertheless, speeds are nowhere close to last year's levels, suggesting that the lower media effect has overshadowed the worse servicer composition of the 2015 vintage.

Figure 17. FHA s-curves for fast servicers



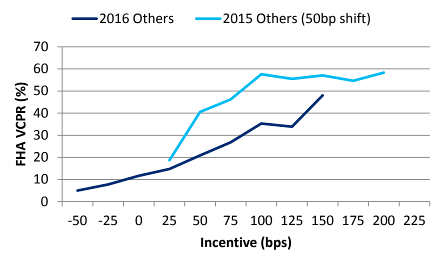
Source: Citi Research, 1010data

Figure 18. FHA s-curves for Wells Fargo



Source: Citi Research, 1010data

Figure 19. FHA s-curves for remaining servicers



.Source: Citi Research, 1010data

Figure 17-Figure 19 separate out the FHA s-curve shown in Figure 16 above for fast servicers[1], Wells Fargo, and other servicers. It is apparent that speeds have slowed down for each servicer bucket with fast servicers seeing a speed decline of 25-30 CPR, Wells speeds lower by 10CPR, and others slower by ~20 CPR. The sharp slowdown for fast servicers has a larger impact on the 2015 vintage speeds this year given the higher share of these servicers compared to previous vintages (Figure 20). Share of faster servicers has climbed further in 2016 vintage 3s and 3.5s, but declined in 4s.

Figure 20. GN2 FHA collateral characteristics by coupon and vintage

							MIP Distribution				
		WAC	Avg Loan Size ($k)	FICO	Refi %	W Avg MIP	50-55	80-85	130-135	Wells %	Fast Svcr %
3s	2014	3.50	174	663	8%	1.06	30%	0%	57%	15%	13%
	2015	3.49	206	699	31%	0.87	3%	88%	6%	14%	22%
	2016	3.48	209	694	30%	0.83	2%	95%	0%	7%	28%
3.5s	2014	3.93	183	684	12%	1.26	8%	0%	82%	18%	21%
	2015	3.89	203	683	37%	0.85	6%	85%	4%	11%	30%
	2016	3.90	199	676	32%	0.82	6%	88%	1%	8%	32%
4s	2014	4.35	171	668	17%	1.16	21%	3%	66%	19%	21%
	2015	4.37	194	664	26%	0.83	10%	85%	1%	8%	25%
	2016	4.41	188	657	16%	0.82	10%	83%	1%	7%	15%
4.5s	2014	4.83	154	647	20%	1.07	24%	24%	44%	12%	14%
	2015	4.86	169	647	19%	0.80	16%	80%	0%	9%	12%
	2016	4.91	154	642	22%	0.77	24%	63%	0%	19%	11%

Source: Citi Research, 1010data

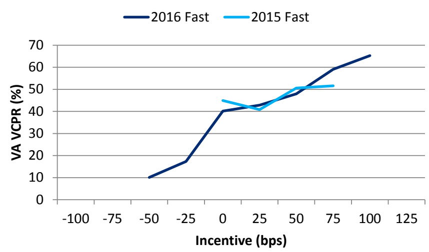
VA speeds comparable to 2015, less sensitive to media effect

VA s-curves are higher YoY, in a break from the trend across FHA and conventional sectors. Looking across Fast servicers/Wells/Others, we find that s-curves are near unchanged for fast servicers from a year ago and have shifted slightly higher for other servicers including Wells Fargo as they catch up (Figure 21-Figure 23). Furthermore, the higher share of fast servicers in the 2015 vintage compared to 2014 vintage compounds the overall increase in s-curves YoY (Figure 24). Note that

[1] Quicken, Freedom, PennyMac, Lakeview, New Day Financial, Flagstar, New Penn, Pacific Union, Pingora.

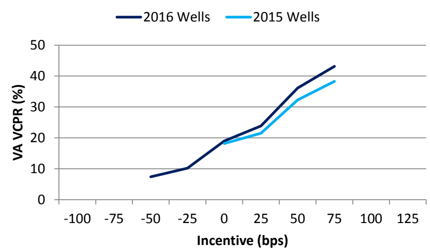
2016 vintage has an even higher share of fast servicers than 2015 vintage, suggesting more upside risk to prepays.

Figure 21. VA s-curves for fast servicers



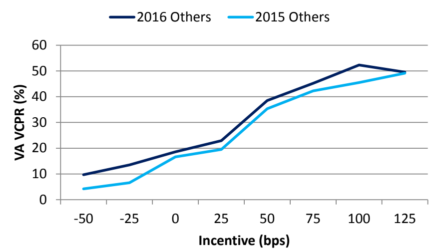
Source: Citi Research, 1010data

Figure 22. VA s-curves for Wells Fargo



Source: Citi Research, 1010data

Figure 23. VA s-curves for remaining servicers



Source: Citi Research, 1010data

Figure 24. GN2 VA collateral characteristics by coupon and vintage

		WAC	Avg Loan Size ($k)	FICO	Refi %	Wells %	Fast Svcr %
3s	2014	3.48	251	724	47%	14%	19%
	2015	3.44	257	726	50%	15%	22%
	2016	3.42	260	723	57%	10%	30%
3.5s	2014	3.88	239	720	37%	17%	26%
	2015	3.85	240	709	42%	13%	29%
	2016	3.85	238	701	44%	11%	32%
4s	2014	4.31	223	695	35%	19%	30%
	2015	4.36	227	671	31%	8%	30%
	2016	4.39	223	651	30%	8%	29%
4.5s	2014	4.85	201	656	56%	9%	49%
	2015	4.84	204	652	51%	9%	46%
	2016	4.84	216	663	81%	8%	77%

Source: Citi Research, 1010data

Higher share of FHA, Faster servicers in 2015-16 GN2s, Lower buyouts

Figure 25-Figure 27 show G2 MA pool characteristics for GN2 3.0s-4.0s for the 2014-15 vintages in aggregate and by month of issuance for 2016 vintage. FHA share is sharply higher for 2015-16 vintages compared to 2014 vintage. This should lower the G2 s-curve compared to last year as FHA speeds are unlikely to match last years' media-effect driven speeds, and the faster VA sector has a smaller share of the pools. FHA Buyouts have also declined from year-ago levels (Figure 28). Partially offsetting this, however, is the greater share of fast servicers in the 2015-16 vintages, which could be a game changer if strong media effect kicks in.

Figure 25. G2 3.0s major pool characteristics

3.0s	FHA %	VA %	Mod/Refi %	Wells %	Fast %
2014	40%	53%	30%	14%	16%
2015	43%	52%	4%	14%	22%
Jan-16	38%	58%	3%	12%	25%
Feb-16	35%	60%	3%	10%	22%
Mar-16	40%	56%	6%	8%	26%
Apr-16	40%	57%	2%	8%	28%
May-16	42%	54%	2%	10%	28%

Source: Citi Research, 1010data

Figure 26. G2 3.5s major pool characteristics

3.5s	FHA %	VA %	Mod/Refi %	Wells %	Fast %
2014	43%	50%	7%	18%	23%
2015	63%	33%	6%	12%	29%
Jan-16	61%	35%	4%	10%	30%
Feb-16	59%	37%	5%	11%	31%
Mar-16	61%	35%	10%	11%	30%
Apr-16	66%	31%	7%	8%	32%
May-16	67%	30%	8%	9%	33%

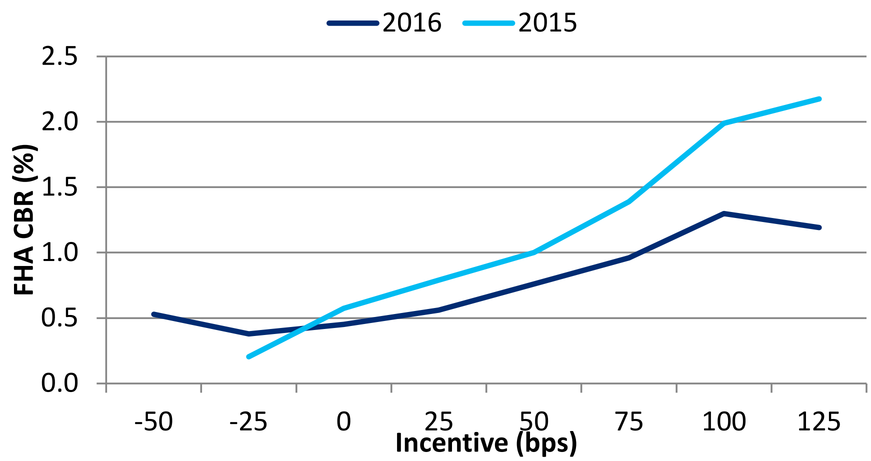
Source: Citi Research, 1010data

Figure 27. G2 4.0s major pool characteristics

4.0s	FHA %	VA %	Mod/Refi %	Wells %	Fast %
2014	63%	31%	15%	19%	24%
2015	77%	21%	12%	8%	26%
Jan-16	75%	23%	11%	7%	25%
Feb-16	76%	21%	14%	7%	26%
Mar-16	77%	20%	24%	11%	21%
Apr-16	78%	19%	16%	6%	19%
May-16	79%	18%	21%	9%	16%

Source: Citi Research, 1010data

Figure 28. FHA buyout s-curve lower in 2016 than 2015



Source: Citi Research, 1010data

Conventionals—High SATO and investor share flatten conventional s-curve

While the flattening for slightly in-the-money cohorts likely reflects a lower media effect, high SATO and high share of investors in 4.0s and 4.5s of 2015 are likely the more important drivers for the flattening of deep in-the-money points on the s-curve. As shown in Figure 29, 4.0s of '15 have SATO at 56bp compared to 20bp in 4.0s of '14. Furthermore, both average loan size and FICO of 2015 4.0s are lower than 2014 4.0s.

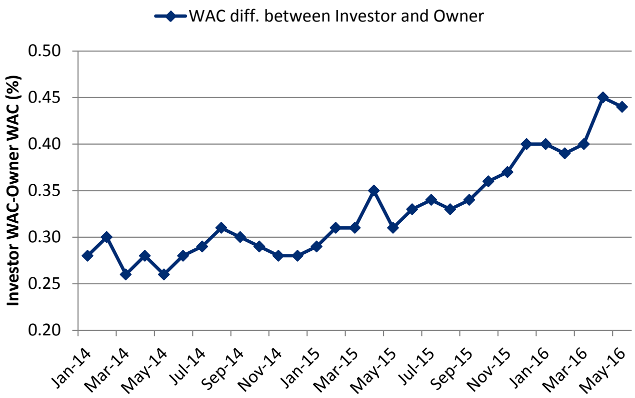
Figure 29. Characteristics of recent conventional cohorts

Coupon	Vintage	Bal ($bn)	WAC	WALA	FICO	Waolsz ($k)	Oltv	Refi%	Broker%	Correspondent%	SATO (bp)	Investor%
3.0	2013	160	3.58	38	764	295	72	68%	12%	35%	-5	3%
	2014	2	3.87	19	770	304	74	39%	13%	40%	-32	1%
	2015	60	3.78	13	766	315	74	51%	13%	34%	-15	1%
3.5	2013	84	4.02	36	744	258	77	64%	10%	25%	18	16%
	2014	64	4.24	21	759	285	78	31%	9%	38%	-5	2%
	2015	194	4.11	11	750	288	78	43%	11%	29%	12	6%
4.0	2013	62	4.58	33	741	240	80	45%	10%	29%	21	13%
	2014	102	4.59	23	**737**	**252**	80	39%	10%	30%	**20**	**10%**
	2015	58	4.58	11	**715**	**239**	80	49%	10%	27%	**56**	**20%**
4.5	2013	12	5.04	32	718	194	81	49%	11%	24%	55	29%
	2014	19	5.02	25	**705**	**194**	81	50%	11%	24%	**58**	**27%**
	2015	5	4.98	11	**698**	**168**	79	51%	8%	28%	**95**	**39%**

Source: Citi Research, 1010data

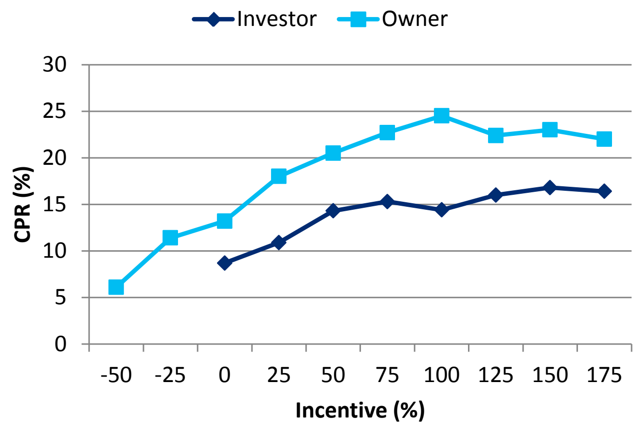
Another notable reason for the flatter s-curve this year is the high investor share in high coupons. Driven by the LLPA change last year, the mortgage rate differential between investors and owners increased in 2015, leading to a higher investor share in high coupons (Figure 30). As Figure 29 shows, investor loans have a 20% share in 2015 4.0s, doubling the share of 2014 4.0s. In 2015 4.5s, investors account for close to 40% of the cohort although the cohort itself only has $5bn UPB. As the investor s-curve is flatter compared to owners (Figure 31), a higher share of investor loans can lead to an overall flatter s-curve.

