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# Securitized Products Midyear Outlook

Securitized Products Weekly
**US Fixed Income Strategy**
J.P. Morgan Securities LLC
June 24, 2016

## MBS Market Commentary *Matthew Jozoff, Brian Ye, Nicholas Maciunas, Alexander Kraus*

Macro shocks are pressuring basis performance going into the second half of the year. On the demand side, overseas investors have been a major sponsor this year; we look for them to add another $40bn MBS, bringing the 2016 total to about $70bn. Money managers have been relatively quiet in the first half, though we count on them to pick up the bulk of the second half net supply, likely at wider spreads. Specified pool payups generally surged in 2016 due to the significant rally in rates and the deterioration in rolls. The 2016 refi wave has been milder than the 2015 experience so far, thanks in part to burnout. We discuss the possibility of a Ginnie MIP cut and historical MIP levels. As cusp coupon FNCL 3.5s move into the refinancing window, call risks are on the rise.

## Non-agency RMBS Commentary *John Sim, Kaustub Samant, Carol Zhang*

The Brexit vote has tremendous political and economic implications for the UK and the rest of the world. While non-agency is not directly impacted, we expect spreads to move wider along with broader credit in the coming weeks. The counter balance may be the $8+bn of Countrywide RMBS settlement proceeds that need to be re-allocated. There are certainly opportunities in non-agency. However, we may need to weather through the volatility first. We maintain our view that home prices will grow 3.5% to 4% in 2016. The securitization market is evolving as banks continue to struggle with capital and ROE targets.

## ABS Market Commentary *Amy Sze, Christiana Wong*

We expect credit fundamentals to remain sound in the ABS market over the rest of 2016 on supportive US growth and labor market conditions. However, technicals will continue to drive ABS spread performance, with the Brexit "leave" result being the latest shock. We look for tighter spreads and a steady issuance pace in the second half of the year. We look for AAA 3-year credit card ABS spreads to finish the year at swaps +28bp versus +32-34bp today after 2bp of widening on Brexit. With 1H16 supply at $90.5bn, we project full year 2016 will edge out the $178bn in 2015, with upsizing possible if spreads tighten.

## CMBS Market Commentary *Gareth Davies, Chong Sin, Munier Salem*

While markets have reacted violently to the United Kingdom's decision to leave the European Union, we see the selloff in CMBS markets as an opportunity to add given our relatively sanguine view of commercial real estate fundamentals in the near to medium term as well as an acute supply/demand imbalance for the remainder of the year.

## CLO Market Commentary *Rishad Ahluwalia, Jacob Kurosaki, Heather Rochford*

The CLO market has been on a roller coaster ride in 2016, with Brexit throwing a wrench into the works. The early market response to Brexit is flight-to-quality, with US CLO spreads 10-65bp and Euro CLO spreads 28-200bp wider on the week. Our base case is that Brexit is a regional rather than a global shock and more impacts the UK than the Euro-area. In recognition of the uncertainty, we lower our European CLO supply forecast to €10bn. Our US CLO supply forecast is unchanged at $35-45bn, as while the trend has been tracking higher there is now additional macro risk along with pre-existing trends (light loan supply, etc).

## Contents



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# MBS Outlook and Recommendations

| Mortgage Basis | View/Outlook | Comment |
|---|---|---|
| | modest underweight | Tight valuations, macro uncertainties, and potential rising supply … are all negatives for the basis |

**Pass-Throughs**

| Coupon | Conv 30-year | Conv 15-year | GNMA | Comment |
|---|---|---|---|---|
| 3.0 | neutral | overweight | neutral | Overweight 15s to reduce spread duration |
| 3.5 | neutral | neutral | neutral | Neutral on G2/FN swaps |
| 4.0 | underweight | | underweight | |
| 4.5 | neutral | | underweight | |
| 5.0 | neutral | | | |

**Specified Pools**

| Coupon | 30-year | Comment |
|---|---|---|
| 3.0 | HLBs/M175/M200, jumbos | Barbell HLBs and jumbos |
| 3.5 | MHA, NY, M175/M200, 95+LTV purchase | Select for slow servicer loan bal |
| 4.0 | HLBs, '10/'11 vintage | |
| 4.5 | MHA, seasoned | Seasoned pools offer desirable convexity |
| 5.0 | | |

**Agency CMOs/ARMs**

| | |
|---|---|
| ARMs | Post-resets benefit from the 1Y/1M basis |
| IOS | Refi reactivity muted even after the rate rally; focus on cusp coupon IOS |

**Non-Agency MBS**

| | |
|---|---|
| Legacy: POA/Subprime | Rating upgrades and mods can offer value; be wary of rising severities in northeast |
| Legacy: Prime/Alt-A | Stick to carry in dented fixed-rate paper; take advantage of the high-teen prepays |
| Jumbo 2.0 | 3.5s inside of 3pts back makes sense to issue, but need to weather through vol; Countrywide settlement proceeds come back to market provide tailwind |
| GSE risk-sharing | CAS M2s appear to have better relative value; volatilities loom post Brexit vote |
| SFR | Limited trading activity |

**ABS**

Our top picks in the sector are AAA private credit student loan and subordinate subprime auto ABS from top tier names.

**CMBS**

We prefer to remain relatively defensive and prefer high quality CMBS exposures including super seniors, AS, AA, and XA tranches. For spread pickup, add floating SASB sub bonds. Stay long-risk new issue CMBX AS, AA, or single-A versus matching series AAA. Add GNR project loan IOs, which have yield pickup

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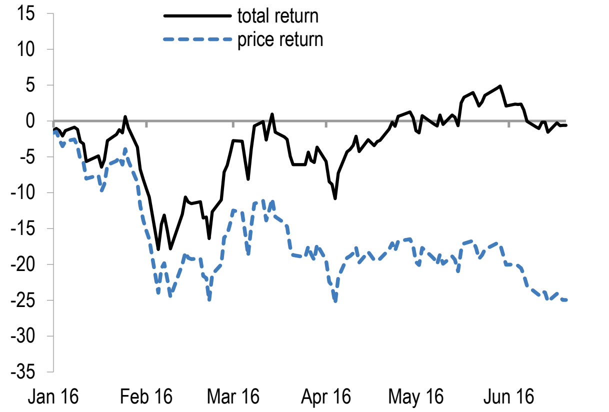
# MBS Midyear Outlook

**Summary**

- **Mortgages have been roughly flat against Treasuries through the first half of the year; largely thanks to carry. However, macro shocks are pressuring basis performance going into the second half of the year**
- **We update our demand and supply projections for the rest of the year. We are still looking for $200bn organic net supply for 2016, or about $130bn for the rest of the year**
- **On the demand side, overseas investors have been a major sponsor this year; we look for them to add another $40bn MBS, bringing the 2016 total to about $70bn**
- **Money managers have been relatively quiet in the first half, though we count on them to pick up the bulk of the second half net supply, likely at wider spreads**
- **We remain underweight the basis owing to still tight valuations, macro uncertainties, and the unfavorable demand/supply balance going forward**
- **Specified pool payups generally surged in 2016 due to the significant rally in rates and the deterioration in rolls. The rising tide in payups lifted lower payup types along with more tested loan balance stories**
- **The 2016 refi wave has been milder than the 2015 experience so far, thanks in part to burnout; we review major trends and discuss the outlook for policy changes ahead**
- **Servicer variance diminished year over year, possibly due to changes in originators' business practices and the increased regulatory burden**
- **We discuss the possibility of a Ginnie MIP cut and historical MIP levels**
- **As cusp coupon FNCL 3.5s (3.75%-4% WAC) move into the refinancing window, call risks are on the rise, potentially taking refi 2016 to another level**

**Exhibit 1: FNCL 3.5s are roughly flat to Treasury hedges over the first six months of 2016**

FNCL 3.5% total and price only returns vs. 2/5/10/30yr Treasury hedges, last data point as of 6/23/16




Source: J.P. Morgan

As we reach the midyear point of 2016, we take this opportunity to review what's happened since the start of the year, and update our views for the second half. While the total performance of mortgages has been largely flat relative to Treasuries thus far, this total measure hides the many bumps along the way. For instance, FNCL 3.5s have provided a total return in line with a blend of Treasuries across the curve: the negative 24 ticks of price return were essentially offset by carry over the first six months of the year (**Exhibit 1**). However, mortgages suffered along with other risk assets in February, as volatility picked up. Nevertheless, carry has been enough to keep 3.5s treading water up until now, and robust buying from banks and foreign investors has prevented the damage from being any worse.

As June draws to a close, market turbulence has once again returned as Britain voted to leave the EU. As we write this, mortgages are recovering after yields gapped lower and spreads widened, but the outlook is still challenging as the dust settles. Mortgages may struggle with increased volatility and supply pressure at these rate levels – both factors were already concerns prior to the Brexit result. The picture for mortgages over the next six months is less than rosy owing to two major impediments: tight valuations and (relatedly) the lack of money manager buying. As we have discussed in recent publications, we believe spreads leave little room for tightening potential. Price outperformance versus Treasuries will have to come from either Treasury OAS tightening (unlikely given OASs are hovering around only 10bp currently, **Exhibit 2**), or from swap spread

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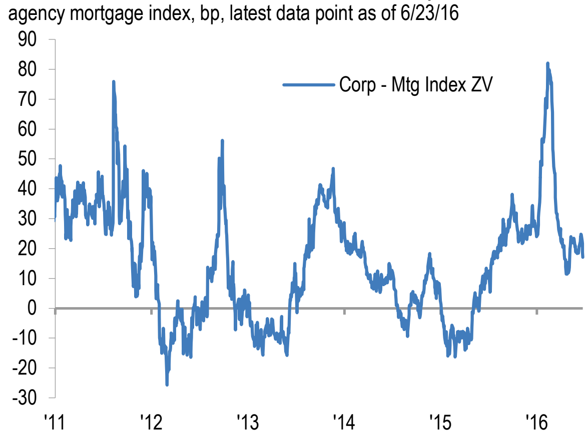
**Exhibit 2: OASs have tightened for most 30yrs,**
OAS and performance vs. Treasury duration hedges YTD

| | Tsy OAS (bps) | | | Perf. v. Tsy |
|---|---|---|---|---|
| TBA | 6/23/16 | 12/31/15 | Chg | (ticks) |
| FNCL 3.0 | 8 | 19 | -11 | 18 |
| FNCL 3.5 | 11 | 18 | -6 | 3 |
| FNCL 4.0 | 12 | 17 | -6 | 7 |
| FNCL 4.5 | 23 | 22 | 1 | 19 |
| FNCL 5.0 | 9 | 13 | -4 | 18 |
| FNCI 2.5 | 2 | 6 | -4 | 25 |
| FNCI 3.0 | 10 | 12 | -2 | 17 |
| FNCI 3.5 | 20 | 17 | 4 | 21 |
| G2 3.0 | -3 | 8 | -11 | 19 |
| G2 3.5 | -5 | 7 | -12 | 5 |
| G2 4.0 | 14 | 3 | 10 | -7 |
| G2 4.5 | 29 | 14 | 16 | -21 |

Source: J.P. Morgan

**Exhibit 3: Corporates spreads tightened back in after hitting their wides relative to MBS in early 2016**
LIBOR ZV difference between the JULI Ex-EM AA 5-7yr basket and the agency mortgage index, bp, latest data point as of 6/23/16




Source: J.P. Morgan

tightening (also unlikely with swap spreads in the -10 to -15 bp range, see the derivatives discussion in this week's *Fixed Income Markets Weekly*).

As for money managers, it's surprising how little they've bought year to date. With banks having purchased $38bn and foreign investors also taking a solid $38bn, money managers have been squeezed out in 2016. Money managers are the most spread-sensitive of the investor base, and with such narrow levels versus Treasuries, it's not clear that they will step up to buy the $85bn that they will need to in order to balance the supply / demand equation. The good news is that corporate valuations have snapped back since their wides earlier this year, which might reduce the allure of competing spread products (**Exhibit 3**).

We summarize our outlook for the overall supply / demand picture in **Exhibit 4**. We estimate net supply for the first half of the year was $63bn (through May), and look for a total net agency fixed rate supply of $200bn for the year. A small decline in REIT holdings – as well as a mandated reduction in GSE retained portfolios – will make up a small part of the supply side, but the vast majority will be organic supply, fueled in part by home price growth of approximately 4-5%. With banks expected to buy $60bn and foreign investors $70bn, money managers are being asked to step up for $80+bn; not impossible, but a bit of a challenge at today's valuations. We detail our supply / demand estimates later in this report.

Away from technicals, we think mortgages are vulnerable to a further rally from here. The 3.5% coupon is the bread and butter of the sector, and with mortgage rates at around 3.75%, this coupon is not far from being refinanceable. The good news (from an investor's perspective) is that mortgage rates have moved only about 50% of the move in Treasuries recently, thanks in part to regulatory frictions (TRID), capacity constraints, and a tight credit box. The bad news is that the next wave of MBS that is on the verge of being refinanceable is comprised of high loan balance, high FICO 3.5s. A sell-off, on the other hand, would certainly be favorable, but the amount of tightening is probably limited to 5bp or so in spread terms owing to the tight valuations mortgages are starting with.

Bigger picture, uncertainty in monetary policy and the upcoming US election could also present headwinds. Declining liquidity in Treasuries could magnify market moves, despite the decline of convexity hedgers in the market. Bottom line: with tight valuations and underlying macro uncertainty, we remain underweight the basis, as Treasuries provide similar carry as MBS, adjusted for duration and convexity.

## Supply and Demand

**Supply: Organic net +200bn** We recently bumped up our forecast for organic net issuance to $200bn, from $150bn previously. Through the first five months of the year, net supply was $63bn vs. $27bn in 2015. By the

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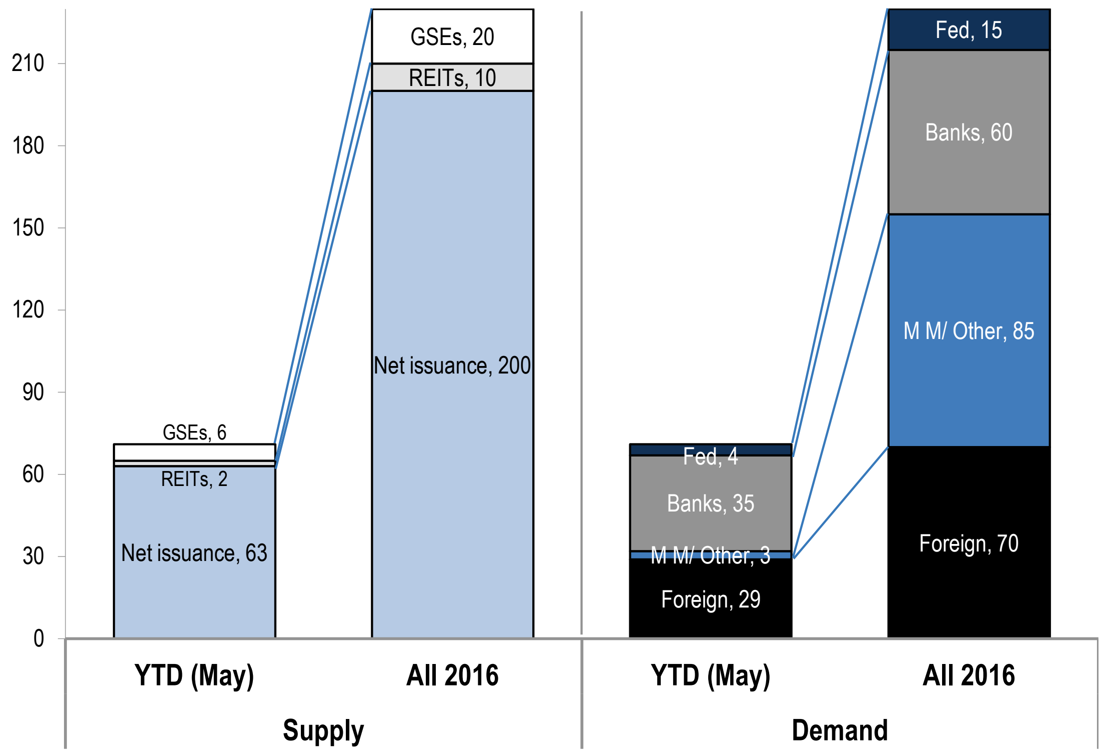
**Exhibit 4: Money managers will most likely buy more to balance the supply / demand equation for 2016**

2016 YTD (as of May) and projected 2016 supply/demand for agency MBS by investor category (including organic net issuance), $bn




Source: J.P. Morgan

end of 2015, net supply reached $187bn. Rates have stayed lower and longer than last year and summer seasonals typically entail a pick up in supply going into late summer and the fall.

**Supply: REITs +10bn** Based on their first quarter filings, REITs were largely on the sidelines to start the year, and their mortgage holdings shrank just $2bn. While price / book ratios have improved moderately in the first half of the year versus the lows seen in 2015, they remain roughly 15% below par and new equity issuance still seems unlikely. Furthermore, REITs have been wary of adding any leverage in an environment where the Fed is tightening. Separately, there have been a few mergers within the REIT space, but these events are unlikely to affect agency MBS.[1] On the other hand, we don't expect REITs to significantly pare down their leverage as the industry has already retrenched meaningfully since the late 2012 peak. Overall, we expect REIT MBS holdings to modestly contract this year, supplying a net $10bn throughout the course of 2016.

**Supply: GSE +20bn** Fannie and Freddie continue to decrease their retained portfolios in line with FHFA's limit of $305bn each for the end of 2016. So far, they've shrunk their agency portfolios by $6bn, and we currently expect that they will shed $20bn over the course of the year. In our view, the rest of the mandated $52bn reductions for 2016 will likely come from their non-agency and loan holdings.

One potential wildcard is Fannie Mae's planned securitization of re-performing loans into MBS. This is scheduled to start in Q3. The pace and magnitude of re-securitization is unclear at the moment. This activity has the potential to increase net supply above and beyond our initial estimates.

**Demand: Overseas +70bn** Overseas sponsorship of agency MBS started to improve in 2014. Overseas accounts were net sellers of $20bn MBS in 2015, after shrinking roughly $70bn on average in the prior 4 years. .

[1] https://jpmm.com/research/content/GPS-1997631-0.pdf

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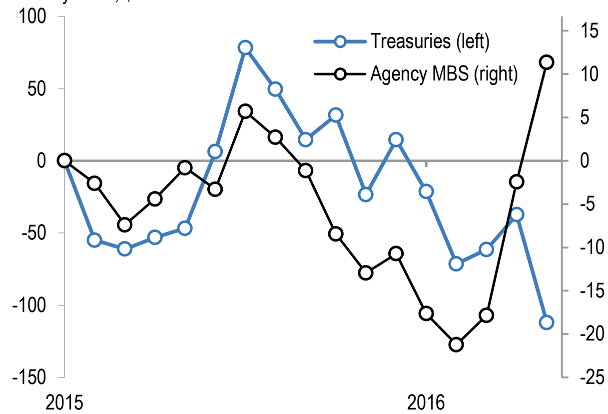
Through April of this year, foreigners have bought MBS at a brisk pace, adding $28.8bn YTD. One reason for this is the attractiveness of MBS against the global landscape of low and negative interest rates. In addition, US Treasuries experienced a record amount of foreign outflows in April ($74.6bn). Foreign flows in Treasuries have typically been an order of magnitude larger than those in MBS, but recent data points show a preference for MBS (**Exhibit 5**). Our Treasuries strategists recently pointed out that after accounting for FX hedge costs, the yield pickup relative to home currency bonds has dropped significantly, which helps to explain the shift towards MBS.[2] We look for overseas investors to add $70bn in MBS in 2016, or another $40bn for the rest of the year.

**Exhibit 5: Overseas sponsorship of MBS has shot up recently**

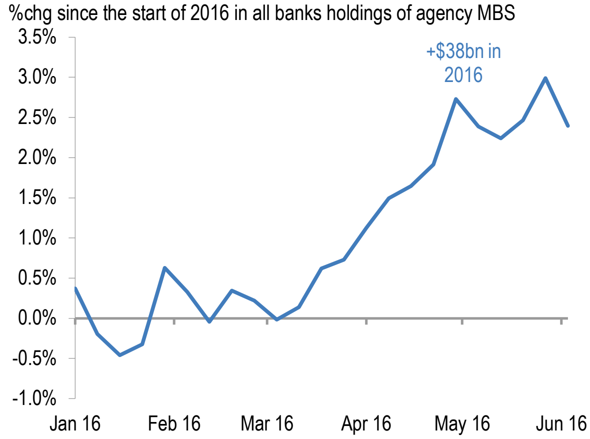
Cumulative change in foreign holdings of agency MBS and Treasuries since January 2015, $bn




Source: J.P. Morgan, TIC

**Exhibit 6: Banks started buying in the second quarter**

%chg since the start of 2016 in all banks holdings of agency MBS




Source: J.P. Morgan, Federal Reserve

<u>**Demand: Fed +15bn**</u> The postponement of further rate hikes puts the Fed's MBS portfolio into a state of suspended animation as reinvestments look to continue well beyond the end of 2016. Paydowns from their portfolio have ranged between $20bn and $30bn per month to start 2016, and should remain on the higher end of the range for the rest of the summer. In addition to the reinvestment of MBS principal repayments, which has no effect on the net demand picture, the Fed reinvests agency debt paydowns into MBS. This new influx of cash should lead to the Fed portfolio growing by roughly $15bn in 2016. The Fed's settled holdings imply that they have added $4bn in MBS YTD.

<u>**Demand: Banks +60bn**</u> The best information for bank MBS holdings comes from the holding company call reports, available quarterly at a significant lag. For the first quarter, the call reports showed $8.8bn of net buying for banks, a pullback from their pace of just over $40bn a quarter last year.[3] This slowdown in buying was likely a reaction to the plunge in rates in Q1 and a lack of market stability. A few months of rangebound rates led to renewed bank buying in Q2, according to the Fed's H.8 report, which implies an additional $26bn in buying during April and May (**Exhibit 6**), bringing the year to date (through May) to roughly $35bn. Looking forward, we expect banks to continue to be a major sponsor of MBS for the rest of the year, potentially adding a net $60bn for the whole the year, or another $25bn for the rest of the year.

<u>**Demand: Money Managers / Others +85bn**</u> Money managers and others (along with banks) absorbed much of the net supply in 2015. They have been relatively quiet so far this year, and money manager positioning seems relatively unchanged since they reached neutral at the end of 2015. For the rest of the year, we look to this investor base to step up and absorb much of the net supply coming online over the next 6-7 months, likely at wider spreads than today's level. These investors may need to add as much as $85bn, though roughly $30bn of

[2] https://jpmm.com/research/content/GPS-2048208-0.pdf
[3] https://jpmm.com/research/content/GPS-2029290-0.pdf

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this buying should result from coupon reinvestments (we explored this in-depth a few weeks ago).[4]

## Spec pools

Specified pool payups have generally surged in 2016, thanks to the significant rate rally and deterioration in rolls (**Exhibit 7**). Lower payups stories have benefitted alongside the tried and true types like LLBs, as investors have sought call protection with lower absolute payup risk. Loan balance payups on 3.5s are up across all categories, with LLBs gaining 33 ticks and 200k max pools up 15 ticks. In MHA space, the higher tiered LTV stories have seen significant appreciation in 3.5s, with 95-100 LTV payups increasing 8 ticks and CR payups rising 24 ticks. FICO and 95+LTV purchase pools saw payups rise 8 and 10 ticks, respectively. The jumbo category actually has performed surprisingly well in such an environment – 3s, 3.5s, and 4s only saw their payups decline by 6, 18, and 9 ticks, respectively. Today's significant rally will undoubtedly boost payups, but we're waiting to see where the market shakes out.

## Prepay outlook

2016 started in a similar trajectory to a year ago. A strong rally during the first two months ushered in another mini refi-wave. The refi index duly doubled and by March, speeds registered a 50% jump month over month. Unlike 2015, however, rates have remained stubbornly low. As the primary/secondary spread has managed to absorb much of impact of the secondary market price swings, 30-year primary rates have stayed within a narrow 25bp band, oscillating between 3.75% and 4%. With the potential for low rates for an extended period of time, we examine call risk and the outlook for the second half of the year.

One defining feature in 2016 is that call risk is meaningfully lower year over year. Incentive adjusted speeds are, on average, down 5CPR for fully in-the-money 30-year conventionals (**Exhibit 8**). Other metrics also confirm this finding: the peak speed in 2015 was 20CPR in aggregate, but for the past three months prepays have hovered around 15CPR. Rates reached similar lows in both years and yet the refi index peaked

[4] https://jpmm.com/research/content/GPS-2043152-0.pdf

**Exhibit 7: Specified pool payups have surged in 2016, thanks to the rally**

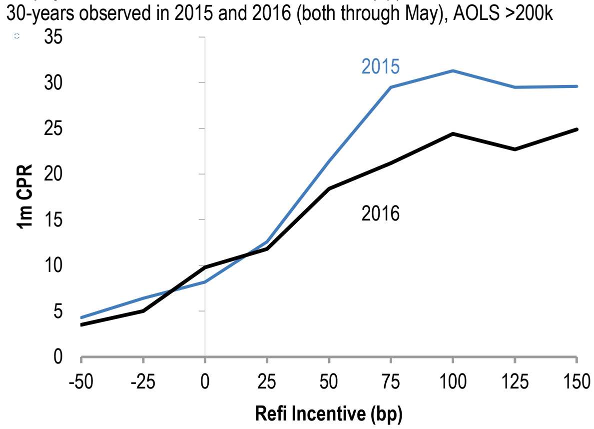
Payups (in 32nds) for various specified pool types

| | 6/23/2016 | | | 12/31/2015 | | | Change | | |
|---|---|---|---|---|---|---|---|---|---|
| 32nds | 3.0 | 3.5 | 4.0 | 3.0 | 3.5 | 4.0 | 3.0 | 3.5 | 4.0 |
| 85 MAX | 18 | 50 | 78 | 8 | 17 | 35 | 10 | 33 | 43 |
| 110 MAX | 15 | 43 | 70 | 5 | 13 | 28 | 10 | 30 | 42 |
| 125 MAX | 13 | 35 | 55 | 3 | 10 | 19 | 10 | 25 | 36 |
| 150 MAX | 11 | 33 | 53 | 2 | 8 | 18 | 9 | 25 | 35 |
| 175 MAX | 7 | 25 | 36 | 1 | 4 | 14 | 6 | 21 | 22 |
| 200 MAX | 0 | 17 | 23 | 0 | 2 | 8 | 0 | 15 | 15 |
| JUMBO | -36 | -58 | -73 | -30 | -40 | -64 | -6 | -18 | -9 |
| 100 NY | 5 | 30 | 48 | 0 | 5 | 17 | 5 | 25 | 31 |
| Investor | 0 | 2 | 5 | 0 | 1 | 5 | 0 | 1 | 0 |
| FICO | 1 | 10 | 16 | 0 | 2 | 6 | 1 | 8 | 10 |
| 95-100 LTV | 1 | 12 | 18 | 0 | 2 | 7 | 1 | 10 | 11 |
| MHA CR | 0 | 24 | 45 | -3 | 0 | 13 | 3 | 24 | 32 |
| MHA CQ | 0 | 22 | 32 | -3 | -3 | 7 | 3 | 25 | 25 |
| MHA 100-105 | 0 | 14 | 34 | 0 | 3 | 12 | 0 | 11 | 22 |
| MHA 95-100 | 0 | 10 | 28 | 0 | 2 | 8 | 0 | 8 | 20 |
| MHA 90-95 | 0 | 4 | 18 | 0 | 1 | 6 | 0 | 3 | 12 |
| MHA 80-90 | 0 | 1 | 8 | 0 | 0.25 | 4 | 0 | 0.75 | 4 |
| TBA price | 102.68 | 104.85 | 106.90 | 99.98 | 103.15 | 105.80 | 2.70 | 1.70 | 1.10 |

Source: J.P. Morgan

**Exhibit 8: Prepay Curves flatten y/y…**

Prepay S-curves, 1mo CPR vs. rate incentives (bp) for 12-30 WALA FNMA 30-years observed in 2015 and 2016 (both through May), AOLS >200k




Source: J.P. Morgan

10% below the level a year ago. Burnout certainly contributed to dampening borrower response. Origination costs have also risen in response to increased TRID compliance costs (in effect since October 2015).

With primary mortgage rates heading below 3.75%, refi risks are once again on the rise. At current rates, about 60% of the conventional universe has 50bp or greater incentive to refinance. As we plot in **Exhibit 9**, the WAC distribution is fairly evenly split around the 4%/4.125% area. Borrowers with 4.25% or greater note rate have significant incentive, but they also have experienced

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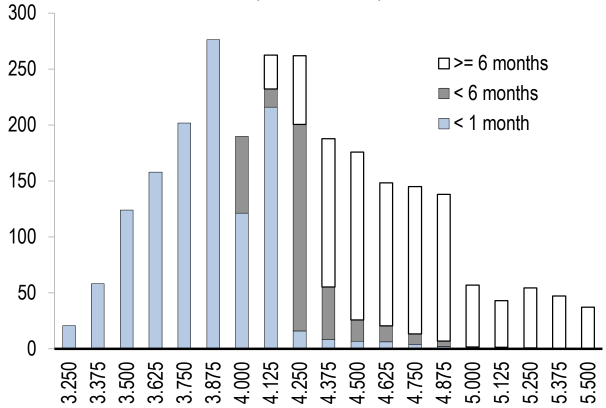
**Exhibit 9: Significant burnout in high WAC originations**

Distribution ($bn) of conventional 30-years by note rate and by the number of months that these loans have experienced >50bp of refi incentives




Note: In-the-money months are calculated from three months after origination
Source: J.P. Morgan, Fannie Mae, Freddie Mac

burnout. To illustrate this, we split each of the WAC groups into three segments based on how many months in the past these borrowers have experienced refi incentive of 50bp or greater. Grey bars represent 1-6 months of burnout and white bars show those borrowers with more than 6 months of burnout. Those with no burnout (1 month or less) tend to carry lower WACs, and appear in blue. Burnout, combined with marginal rate incentive for most cusp coupons, is the key reason why we are in a lackluster prepay environment. **When borrowers with 3.75 - 4% note rates become meaningfully refinanceable (i.e. FNCL 3.5s), this will be the trigger that will take the refi wave to the next level.**

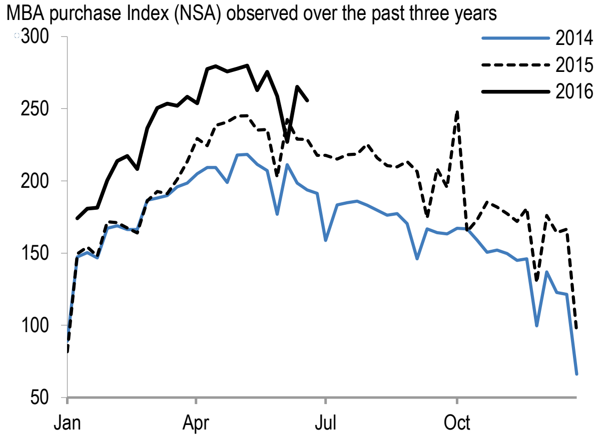
All indicators point to a healthier housing market and higher levels of turnover; home prices are up 5-6% y/y, existing home sales have inched up 5% through April, and purchase loan demand is running 15% ahead of last year's pace (**Exhibit 10**).