Figure 30. The mortgage rate differential between investor and owners has increased



Source: Citi Research, 1010data

Figure 31. Investor S-curve is lower/flatter than owners (12-24 WALA, Fannie Mar-May speeds in 2016)



Source: Citi Research, 1010data

Fannie Ramps up Major Pool Issuance in June

Fannie ramped up the issuance of its FN 3.0 major pool from $1.2bn last month to 6.6bn MTD in June. The June major in FN 3.0s will likely account for over 30% of total FN 3.0s issuance in June. Unlike prior Major pools, both large banks such as Wells/Chase and non-bank fast servicers like Quicken participated in the pool. The issuance of the June Major pool could signal a strategic shift in Fannie's pooling practice and make it more aligned with Golds, where issuance share of multilender pools is already quite high. FN TBA deliverables should improve over time if this pooling trend expands across coupons, narrowing the worst-to-deliver pools' speed difference with golds that we have highlighted in the past.

Fannie June 3.0 Major pool issuance jumps

Both Fannie and Freddie have programs that allow lenders to swap their loans for a pro-rata share of a pool to form a large multi-issuer pool. The program is called Major pools in Fannie and MultiLender pools in Freddie. Note that these programs are different than cash-window pools where lenders sell loans directly to GSEs for cash. Our previous weekly (see our Agency MBS Weekly from March 18) gives an overview of the Freddie's MultiLender program and its impact on the worst-to-deliver speeds. We provide an updated comparison of the program between Fannie and Freddie below.

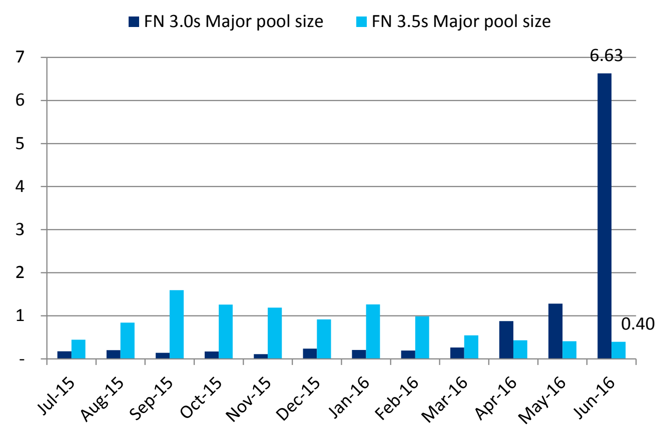
Figure 32. Servicer share of the June Major pool (FN MA2670 of 3.0s)

Seller	UPB ($bn)	Share %
Wells	2.38	36%
Quicken	0.73	11%
PennyMac	0.67	10%
Chase	0.34	5%
Remaining	2.51	38%
Total	6.63	100%

Source: Citi Research, Fannie Mae

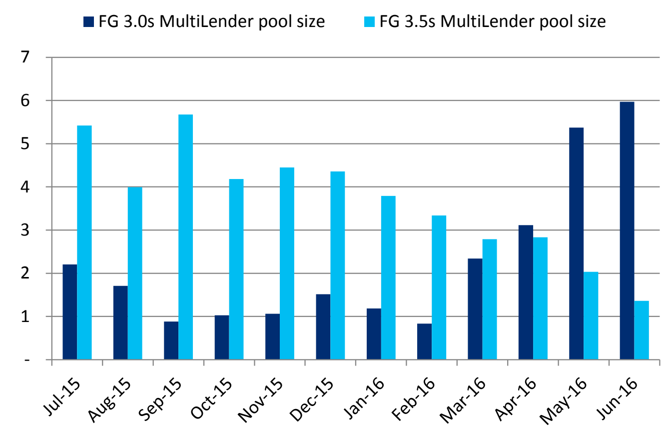
As shown in Figure 33 and Figure 34, the average size of Major pools prior to June was generally below $1.5bn, much smaller than Freddie's MultiLender pools. The new pool in FN 3.0s, however, has reached $6.63bn so far this month (Major pool size increases throughout the month), rivaling the size of Freddie's MultiLender pools. Furthermore, the lender mix (Figure 32) shows that the new Major pool has attracted participation of both large banks and non-bank servicers.

Figure 33. UPB of Fannie's June Major pool in 3.0s has increased to $6.63 so far in June…



Source: Citi Research, 10101data, Fannie Mae

Figure 34. …making it comparable to the Freddie MultiLender pool size for June in 3.0s



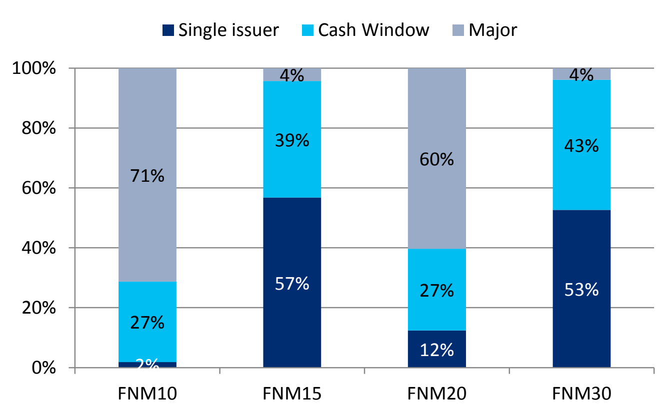
Source: Citi Research, 10101data,

Fannie Major pools less important in 15/30yr sector than 10/20yr sector historically

Historically, Major/MultiLender pools have played a larger role in the 10yr/20yr sector but have been largely inconsequential in the more liquid 15yr and 30yr sector. As Figure 35 and Figure 36 show, Fannie Major pools accounted for 60-70% of 10/20yr issuance in 2015-16 in Fannies and 79% in Freddie's 20yr sector (note that Freddie does not have MultiLender pools in 10yr).

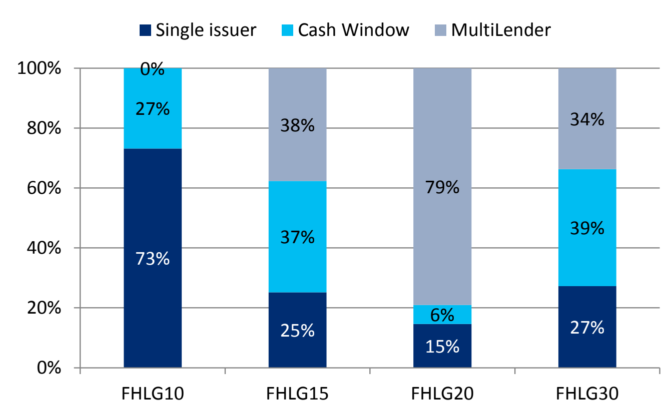
In contrast, Fannie's Major pools only account for 4% in the 15yr and 30yr sector, compared to 34-38% in Golds. Low liquidity in the 10/20yr sector likely makes lenders more willing to participate in the Major/MultiLender program.

Figure 35. Shares of single issuer/cash window and Major pool in Fannie (2015-16 vintages prior to June)



Source: Citi Research, 1010data

Figure 36. Shares of single issuer/cash window and Major pool in Freddie (2015-16 vintages prior to June)



Source: Citi Research, 1010data
Note that Freddie also issues giant pools by combining large MultiLender pools and cash window pools. The share of deliverable cash window pools is thus smaller than the above graph.

Lender participation in Major/MultiLender pools

Not only were the pool size and the share much smaller in Fannie's 30yr Major pools, its lender mix was also very different than Golds (Figure 37). In Golds, both Major bank and non-bank servicers participate heavily in the MultiLender pools. Wells has half of its issuance, and fast servicers such as Quicken/Flagstar have 90% of their issuance, in MultiLender pools. In contrast, Fannie Major pools have lacked participation from large banks and fast non-bank servicers prior to June. The new pool which includes servicers such as Wells as well as Quicken may signal a strategic shift in Fannie's pooling practice.

Figure 37. Fannie and Freddie Major/MultiLender pool issuance by servicers and their shares (2015-16 vintage 30yr MBS prior to June 2016, $bn)

Fannie					Freddie				
Seller	Issuance in Major pools	Sellers' Share in Major pools	Total issuance	Share of Major pool in Seller total issuance	Seller	Issuance in MultiLender pools	Sellers' Share in MultiLender pool	Total issuance	Share of MultiLender pool in total issuance
PennyMac	3.6	19%	7.2	50%	Wells	22.5	20%	44	51%
Nationstar	3.1	16%	8.1	38%	Quicken	14.3	13%	16	89%
Loandepot	2.4	13%	7.4	33%	Caliber	8.0	7%	9	88%
New Penn	1.8	9%	1.8	99%	US Bank	7.9	7%	20	39%
Everbank	1.0	5%	2.2	47%	Flagstar	6.5	6%	7	92%
Redwood	0.8	4%	1.0	78%	BB&T	6.0	5%	10	59%
Trustmark	0.7	4%	0.7	95%	United shore	5.4	5%	7	75%
Bayview	0.6	3%	1.5	43%	BoA	5.2	5%	11	48%
USBank	0.6	3%	4.9	12%	LoanDepot	4.1	4%	7	60%
Prospect	0.6	3%	2.2	25%	Suntrust	3.1	3%	4	70%
All Seller	**19.1**	**100%**	**487.4**	**4%**	**All Seller**	**110.4**	**100%**	**327**	**34%**

Source: Citi Research, 1010data

Large Major Pools Could Improve TBA Deliverability

While Fannie and Gold speeds have generally converged at the cohort level over time, TBA worst-to-deliver Gold speeds have been slower than Fannies due to their much lower share of fast single-issuer pools. The effect is particularly pronounced in cuspy coupons 3.5s where the share of MultiLender pools is larger. Gold $5bn WTD speeds were 4-10 CPR lower than Fannies from March to May (Agency MBS Weekly from June 10).

If Fannie expands the issuance of Major pools across coupons in large sizes and banks as well as fast servicers participate heavily, we could see a convergence of worst-to-deliver speeds between Fannie and Golds.

Fannie Mae Kicks Off R-pool Securitization

Fannie securitized three small size R-pools in the 15yr, 20yr and 30yr sectors this week. Figure 38 shows some key features of the pools. These pools may broadly indicate what's coming in the pipeline, but given the small size we refrain from drawing any conclusions just yet.

Figure 38. Fannie issued three re-performing pools this week

Pool #	prefix	Product	UPB ($mm)	Coupon	Vintage	WALA	WAM	OLTV	WaoInsz ($k)
FN BF0000	R1	15yr Re-performing	2.70	2.5	2013	39	136	54	216
FN BF0001	R2	20yr Re-performing	5.20	4	2010	73	162	45	220
FN BF0002	R3	30yr Re-performing	5.60	4.5	2014	29	323	65	219

Source: Citi Research, Fannie Mae

On June 6, Fannie Mae had announced that it will release historical data for loans modified between 2010 and 2015 in July,[2] aiming to help investors better understand modified pools and improve liquidity. Separately on June 6, Fannie Mae released a primer on securitization of modified pools.[3]

Fannie has indicated that the re-performing loans need to be performing for at least 6 months to be securitized and step-up mods can only be in their final step. In contrast, Freddie has generally issued modified loans that have been performing for at least 12 months and modified loans that are in early stages of the step-up process. As we discussed previously (Agency MBS Weekly from May 6), we expect re-performing/modified pool sales to be in the range of $5-15bn in 2H from Fannie but the securitization rate could be higher than the actual sales of pools.

[2] http://www.fanniemae.com/portal/about-us/media/financial-news/2016/6394.html

[3] http://www.fanniemae.com/resources/file/mbs/pdf/mbsenger_060616.pdf

Non Agency MBS

NPLs, RPLs, and Seasoned Deals

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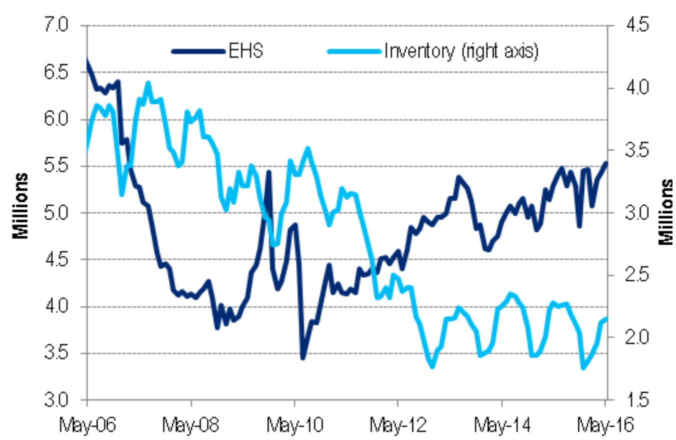
Brexit Could Mean Entry

We do not see the departure of the U.K. from the European Union as having any material near-term effects on mortgage credit fundamentals in the US. Additionally, U.K. holdings of U.S. RMBS and CMBS are modest at $12BN as of Q2 2015. We therefore see the risks as limited, and any widening in spreads because of broader risk-off movement could constitute an attractive point of entry.