**'14 vintage**

During the 2015 refi wave, the '13/'14 vintages showed the most reactivity to rate incentive. This year, the '14 vintage once again led the charge. The '14 vintage 4s and 3.5s jumped 10-12CPR in March to almost match their previous high watermark (set in early '15). By contrast, seasoned vintages showed more muted increases, up only 5-6CPR in March (**Exhibit 11**).

**Exhibit 10: Purchase activity up year over year**

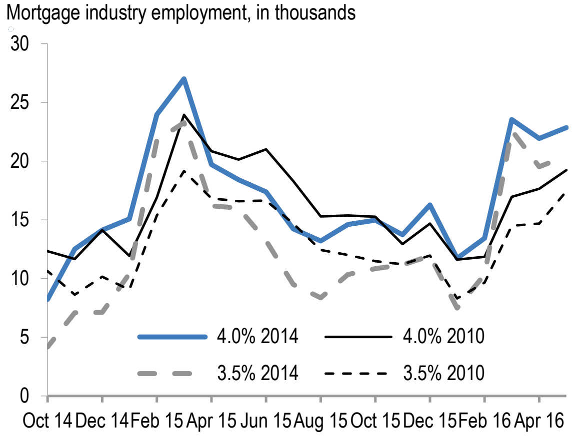
MBA purchase Index (NSA) observed over the past three years




Source: J.P. Morgan, MBA

**Exhibit 11: The 2014 vintage is the most reactive**

Mortgage industry employment, in thousands




Source: J.P. Morgan, Fannie Mae

Some of the gap between seasoned and new 3.5s and 4s has narrowed as seasoned cohorts play catchup. For instance, the '10/'14 vintage prepay spread has narrowed to around 3CPR. However, the gap hasn't completely closed. This suggests that the reactivity of the newer vintage isn't just a timing issue. Rather, burnout in seasoned vintages mutes their reactivity.

**Servicer variations**

The theme of bank versus non-bank servicer speeds continues this year. Non-bank originators have grown their market share, particularly in the FHA space, where they comprise over 60% of the origination. Against the backdrop of a slow overall prepayment environment, the dispersion among major bank and non-bank originators remains striking. Major non-bank servicers remain faster

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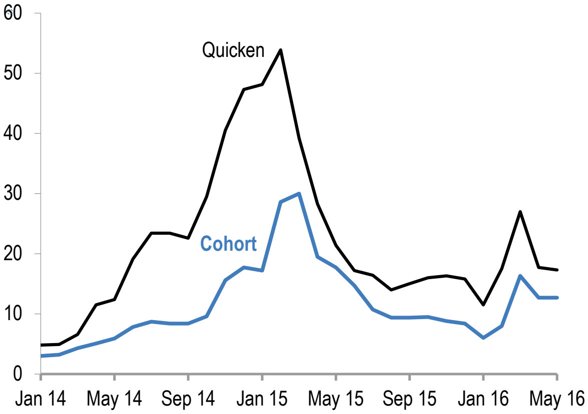
**Exhibit 12: Quicken is still fast, but the gap has narrowed**

Aggregate speeds (1mo CPR) observed on Quicken originations vs. the cohort




Source: J.P. Morgan

than average, represented by names like Stearns, Quicken, Pingora, etc. Major Tier 1 banks such as Wells and Chase continue to pay on top of the cohort while originators like BoA and Citi pay slower than average.

By and large, servicer variations have moderated somewhat year over year. We can attribute some of this to market discipline and investor pushback against fast speeds. Another reason may be the growth and changes in originators' business practices. In addition, the increased burden of compliance procedures and costs, along with more regulatory scrutiny, can strain even the most efficient lenders. Of note is how much Quicken speeds have come in versus the market over the past year. In early 2015, it posted 50CPR readings, at times 30CPR faster than the market. So far this year, the gaps are closer to 7-10CPR (**Exhibit 12**). To be sure, Quicken originations are still fast, but their prints are more akin to an average Tier 2 non-bank servicer's now.

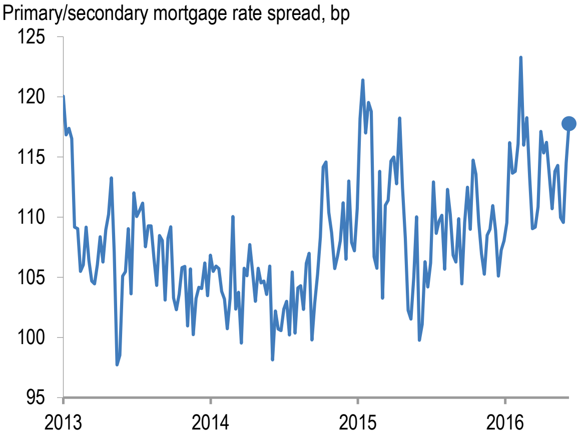
**Primary/secondary spread**

The primary/secondary spread followed a familiar pattern to last year, spiking higher in early February when rates touched local lows (**Exhibit 13**). The spread topped last year's peak, even as the overall loan demand was weaker. This is likely due to the increased compliance burden, both in terms of cost and complexity.

However, a healthier purchase market has given originators greater confidence in retaining more capacity. As **Exhibit 14** shows, the industry typically expands capacity during refi waves and contracts thereafter. The

**Exhibit 13: The primary/secondary spread remains wide**

Primary/secondary mortgage rate spread, bp




Source: J.P. Morgan, Freddie Mac

**Exhibit 14: Originators are adding capacity**

Mortgage industry employment, in thousands


Source: J.P. Morgan, BLS

best example was the 2012/2013 refi wave. The reduction in the second half of 2013 was extensive. However, as purchase activity started to improve in 2014, originators added capacity and this continued throughout the 2015 refi wave. The post 2015 refi wave reduction was fairly immaterial. Capacity has started to rebound again this year. We think that the longer rates stay low, the more likely it is that originators will expand capacity to accommodate refis. On the other hand, purchase seasonal factors have recently peaked, therefore capacity hikes could be somewhat tempered.

**HARP sunset and a new high LTV refi program**

2016 has been a quiet year (thus far) on the policy front. There were no new government refi programs and no

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cuts to g-fees or MIPs (more on this later). On the margin, there were tweaks to the ultra-high LTV conventional space to make it cheaper for 97+ LTV borrowers.

HARP is scheduled to sunset at the end of the year. In response, the GSEs will soon roll out a presumably permanent high-LTV streamline refi program.

Incorporating feedback from both the lending and investor communities, FHFA has indicated that the targeted audience is limited to 97+ LTV borrowers. It is generally perceived as a loss mitigation program or one that may come into force should the housing market take a major turn for the worse (not on the near horizon).

One key detail that we wait for is whether there is an origination date cutoff for eligibility. It is possible that existing HARP-eligible borrowers may not qualify. One theory is that it will be a new forward program – i.e. only those loans made after Jan 2017 would be eligible. There isn't any certainty on this outcome. Nonetheless, we believe that if it's true, it could potentially benefit pre-HARP investors a touch. Overall, the investor impact of such a program, given the information provided to SIFMA and originators, should be very modest.

**Ginnies: a MIP cut on the horizon?**

The 50bp FHA MIP cut (from 135bp to 85bp) in 2015 was very disruptive and fueled fast Ginnie speeds. Unlike last year, there has been no MIP cut thus far in 2016. However, with the 2015 memory still fresh, investors constantly speculate on additional MIP cuts. Prior to the credit crisis, FHA's MIP was just 55bp, which eventually led to the depletion of the FHA insurance fund and required Treasury to inject cash into the agency. With rates low, the potential for large scale MIP cuts to disrupt the Ginnie market is one the most significant policy risks for the mortgage investor.

In our view, the question isn't whether MIPs will be cut, it is when. Additionally, it is a question of how many steps it would take to get the FHA MIP back to the pre-crisis 55bp. With improvements to FHA default rates, there will be natural pressure for FHA to roll back the some of the MIP hikes put in the place since 2010. Looking at the agency's MIP history, the increases were incremental: 35bp in 2010, 25bp in 2011, and an additional 10bp in both 2012 and 2013. The first two hikes were large and the next two were incremental. The lone MIP cut, on the other hand, was a large 50bp –

**Exhibit 15: The price impact of several MIP cut options**

Price impact (32nds) and long term CPRs assuming a 10bp and 30bp FHA MIP cuts, COB 6/20

| | Price impact from cut, ticks | | | LT CPR | | |
|---|---|---|---|---|---|---|
| G2 30yr | TBA Price | **10bp** MIP cut | **30bp** MIP cut | Base | **10bp** MIP cut | **30bp** MIP cut |
| 3.0 | 103.71 | -2 | -6 | 13.3 | 13.6 | 14.2 |
| 3.5 | 105.68 | -4 | -13 | 17.9 | 18.8 | 20.7 |
| 4.0 | 106.66 | -5 | -13 | 24.4 | 25.2 | 26.4 |
| 4.5 | 107.17 | -3 | -10 | 27.3 | 27.8 | 28.9 |

Source: J.P. Morgan

almost entirely undoing the first two large hikes. Going forward, the mostly likely path is a more gradual pace of cuts, in our view. Given where MIPs are now, there isn't as much room for cuts as before.

Timing is also tricky. The FHA insurance fund barely built up the minimum 2% statutory capital last October, and the single family fund was still below the 2% threshold. When the next Actuarial annual report is released later this year (around October), a key metric to watch is how much the fund has improved on last year's performance.

In one of its own studies last year, the agency expected a loss rate of roughly 55bp on its new book of business. This leaves little room for error, and gives the agency little leeway to continue rebuild capital. Assuming continued default improvements, MIPs will be cut, and it's only a matter of when and how much. FHA defaults did improve from 2009 through 2014, but since then default rates have been sticky. In our view, a more incremental approach is more the more likely course of action.

Gauging the price impact of another MIP cut, we revisit the 50bp cut in early 2015. After the announcement, G2/FN 3s lost 11 ticks, 3.5s 15 ticks, 4s 15 ticks, and 4.5s 23 ticks. A cut of 30bp should obviously have a smaller price impact. In **Exhibit 15**, we show that a full 30bp cut would push 3.5s and 4s down as much as 10-13 ticks, and affect 3s to a lesser extent. In our view, if a more incremental cut is enacted at the current rate level, the price impact should be almost immaterial.

## Investment Themes

- **Stay underweight the mortgage basis –** lower rates and higher vol should continue to pressure lower coupon performance, and current spreads and carry do not compensate investors for this

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- **Prefer 15yrs and hybrids** for their shorter spread duration as markets settle
- **In spec pools, call protection should continue to benefit from sustained low rates–** to reduce payup risk, we recommend 175k/200k max stories in 3s and 3.5s, particularly those from slow servicers
- **Remain neutral on G2/FN** – fundamental richness is not out of line historically and can persist

## In case you missed it – select pieces from the first half of the year:

1/29 **Laying out TRID changes and the impact on agency MBS:** https://jpmm.com/research/content/GPS-1930906-0

2/26 **Valuing credit impaired (low FICO and high LTV) spec stories:** https://jpmm.com/research/content/GPS-1958779-0

4/7 **Our prepayment commentary after the 49% jump in 30-year speeds for March:** https://jpmm.com/research/content/GPS-1989516-0

4/15 **Upcoming GSE policy changes (including the single security) and changes in the REIT landscape:** https://jpmm.com/research/content/GPS-1997631-0

4/29 **Introducing the new SRM3 term structure model which allows rates to go negative and better fits market implied vol:** https://jpmm.com/research/content/GPS-2012694-0

5/6 **Estimating the duration of bank MBS holdings and the differences between AFS and HTM MBS securities:** https://jpmm.com/research/content/GPS-2019236-0

6/3 **An in-depth look at MBS coupon reinvestment:** https://jpmm.com/research/content/GPS-2043152-0

6/10 **Identifying slow servicers in the loan balance space:** https://jpmm.com/research/content/GPS-2048118-0

## Week in review

- **The Fed net purchased $7.7bn agency MBS from June 16 to June 22.** $2.19bn were in Freddies ($1.23bn w/w), $3.30bn were in Fannies ($1.85bn w/w) and $2.21bn were in Ginnies (-$0.22bn w/w). Since the program's inception (October 1, 2011), the Fed has purchased $635.3bn Freddies, $1104.6bn Fannies and $523.7bn Ginnies.

### Exhibit 16: Fed purchases since the start of Operation Twist…

Fed MBS net purchases from October 1, 2011 onward ($mm)

| Term | Coupon | FHLMC | FNMA | GNMA | G2 | Total |
|---|---|---|---|---|---|---|
| 30-year | 2.5 | 750 | 8,150 | - | 1,000 | 9,900 |
| | 3.0 | 171,361 | 292,583 | 19,500 | 155,786 | 639,230 |
| | 3.5 | 216,333 | 350,414 | 18,500 | 222,166 | 807,413 |
| | 4.0 | 131,950 | 251,307 | 6,650 | 94,186 | 484,093 |
| | 4.5 | 2,450 | 8,900 | - | 5,950 | 17,300 |
| **30-year Total** | | **522,844** | **911,354** | **44,650** | **479,088** | **1,957,936** |
| 15-year | 2.0 | 3,850 | 10,900 | - | - | 14,750 |
| | 2.5 | 57,842 | 96,356 | - | - | 154,198 |
| | 3.0 | 43,491 | 70,284 | - | - | 113,775 |
| | 3.5 | 7,242 | 15,745 | - | - | 22,987 |
| **15-year Total** | | **112,425** | **193,285** | **-** | **-** | **305,710** |
| **Grand Total** | | **635,269** | **1,104,639** | **44,650** | **479,088** | **2,263,646** |

Source: Federal Reserve

### Exhibit 17:… and over the past week

Fed MBS purchases over the last weekly purchase period ($mm)

| Term | Coupon | Settle | FHLMC | FNMA | GNMA | G2 | Total |
|---|---|---|---|---|---|---|---|
| 30-year | 3.0 | Jul-16 | 1,400 | 2,136 | - | 1,400 | 4,936 |
| | 3.5 | Jun-16 | - | - | - | (1,100) | (1,100) |
| | 3.5 | Jul-16 | 524 | 770 | - | 1,914 | 3,208 |
| **30-year Total** | | | **1,924** | **2,906** | **-** | **2,214** | **7,044** |
| 15-year | 2.5 | Jul-16 | 184 | 289 | - | - | 473 |
| | 3.0 | Jul-16 | 79 | 105 | - | - | 184 |
| **15-year Total** | | | **263** | **394** | **-** | **-** | **657** |
| **Grand Total** | | | **2,187** | **3,300** | **-** | **2,214** | **7,701** |

Source: Federal Reserve

- **MBA Weekly Survey**: For the week ending June 17, 2016, the purchase application index fell 2.4% to 231.9 and the refinance index went up 6.5% to 2.189.4 (seasonally adjusted).
- **Freddie Primary Survey:** For the Monday-Wednesday period prior to June 16, 2016, 30-year conventional conforming fixed-rate mortgages averaged 3.56% (average of 0.6 fees & points for the week), up 2bp from the previous week.
- **Primary dealer agency MBS passthrough positions** rose $8.8bn (w/w) to $30.5bn as-of close of trading June 15, 2016. Other agency MBS holdings rose $1bn to $34.3bn.
- **Fixed-rate agency gross and net issuances were $112bn and $16bn, respectively, in May.** June gross supply currently stands at $99bn.