Existing Home Sales Continue To Improve

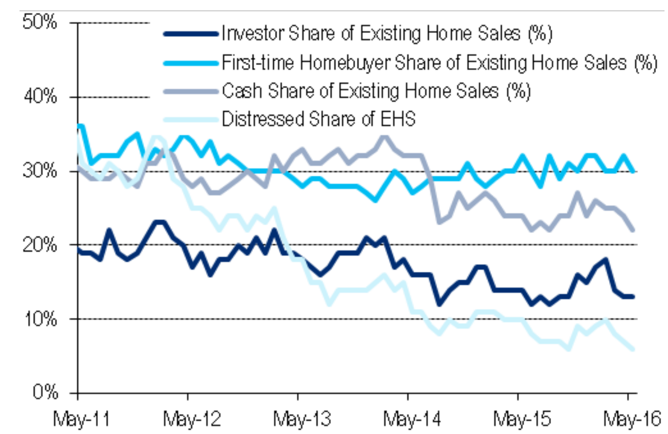
Total existing home sales grew 1.8% overall on a seasonally adjusted and annualized basis to a 5.53MM annual pace, the highest pace of sales activity since February 2007. At the same time, inventory growth was contained at 1.4%, an overall positive indicator for national HPA. Equally as encouraging, distressed share of sales continues to follow a negative trend, falling to 6% of sales from 7% in April. Likewise, the average discount on foreclosure sales fell to 12%, one of the smallest discounts we've seen.

Figure 39. EHS +1.8% While Inventory Grew 1.4%



Source: Citi Research, NAR

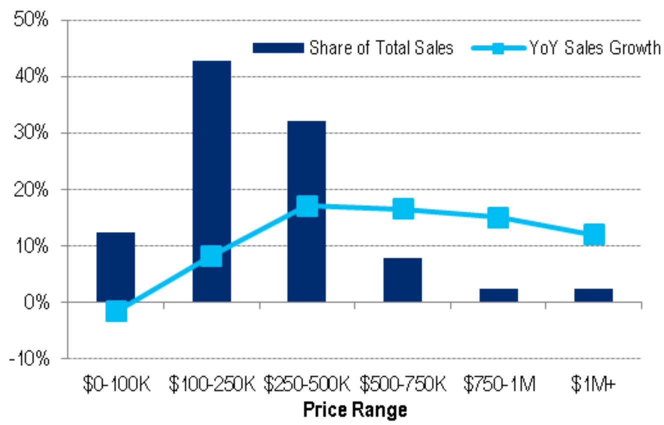
Figure 40. Distressed Share at All-Time Low



Source: Citi Research, NAR

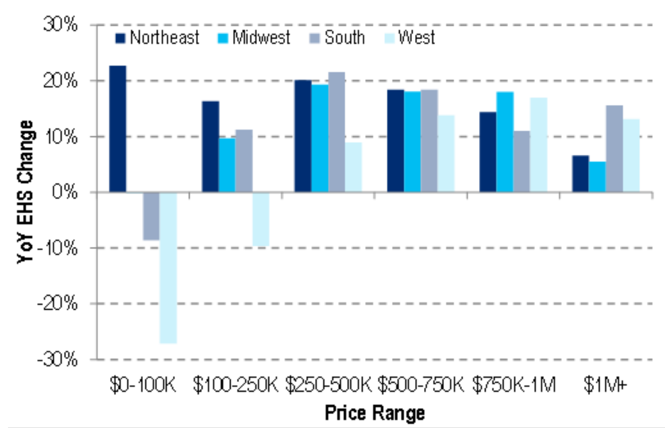
Sales growth has not been universally positive, however. For instance, in San Francisco inventory is up approximately 30-50% with an uptick in expired/withdrawn listings that could imply further growth of shadow inventory. While the absolute levels of inventory in San Francisco are relatively low, this could be a negative sign. Overall sales growth in the West was consistent with prior months, with declining sales in the lowest price buckets and positive but slowing sales growth in the higher price buckets. On a national basis, sales growth remains strongest in the lower price tiers.

Figure 41. Low-Mid Priced Homes Show Strength



Source: National Assoc. of Realtors, Citi Research

Figure 42. Northeast Sales Strong Across Price Spectrum



Source: National Assoc. of Realtors, Citi Research

LLP-Nay?

On June 22nd, a consortium of housing market participants and stakeholders sent a letter to Mel Watt to advocate for the reduction or elimination of loan-level price adjustments (LLPAs) on the argument that "no borrower should face arbitrarily high prices for mortgage credit"[4]. The thrust of the argument is that average g-fees grew from 22bp to 58bp from 2009 to 2014 despite improving credit quality and the post-crisis reforms to the mortgage insurance market have made the incremental charges for higher LTVs and lower credit scores a redundant and unnecessary burden on borrowers. However, we feel this might not be the best solution for several reasons:

- The average CRT implied g-fee is 48bps, and the 10bps difference between the market implied g-fee and actual g-fee can be attributed to the 10bp payroll tax cost included at the behest of congress. Therefore, the growth rate in g-fees seems to accurately reflect credit risk and not GSE expense bloat.
- While MI stands in the first loss position for high LTV loans, the GSEs do not transfer 100% of the risk and are exposed to losses above certain thresholds. We believe it is prudent of them to be compensated for the risk they are taking, and that it is neither redundant nor arbitrary.
- Mortgages on investor properties are broadly the most adversely affected by the current LLPA matrix, not first-time and low-income homebuyers. FHA loans, which also serve low-income and first-time homebuyers, are exempt from LLPA costs. Additionally, lowering the costs for investor property acquisition could have the counter-effect of drawing more would-be landlords into competition with potential homeowners—decreasing both affordability and homeownership rates.

Treasury Trove

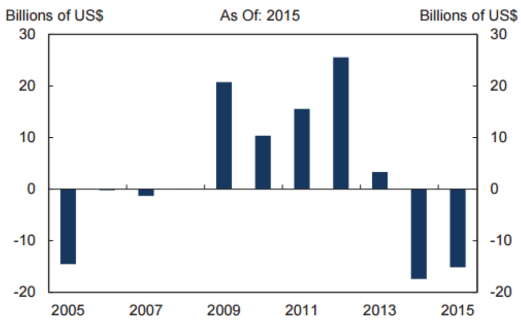
The Treasury Department's Financial Stability and Oversight Council (FSOC) released its 2016 annual report this week[5]. Among the wide breadth of information

[4] http://www.usmi.org/wp-content/uploads/2016/06/2016.06.22-Stakeholder-Letter-to-FHFA-on-LLPAs-and-Guarantee-Fees-FINAL.pdf

[5] https://www.treasury.gov/initiatives/fsoc/studies-reports/Documents/FSOC%202016%20Annual%20Report.pdf

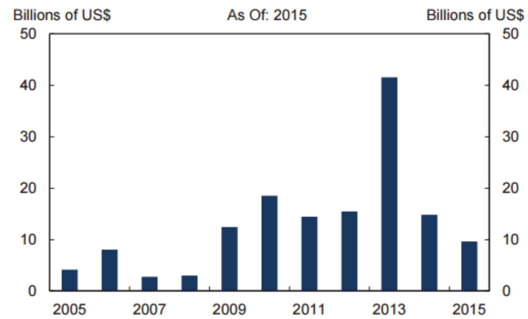
featured summarizing the financial markets, we looked at annual fund flows over the past ten years. The broad themes across asset classes are not especially surprising: there has been a bifurcation in allocations, with the two main areas of growth being passive, low-fee strategies and specialty focus/alternative active management. We believe this investment environment is beneficial for CMOs, as credit tranching creates stable senior bonds for the passive managers and levered subs for the active managers.

Figure 43. High-Yield Mutual Funds: Annual Flows



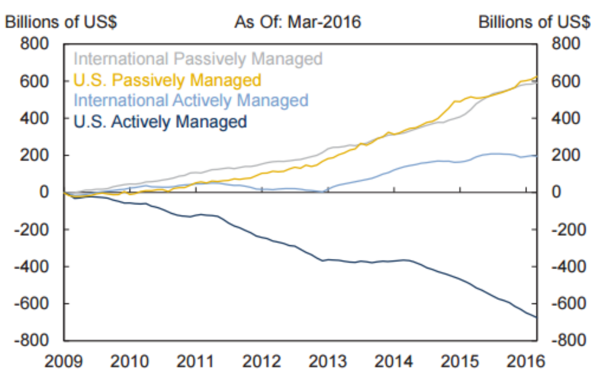
Source: Treasury FSOC, Morningstar, Citi Research

Figure 44. Alternative Mutual Funds: Annual Flows



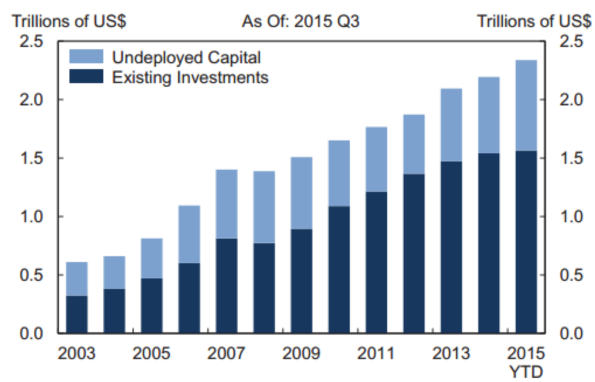
Source: Treasury FSOC, Morningstar, Citi Research

Figure 45. Cumulative Equity Fund Flows



Source: Treasury FSOC, Morningstar, Citi Research

Figure 46. US Private Equity AUM



Source: Treasury FSOC, Preqin, Citi Research

NPLs, RPLs and Seasoned Deals

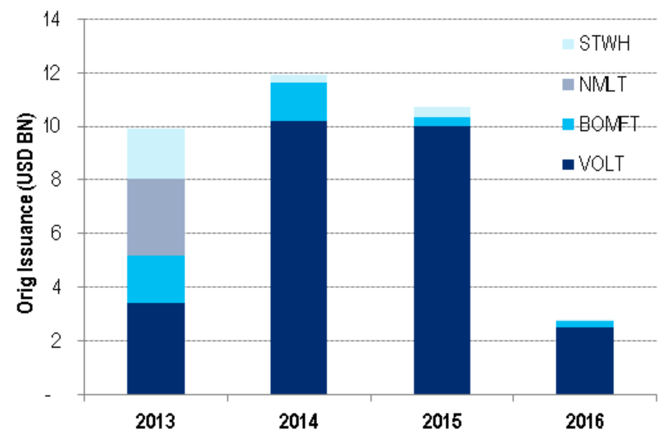
The supply of re-performing loans (RPL) has been mostly from banks and the collateral from called deals, which in turn impacts the issuance of RPL securitizations. Since 2015, TPMT, CSMC and BOMFT shelves have accounted for majority of the issuance (Figure 48). A major share of the NPL deal issuance continues to be from the VOLT shelf (Figure 47). RPLs have been in the news with Fannie Mae having announced plans to securitize re-performing loans into Agency MBS beginning in the second half of 2016. Earlier this month, they announced the upcoming release of a new historical dataset for a subset of their re-performing loan pool.

Collateral and Structure

Borrower characteristics like FICO and LTV have improved over time. In general, an increasing share of the collateral has a longer clean pay history, which we define as being current for 24 months. For seasoned pools, the payment history is an important driver of collateral defaults and could serve as a proxy for updated FICO. The credit enhancement on the senior bond varies across deals, but at first glance seems adequate relative to the credit risk of the collateral. The senior tranches of RPL deals have enough credit support to withstand losses to the collateral at a loss severity of 40%.

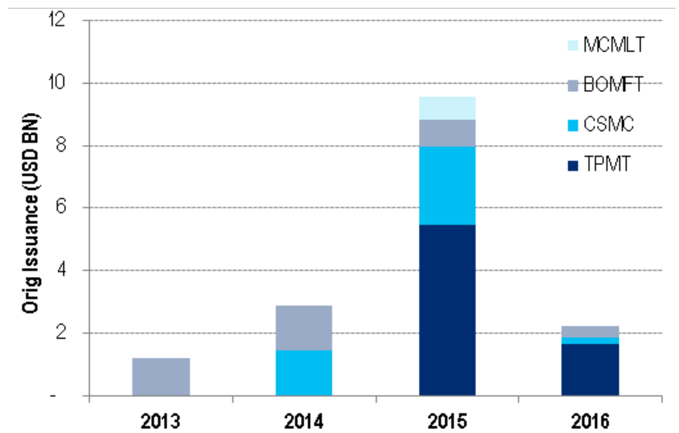
The cumulative defaults that are needed to for the senior bond to take a write down are significantly high, given the average senior credit support is over 40%. The credit support (at issuance) on the senior bond of NPL deals appears to have declined over time (Figure 54). For the RPL deals, we see a similar trend, but that is primarily due to the issuance of TPMT deals with AAA-rated senior bonds.

Figure 47. NPL Issuance By Shelf



Source: Citi Research, CoreLogic, Intex, Bloomberg

Figure 48. RPL Issuance By Shelf



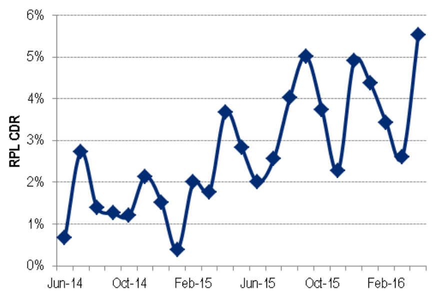
Source: Citi Research, CoreLogic, Intex, Bloomberg

Performance Metrics

We look at the deal level performance data from Intex, given that the loan performance data is not available for a number of deals. The loss severities on the collateral backing the RPL deals are roughly around 40% over the last few years. This is in general lower than what we have seen for modified collateral in legacy non-agency RMBS, given the lack of P&I advancing on the RPL deals. The liquidation timelines on RPL deals are comparable to modified legacy non-agency RMBS collateral.

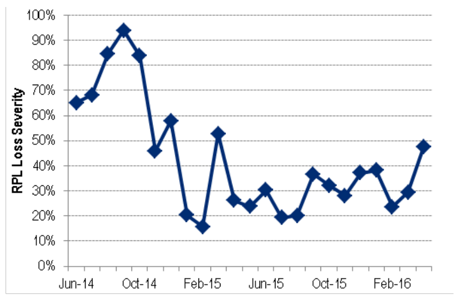
The CDRs on NPL deals had spiked up in early 2015 and then declined through the second half of 2015. The CDRs on an average are currently around 30% (Figure 52). The loss severities on the NPL deals are roughly around 40%. As expected, there is significant variation of loss severities by LTV and geo. The average liquidation timeline on NPL deals is around 40 months. The modification rate on NPL and RPL deals is roughly similar to the modification rates in seen in legacy RMBS deals. Some of the deals also allow bulk loan sales, which could be seen as payoffs from current or early delinquent states. Such loan sales could increase the senior credit enhancement and shorter the senior bonds.

Figure 49. RPL CDRs Over Time



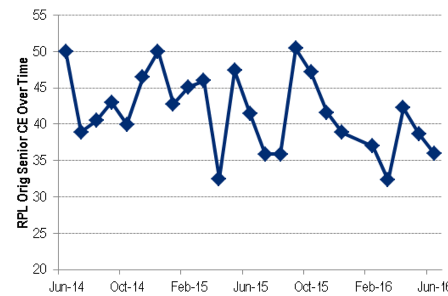
Source: Citi Research, CoreLogic, Intex, Bloomberg

Figure 50. RPL Loss Severity Around 30-40%



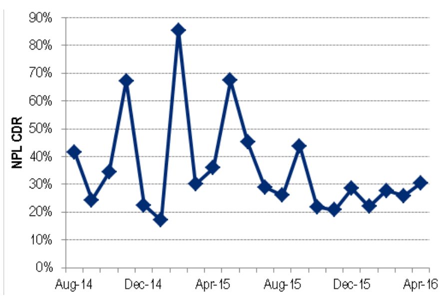
Source: Citi Research, CoreLogic, Intex, Bloomberg

Figure 51. RPL Orig Senior CE Over Time



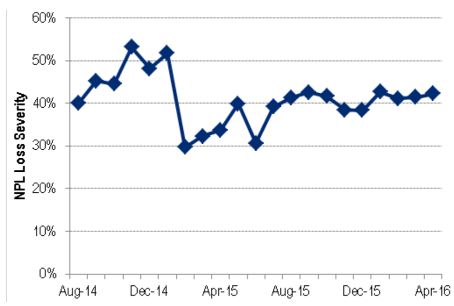
Source: Citi Research, CoreLogic, Intex, Bloomberg

Figure 52. NPL CDRs Over Time



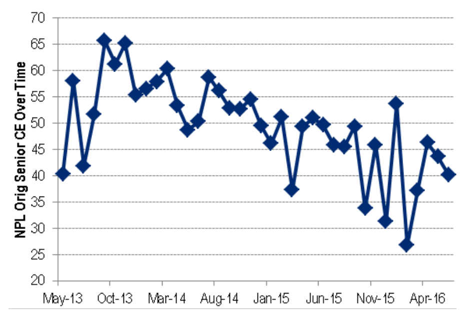
Source: Citi Research, CoreLogic, Intex, Bloomberg

Figure 53. NPL Loss Severity Around 40%



Source: Citi Research, CoreLogic, Intex, Bloomberg

Figure 54. NPL Orig Senior CE Over Time

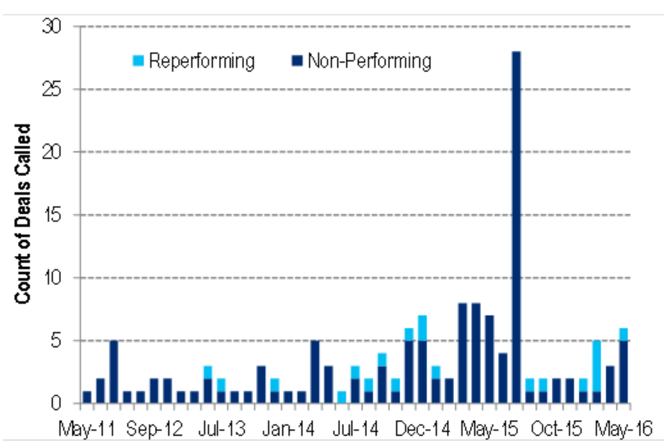


Source: Citi Research, CoreLogic, Intex, Bloomberg

Deal Calls

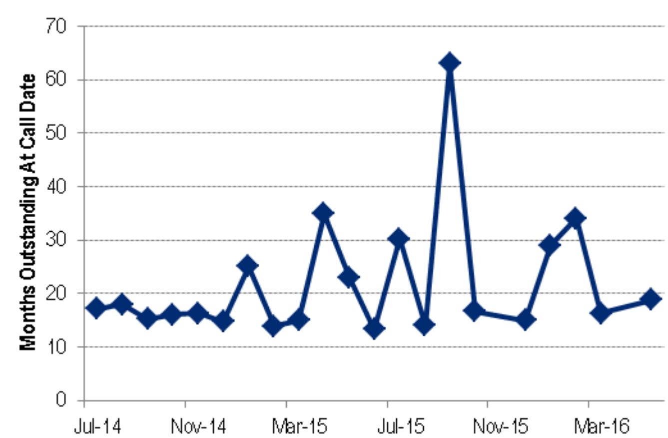
For NPL deals, VOLT and BOMFT call deals around 18 months out, ahead of the three year step up period. Most times, issuers securitize the collateral from called deals to lower financing costs through new deals. Figure 55 shows the count of NPL/RPL deals that have been called over the last few years.

Figure 55. NPL/RPL Count of Called Deals Over Time



Source: Citi Research, CoreLogic, Intex, Bloomberg

Figure 56. Months Outstanding At Call Date For NPL/RPL Deals



Source: Citi Research, CoreLogic, Intex, Bloomberg

Figure 57. Orig Collateral Characteristics For TPMT Deals

Pool Characteristics	TPMT 2016-2	TPMT 2016-1	TPMT 2015-6	TPMT 2015-5	TPMT 2015-4	TPMT 2015-3
Original Pool Balance	$1,063,366,117	$927,200,542	$1,022,966,908	$1,291,578,427	$1,498,593,666	$958,197,218
Average Loan Balance	$215,836	$269,439	$184,115	$206,894	$189,432	$192,039
WA Coupon	3.68%	4.26%	4.46%	4.31%	4.55%	4.75%
WA FICO	685	714	682	682	676	719
WA Original CLTV	82.20%	80.60%	82.70%	80.20%	84.90%	87.00%
WA DTI Ratio at Origination	41.20%	39.10%	38.10%	38.70%	41.20%	38.50%
WA Seasoning	109 months	108 months	98 months	107 months	110 months	107 months
Interest Only (Active)	4.50%	17.30%	2.60%	4.30%	4.90%	0.60%
Fixed Rate	42.10%	55.10%	68.40%	62.20%	58.70%	95.60%
Fixed Step-Rate	48.20%	14.00%	25.40%	32.70%	32.30%	2.00%
Hybrid ARMs	9.70%	30.90%	6.20%	5.10%	9.00%	2.40%
Delinquency Status at Issuance						
Current	100%	100%	100%	100%	100%	100%
Modification	79.6%	62.1%	78.4%	93.1%	100.0%	100.0%
Payment History in Past 36 months at Issuance (0 x 30 Days Late)	51.90%	40.80%	48.20%	58.20%	35.10%	100.00%

Source: Citi Research, Kroll Bond Ratings

Bond Valuation

Indicative Runs for TPMT 2015-2 1A1

Since we do not have IDC prices on most of the RPL and seasoned senior bonds, we show bond runs assuming indicative prices. Across different scenarios for prepays, defaults and loss severities, we find TPMT 2015-2 1A1 (Px $102) to be in a spread range of 143-159 DM. With prepays at 5CPR and defaults at 5CDR with a loss severity of 40%, the spread (to Treasury) is 155bp with a WAL of 2.87yrs. As prepays decline to 3CPR, spread is 159bp with WAL extending to 3.61yrs. Hence, the RPL senior bond offers a relatively attractive spread in the shorter WAL space and does not seem to get impacted negatively under different scenarios.

Figure 58. Indicative Runs For TPMT 2015-2 1A1

Indicative Px	102			
	Scenarios			
CPR	5		3	
CDR	5	10	5	10
Severity	40			
Spread (US Treasury)	155	143	159	153
Yield	2.45	2.24	2.61	2.40
WAL	2.87	2.26	3.61	2.70
Total Asset Liquidation (%)	38.8	57.17	43.84	63.12
Total Asset Loss (%)	14.66	22.32	16.8	24.83
Principal Writedown (%)	0	0	0	0

Source: Citi Research, Intex

Figure 59. Indicative Runs For NRZT 2015-1A A1

Indicative Px	103			
	Scenarios			
CPR	10	15	20	5
CDR	1	1	1	5
Severity	50	50	50	50
DM (LIBOR (6mo))	137	126	111	112
Yield	2.98	2.77	2.53	2.79
WAL	4.61	3.56	2.80	5.51
Total Asset Liquidation (%)	4.87	3.9	3.19	26.21
Total Asset Loss (%)	2.05	1.56	1.2	12.78
Principal Writedown (%)	0	0	0	2.09

Source: Citi Research, Intex

Indicative Runs for NRZT 2015-1A A1

Using an indicative price of $103, NRZT 2015-1A A1 has a spread of 137bp and a WAL of 4.61yrs when run to 10CPR, 1CDR with a loss severity of 50%. As prepays increase to 20CPR, the WAL shortens to 2.8yrs with a DM of 111bp. Even in a stress scenario of 5CDR and 5CPR, the DM is 112bp with the WAL extending to

5.51yrs. In this scenario, the bond takes a write-down of 2.09%. The average WAC on the collateral is 5.65%, but there has been some degree of burnout given these loans had a positive incentive to refinance for some time.

Consumer ABS

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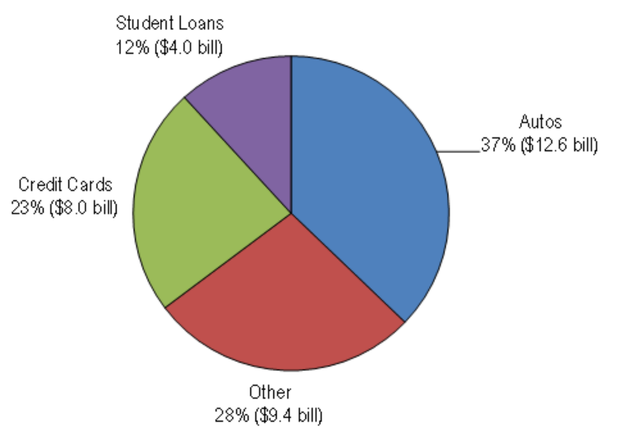
Carry vs. Stability: Mutually Exclusive?