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## Short Term Prepayment Projections

| FNMA 30 YR | | | | | | AOLS/ | | | | Hist. CPR | | Proj. CPR | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| COUPON | VINTAGE | Bal ($bn) | WAC | WAM | WALA | LNSZ | LTV | FICO | Refi% | Apr | May | Jun | Jul | Aug |
| 3 | 2015 | 60.3 | 3.78 | 344 | 13 | 275 / 265 | 74 | 766 | 51 | 9.5 | 10.1 | 10.8 | 9.6 | 12.5 |
| | 2013 | 160.5 | 3.58 | 315 | 38 | 242 / 221 | 72 | 763 | 68 | 9.2 | 10.7 | 11.4 | 10.1 | 13.1 |
| | 2012 | 117.8 | 3.59 | 308 | 44 | 254 / 228 | 71 | 769 | 67 | 9.4 | 10.9 | 11.6 | 10.3 | 12.4 |
| 3.5 | 2015 | 193.8 | 4.11 | 346 | 11 | 239 / 230 | 78 | 750 | 43 | 12.8 | 13.7 | 14.9 | 13.4 | 17.0 |
| | 2014 | 64.2 | 4.24 | 335 | 21 | 240 / 224 | 78 | 759 | 31 | 19.5 | 20.4 | 22.0 | 20.5 | 25.4 |
| | 2013 | 83.8 | 4.02 | 317 | 36 | 200 / 184 | 77 | 743 | 64 | 13.8 | 14.9 | 16.4 | 15.1 | 19.0 |
| | 2012 | 140.5 | 4.00 | 303 | 48 | 214 / 191 | 74 | 759 | 71 | 13.4 | 15.1 | 16.6 | 15.3 | 18.3 |
| | 2011 | 24.7 | 4.02 | 294 | 56 | 235 / 205 | 70 | 771 | 70 | 13.3 | 15.6 | 17.1 | 15.5 | 18.5 |
| | 2010 | 9.2 | 4.11 | 281 | 67 | 231 / 195 | 69 | 773 | 66 | 14.7 | 17.4 | 19.0 | 17.3 | 20.7 |
| 4.0 | 2015 | 57.8 | 4.58 | 347 | 11 | 182 / 175 | 80 | 715 | 49 | 14.2 | 15.2 | 16.2 | 15.7 | 19.2 |
| | 2014 | 102.4 | 4.59 | 332 | 23 | 200 / 187 | 80 | 737 | 39 | 22.0 | 22.9 | 24.4 | 22.9 | 27.2 |
| | 2013 | 61.6 | 4.58 | 321 | 33 | 186 / 171 | 80 | 741 | 45 | 21.6 | 21.7 | 23.1 | 21.7 | 25.8 |
| | 2012 | 42.3 | 4.47 | 301 | 49 | 167 / 149 | 79 | 738 | 78 | 15.4 | 16.5 | 17.6 | 16.0 | 19.0 |
| | 2011 | 47.9 | 4.47 | 292 | 59 | 199 / 174 | 73 | 759 | 71 | 17.3 | 18.1 | 19.3 | 17.6 | 20.9 |
| | 2010 | 40.9 | 4.49 | 282 | 68 | 207 / 176 | 71 | 764 | 76 | 17.6 | 19.3 | 20.6 | 18.8 | 22.4 |
| | 2009 | 23.8 | 4.55 | 264 | 84 | 212 / 173 | 66 | 765 | 84 | 19.8 | 21.7 | 22.6 | 20.7 | 24.7 |
| 4.5 | 2014 | 18.8 | 5.02 | 331 | 25 | 145 / 136 | 81 | 704 | 50 | 19.6 | 21.2 | 22.6 | 20.7 | 24.6 |
| | 2013 | 12.4 | 5.04 | 322 | 32 | 145 / 135 | 81 | 718 | 49 | 20.1 | 20.3 | 21.6 | 19.8 | 23.6 |
| | 2011 | 37.5 | 4.93 | 290 | 60 | 171 / 150 | 76 | 747 | 72 | 18.1 | 19.4 | 20.7 | 18.9 | 22.5 |
| | 2010 | 35.1 | 4.94 | 278 | 72 | 191 / 163 | 74 | 752 | 72 | 19.3 | 20.8 | 22.2 | 20.3 | 24.2 |
| | 2009 | 46.2 | 4.93 | 266 | 83 | 192 / 159 | 71 | 756 | 80 | 21.1 | 22.5 | 24.0 | 22.0 | 26.2 |
| | 2003 | 3.4 | 5.06 | 193 | 154 | 158 / 107 | 69 | 731 | 73 | 17.1 | 19.8 | 21.1 | 19.3 | 23.0 |
| 5.0 | 2010 | 18.6 | 5.37 | 278 | 73 | 174 / 150 | 79 | 731 | 78 | 20.2 | 21.6 | 23.0 | 20.9 | 24.6 |
| | 2009 | 13.9 | 5.42 | 268 | 82 | 162 / 137 | 75 | 738 | 67 | 20.7 | 21.3 | 22.7 | 20.7 | 24.3 |
| | 2008 | 4.8 | 5.65 | 253 | 97 | 179 / 146 | 72 | 734 | 65 | 22.5 | 24.9 | 26.0 | 24.7 | 26.3 |
| | 2005 | 9.6 | 5.64 | 218 | 131 | 168 / 126 | 71 | 721 | 56 | 20.7 | 21.6 | 22.6 | 21.5 | 22.9 |
| | 2004 | 6.0 | 5.55 | 203 | 144 | 153 / 110 | 71 | 720 | 60 | 17.8 | 18.7 | 19.7 | 18.6 | 19.9 |
| | 2003 | 14.2 | 5.50 | 192 | 154 | 138 / 95 | 70 | 720 | 75 | 17.2 | 18.4 | 19.4 | 18.3 | 19.5 |
| 5.5 | 2008 | 7.7 | 6.03 | 253 | 97 | 157 / 130 | 74 | 726 | 57 | 22.1 | 23.7 | 24.5 | 23.2 | 24.3 |
| | 2007 | 7.1 | 6.13 | 242 | 108 | 167 / 135 | 72 | 717 | 56 | 23.3 | 22.9 | 23.7 | 22.4 | 23.5 |
| | 2006 | 3.5 | 6.15 | 231 | 119 | 161 / 127 | 71 | 716 | 55 | 22.5 | 23.1 | 23.9 | 22.6 | 23.7 |
| | 2005 | 10.0 | 5.98 | 218 | 131 | 136 / 104 | 73 | 710 | 55 | 18.8 | 19.1 | 19.9 | 18.8 | 19.7 |
| | 2004 | 8.9 | 5.94 | 204 | 144 | 125 / 91 | 73 | 709 | 56 | 17.6 | 18.5 | 19.3 | 18.2 | 19.1 |
| | 2003 | 14.5 | 5.94 | 191 | 156 | 125 / 87 | 72 | 713 | 71 | 16.8 | 17.3 | 18.1 | 17.0 | 17.9 |
| 6.0 | 2008 | 4.3 | 6.54 | 254 | 96 | 132 / 110 | 77 | 712 | 49 | 23.4 | 22.1 | 22.9 | 21.6 | 22.7 |
| | 2007 | 9.7 | 6.57 | 244 | 107 | 139 / 115 | 76 | 705 | 53 | 22.9 | 22.4 | 23.2 | 21.9 | 23.0 |
| | 2006 | 7.8 | 6.56 | 230 | 120 | 136 / 108 | 74 | 706 | 51 | 21.9 | 21.5 | 22.3 | 21.1 | 22.1 |

| FNMA 15 YR | | | | | | AOLS/ | | | | Hist. CPR | | Proj. CPR | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| COUPON | VINTAGE | Bal ($bn) | WAC | WAM | WALA | LNSZ | LTV | FICO | Refi% | Apr | May | Jun | Jul | Aug |
| 2.5 | 2015 | 26.6 | 3.05 | 166 | 12 | 219 / 201 | 65 | 765 | 77 | 10.1 | 11.8 | 12.9 | 11.4 | 13.6 |
| | 2013 | 48.0 | 2.94 | 137 | 38 | 187 / 147 | 64 | 762 | 92 | 9.1 | 10.4 | 11.4 | 10.1 | 12.1 |
| | 2012 | 50.6 | 3.00 | 129 | 45 | 204 / 151 | 64 | 770 | 91 | 9.9 | 11.2 | 12.3 | 11.0 | 13.1 |
| 3.0 | 2015 | 30.4 | 3.48 | 167 | 11 | 172 / 159 | 66 | 748 | 83 | 9.9 | 11.6 | 12.7 | 11.4 | 13.6 |
| | 2014 | 26.1 | 3.53 | 153 | 23 | 174 / 150 | 68 | 751 | 71 | 13.0 | 13.6 | 15.0 | 13.5 | 16.1 |
| | 2013 | 20.0 | 3.51 | 141 | 34 | 152 / 122 | 67 | 751 | 80 | 12.5 | 13.2 | 14.5 | 13.1 | 15.6 |
| | 2012 | 28.4 | 3.45 | 125 | 49 | 163 / 118 | 65 | 762 | 94 | 11.9 | 13.1 | 14.4 | 13.0 | 15.5 |
| | 2011 | 17.4 | 3.45 | 118 | 56 | 187 / 128 | 63 | 770 | 92 | 12.2 | 12.8 | 14.1 | 12.7 | 15.1 |
| | 2010 | 2.0 | 3.58 | 106 | 67 | 170 / 106 | 62 | 773 | 90 | 12.6 | 12.8 | 14.1 | 12.7 | 15.1 |
| 3.5 | 2014 | 9.6 | 4.05 | 151 | 24 | 123 / 106 | 69 | 729 | 87 | 13.2 | 13.9 | 15.3 | 13.8 | 16.4 |
| | 2011 | 15.7 | 3.91 | 113 | 60 | 156 / 103 | 63 | 762 | 92 | 13.8 | 14.3 | 15.7 | 14.2 | 16.9 |
| | 2010 | 11.7 | 3.92 | 105 | 68 | 165 / 102 | 62 | 769 | 94 | 14.8 | 15.3 | 16.8 | 15.3 | 18.1 |
| 4.0 | 2011 | 7.1 | 4.38 | 111 | 61 | 128 / 84 | 64 | 753 | 91 | 15.6 | 15.9 | 17.4 | 15.9 | 18.8 |
| | 2010 | 8.6 | 4.42 | 101 | 72 | 141 / 85 | 62 | 758 | 90 | 15.9 | 17.1 | 18.7 | 17.1 | 20.2 |
| | 2009 | 6.2 | 4.48 | 90 | 83 | 147 / 80 | 60 | 761 | 93 | 15.8 | 16.6 | 18.2 | 16.6 | 19.6 |
| 4.5 | 2009 | 3.0 | 4.89 | 91 | 82 | 123 / 68 | 62 | 746 | 90 | 16.6 | 17.2 | 18.6 | 16.8 | 19.8 |
| | 2008 | 1.1 | 5.06 | 76 | 98 | 146 / 70 | 60 | 743 | 88 | 19.0 | 19.4 | 20.9 | 19.0 | 22.3 |
| | 2004 | 1.1 | 4.97 | 33 | 145 | 133 / 28 | 59 | 731 | 86 | 19.0 | 18.9 | 20.4 | 18.5 | 21.7 |
| | 2003 | 2.8 | 4.96 | 24 | 155 | 126 / 19 | 59 | 734 | 94 | 21.9 | 22.7 | 24.3 | 22.2 | 26.0 |
| 5.0 | 2008 | 1.0 | 5.58 | 78 | 97 | 119 / 59 | 61 | 732 | 82 | 17.2 | 17.6 | 18.4 | 17.3 | 18.3 |
| | 2005 | 1.0 | 5.50 | 45 | 131 | 115 / 35 | 60 | 726 | 79 | 15.8 | 16.4 | 17.2 | 16.2 | 17.1 |
| | 2003 | 1.8 | 5.45 | 22 | 156 | 112 / 17 | 61 | 725 | 92 | 21.5 | 22.2 | 23.1 | 21.8 | 22.9 |
| 30-year mortgage rate assumption: 3.7% | | | | | | | | | Day Count: | 21 | 21 | 22 | 20 | 23 |

Source: J.P. Morgan, Fannie Mae

 [AC] Indicates certifying analyst. See last page for analyst certification and important disclosures.

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## Short Term Prepayment Projections

| GOLD 30 YR | | | | | | AOLS/ | | | | Hist. CPR | | Proj. CPR | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| COUPON | VINTAGE | Bal ($bn) | WAC | WAM | WALA | LNSZ | LTV | FICO | Refi% | Apr | May | Jun | Jul | Aug |
| 3 | 2015 | 52.7 | 3.75 | 344 | 12 | 270/263 | 73 | 767 | 49 | 7.5 | 9.4 | 10.1 | 8.9 | 11.7 |
| | 2013 | 93.2 | 3.57 | 314 | 38 | 239/220 | 72 | 764 | 67 | 9.3 | 10.9 | 11.5 | 10.3 | 13.3 |
| | 2012 | 61.2 | 3.61 | 308 | 44 | 244/221 | 71 | 768 | 69 | 9.3 | 10.8 | 11.5 | 10.3 | 12.3 |
| 3.5 | 2015 | 130.4 | 4.12 | 346 | 11 | 235/228 | 77 | 751 | 44 | 12.6 | 13.6 | 14.7 | 13.3 | 16.8 |
| | 2014 | 53.7 | 4.22 | 334 | 21 | 237/226 | 77 | 762 | 30 | 18.6 | 19.6 | 21.2 | 19.7 | 24.4 |
| | 2013 | 53.2 | 4.02 | 317 | 36 | 201/187 | 77 | 746 | 66 | 13.3 | 14.5 | 15.9 | 14.7 | 18.6 |
| | 2012 | 73.2 | 4.00 | 302 | 48 | 210/190 | 74 | 760 | 72 | 12.9 | 14.4 | 15.8 | 14.6 | 17.5 |
| | 2011 | 12.4 | 4.04 | 293 | 57 | 227/200 | 69 | 771 | 69 | 15.0 | 16.3 | 17.9 | 16.3 | 19.4 |
| | 2010 | 2.5 | 4.07 | 281 | 67 | 226/194 | 69 | 771 | 67 | 15.1 | 18.6 | 20.4 | 18.6 | 22.1 |
| 4.0 | 2015 | 31.6 | 4.57 | 347 | 10 | 178/175 | 79 | 721 | 51 | 14.5 | 14.6 | 15.6 | 15.1 | 18.5 |
| | 2014 | 68.4 | 4.59 | 332 | 24 | 200/191 | 79 | 739 | 41 | 21.8 | 22.4 | 23.9 | 22.4 | 26.6 |
| | 2013 | 32.7 | 4.57 | 321 | 33 | 186/175 | 79 | 742 | 49 | 20.1 | 20.9 | 22.3 | 20.9 | 24.9 |
| | 2012 | 15.3 | 4.49 | 300 | 49 | 171/156 | 82 | 735 | 89 | 15.2 | 16.5 | 18.1 | 16.5 | 19.6 |
| | 2011 | 26.6 | 4.48 | 290 | 59 | 195/173 | 73 | 759 | 71 | 17.3 | 18.8 | 20.0 | 18.3 | 21.7 |
| | 2010 | 25.6 | 4.48 | 281 | 68 | 201/174 | 72 | 764 | 78 | 18.0 | 20.0 | 21.3 | 19.4 | 23.1 |
| | 2009 | 12.5 | 4.55 | 263 | 84 | 209/173 | 66 | 766 | 84 | 19.5 | 21.2 | 23.1 | 21.2 | 25.2 |
| 4.5 | 2014 | 7.4 | 5.08 | 331 | 25 | 141/135 | 80 | 706 | 58 | 19.7 | 19.9 | 21.7 | 19.9 | 23.7 |
| | 2013 | 4.0 | 5.12 | 322 | 32 | 144/137 | 80 | 715 | 66 | 17.9 | 18.4 | 20.1 | 18.3 | 21.8 |
| | 2011 | 22.0 | 4.90 | 289 | 61 | 178/159 | 76 | 748 | 72 | 19.1 | 20.3 | 22.1 | 20.2 | 24.1 |
| | 2010 | 27.1 | 4.95 | 277 | 72 | 183/159 | 74 | 753 | 73 | 20.2 | 21.0 | 22.9 | 21.0 | 25.0 |
| | 2009 | 34.0 | 4.92 | 265 | 83 | 190/160 | 71 | 756 | 81 | 22.4 | 24.0 | 26.1 | 24.0 | 28.5 |
| | 2003 | 1.6 | 5.02 | 193 | 154 | 154/106 | 71 | 729 | 73 | 19.0 | 21.5 | 23.5 | 21.5 | 25.6 |
| 5.0 | 2010 | 13.5 | 5.38 | 277 | 73 | 170/150 | 79 | 730 | 82 | 20.3 | 22.1 | 23.5 | 21.4 | 25.1 |
| | 2009 | 13.7 | 5.42 | 268 | 81 | 162/139 | 75 | 740 | 69 | 21.1 | 22.5 | 24.0 | 21.8 | 25.7 |
| | 2008 | 3.6 | 5.63 | 253 | 98 | 181/151 | 70 | 737 | 69 | 23.0 | 23.9 | 25.0 | 23.7 | 25.3 |
| | 2005 | 7.2 | 5.63 | 218 | 131 | 161/124 | 72 | 720 | 55 | 21.1 | 22.2 | 23.3 | 22.1 | 23.5 |
| | 2004 | 4.3 | 5.53 | 203 | 144 | 145/105 | 73 | 716 | 59 | 19.3 | 19.7 | 20.7 | 19.6 | 20.9 |
| | 2003 | 7.0 | 5.48 | 192 | 154 | 135/94 | 72 | 722 | 75 | 18.3 | 19.4 | 20.4 | 19.4 | 20.6 |
| 5.5 | 2008 | 5.3 | 6.03 | 253 | 97 | 153/129 | 74 | 727 | 59 | 23.2 | 23.6 | 24.4 | 23.0 | 24.2 |
| | 2007 | 4.7 | 6.10 | 241 | 109 | 157/129 | 73 | 719 | 55 | 22.5 | 22.6 | 23.4 | 22.1 | 23.2 |
| | 2006 | 2.9 | 6.12 | 230 | 119 | 159/128 | 72 | 717 | 53 | 22.2 | 21.9 | 22.7 | 21.5 | 22.6 |
| | 2005 | 7.2 | 5.94 | 218 | 131 | 131/102 | 74 | 710 | 59 | 19.1 | 20.0 | 20.8 | 19.6 | 20.6 |
| | 2004 | 5.5 | 5.92 | 204 | 143 | 124/92 | 75 | 707 | 56 | 17.0 | 17.9 | 18.9 | 17.9 | 18.8 |
| | 2003 | 6.4 | 5.94 | 190 | 156 | 119/84 | 73 | 715 | 71 | 17.7 | 17.5 | 18.6 | 17.5 | 18.5 |
| 6.0 | 2008 | 3.3 | 6.51 | 253 | 96 | 126/108 | 76 | 714 | 52 | 19.3 | 23.1 | 24.2 | 22.9 | 24.0 |
| | 2007 | 6.3 | 6.53 | 243 | 107 | 125/105 | 76 | 706 | 53 | 20.9 | 21.6 | 22.7 | 21.4 | 22.5 |
| | 2006 | 5.6 | 6.51 | 230 | 119 | 130/106 | 74 | 710 | 52 | 20.7 | 21.6 | 22.7 | 21.4 | 22.5 |

30-year mortgage rate assumption: 3.7%

Source: J.P. Morgan, Freddie Mac

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## Short Term Prepayment Projections

GNMA 30 YR

| COUPON | VINTAGE | Bal ($bn) | WAC | WAM | WALA | AOLS/ LNSZ | LTV | FICO | Refi% | Hist. CPR Apr | Hist. CPR May | Proj. CPR Jun | Proj. CPR Jul | Proj. CPR Aug |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 2015 | 2.7 | 3.50 | 343 | 13 | 196 / 190 | 95 | 718 | 31 | 7.9 | 8.5 | 9.5 | 8.5 | 9.9 |
| | 2013 | 18.4 | 3.50 | 317 | 38 | 176 / 161 | 94 | 707 | 44 | 15.4 | 16.3 | 17.8 | 16.3 | 18.6 |
| | 2012 | 12.2 | 3.50 | 311 | 45 | 180 / 162 | 95 | 714 | 35 | 14.8 | 16.6 | 18.1 | 16.6 | 18.9 |
| 3.5 | 2015 | 2.9 | 4.00 | 343 | 14 | 161 / 154 | 95 | 689 | 28 | 18.2 | 17.7 | 19.3 | 17.7 | 20.2 |
| | 2014 | 1.5 | 4.00 | 334 | 22 | 156 / 148 | 96 | 700 | 15 | 15.0 | 14.0 | 15.4 | 14.0 | 16.0 |
| | 2013 | 5.7 | 4.00 | 314 | 36 | 137 / 126 | 92 | 689 | 61 | 15.8 | 17.1 | 18.7 | 17.1 | 19.5 |
| | 2012 | 14.8 | 4.00 | 305 | 49 | 157 / 141 | 94 | 700 | 46 | 17.5 | 20.4 | 22.2 | 20.4 | 23.2 |
| | 2011 | 5.5 | 4.00 | 298 | 56 | 174 / 154 | 96 | 712 | 33 | 18.0 | 20.6 | 22.4 | 20.6 | 23.4 |
| | 2010 | 1.5 | 4.00 | 286 | 66 | 191 / 164 | 95 | 722 | 26 | 20.9 | 17.3 | 18.9 | 17.3 | 19.7 |
| 4.0 | 2015 | 5.0 | 4.50 | 346 | 12 | 161 / 154 | 95 | 675 | 16 | 26.8 | 27.3 | 29.6 | 27.3 | 30.9 |
| | 2014 | 2.5 | 4.50 | 330 | 24 | 124 / 118 | 95 | 682 | 19 | 16.0 | 16.4 | 17.9 | 16.4 | 18.7 |
| | 2013 | 1.2 | 4.50 | 317 | 34 | 113 / 105 | 93 | 687 | 34 | 15.6 | 17.5 | 19.1 | 17.5 | 19.9 |
| | 2012 | 1.4 | 4.50 | 303 | 50 | 117 / 105 | 93 | 679 | 41 | 13.2 | 18.6 | 22.3 | 20.5 | 23.2 |
| | 2011 | 11.3 | 4.50 | 295 | 60 | 152 / 134 | 95 | 704 | 24 | 20.3 | 21.7 | 23.6 | 21.7 | 24.6 |
| | 2010 | 13.7 | 4.50 | 286 | 68 | 174 / 151 | 94 | 707 | 43 | 19.7 | 22.6 | 24.6 | 22.6 | 25.6 |
| 4.5 | 2011 | 4.3 | 5.00 | 293 | 61 | 127 / 113 | 95 | 686 | 22 | 20.6 | 24.2 | 26.3 | 24.2 | 27.4 |
| | 2010 | 17.5 | 5.00 | 281 | 73 | 156 / 134 | 94 | 699 | 28 | 23.1 | 24.7 | 26.8 | 24.7 | 28.0 |
| | 2009 | 25.5 | 5.00 | 270 | 83 | 163 / 138 | 94 | 670 | 50 | 23.7 | 26.2 | 28.4 | 26.2 | 29.6 |
| 5.0 | 2010 | 5.0 | 5.50 | 280 | 74 | 118 / 103 | 95 | 672 | 29 | 19.0 | 20.9 | 22.7 | 20.9 | 23.7 |
| | 2009 | 18.1 | 5.50 | 270 | 83 | 134 / 114 | 94 | 650 | 38 | 23.2 | 23.0 | 25.0 | 23.0 | 26.1 |
| | 2008 | 1.7 | 5.50 | 256 | 96 | 149 / 124 | 93 | 669 | 41 | 23.7 | 20.1 | 21.9 | 20.1 | 22.8 |
| | 2005 | 1.2 | 5.50 | 215 | 132 | 120 / 90 | 95 | 667 | 38 | 20.1 | 18.6 | 19.3 | 17.7 | 20.1 |
| 5.5 | 2008 | 3.6 | 6.00 | 257 | 95 | 130 / 109 | 93 | 644 | 36 | 21.9 | 22.9 | 22.9 | 21.3 | 22.6 |
| | 2007 | 0.6 | 6.00 | 243 | 109 | 126 / 103 | 94 | 654 | 27 | 18.0 | 21.1 | 21.1 | 19.7 | 20.8 |
| | 2006 | 0.6 | 6.00 | 230 | 121 | 120 / 95 | 94 | 649 | 26 | 18.9 | 17.4 | 17.5 | 16.3 | 17.3 |
| | 2005 | 1.3 | 6.00 | 216 | 131 | 103 / 79 | 94 | 646 | 31 | 15.8 | 18.4 | 19.5 | 18.1 | 19.2 |
| | 2004 | 1.5 | 6.00 | 201 | 144 | 101 / 74 | 94 | 654 | 37 | 14.9 | 16.5 | 17.6 | 16.4 | 17.4 |

G2 30 YR

| COUPON | VINTAGE | Bal ($bn) | WAC | WAM | WALA | AOLS/ LNSZ | LTV | FICO | Refi% | Hist. CPR Apr | Hist. CPR May | Proj. CPR Jun | Proj. CPR Jul | Proj. CPR Aug |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 2015 | 79.3 | 3.46 | 345 | 12 | 225 / 217 | 95 | 714 | 39 | 10.6 | 12.4 | 13.3 | 12.6 | 15.0 |
| | 2013 | 86.7 | 3.33 | 318 | 38 | 197 / 180 | 95 | 717 | 44 | 14.4 | 15.6 | 16.8 | 15.3 | 17.5 |
| | 2012 | 57.8 | 3.37 | 312 | 44 | 196 / 177 | 95 | 720 | 43 | 14.7 | 16.3 | 17.3 | 15.8 | 18.1 |
| 3.5 | 2015 | 191.8 | 3.88 | 347 | 11 | 201 / 193 | 94 | 692 | 36 | 17.9 | 20.0 | 21.8 | 19.7 | 22.7 |
| | 2014 | 73.7 | 3.90 | 335 | 22 | 190 / 178 | 96 | 705 | 19 | 23.1 | 23.8 | 25.8 | 23.5 | 26.9 |
| | 2013 | 60.8 | 3.84 | 318 | 35 | 169 / 155 | 93 | 696 | 45 | 18.0 | 19.4 | 21.1 | 19.4 | 22.1 |
| | 2012 | 93.8 | 3.81 | 307 | 47 | 182 / 163 | 94 | 711 | 48 | 18.1 | 19.9 | 21.7 | 19.9 | 22.6 |
| | 2011 | 13.7 | 3.88 | 299 | 55 | 183 / 161 | 96 | 717 | 30 | 19.0 | 21.0 | 22.8 | 21.0 | 23.8 |
| | 2010 | 0.6 | 4.00 | 286 | 67 | 185 / 159 | 96 | 718 | 13 | 16.3 | 21.4 | 22.3 | 20.5 | 23.2 |
| 4.0 | 2015 | 60.5 | 4.37 | 347 | 10 | 172 / 164 | 94 | 667 | 27 | 22.9 | 24.9 | 26.5 | 24.4 | 28.0 |
| | 2014 | 69.5 | 4.34 | 332 | 23 | 156 / 146 | 95 | 676 | 19 | 24.4 | 24.7 | 26.5 | 24.4 | 27.7 |
| | 2013 | 28.6 | 4.36 | 323 | 32 | 160 / 147 | 95 | 693 | 22 | 23.9 | 25.2 | 27.0 | 24.9 | 28.2 |
| | 2012 | 16.0 | 4.30 | 304 | 49 | 143 / 129 | 94 | 678 | 43 | 19.3 | 20.0 | 21.8 | 20.0 | 22.7 |
| | 2011 | 25.5 | 4.35 | 296 | 58 | 159 / 140 | 95 | 702 | 29 | 20.0 | 21.9 | 23.8 | 21.9 | 24.8 |
| | 2010 | 17.2 | 4.37 | 286 | 67 | 178 / 154 | 95 | 714 | 33 | 20.0 | 21.9 | 23.8 | 21.9 | 24.8 |
| 4.5 | 2014 | 12.6 | 4.84 | 331 | 24 | 129 / 129 | 94 | 651 | 29 | 28.6 | 32.1 | 33.7 | 31.1 | 33.2 |
| | 2013 | 13.9 | 4.82 | 322 | 32 | 140 / 129 | 94 | 666 | 30 | 24.3 | 26.0 | 28.2 | 26.0 | 28.4 |
| | 2011 | 23.8 | 4.81 | 292 | 61 | 145 / 127 | 95 | 692 | 25 | 21.9 | 23.5 | 25.5 | 23.5 | 25.6 |
| | 2010 | 24.4 | 4.86 | 282 | 71 | 161 / 140 | 94 | 702 | 29 | 22.4 | 23.5 | 25.5 | 23.5 | 25.6 |
| | 2009 | 14.9 | 4.91 | 271 | 82 | 166 / 140 | 94 | 696 | 38 | 22.3 | 25.1 | 27.2 | 25.1 | 27.4 |
| 5.0 | 2010 | 16.6 | 5.30 | 280 | 74 | 138 / 119 | 94 | 682 | 26 | 23.1 | 24.6 | 26.7 | 24.6 | 26.9 |
| | 2009 | 16.6 | 5.36 | 272 | 81 | 144 / 123 | 94 | 675 | 31 | 24.1 | 25.5 | 27.7 | 25.5 | 27.9 |
| | 2008 | 0.8 | 5.53 | 257 | 95 | 142 / 118 | 94 | 668 | 32 | 23.6 | 23.8 | 25.8 | 23.8 | 26.0 |
| | 2005 | 1.2 | 5.61 | 217 | 132 | 121 / 92 | 95 | 669 | 22 | 19.2 | 17.4 | 19.0 | 17.4 | 19.8 |
| 5.5 | 2008 | 3.6 | 5.95 | 256 | 96 | 129 / 110 | 94 | 649 | 35 | 22.5 | 22.1 | 23.1 | 22.5 | 23.8 |
| | 2007 | 1.5 | 6.00 | 243 | 108 | 122 / 99 | 94 | 637 | 30 | 21.6 | 21.2 | 21.7 | 20.2 | 21.4 |
| | 2006 | 1.2 | 6.01 | 231 | 119 | 117 / 93 | 95 | 642 | 26 | 20.3 | 18.3 | 19.4 | 18.0 | 19.1 |
| | 2005 | 1.6 | 5.98 | 217 | 131 | 108 / 83 | 95 | 654 | 21 | 16.8 | 18.9 | 20.0 | 18.6 | 19.7 |
| | 2004 | 1.9 | 5.94 | 202 | 144 | 105 / 78 | 95 | 660 | 32 | 15.6 | 16.7 | 17.8 | 16.6 | 17.6 |