Boring Beats Sexy

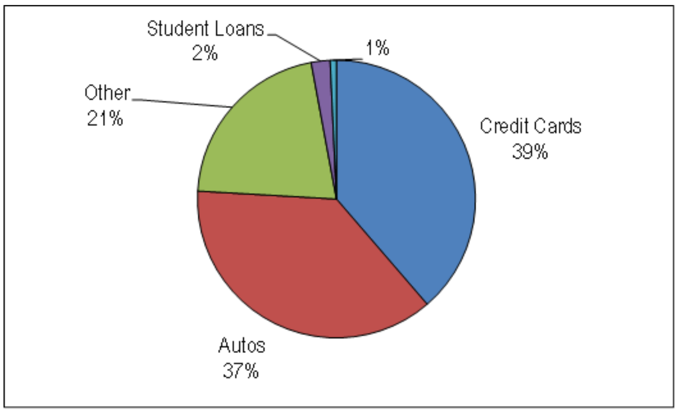
A fundamental investment decision is whether to seek out higher-carry ABS investments or stick with lower yielding, more stable ABS investments. To solve this question, we compared monthly total rates of return for the past year for a franchise ABS transaction (the sexy) versus the prime auto ABS market (the boring). Granted, the average lives and spreads for each sector are quite different, yet we had a hunch that slow and steady would win the race — and we were correct from a volatility perspective. Franchise ABS is a high-carry, longer WAL sector that is also reasonably actively traded according to TRACE data for the last 50 days, so we thought it would be a reasonably good metric to benchmark against prime auto ABS market performance. Figure 60 shows that "other" ABS composed about 28% of ABS secondary TRACE trades for the 50 days ended in early June. Secondary auto ABS represents the largest amount of secondary trading activity, accounting for 37% of TRACE trades for the observed period, as the figure also shows. Measured by cusips that traded at least 20 times during the observed period, "other" also features prominently at 21% of total (Figure 61).

Figure 60. ABS Trading Volume on TRACE, by Sector, March 28-Jun 6, 2016



Source: Citi Research

Figure 61 ABS Trading Volume on TRACE, by CUSIPS Exceeding 20 Trades, March 28-Jun 6, 2016



Source: Citi Research

Franchise: A Secured Future Flow Corporate Obligation

Franchise ABS is a hybrid corporate-like obligation. We define franchise ABS as a whole business securitization combining traditional corporate debt features with the protective features of an asset backed security. The securitization relies on future cash flows generated by an operating company for debt repayment. The structure typically finances LBOs or corporate recapitalizations, advancing against future corporate cash flows. A franchise ABS typically finances the capitalization of the business by advancing against the value of future corporate cash flows produced by the business' operating assets (principally franchise fees). Ideal franchise ABS candidates combine a long operating history with consistent and stable cash flows[6]. Franchise ABS garners secondary market attention for a few reasons, in our view:

[6] For more details on franchise ABS structures, refer to our primer: "Guide to Franchise ABS What's on the Menu — Franchise Restaurant ABS", 22 September 2010,

Reasons for Active Franchise ABS Secondary Market Trading

1. **Supersized**. Deals and tranche sizes are typically big with a large number of investors, leading to active secondary market trading interest.

2. **Hybrid-like investors**. The sector may attract more diverse investors (such as high yield investors) than a typical generic ABS deal because investing in a franchise ABS requires strong familiarity with the corporate story. The ABS ratings are 1-4 notches higher than the equivalent corporate unsecured debt.

3. **Fast money**. Because the sector has higher returns than typical generic ABS, it may attract "less sticky" investors that are accustomed to taking a shorter-term view and executing tactical trades based on certain corporate actions (such as divestitures, de-leveraging, expansion or margin improvement). Typical yields have ranged in the 3–4% area recently (triple-B-rated senior classes).

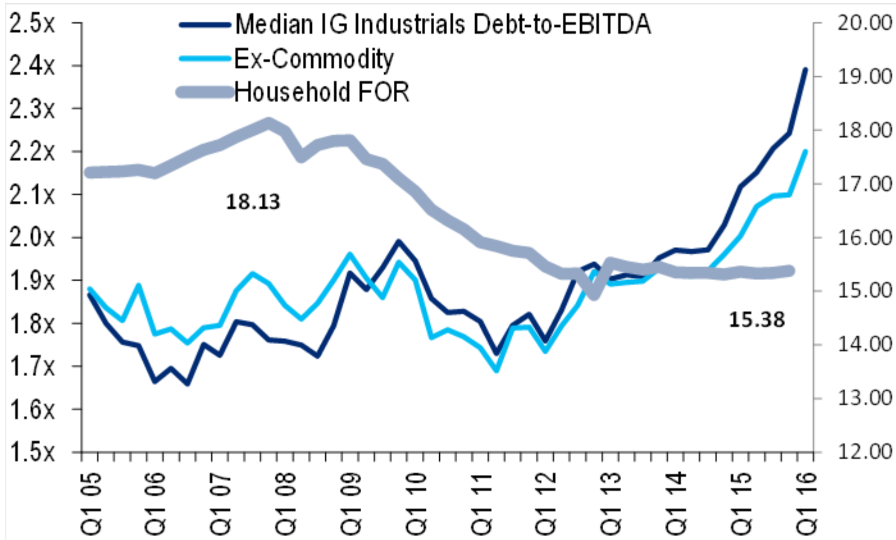
Franchise ABS is well-structured with detailed protective triggers, including limits on debt and the ability to replace management. Unlike typical ABSs, operating assets, instead of financial assets, collateralize franchise ABS. The present value of expected cash flow from the franchise and licensing fees typically determine a franchise trust's assets. ABS offer structural protection and control over the operating assets, which is not available in traditional unsecured capital market transactions. The structure's covenants typically limit corporate debt and also possess additional restrictions. These restrictions hinder the operating company's (OPCO) management from aggressive expansion or excessive leverage. Bondholders also frequently have strong control over management.

Contrasting Rates of Return

Franchise enjoys a reasonable amount of trading turnover, but we find that the sector marks-to-market during the last 12 months required a high tolerance for volatility. Corporate market returns in general have been extremely volatile during the last 12 months as the market tried to figure out whether US economic growth would persist or cool off and the parallel implications for Fed policy. Aside from general market noise, a possible explanation for the franchise ABS return volatility could be that corporate leverage has risen appreciably since the financial crisis (Figure 62). In fact, rising corporate leverage has been the impetus for several franchise ABS deals over the years that financed recapitalizations or buyouts.

Citi's corporate strategy team states that the median IG industrials' debt-to-EBITDA ratio has spiked from about 1.9 times in Q1 2005 to 2.4 times as of Q1 2016. In contrast US consumers have cut the financial obligations ratio (FOR) by 15% since December 2007 (Figure 3). The comparatively stable prime auto ABS spreads reflect the market's appreciation of the sector's solid attributes.

Figure 62. IG Leverage Is Moving in the Wrong Direction … While US Consumers Repaired Balance Sheets



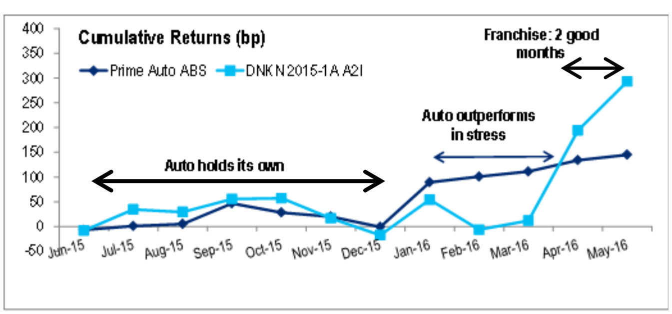
Source: Federal Reserve Bank, Capital IQ, Citi Fixed Income Indexes and Citi Research. Note: IG constituents exclude utilities

Franchise vs. Auto ABS: Higher Return but Higher Volatility

Vindication Is Sweet but Survival Is Grueling

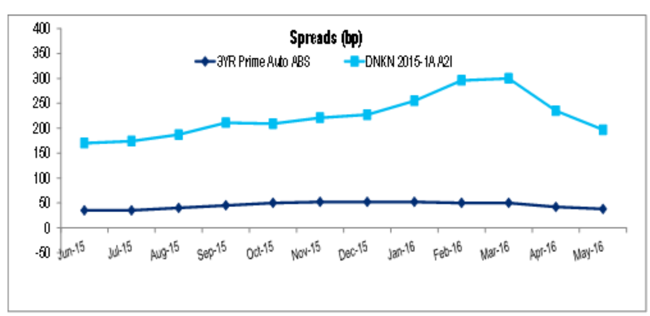
If a PM could ignore the marks-to-market for the last year, the franchise ABS we examined slightly outperforms auto ABS (2.9% versus 1.5% — Figure 60). But volatility for the last year could easily have forced liquidation of the trade long before realizing its potential. The franchise deal we examined exhibited significantly higher spread volatility than the prime auto ABS market. In 5 out of the last 12 months, franchise returns were slightly-to-deeply negative. During another 3 months, franchise returns were modest and only 2–3 months account for the bulk of the franchise ABS returns. Long senior prime auto ABS spreads ranged from 35–52bp during the last year, whereas franchise ABS spreads ranged from 170–300bp (Figure 64).

Figure 63. Cumulative Total Returns for Prime Auto ABS and DNKN 2015-1A A2I, June 2015 – May 2016



Source: Bloomberg and Citi Research

Figure 64. Spreads for Prime Auto ABS and DNKN 2015-1A A2I, June 2015 – May 2016

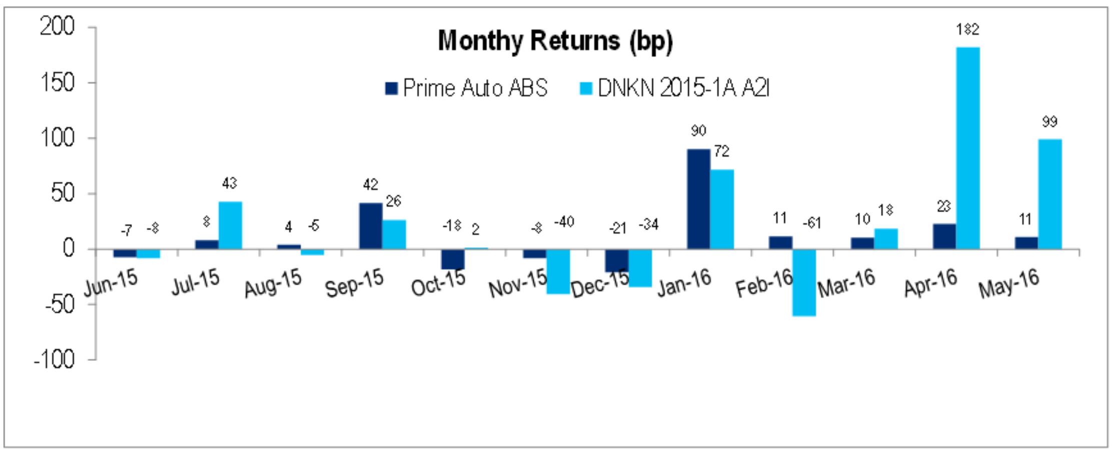


Source: Bloomberg and Citi Research

Franchise ABS Was a Pain Trade in Nearly Half of the Last 12 Months

Franchise ABS earned 96% of its returns in only two out of the last 12 months, while prime auto ABS steadily performed, including producing positive returns during the volatile February 2016. The prime auto ABS sector earned 11bp versus negative 61bp for the franchise ABS transaction we examined. Franchise monthly returns ranged from negative 61bp to positive 182bp, spanning a roughly 240bp spread variability range. In contrast, prime auto ABS monthly returns span a range of only 110bp, less than half that of franchise ABS, from negative 21bp to positive 90bp (Figure 65). In 8 months out of the last 12, auto ABS returns were positive. February's sharply contrasting performances perhaps underscore the point about thresholds of mark-to-market tolerance.

Figure 65. Monthly Total Returns for Prime Auto ABS and DNKN 2015-1A A2I, June 2015 – May 2016



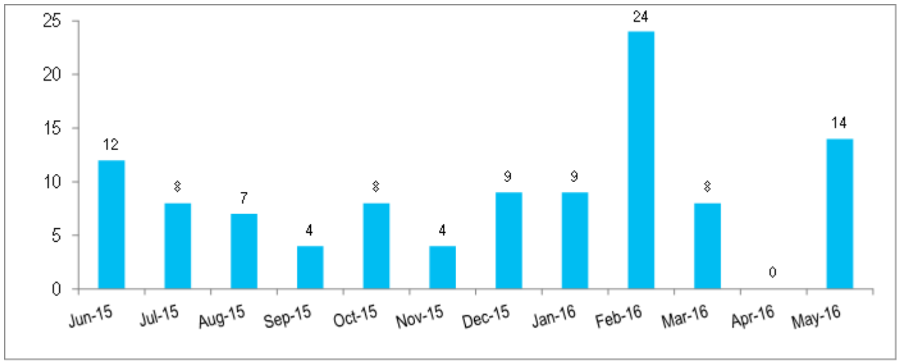
Source: Bloomberg and Citi Research

Market Can Stay Irrational Longer than You Can Stay Solvent[7]

Secondary trading patterns around month-end demonstrate elevated trading activity and fully 22% (24 trades) of all DNKN 2015-1A A2I trades executed during the last year took place in February 2016, when the class underperformed and lost 61bp. DNKN 2015-1A A2I traded 107 times during the observed twelve-month period. Monthly volumes were uneven, ranging from 0–24 trades and averaging roughly 9 trades per month (Figure 66).

[7] John Maynard Keynes.