30-year mortgage rate assumption: 3.85%

Note: Ginnie Mae projections ignore idiosyncratic pipeline flush

Source: J.P. Morgan, Ginnie Mae

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# Non-agency RMBS Midyear Outlook

- **Performance for the first half of the year was skewed towards unrated CRT. Recent spread widening due to quarter end and Brexit fears weighing on the market**
- **The Brexit vote has tremendous political and economic implications for the UK and the rest of the world. While non-agency is not directly impacted, we expect spreads to move wider along with broader credit in the coming weeks**
- **The counter balance may be the $8+ billion of Countrywide RMBS settlement proceeds that need to be re-allocated. However, we may need to get through the volatility first**
- **We maintain our view that home prices will grow 3.5% to 4% in 2016. Mortgage credit is likely to ease slowly over the next few years**
- **Liquidation timelines are still an issue for legacy MBS severities, but we Florida continues to improve relative to the north east**
- **The RPL sector is growing, while SFR has basically stalled. Jumbo 2.0 is also off to a slow start while CRT paper is on track**
- **Generally, issuance is expected to be spotty for all sectors except CRT. This is because the demand for loans and yield are significant. Hedge funds are competing and loan packages make their way to the securitized market inconsistently**
- **The securitization market is evolving as banks continue to struggle with capital and ROE targets**

## Expect RMBS to get caught up in any post-Brexit related sell off

The UK referendum has tremendous political and economic implications for the UK and the broader market. As of the time of this publication, it has led to a broad sell-off in risk assets and we expect non-agency RMBS spreads to move wider in sympathy with credit. While there is no direct impact on non-agency RMBS fundamentals, we expect trading volumes to be light and

**Exhibit 1: CRT BB/B and non-rated tranches outperformed the best YTD**

Unannualized total returns (%) across the non-agency sector, through May '16

| | May | 2016 YTD Return | | | | |
|---|---|---|---|---|---|---|
| | Return | Total | Price | Factor | Prin. | Coupon |
| Prime Fixed | 0.4% | 2.6% | 0.3% | -8.3% | 7.9% | 2.7% |
| Prime Hybrid | 1.1% | 2.5% | 0.7% | -7.0% | 7.2% | 1.5% |
| Alt-A Fixed | 0.2% | 1.5% | -1.8% | -4.0% | 4.3% | 3.0% |
| Alt-A Hybrid | 1.3% | 4.6% | 3.2% | -5.5% | 5.3% | 1.7% |
| Alt-A Floater | 1.5% | 4.1% | 2.5% | -4.3% | 5.6% | 0.4% |
| Option ARM | 1.0% | 2.0% | 1.1% | -3.9% | 4.4% | 0.5% |
| Subprime LCF | 0.7% | -0.8% | -2.3% | -1.6% | 2.6% | 0.5% |
| Prime.1012 | 0.0% | 2.6% | 1.4% | -12.0% | 12.1% | 1.2% |
| Prime.13H1 | 0.2% | 3.5% | 2.2% | -6.4% | 6.4% | 1.2% |
| Prime.14 | -0.3% | 1.5% | 1.2% | -11.5% | 10.4% | 1.4% |
| Prime.15 | -0.2% | 0.4% | 1.4% | -9.0% | 6.9% | 1.2% |
| CRT.15.A | 0.2% | 0.7% | 0.1% | -19.9% | 19.9% | 0.6% |
| CRT.15.A.HLTV | 0.2% | 0.7% | 0.1% | -16.8% | 16.8% | 0.6% |
| CRT.15.BBB | 0.5% | 2.0% | 1.1% | -7.3% | 7.2% | 1.0% |
| CRT.15.BBB.HLTV | 0.8% | 2.4% | 1.4% | -7.9% | 7.9% | 1.0% |
| CRT.15.BB/B | -0.3% | 6.0% | 4.1% | 0.0% | 0.0% | 1.9% |
| CRT.15.BB/B. | 0.0% | 5.6% | 3.6% | 0.0% | 0.0% | 2.0% |
| CRT.15.NR | -0.2% | 6.4% | 4.2% | 0.0% | 0.0% | 2.2% |
| CRT.15.NR.HLTV | 0.1% | 5.5% | 3.4% | -0.6% | 0.6% | 2.2% |
| CRT.15.NR.FIRSTLOSS | 1.0% | 3.9% | 0.0% | -0.1% | 0.0% | 4.0% |
| CRT.15.NR.FIRSTLOSS.HLTV | 1.3% | 1.3% | -2.8% | -0.2% | 0.0% | 4.2% |

Source: J.P. Morgan

**Exhibit 2: Moderating home price growth on the horizon**

2016-2019 HPA is yoy % change of Q4 HPI (as of 2015Q4)

| Scenario | 2016 HPA | 2017 HPA | 2018 HPA | 2019 HPA |
|---|---|---|---|---|
| Bullish | 11.4% | 5.4% | 2.8% | 1.7% |
| Positive | 9.1% | 4.3% | 2.5% | 1.7% |
| Benign | 6.9% | 3.2% | 2.2% | 1.7% |
| **Base** | **3.6%** | **2.6%** | **2.1%** | **1.8%** |
| Negative | 0.0% | -0.3% | 1.9% | 2.0% |
| Severe | -2.4% | -5.8% | 1.6% | 3.0% |
| Depression | -5.4% | -10.4% | -0.1% | 3.6% |
| Repeated crisis | -1.6% | -8.3% | -10.1% | -1.4% |

| Base Forecast Assumptions | 2016 | 2017 | 2018 | 2019 |
|---|---|---|---|---|
| Existing Home Sales (NAR, mm) | 5.53 | 5.62 | 5.66 | 5.70 |
| Unemployment rate (BLS, %) | 4.81 | 4.61 | 4.61 | 4.61 |
| Distressed Sales (NAR, %) | 7 | 7 | 7 | 7 |
| Cumulative Lending Index (JPM) | 477 | 477 | 477 | 477 |
| Housing Inventory (NAR, mm) | 2.25 | 2.55 | 2.80 | 2.95 |
| Net Housing Demand (mm) | 3.3 | 3.1 | 2.9 | 2.8 |

Source: CoreLogic, NAR, BLS, Fed, J.P. Morgan

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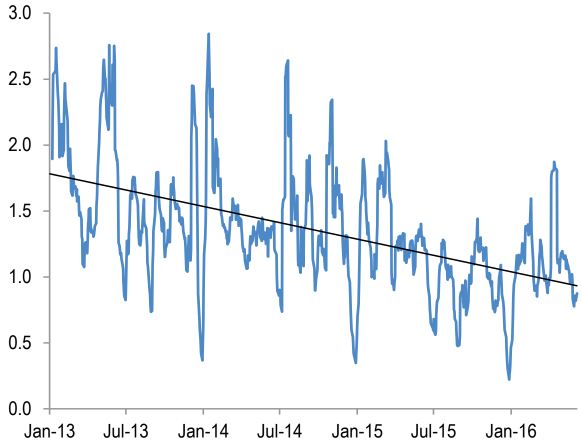
**Exhibit 3: Trading activity in legacy MBS continues to slow**

All trading volume (rolling 10 day average), $billions




Source: J.P. Morgan, FINRA

issuers to take a wait and see approach. During prior risk-off episodes, jumbo 2.0 has served as a safe haven asset and it remains to be seen whether this will once again be the case.

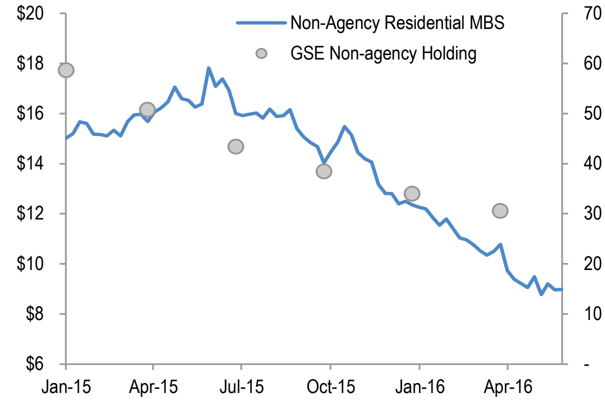
Performance for the first half of the year was skewed towards unrated CRT (Exhibit 1). Jumbo 2.0 has done well too. However, recent spread widening due to quarter end and Brexit fears are weighing on the market. The counter balance may be the $8+ billion of Countrywide RMBS settlement cash proceeds that need to be re-allocated. This could push all credit spreads tighter.

Trading activity continues to decline in legacy RMBS (Exhibit 3). This is expected as the sector runs off and money shifts into buy and hold investors. Dealers are also finding it more challenging to maintain their legacy holdings, which have been on the decline since 2015 (Exhibits 4). This is due to the scarcity of product and perhaps the challenging liquidity and capital environment.

Regardless, legacy MBS still offers attractive loss adjusted yields relative to other sectors as return volatility remains low (Exhibit 5). As it becomes harder to source legacy RMBS paper, investors should naturally look towards the RPL space. There is momentum to create re-performing loan securitizations (RPL) as banks focus on TDR[5] (Troubled Debt Restructuring) assets. However, even RPL will not be enough to satisfy the

**Exhibit 4: Dealer holdings fell starting last year, while GSE holdings were cut in half**

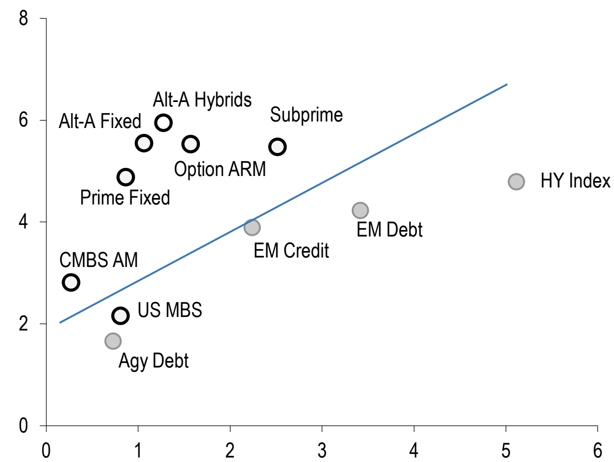
Left axis: Dealer holdings of non-agency RMBS ($ billions)
Right axis: GSE holdings of non-agency RMBS ($ billions)




Source: J.P. Morgan

**Exhibit 5: Legacy RMBS is still on the efficient frontier as volatility in the sector remains low**

Loss adjusted yield (%, y-axis) vs. return volatility (%, x-axis) as of 6/23/15
Return volatility is the 1-year standard deviation of overlapping 3mo returns




Source: J.P. Morgan

**Exhibit 6: Outside of the programmatic GSE Credit risk transfer deals, expect issuance to be sporadic**

Issuance to date/forecasted ($ billions)

| | 2016 Projected | 2016 YTD | |
|---|---|---|---|
| | Gross | Gross | Net |
| Legacy | 0 | 0 | -37 |
| RMBS 2.0 | 6 | 1 | -1 |
| CRT | 15 | 7 | 6 |
| SFR | 3 | 1 | 1 |
| NPL/RPL | 20 | 7 | 4 |
| **Total** | **44** | **17** | **-27** |

Source: J.P. Morgan

5 https://www.fdic.gov/regulations/resources/director/technical/tdr.html

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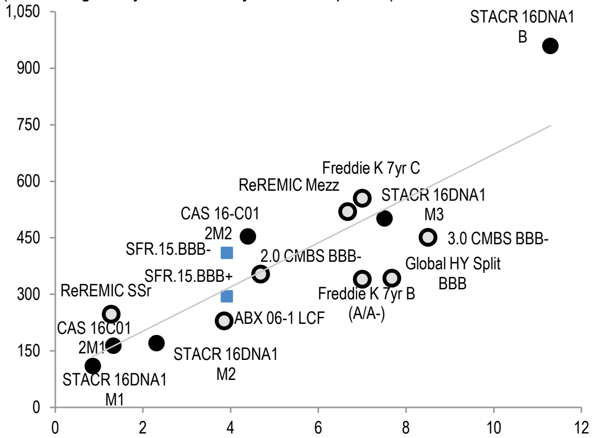
**Exhibit 7: CAS M2s stand out and first loss pieces, while longer and volatile can offer attractive returns**

Loss adjusted spreads on CRT, SFR, CMBS, and legacy MBS
(x-axis: avg. life, y-axis: loss adjusted DM/spreads)




Source: J.P. Morgan

run-off that investors face with legacy RMBS. Currently, the sector puts $5-6 billion per month of cash back into the investors' hands. This will certainly bring more focus to RPL, CRT and raw loan packages.

**Even with leverage (if you can get it), low-to-mid-teen returns in the non-agency space are in the distant past.** Hedge funds need to turn to structural leverage either through loan originations/purchases and retaining levered equity. Banks are dealing with increased capital scrutiny and regulatory pressures are slowly being felt across the industry. This is reshaping the markets as we know them. Shadow banking is gaining popularity and will most likely be the path for hedge funds for the near future.

Issuance is on track to reach our supply forecast of over $40bn for the year (Exhibit 6). However, this is not nearly on par with what we have seen in recent years, due to the reasons mentioned above. Looking ahead, US Election, rate hike discussions, and global economic climate may put pressures on non-agency in the second half, but a lack of new supply and technical demand could still be enough to keep the sector well bid.