Figure 66. Number of DNKN 2015-1A A2I Trades per Month, June 2015 – May 2016



Source: Bloomberg and Citi Research

Franchise ABS Total Return Calculation Methodology

A representative franchise ABS we selected (DNKN 2015-1A A2I) traded more than 100 times during the last year, according to TRACE data. Thus we selected this deal as a reasonable proxy for franchise ABS to benchmark against the Citi prime auto ABS tracker. We examine the most recent twelve-month period (June 2015 – May 2016) and comment on performance. The Citi auto tracker consists of all the shelves we follow. Blended returns are weighted by market value and consist of both senior and subordinate prime auto ABS classes. Franchise ABS typically runs from 4–10YR WALs, but the deal we selected is seasoned with a 2.6YR WAL remaining and the senior class is rated triple-B.

3 Steps for Analysis

1). Calculate spread on a trade date that is close to a month-end, using TRACE trade details

2). Re-price the bond at a month-end using spread calculated in the step 1

3). Calculate monthly total returns using month-end prices calculated in step 2

Summary: Slow and Steady Wins the Race

Prime auto ABS has demonstrated remarkable resilience over long periods of time and with new issue supply in constant abundance, it is easy to execute a diversified prime auto ABS investing strategy. In contrast, franchise ABS is a small sector of the market and it represents a hybrid secured corporate/ structured type of investment with idiosyncratic features. Nonetheless, because of large class sizes, franchise ABS demonstrates reasonably attractive turnover in the secondary market. The franchise ABS deal we examined slightly outperformed the auto ABS (2.9% versus 1.5%) but it was a painful trade in nearly half of the last year, earning 96% of its performance in only the last 2 months. Choosing between the sectors involves assessing the portfolio's tolerance for volatility. This and other criteria will guide the final analysis for investment decisions.

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CMBS

Quick Thoughts on Brexit CMBS Impact

- **Macro Underperformance Repeat?** Following the Brexit result, new issue CMBS triple-A spreads opened wider 12-14bp and legacy AMs were lower by a quarter to half a point. Yet, levels did begin to retrace a bit during the trading day. CMBS has often overreacted to broad macro events, with underperformance in the short run. For example, during the taper tantrum in summer 2013, triple-A spreads widened 40bp to S+122bp. As markets calmed, spreads retraced, returning to the high 80s area by early 2014.[8]

- **Opportunity but Stick to High Quality.** While it's too early to tell how impactful Brexit will be in the coming days and weeks to the CMBS market, we recommend being on the lookout for high quality opportunities. For example, short duration, legacy AMs and AJs at current lower dollar prices are attractive. Prices could certainly drop further if a large supply of BWICs materializes; yet, the bonds are rapidly approaching maturity and higher quality ones are expected to pay off near their stated maturity dates.

- **Elevated CRE Price Uncertainty.** Commercial real estate price indices are at or above their previous peaks. Foreign investment, as well as generally accommodative financing conditions, has been a tailwind for commercial real estate.[9] Indeed, the Fed commented earlier in the week that valuation pressures remain notable in the commercial real estate sector. Brexit could impact the CRE landscape on at least two fronts.

  - Uncertainty surrounding the UK economy and weakening of the pound may impact demand for UK CRE, especially in London. Foreign investors may redirect a portion of their UK CRE investment into the US. US CRE is likely to be a benefactor of the Brexit decision, as its perception as a safe haven will likely attract more capital flows in this time of uncertainty.

  - On the flip side, elevated uncertainty may push US commercial real estate lending spreads wider. The Fed noted that there have already been some signs of credit tightening. Growth of CRE loans at banks remained strong during the first half of the year. However, banks indicated that they had further tightened their lending standards on CRE loans in the first quarter of 2016.

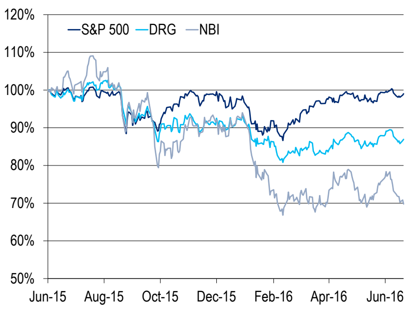
Analyzing Lab Space: Some Familiar, Some Distinct Themes

Several broad trends suggest that demand for lab space, and in turn CMBS exposure to the life sciences sector, could increase in the near future. An aging Baby Boomer generation and longer life expectancies are leading to rising needs of new treatment and drug development. A rapidly increasing FDA approval pipeline is driving R&D spending. In turn, growing transaction activity in the lab space sector could also foster demand for CMBS financing, as evident in the recent CGGS 2016-RND deal.

[8] "As Yields Calm, Selectively Add Risk," *CMBS Weekly*, Citi, July 12, 2013

[9] "Ahead of Foreign Investors' Next Move, Some CMBS Angles to Consider," *CMBS Weekly*, Citi, May 20, 2016

Figure 67. Biotech performance (% of Jun-15)



Note: DRG is the NYSE Pharmaceutical Index and NBI is the Nasdaq Biotech Index

Source: Bloomberg and Citi Research

CMBS exposure to the life sciences industry, and especially to biotech firms, raises some issues similar to those around the general technology sector and much-discussed "unicorns."[10] Biotech's NBI stock index under-performance earlier this year underscored the market's concerns over the sector (Figure 67). At the same time, CMBS lab space loans likely vary in their susceptibility to any challenges which the life sciences industry faces. "Big Pharma" companies' space demand for, say, Northern New Jersey suburban complexes, could be quite different from biotech start-ups' demand in the red-hot urban Kendall Square section of Cambridge, MA.

In the same vein, different players within the life sciences sector – pharmaceuticals, biotechnology firms, research institutions, and government – can require varying underwriting approaches. Exposure to government tenants occupying lab space, for example, could involve some of the specific lab space aspects we discuss in this report, as well as taking into account aspects unique to analyzing GSA exposure, as we discussed in a separate report earlier this year.[11]

Lab Space Key Trends

A recent Citi-hosted property tour in the Boston area revealed some important insights relevant for CMBS investors as they analyze lab-exposed loans. In conduits, these loans would typically be categorized as office loans. From the outside, the lab properties indeed typically resemble traditional office properties. But the interior infrastructure of lab space is quite different, requiring attention to functionality aspects that distinguish these properties from commodity office space. Lab space developers and tenants we met on the tour also shed light on several key current trends that characterize the sector:

- **Clustering**. Life sciences tenants prefer to be close to one another. This is a key theme we've been hearing from industry participants. Tenants highlighted the collision and collaboration culture that helps them be more effective. Clustering occurs mostly around major higher education institutions and teaching hospitals. As such, life sciences' tendency to cluster appears even stronger than that of the tech firms which we highlighted before.[12] Lab space location in a desirable life sciences cluster is likely a key performance driver.

- **Spillover**. Despite the powerful draw of long-standing life science clusters such as Cambridge or the Bay Area, we also heard about some spillover away from tight and high-priced markets. Tenants may be looking for cheaper (or even available) lab space within the same region – for example, some spillover from Kendall Square to the Seaport District. Firms may also be taking a closer look at emerging clusters such as Seattle, moving away from the more established San Fran/Silicon Valley cluster. Spillover is also a trend we identified for tech firms. But the flip side of stronger life sciences clustering may be a more gradual spillover pace for lab tenants compared to TAMI tenants (technology, advertising, media, and information).

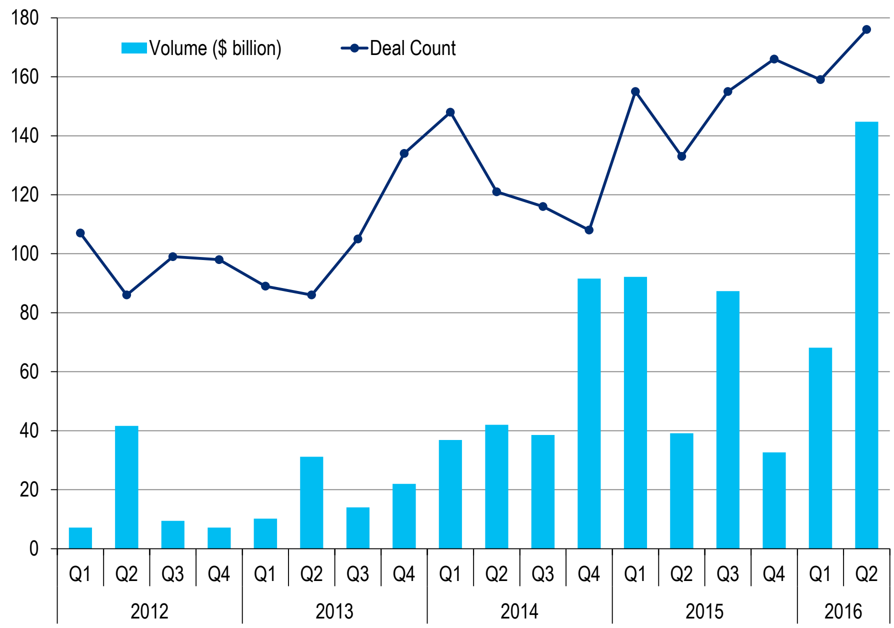
[10] Unicorns are pre-IPO firms with >$1 billion valuations. For a full discussion see: "Assessing CMBS Exposure to the Tech Industry," *CMBS Weekly*, Citi, March 4, 2016

[11] "The Unique Aspects of Analyzing Government-Exposed Loans," *CMBS Weekly*, Citi, February 5, 2016

[12] "Silicon Valley Property Tour Illuminates National Trends to Watch," *CMBS Weekly*, Citi, September 25, 2015

- **The impact of M&A.** The life sciences industry has seen elevated M&A activity (Figure 68). Biotech M&A volume peaked in Q2 2016, reaching $145 billion, according to Bloomberg, including Bayer AG's $62 billion offer to buy Monsanto and AbbVie's $5.8 billion acquisition of cancer drug startup StemcenTrx. Yet, the impact of this activity on lab space demand is unclear. Generally, firm consolidation could lead to a reduction in lab space needs, or at least introduce some volatility into demand projections. Yet when a life science acquisition involves a large firm taking over a small firm mostly for its know-how, the impact on lab space needs may be minimal. Industry participants mentioned that many times an acquisition means buying an innovative development from a small group of people, with limited implications to physical needs.

Figure 68. M&A Activity in Pharmaceuticals, Medical Labs & Testing Services, and Medical-Biomedical/Gene



Note: The data includes completed, pending and proposed deals.
Source: Bloomberg and Citi Research

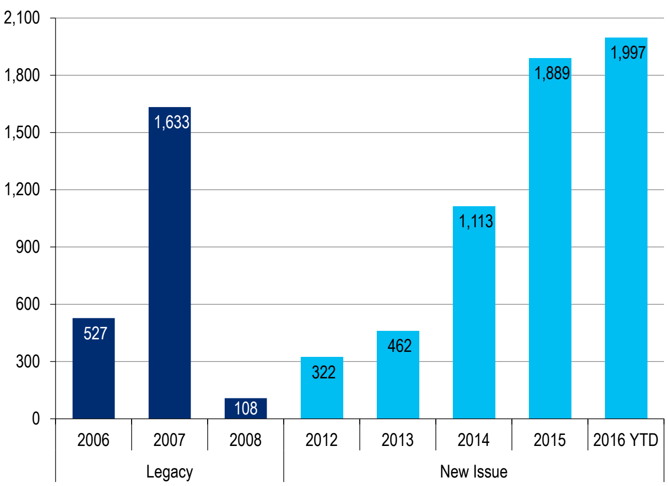
- **Collaboration/open space.** One potential headwind, especially for properties that combine labs with traditional office space, is the shift towards open/flex working environments. Such environments usually also mean reductions of the real estate footprint, compared to the traditional private offices/cubicles configurations. One property we toured in Cambridge was the newly-developed 300 Mass Avenue, a 235k sf building occupied by tenants Millennium Pharmaceuticals and Takeda. The office space featured a lot of collaborative space and an open floor plan with windows in lab spaces. The shift to an open plan configuration is also a headwind we identified for the office demands of industries such as financial services or law firms.[13]

[13] "Trading Spaces: Robust NYC Office Leasing's Impact on CMBS," *CMBS Weekly*, Citi, May 8, 2015

Life Science Clusters' Rising Exposure in CMBS

New issue exposure to lab and medical space is significant, and similar to what we have seen in the tech industry.[14] About $5.9 billion new issue loans are backed by biomed properties (Figure 69), among which $3.2 billion are securitized in conduits and $2.7 billion in SASB deals. Notably, $2.0 billion of the exposure is in the 2016 vintage, which is 23.3% of the office loans securitized this year, or 7.4% of the total YTD CMBS issuance. Legacy loans also have $2.3 billion exposure to the market. Figure 70 shows CMBS deals with top exposure to biomed office properties.

Figure 69. Lab and Medical Office Exposure in CMBS Loans by Vintage ($ millions)



Source: Trepp and Citi Research

Figure 70. CMBS Deals with Top BioMed Office Exposure, Rank by Balance ($ millions)

Rank	Deal	BioMed Prop Bal	Deal Exposure
1	CGGS 2016-RNDA (*)	1,092.4	98.0%
2	GAHR 2015-NRF (*)	956.6	53.3%
3	CGGS 2016-RNDB (*)	649.3	98.7%
4	COMM 2015-LC19	168.7	11.9%
5	MLCFC 2007-5	147.0	6.4%
6	CGCMT 2007-C6	131.3	3.7%
7	COMM 2014-UBS2	127.8	10.5%
8	MSC 2007-IQ16	108.7	6.3%
9	MSC 2006-HQ10	103.1	16.5%
10	CWCI 2006-C1	100.6	10.5%
11	COMM 2014-CR19	89.2	7.7%
12	CD 2007-CD4	88.9	2.8%
13	GECMC 2007-C1	88.7	3.9%
14	COMM 2014-LC15	87.4	9.6%
15	GSMS 2012-GCJ9	86.9	6.5%
16	JPMBB 2014-C24	83.8	6.6%
17	WBCMT 2007-C31	80.8	2.1%

(*) SASB Deals

Source: Trepp and Citi Research

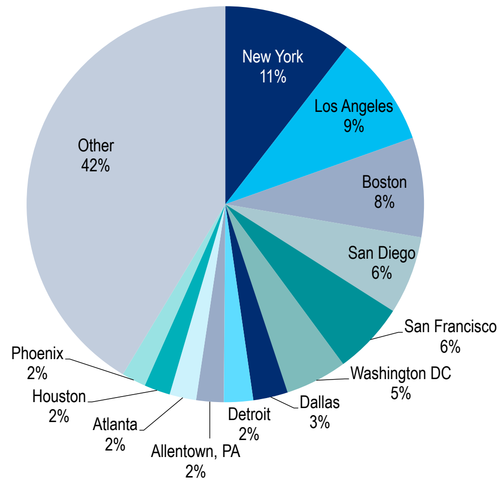
- **CMBS exposure by metro.** Not surprisingly, life sciences clusters like New York, Boston, San Diego, San Francisco, etc., have the highest lab space exposure in CMBS (Figure 71). The $668 million lab space exposure in the Boston metro is mostly driven by the biomed properties located in Cambridge; the submarket has a total of $581 million of exposure in CMBS deals, which is 7.1% of the overall balance of CMBS biomed properties.

- **New Jersey pharma exposure.** CMBS does not have noticeable exposure to lab space in New Jersey. CMBS properties in the state are composed of more traditional office buildings with pharmaceutical firms as key tenants. For example, 777 Scudders Mill Road – Unit 1-3, are comprised of 3 loan pieces totaling $173 million in BSCMS 2007-PW15. Its sole pharmaceutical firm tenant, Bristol-Myers Squibb, is planning to vacate some space and build a new facility in Florida.

- **Clustering around academia.** Beyond Cambridge, which is home to some of the world's most prominent universities, other submarkets with high lab space exposures also have universities or research institutes. For example, Rockville, MD has $269 million of lab space exposure in CMBS, and is close to the National Institute of Health, John Hopkins University, and The University of Maryland. Allentown, PA, one of the top ten areas in Figure 71, is close to Lehigh University. The biggest biomed exposure in New Jersey is the $26.5 million Princeton Corporate Plaza (WFCM 2015-C30), which is located near Princeton University.

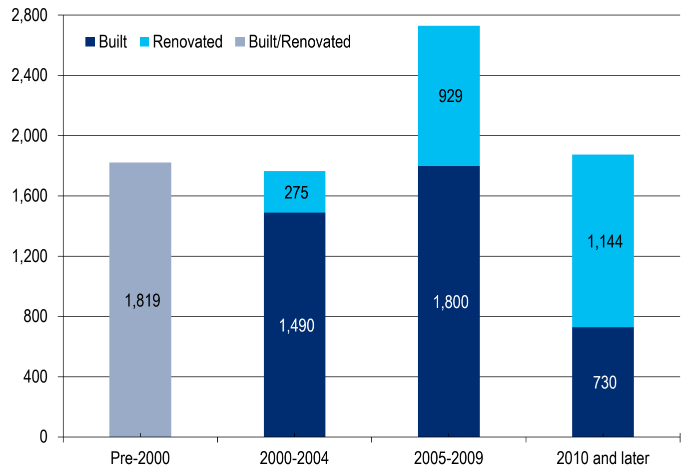
[14] "Assessing CMBS Exposure to the Tech Industry," *CMBS Weekly,* Citi, March 2016

Figure 71. CMBS BioMed Properties Exposure by Metro Area



Source: Trepp and Citi Research

Figure 72. CMBS BioMed Properties Exposure by Built/Renovated Year



Source: Trepp and Citi Research

- **Strong demand for new space.** Properties newly built or renovated after 2010 represent 23% ($1.9 billion) of the biomed property exposure in CMBS (Figure 72). The corresponding new space share in New York's overall CMBS office market is 20% and only 6% in the Washington DC metro area.[15] The amount of new construction and renovation for life sciences buildings are a reflection of the unique needs of its tenants. Biotech companies commonly rely on new technology and integration as a driver of growth. Due to the unique building infrastructure requirements for labs, tenants tend to sign longer term leases.

- **Fairly strong credit metrics.** Some large CMBS loans with biomed office exposure in both new issue and legacy are listed in Figure 73. The new issue loans tend to have better credit metrics; quite a few loans in Figure 73 have DSCRs greater than 2.0x, double-digit debt yields, less than 60% LTVs, and nearly 100% occupancy. Some legacy loans, as shown in the bottom part of Figure 73, are currently in special servicing. Tenants in new issue loans tend to be biotech and pharmaceutical companies, while tenants in legacy loans are aligned with more traditional medical offices.

[15] See the CRE Trends Outlook in "Sifting Through a Tiered CMBS Universe in 2016," Citi, November 20, 2015

Figure 73. Large CMBS Loans with BioMed Office Exposure

Loan	Deal	BioMed Prop Bal ($MM)	Deal Exp (%)	BioMed Prop #	Status	Maturity	DSCR	Debt Yield (%)	LTV (%)	Occ. (%)	Location
New Issue											
Pool A	CGGS 2016-RNDA	1,092.4	98.0	28	Current	Feb-21	3.56	12.6	41	95	CA, MA, etc
Pool B	CGGS 2016-RNDB	649.3	98.7	27	Current	Feb-18	6.16	17.2	40	98	NY, MD, etc
Griffin American Portfolio	GAHR 2015-NRF	956.6	53.3	142	Current	Dec-19	3.85	10.8	64	93	Various
One Kendall Square	COMM 2014-UBS2	120.0	9.8	1	Current	Feb-24	2.95	9.3	62	95	Cambridge, MA
	COMM 2014-LC15	83.0	9.1								
9911 Belward Campus Drive	COMM 2015-LC19	98.3	7.0	1	Current	Jun-26	7.11	24.3	31	100	Rockville, MD
Hutch Tower Two	JPMBB 2014-C24	80.5	6.3	1	Current	Oct-24	1.54	9.4	69	100	Bronx, NY
National Cancer Institute Center	WFRBS 2012-C6	72.5	8.5	1	Current	Aug-21	1.49	11.2	62	100	Frederick, MD
9201 Sunset	GSMS 2012-GCJ9	70.0	5.3	1	Current	Nov-22	3.38	13.5	55	96	West Hollywood, CA
Regent Portfolio	WFCM 2016-C34	69.0	9.8	12	Current	May-21	1.53	11.8	62	90	NJ, NY, FL
Cedar Crest Professional Park	WFRBS 2014-C21	58.2	4.2	1	Current	Jul-24	1.58	10.0	64	72	Allentown, PA
Legacy											
PPG Portfolio	MSC 2006-HQ10	97.6	15.6	6	Special Serv.	Oct-16	1.21	9.1	79	84	CO, AZ, IN
Medical Centre of Santa Monica	MLCFC 2007-5	62.0	2.7	1	Current	Jan-17	2.24	12.7	63	93	Santa Monica, CA
Integrated Health Campus	WBCMT 2007-C34	55.4	5.0	1	Current	Aug-17	1.21	9.5	76	92	South Whitehall, PA
Presbyterian Plano Medical Office	GECMC 2007-C1	52.1	2.3	1	Watchlist	Apr-17	1.12	8.4	411	98	Plano
Cherry Hill Corporate Center Pool	WBCMT 2007-C31	41.6	1.0	6	Current	Mar-17	1.32	7.7	81	86	Various, MA
1515 Flagler Waterview	CWCI 2007-C2	35.3	2.2	1	Special Serv.	Feb-17	0.95	7.0	113	68	West Palm Beach, FL
Aurora Health Care Portfolio	JPMCC 2008-C2	31.1	4.3	6	Current	Jan-18	1.43	11.3	77	100	Various, WI
Centerpoint Medical Office Building	MSC 2007-IQ16	30.7	1.8	1	Current	Jul-17	1.93	14.6	76	97	Independence, MO

Note: Loan balance, deal exposure and property number are scaled by the biomed properties exposure in the portfolio loan.

Source: Trepp and Citi Research

Lab Space Trends Evident in East Cambridge Top Cluster

Touring the Cambridge cluster illustrated some of the general aspects of lab space demand. Generally the Cambridge market is very hot, notably Kendall Square, with seemingly limitless demand from life science and biopharma firms to migrate into this cluster. Some call this the R&D capital of the world, or the "innovation district," which, along with the lack of supply, explains the submarket's nearly 0% vacancy.

Tenants stated how essential it was for them to be in Kendall Square, given its close proximity to MIT for joint fellowships, incubators, etc. They expressed the need to be around a lot of people in the same industry as product development is extremely difficult and requires a lot of expertise and encouragement.

Rents in Kendall Square for both office and lab space are in the $70s, though can reach $100s for certain premium products. Recent tech activity into Kendall Square include HubSpot (renewal/expansion 185ksf), Microsoft (renewal 155ksf), and Google (migration 71ksf). Cambridge has three buildings currently under construction for a combined 1.2msf, which is 71% preleased. Developers also noted that it was almost impossible to convert existing office space to lab offices in urban buildings, as the buildings were not built for the spacing requirements, ducting, etc.

Boston's Seaport District sees some spillover demand

Yet it appears even Kendall Square can experience some spillover. One notable example is Vertex Pharmaceuticals' decision to relocate to the Seaport District. Vertex absorbed over 1.1 million sf at the Seaport area in 2014 for its new world headquarters. The Seaport's relative proximity to East Cambridge, and the direct connection the two submarkets have through MBTA's red line (sometimes dubbed the "Brain Train") could facilitate further spillover demand.

Case Study: One Kendall Square

The $203 million One Kendall Square (COMM 2014-UBS2, COMM 2014-LC15) is an interesting case study for lab space exposure in CMBS. The loan is backed by seven, three- to five-story Class A office, lab and retail buildings (totaling 610k sf), located south of Binney Street in Cambridge, MA (Figure 74). The collateral is part of the overall 667k sf One Kendall Square mixed-use campus, which also includes a nine-screen movie theater and a parking garage with 1,574 parking spaces. The property went through a $45 million renovation in 2013, with $36 million being spent on lab spaces.

Figure 74. One Kendall Square Loan and Property Parameters

Loan	One Kendall Square
Current Balance	$203,000,000
Deal and Deal Exposure	COMM 2014-UBS2, 9.8%
	COMM 2014-LC15, 9.1%
Maturity	February 2024
Coupon (%)	4.82
Property Type	Office, Lab and Retail
Location	Cambridge, MA
2015 FY Financials	
NOI	$18,878,977
NCF	$17,319,299
DSCR (NCF)	2.95
Occupancy (%)	97
Financials at Securitization	
NOI	$18,714,340
NCF	$17,154,662
DSCR (NCF)	1.34
Occupancy (%)	93
Appraisal	$325,600,000
Appraisal Date	December 2013
LTV	62.3
Most Recent Tenants	
1st Largest Tenant	Merrimack Pharmaceuticals
SF %	27.4
Expiration	June 2019
2nd Largest Tenant	Akamai Technologies
SF %	13.0
Expiration	December 2019
3rd Largest Tenant	AB Cam
SF %	4.8
Expiration	December 2016

Source: Trepp and Citi Research

One Kendall Square's current owner bought the campus in January 2014 for $395 million. The complex has been recently put up for sale, with a targeted price of about $700 million, according to several reports. Indeed, Kendall's Square target price may reflect the significant appreciation of labs space valuations in recent years, and especially that of Cambridge properties.