## CRT spreads remain volatile; opportunities in roll down and upgrades

The CRT sector has outperformed other MBS products so far this year despite its liquidity challenges. Recently, spreads have softened and continued to weaken as the industry approaches quarter-end and Brexit. However,

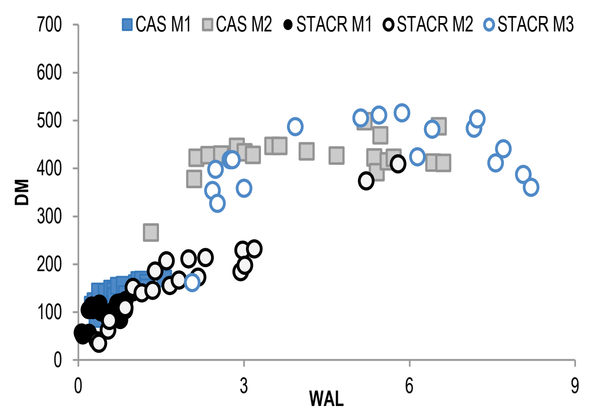
**Exhibit 8: We provide a list of credit risk transfer bonds that our model suggests are most likely to be upgraded**

| | Bond Info | | | | | Crisis scenario | |
|---|---|---|---|---|---|---|---|
| Bond Name | Factor | WALA | Orig CE | Cur CE | Cur Rtg | % Loss | % WD |
| **Already on upgrade watch** | | | | | | | |
| CAS 2014-C01 M1 | 0.6 | 38 | 1.7% | 2.0% | BBB- | 0.10% | 0.0% |
| CAS 2014-C02 1M1 | 0.6 | 35 | 1.8% | 2.1% | BBB- | 0.12% | 0.0% |
| CAS 2014-C02 2M1 | 0.5 | 35 | 2.4% | 2.9% | BBB+ | 0.27% | 0.0% |
| CAS 2015-C01 1M1 | 0.4 | 27 | 2.2% | 2.9% | BBB- | 0.18% | 0.0% |
| CAS 2015-C01 2M1 | 0.1 | 27 | 2.8% | 3.7% | BBB | 0.30% | 0.0% |
| STACR 2014-DN2 M1 | 0.4 | 30 | 3.5% | 4.5% | A | 0.29% | 0.0% |
| STACR 2014-HQ1 M1 | 0.3 | 27 | 4.1% | 5.9% | A- | 0.30% | 0.0% |
| STACR 2014-HQ3 M1 | 0.2 | 24 | 4.8% | 6.5% | A- | 0.38% | 0.0% |
| **Not currently on watch** | | | | | | | |
| CAS 2013-C01 M1 | 0.5 | 41 | 1.7% | 2.1% | BBB | 0.10% | 0.0% |
| CAS 2014-C03 1M1 | 0.6 | 32 | 2.0% | 2.4% | BBB- | 0.20% | 0.0% |
| CAS 2014-C03 2M1 | 0.5 | 32 | 2.4% | 2.9% | BBB | 0.32% | 0.0% |
| CAS 2015-C02 1M1 | 0.8 | 23 | 2.8% | 3.3% | BBB- | 0.23% | 0.0% |
| STACR 2013-DN2 M1 | 0.5 | 36 | 2.0% | 2.4% | BBB | 0.21% | 0.0% |
| STACR 2014-DN3 M2 | 0.8 | 27 | 2.4% | 3.6% | BBB- | 0.30% | 0.0% |
| STACR 2014-DN4 M2 | 0.8 | 24 | 2.9% | 4.2% | BBB- | 0.34% | 0.0% |
| STACR 2014-HQ1 M2 | 1.0 | 27 | 2.6% | 3.7% | BBB- | 0.30% | 0.0% |
| STACR 2014-HQ3 M2 | 1.0 | 24 | 3.1% | 4.2% | BBB- | 0.38% | 0.0% |

Note: Our model uses bond factor, loss coverage ratio, current credit enhancement, and loan age as inputs
Source: J.P. Morgan

**Exhibit 9: Certain CAS M2s and STACR M3s look attractive relative to other asset classes**

(x-axis: avg. life, y-axis: loss adjusted DM/spreads)




Source: J.P. Morgan

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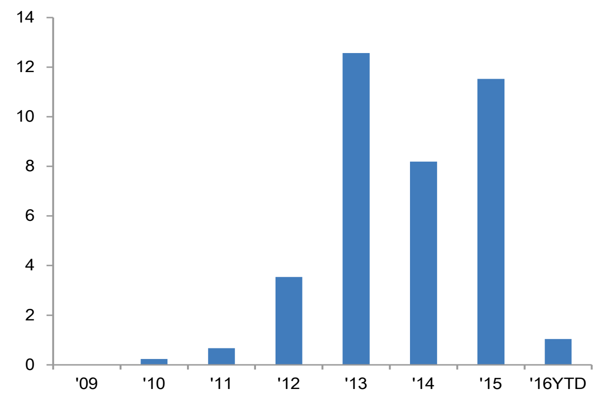
### Exhibit 10: Jumbo 2.0 issuance has been lower than expected in 2016

Gross issuance by year; $bn




Source: J.P. Morgan, Freddie Mac, Loan Performance

we think that Countrywide settlement proceeds to the tune of $8 billion (roughly $600 million is still being contested) will create a positive tailwind for MBS credit spreads overall. Looking at comparable average life products, we can see that CRT LCF Mezz and first loss tranches look attractive for longer alternatives, while CAS M2s stand out in the 3-5 year bucket (Exhibit 7).

We see relative value within the CRT sector in two areas. First, the potential for rating upgrades has already proven to offer spread upside. Back in April 22[6], we discussed one way to anticipate which bonds could be upgraded (Exhibit 8). Some of the M1s that we identified have already been placed on upgrade watch by Fitch.

Roll down is another option to consider. For example, there is a notable spread differential between bonds in various parts of the CAS/STACR capital structure given the same average life (Exhibit 9). As CAS M1s pay off that difference should converge. For example, CAS 2015-C01 2M2 is now a current pay bond after the 2M1 paid off in May. That bond's spread is now converging to that of the CAS M1s and STACR M2s. These sorts of dynamics can be a cushion against spread volatility.

We continue to be constructive on the sector and support the growth and sophistication of the market. CRT is a sector that offers a variety of risk profiles on the menu and the most transparency within non-agency credit.

### Exhibit 11: Securitization makes more sense when spreads are tighter

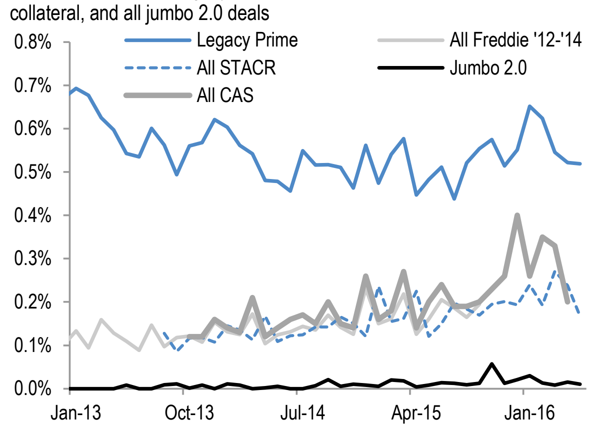
Theoretical execution math of jumbo 2.0 execution vs. loan retention at a 15% ROE

| Jumbo Execution | | | | Retain Loans | |
|---|---|---|---|---|---|
| | | | | GWAC | 4.00 |
| | | | | Costs/Fees | 0.125 |
| | | AAA Enhancement | 7.50% | Option Costs | 0.6 |
| GWAC | 4.00 | | | Credit Cost | 0.04 |
| AAA Coupon | 3.50 | | | Net Income | 3.24 |
| AAA Spread | 2 16/32 | | | | |
| TBA Price | 104 28/32 | | | Loan RWA | 25 |
| | | AAA Price | 102 12/32 | Loan Capital | 2.875 |
| | | | | Funding Cost | 2.25 |
| Servicing Strip | 0.25 | | | | |
| IO | 0.25 | | | Tax Rate | 40 |
| IO Multiplier | 4 | | | | |
| | | IO Price | 1 | Current ROE | 21.91% |
| | | | | Target ROE | 15.00% |
| | | Sub Price | 90 | | |
| | | | | Required GWAC | 3.67 |
| | | Gross Price | 102 12/32 | | |
| | | Deal Costs | 16/32 | Required GWAC Change | -0.33 |
| | | Jumbo Execution | 101 28/32 | Loan Price | 101 21/32 |

Source: J.P. Morgan

### Exhibit 12: Jumbo 2.0 credit performance continues to be phenomenal

Current to 30 rolls on legacy prime, Freddie 2012-2014 issuance, all STACR collateral, and all jumbo 2.0 deals




Source: J.P. Morgan, Freddie Mac, Loan Performance

## Jumbo 2.0: securitization has been slow; performance is still stellar

Jumbo 2.0 has been slow to come to market this year (Exhibit 10) and the securitization decision is highly dependent on spreads in the secondary market (Exhibit 11). For much of the year, spreads relative to the TBA

[6] https://jpmm.com/research/content/GPS-2003042-0

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market hovered at around 3 points back of TBA. Once they tightened to within 3 points back, loans were securitized. The bid for loans is strong in the market. Along with other investors, hedge funds are competing for loans to fuel strategies that involve structural leverage.

As the market stands now, with spreads tight, we should continue to see securitization. However, we've seen this play out before. The appetite for AAA bonds is high right now and it's unclear how much supply will push spreads wider. What's different this time is that the Countrywide settlement money is basically going back into the hands of AAA investors (or at least top of the capital structure, previously rated AAA). This creates additional demand for jumbo 2.0 and AAA bonds in general.

Moreover, banks are finding ways to create mortgage credit, while retaining "AAA" debt on balance sheet in the form of loans. Please refer to our "Portfolio Risk Transfer" (PRT) primer for more on the subject[7]. This creates another dial for the loan market. Banks have the option to solely retain, retain and transfer risk or simply securitize, which should result in a better-behaved supply dynamic.

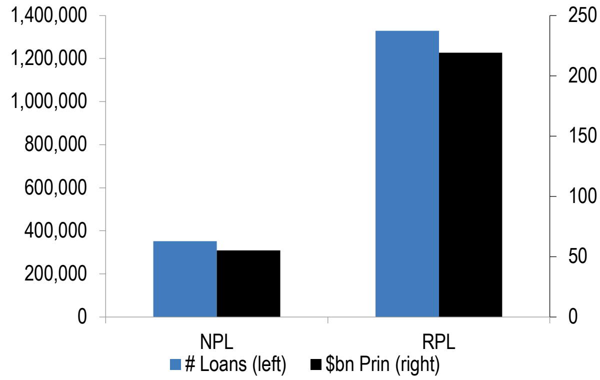
In terms of performance, credit is still a non-problem in the jumbo 2.0 market (Exhibit 12). In secondary, jumbo 2.0 OAS currently picks 50-60bps over current coupon TBAs. This basis has been range-bound since the beginning of the year, corresponding to the swings in the rates market. Jumbo 2.0 may suffer from sporadic supply, but it remains one on those sectors that serves as a safe haven for traditional mortgage credit investors.

## RPL: 200+ billion potential

There are over $200 billion of RPL loans sitting GSE and bank portfolios (Exhibit 13). With eight deals since January 2015, Towd Point (TPMT) has been a consistent issuer of investment grade reperforming loan paper. In December 2015, another issuer, Mill City Mortgage Loan Trust (MCMLT) brought two RPL deals to market. Backed by collateral acquired by CarVal, the deals consisted of mostly modified loans to borrowers with FICOs in the low 700s. As in the TPMT transactions, senior bonds off of both deals were rated AAA.

[7] https://jpmm.com/research/content/GPS-2021889-0

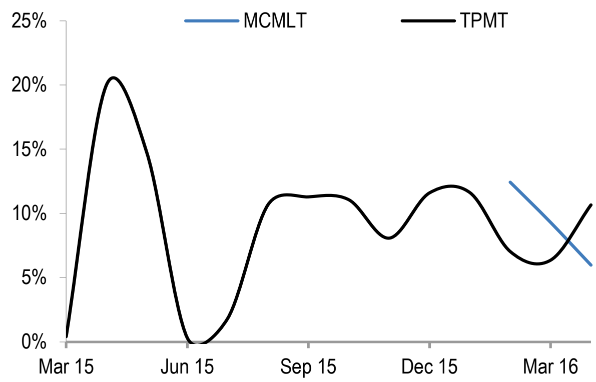
**Exhibit 13: There is still $219bn of RPL loans outstanding in GSEs and bank portfolios**




Source: J.P. Morgan

**Exhibit 14: TPMT and MCMLT speeds have been higher than CSMC pools which pay at 4 CPR**

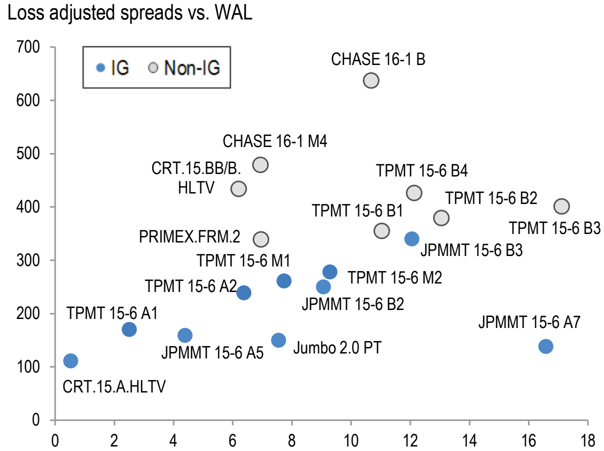
1Mo CPR




Source: J.P. Morgan, deal documents

**Exhibit 15: On a spread vs. average life basis, senior RPL bonds look slightly better than jumbo 2.0 and CRTs**

Loss adjusted spreads vs. WAL




Source: J.P. Morgan

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As we have pointed out in prior publications, prepayment speeds on TPMT deals have been higher than on other legacy modified loans. While aggregate speeds on modified loans have been coming in at around 4CPR in recent months, speeds across all of the TPMT deals have been in the high single digits. With the short history we have so far, it appears that MCMLT speeds are equally high (Exhibit 14). These higher speeds are most likely explained by the higher quality of loans in the TPMT and MCMLT collateral pools.

We compare TPMT against select CRT, PRT, Jumbo 2.0 and legacy bonds to see how they stack up among each other on a spread versus average life basis (Exhibit 15). In our cross-sector comparison, we separate the IG from the non-IG bonds. Within IG, the TPMT deals stand out relative to Jumbo 2.0 and shorter CRT bonds. Given the limited credit and prepayment risk, as well as muted spread volatility, these high quality reperforming loan transactions seem to be good candidates to pick-up carry. Subordinate, non-IG, TPMT bonds are less attractive than CRT or PRT. On the flip side, their valuations are less dependent on the right credit/prepay assumptions.

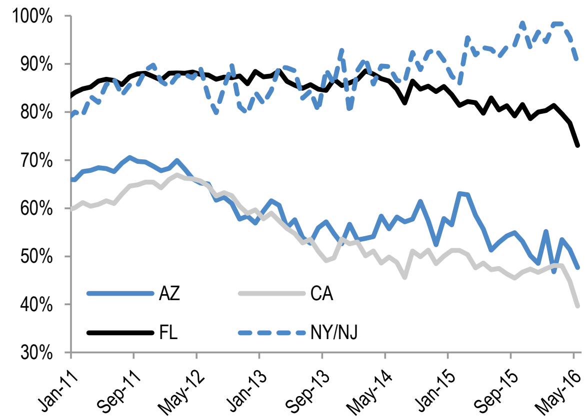
Looking ahead, we expect RPL issuers to continue to come to market. If performance remains stable, we expect securitization to continue to be part of the funding strategy for RPL acquisitions.

## Severities: finding value in NY/NJ

Subprime severities continue to be one of the key issues remaining in legacy space. As loans stuck in the liquidation pipeline have slowly been resolved, judicial states in the northeast did not seem to make much progress. Because of this, as we highlighted in our recent publication[8], while the rest of the universe shrinks, Northeastern states become a bigger part of the legacy portfolio. This is particularly a problem for NY/NJ loans, which now represent almost 18% of legacy universe, and haven't seen any improvement in severities. For example, both Florida and NY/NJ have been deeply troubled states post crisis, but their severities have started to diverge in recent years (Exhibit 16).

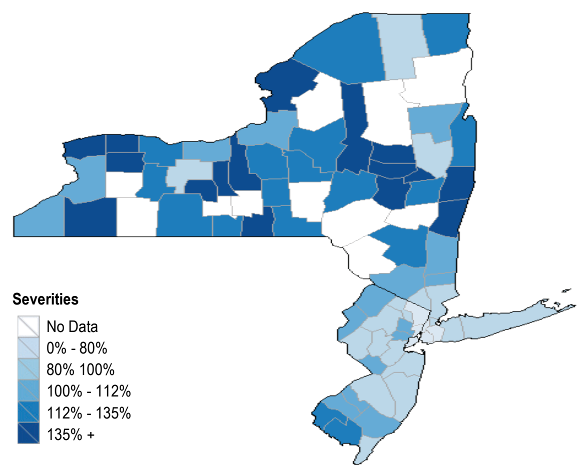
However, this doesn't mean we should scratch NY/NJ loans altogether from the offering. Within the worse performing states, there are areas that outperform others

**Exhibit 16: Severities are still on a downward spiral in NY/NJ**
Average REO severity by state




Source: J.P. Morgan, Loan Performance

**Exhibit 17: Zooming in on the map, there are better performing regions within NY/NJ**
Severities through REO liquidation over the past 12 months




Source: J.P. Morgan, CoreLogic

in terms of severities. Counties within and surrounding New York City have seen much lower severities (Exhibit 17). Over the past 12 months, average severities in New York – Newark MSA, which is the biggest MSA in the country and represents the bulk of the NY/NJ portfolio, reached 85%. Some of the worse regions can easily see over 100% severities.