Summary of Views

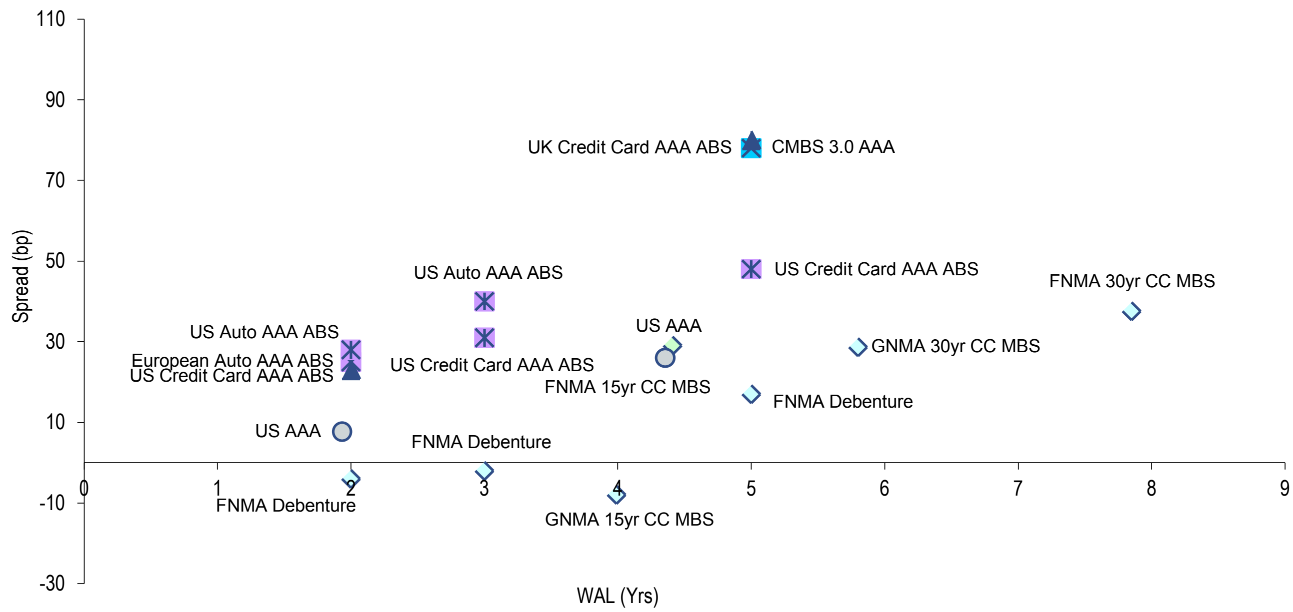
Figure 75. Strategy Summary Table

Sector	Spreads Relative to Long-Term Averages	Recommended Positions	Risk
Agency MBS	Modest Underweight	Near term risks remain substantial. We expect refinancing activity to exceed levels in February if rates stay here. Bank demand is likely to be subdued as the rally forces them to stay in cash or add agency CMBS if spreads widen. Money managers may maintain MBS overweights as Brexit introduces uncertainty and credit risk.	The attractiveness of dollar assets versus alternatives will lead to strong Japanese demand. We will look to turn neutral on a 3-5 tick underperformance as the longer-term environment for MBS remains favorable.
Non-Agency MBS	Cheap to Fair	We remain positive on non-agencies, but we recommend defensive positions such as shorter WAL Prime and seasoned Subprime Mezz paper. In GSE risk sharing deals, we see stronger value in the CAS/STACR M2/M3 classes.	Home prices could decline if the economy falters or if interest rates rise too rapidly. This would create a spike in default rates and cause valuations to decline.
Consumer ABS	Mixed	Market weight with a mix of on- and off-the-run ABS.	A rise in unemployment and slower growth could negatively affect consumer ABS performance.
CMBS	Fair	We recommend extension-protected bonds. The seven-year AAB and front-pay last cash flow are good choices for bonds with WALs that should not extend in all but the most extreme refinance environments. On the flip side, investing in five-year A2s requires careful assessment of the cashflow growth potential for each of the five-year balloons in the pool.	All-in yields have dipped below 3%. Yield buyers may require a bit more spread to participate at current levels. Tighter spreads may ignite higher deal supply, perhaps leading a negative technical.
CLO	Fair	CLO mezz tranches offer attractive yields on loss-adjusted basis.	Fundamentals are slowly deteriorating, and we reiterate our concern about market instability and weaker holders if macro volatility intensifies.
European Securitized Products	Fair	Our overall tone is defensive. We do not expect to see an immediate rally partly because of supply fears in UK RMBS and overall volatility in post Brexit world. Recommend short-duration or senior bonds as auto ABS, Euro CLO 1.0s or trades up the cap stack with good carry such as UK NC RMBS seniors.	Volatility will continue in the weeks ahead as the market seeks clarity on relationship between UK and Europe.

Source: Citi Research

Cross-Sector Relative Value

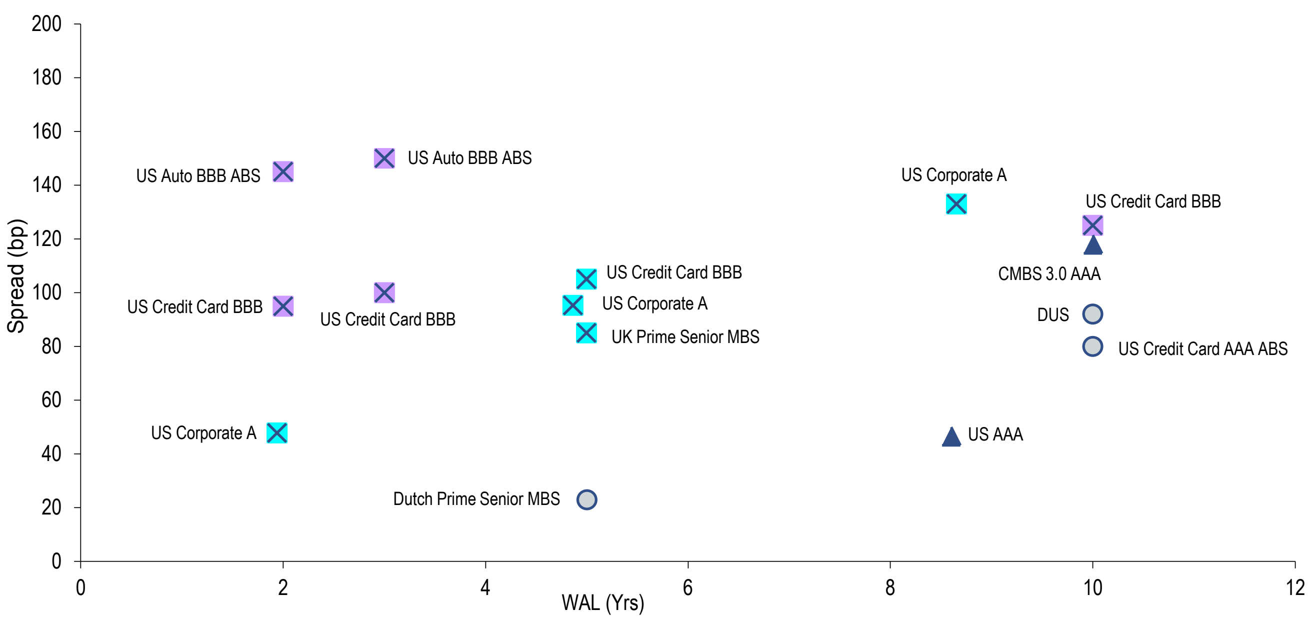
Figure 76. Selected Short-WAL Fixed Income Sectors



Note: Agency MBS points reflect current coupon option-adjusted spreads.
European points reflect floating rate spreads versus Euribor (Discount Margin)

Source: Citi Research

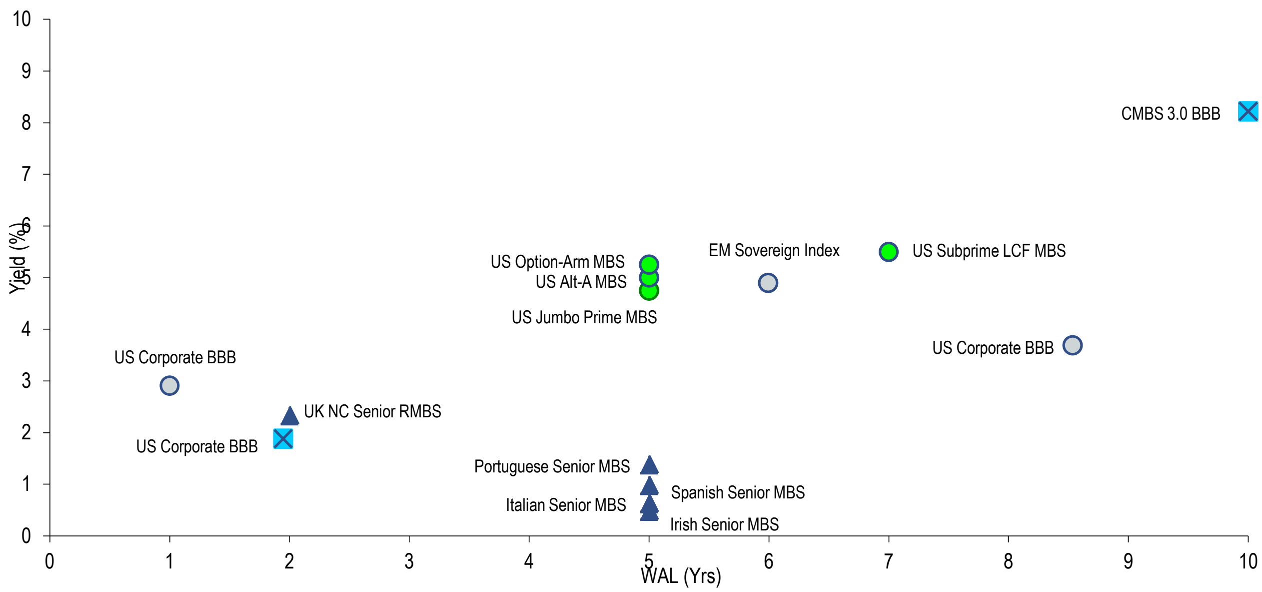
Figure 77. Selected Fixed Income Sectors



Note: UK and Dutch prime RMBS points reflect floating rate spreads versus Euribor (Discount Margin).
European Covered Bond Index is an average asset swap spread provided by Markit.

Sources: Markit and Citi Research

Figure 78. Selected High-Yield Fixed Income Sectors



Note: Yields for Non-Agency RMBS are loss adjusted

Source: Citi Research

Securitized Products Spreads Summary

Figure 79. Securitized Products Spreads Summary

	Current	Last Week	Chg.	Last Month	Chg.	Last Qtr	Chg.	Last Year	Chg.
Consumer ABS									
AA Fixed CC 5-YR	48	50	-2	55	-7	70	-22	40	8
AAA Fixed CC 10-YR	80	80	0	80	0	80	0	60	20
A Fixed CC 5-YR	90	90	0	90	0	90	0	70	20
BBB Fixed CC 5-YR	105	105	0	105	0	105	0	90	15
CMBS									
AAA 3yr	45	50	-5	48	-3	75	-30	70	-25
AAA 5y	78	82	-4	80	-2	86	-8	85	-7
AAA 7yr	120	125	-5	122	-2	140	-20	138	-18
AAA 7yr (ASB)	110	112	-2	110	0	122	-12	130	-20
AAA LCF	118	123	-5	120	-2	138	-20	140	-22
AAA Junior	150	155	-5	150	0	170	-20	160	-10
AA	200	210	-10	200	0	245	-45	200	0
A	350	365	-15	350	0	400	-50	300	50
BBB-	660	675	-15	650	10	700	-40	540	120
Senior IO	275	285	-10	265	10	275	0	235	40
Subordinate IO	275	285	-10	265	10	275	0	235	40
Agency MBS									
30-YR Current Coupon LOAS (bp)	37.6	37.5	0.1	31.6	5.9	34.6	3.0	23.2	14.4
30-YR Current Coupon ZV (bp)	83.7	89.9	-6.2	81.9	1.8	86.8	-3.1	71.8	11.9
30-YR Current Coupon Yield (%)	2.5	2.4	0.1	2.6	-0.1	2.7	-0.1	3.0	-0.5
Citi Mortgage Index Effective Duration (YRs)	3.1	3.1	0.0	3.2	-0.1	3.1	0.1	4.0	-0.9
Prime-Jumbo Non-Agency (Loss-Adjusted Yields)									
2007 AAA Fixed 30-YR PT	4.75%	4.75%	0.00%	4.75%	0.00%	4.75%	0.00%	4.50%	0.25%
AltA Non-Agency (Loss-Adjusted Yields)									
2007 AAA Fixed 30-YR PT	5.00%	5.00%	0.00%	5.00%	0.00%	5.00%	0.00%	4.50%	0.50%
ABX 06-2 (Price)									
PEN AAA	87.83	87.83	0.00	88.5	-0.67	88.17	-0.34	87.97	-0.14
LCF AAA	82.00	82.00	0.00	81.88	0.12	80.38	1.62	81.5	0.50
AA	52.00	52.00	0.00	52	0.00	60.33	-8.33	60.57	-8.57
A	67.33	67.33	0.00	68.5	-1.17	68.25	-0.92	68.8	-1.47
BBB	6.75	6.75	0.00	8.17	-1.42	8.25	-1.50	8.17	-1.42
BBB-	0.00	0.00	0.00	0	0.00	0	0.00	0	0.00

Source: Citi Research

Team Roster

Figure 80. Team Roster *For informational purposes only*

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