As the NY/NJ concentration of loans continues to grow, it will be increasingly important to distinguish between the MSA's relative severity performance. For example, in Exhibit 18 we highlight the deals that have large concentrations of NY/NJ loans. This concentration alone

[8] https://jpmm.com/research/content/GPS-2052732-0

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**Exhibit 18: Top 10 subprime deals with the highest NY/NJ concentration**

As of May 2016

| Deal Name | Current Balance | NY/NJ Concentration | NYC MSA Within NY/NJ | Sevicer |
|---|---|---|---|---|
| INABS 2005-B | 105,907,724 | 57% | 93% | 100% Ocwen |
| RAMC 2003-4 | 49,719,026 | 56% | 90% | 100% Ocwen |
| RAMC 2005-1 | 136,779,516 | 53% | 93% | 100% Ocwen |
| RAMC 2004-2 | 69,451,646 | 51% | 92% | 100% Ocwen |
| FNLC 2005-3 | 42,752,261 | 51% | 95% | 100% Wells |
| RAMC 2006-1 | 224,772,423 | 51% | 91% | 100% Ocwen |
| RAMC 2005-2 | 152,068,877 | 49% | 93% | 100% Ocwen |
| RAMC 2004-1 | 58,659,578 | 49% | 40% | 100% Ocwen |
| RAMC 2003-3 | 44,299,888 | 49% | 95% | 100% Ocwen |
| SABR 2006-FR2 | 66,274,905 | 49% | 94% | 100% Ocwen |

Source: J.P. Morgan, CoreLogic

shouldn't suggest that these deals will have higher severities. This is because many of the NY/NJ loans are in the New York – Newark MSA which has experienced lower severities than the more rural MSAs.

## Dealer capital will continue to affect liquidity

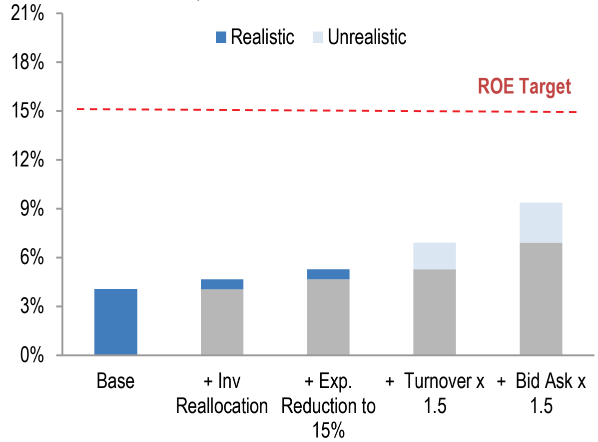
Capital requirements have been rising over the past several years. The introduction of GSIB, SSFA, "stress VAR", etc. have all contributed to capital moving orders of magnitude higher. The recently released FRTB ruling will solidify many of these changes. This consistent increase in capital levels has had a meaningful impact of dealer profitability and in turn, market liquidity.

To illustrate the impact of capital on dealer profitability, we created a non-agency portfolio that reflects market outstandings. 90% of our portfolio was legacy RMBS, and the rest was split between jumbo 2.0, CRT and SFR. Then using capital calculated under FRTB and reasonable assumptions for bid-ask and carry, we calculated the ROE for our hypothetical portfolio. ROE was calculated as profits (bid / ask times flow volume plus carry) divided by capital calculated under FRTB, all adjusted for taxes (40%) and expenses (25%).

ROEs for our non-agency portfolio are approximately 4% under these assumptions, and clearly not attractive enough to entice dealers to enter the space and make markets (Exhibit 19). Given how unattractive these base

**Exhibit 19: High capital requirements have made market-making far less profitable…**

Estimated ROE (%) for dealers in securitized products under FRTB capital based on various assumptions




Source: J.P. Morgan

case ROEs are, we wanted to get a sense of what assumptions would be required in order to get ROEs closer to threshold levels of 15%. First, we looked at whether dealers could reallocate out of high capital sectors and into less capital intensive securities. In a RMBS portfolio, this meant reallocating from legacy RMBS to jumbo 2.0 seniors. This added another 50bp of ROE as capital moved lower, but carry income also dropped. We then reduced our expense ratio dramatically from 25% to 15%, which gave us another 60bp of ROE.

Then we tested the sensitivity to two factors that are not under our control: bid-ask and turnover rates. First, we raised turnover by 50%. Theoretically this (might) be feasible if enough dealers exited the business and the remaining players increased their market share substantially. Yet, this added only 1.6% incrementally to ROE. What if, on top of all this, bid / ask also magically increased by 50%? This would move our ROEs higher by 2.5%. The cumulative effect of all of these realistic and unrealistic changes would only increase the return to 7%, which is far short of our 10% to 15% ROE threshold. Running ROEs for hypothetical ABS and CMBS businesses would not result in markedly different results.

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**Exhibit 20: …leading to many dealers exiting securitized products**

| Dealer | Description |
|---|---|
| BARCLAYS | An immediate step in that evolution will be to focus our securitized products capability in origination-led Asset Backed and Commercial Mortgage Backed Securities. Our Agency pass-through business will be incorporated into our Macro business. **As a result, we will no longer offer Residential Loan Trading, GNMA CMBS or CMO products.** (Business Insider) |
| Deutsche Bank | **Deutsche Bank intends to totally exit the market for the safest mortgage bonds, those issued by government-owned agencies like Fannie Mae and Freddie Mac.** (Bloomberg) |
| Morgan Stanley | The US bank, which is looking to cut 25% of its fixed income staff, has been cutting staff on Monday in London and New York, according to people familiar with the matter. (Business Insider) |
| SOCIETE GENERALE | **Societe Generale has pulled back from agency mortgages**, instructing traders to stop buying new securities, people familiar with that bank previously said. (Bloomberg) |
| Jefferies | Jefferies Group cut employees from its fixed-income unit this week, **with a focus on staff handling products tied to mortgages**, according to people with knowledge of the matter. Less than 10 percent of the mortgage-related business was affected, one person said. (Bloomberg) |
| RBS | **Royal Bank of Scotland Group Plc's securities arm is completely shutting down parts of its U.S. mortgage business that it previously said it would only scale back. Exiting commercial real estate, commercial-mortgage bond trading and government-backed home-loan securities "is a necessary part of repositioning our U.S. business"** (Bloomberg) |
| NOMURA | Nomura Holdings Inc. may dismiss about 20 percent of its workforce in North America, according to people with knowledge of the situation, joining a growing number of competitors shrinking Wall Street operations amid a trading slump. (Bloomberg) |
| CREDIT SUISSE | The lender expects to reduce costs by about 1.7 billion francs this year, Mr. Thiam said. The bank has already made about 2,800 of the expected 6,000 job cuts. **Credit Suisse also said it planned to exit several businesses that were not part of its new strategy, including distressed debt and trading of European securitized products.** (Bloomberg) |

Source: J.P. Morgan

It is no wonder then that numerous dealers have chosen to exit structured products trading (Exhibit 20). Many of the dealers that at one point were actively making markets in structured products have in recent months made public statements to suggest that they are pulling back from specific sectors. These dealers have likely come to the same conclusion we have: the current regulatory environment makes trading unprofitable and with FRTB, there exists no path to profitability.

If returns are so unattractive, then why are a handful of dealers still making markets in securitized products? Primary issuance is a key part of the equation because it provides revenue for dealers (underwriting fees) without consuming much capital. When balanced with secondary trading, ROEs for the business overall can become attractive again, depending on underwriting volumes.

This suggests to us that liquidity will be a challenge for non-agency RMBS, particularly in legacy where dealers have no commensurate underwriting business. Newer sectors such as CRT will also continue to suffer from limited trading activity (relative to market size) as more than dollar-for-dollar capital will result in dealers not being able to hold bonds on balance sheet. A few dealers will continue to make markets in jumbo 2.0 seniors and single-family rental, but expect liquidity to be limited.

 [AC] Indicates certifying analyst. See last page for analyst certification and important disclosures.

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# Asset-Backed Securities Midyear Outlook

- **We expect credit fundamentals to remain sound in the ABS market over the rest of 2016 on supportive US growth and labor market conditions**
- **However, technicals will continue to drive ABS spread performance, with the Brexit "leave" result being the latest shock to financial markets**
- **We look for tighter spreads and a steady issuance pace in the second half of the year versus the first**
- **We look for AAA 3-year credit card ABS spreads to finish the year at swaps +28bp versus +32-34bp today after 2bp of widening on Brexit**
- **With 1H16 supply at $90.5bn, we project full year 2016 will edge out the $178bn in 2015, with upsizing possible if spreads tighten as projected**

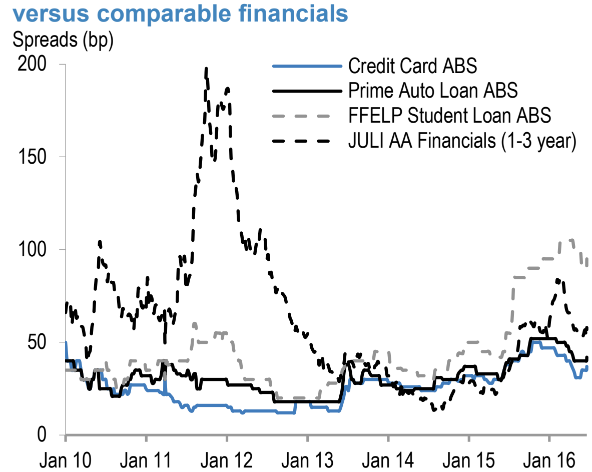
**Exhibit 1: ABS indicative spreads**

bp

| | 2016 | | 2015 | | 2014 | | 2013 | | 2H16 |
|---|---|---|---|---|---|---|---|---|---|
| | 6/25 | 6/24 | Wide | Tight | Wide | Tight | Wide | Tight | Proj. |
| AAA Seniors | | | | | | | | | |
| Credit Card | 32-34 | 32 | 48 | 24 | 30 | 20 | 30 | 10 | 28 |
| Prime Auto Loan | 35-37 | 35 | 50 | 27 | 34 | 18 | 38 | 14 | 30 |
| Subprime Auto Loan | 65-70 | 65 | 95 | 45 | 51 | 33 | 62 | 25 | 55 |
| FFELP | 90-95 | 90 | 90 | 42 | 50 | 30 | 45 | 20 | 80 |
| Private Credit | 115-120 | 115 | 115 | 70 | 95 | 60 | 95 | 65 | 85 |
| BBB Subordinates | | | | | | | | | |
| Subprime Auto Loan | 200-220 | 200 | 255 | 155 | 175 | 120 | 275 | 150 | 175 |

Source: J.P. Morgan

**Exhibit 2: AAA ABS spread relatively cheap and stable versus comparable financials**




Source: J.P. Morgan

## 2H16 outlook

We look for tighter spreads and a steady issuance pace for the ABS market in 2H16 versus the first half of the year. We expect credit fundamentals to remain sound in the ABS market over the next six months on supportive US growth and labor market conditions. However, broad market forces have been the main driver of ABS spread performance in recent years. Right now, the ABS market, along with the rest of financial markets, is faced with the reality, uncertainty and volatility of the "leave" vote on Brexit. It remains to be seen if the market reaction will be a "blip" or a substantial re-pricing for US rates and credit spreads. In addition, our ABS outlook for the rest of the year is predicated on J.P. Morgan economists' expectations of one rate hike in December and second half GDP growth of 2.0%.

While we are projecting tighter ABS spreads by year end versus current levels (Exhibit 1), our optimism is actually quite tempered in the context of spread performance in recent years. Note, our targets for the end of 2016 are well wide of the tights we saw the previous three years. This reflects the heightened systemic risks arising for global growth concerns as well as sovereign credit and geopolitical risks, Brexit being the latest flare-up. On the plus side, ABS continue to serve as a relatively stable safe haven given its liquidity and high quality (predominately AAA and almost entirely investment grade). ABS market participants may be temporarily sidelined as outside observers of Brexit aftermath, but investors will need to put cash to work and issuers still will have newly originated receivables to fund. ABS is still fundamentally cheaper and technically more stable than comparable credits such as financial unsecured paper (Exhibit 2). On the Brexit results, JULI AA financials widened 5bp. On the investment grade corporate side, financials are expected by our strategists to be most vulnerable to weakness in the wake of Brexit.

We also expect the credit curve to stay steep and pronounced tiering to persist given the generally increased investor sensitivity to liquidity risk amidst market volatility. Off-the-run names and assets will likely continue to require concessions to benchmark

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**Exhibit 3: ABS supply in 2016 on pace to edge out last year's total**
$ bn

| | 2012 | 2013 | 2014 | 2015 | 2016 YTD | Proj 2016 |
|---|---|---|---|---|---|---|
| Credit Cards | 39 | 35 | 44 | 27.1 | 14.9 | 35 |
| *Bank/Charge* | *32* | *33* | *41* | *23.1* | *12.7* | *30* |
| *Retail* | *7* | *2* | *2* | *4.1* | *2.3* | *5* |
| Autos | 83 | 79 | 87 | 90.5 | 48.2 | 95 |
| *Prime Loan* | *45* | *37* | *43* | *38.7* | *20.0* | *41* |
| *Subprime Loan* | *18* | *21* | *22* | *26.9* | *13.9* | *28* |
| *Lease* | *13* | *15* | *16* | *17.9* | *7.8* | *19* |
| *Fleet* | *6* | *5* | *5* | *5.8* | *6.2* | *6* |
| *Motorcycle/Truck* | *1* | *1* | *1* | *1.2* | *0.4* | *1* |
| Student Loans | 26 | 20 | 15 | 13.2 | 5.6 | 15 |
| *FFELP* | *22* | *16* | *13* | *6.5* | *2.9* | *9* |
| *Private Credit* | *4* | *3* | *2* | *6.7* | *2.8* | *6* |
| Equipment | 11 | 11 | 11 | 11.7 | 5.3 | 12 |
| Global RMBS | 9 | 1 | 1 | - | 0.7 | 1 |
| Other | 28 | 28 | 32 | 35.6 | 15.8 | 37 |
| *Floorplan* | *14* | *9* | *11* | *9.2* | *4.3* | *10* |
| *Miscellaneous* | *14* | *19* | *22* | *26.4* | *11.5* | *27* |
| Total ABS | 196 | 174 | 190 | 178.1 | 90.5 | 195 |
| % 144A | 36% | 32% | 33% | 44% | 54% | |
| % Floating-rate | 32% | 33% | 25% | 21% | 22% | |

Source: J.P. Morgan, Bloomberg, IFR

**Exhibit 4: Other ABS supply continue to see growth**
$ bn

| | 2012 | 2013 | 2014 | 2015 | 2016 YTD |
|---|---|---|---|---|---|
| Consumer Loan | | 3.3 | 5.5 | 6.4 | 4.0 |
| Franchise/Whole Bus | 1.6 | 1.1 | 2.0 | 7.1 | 2.8 |
| Time Share | 2.0 | 2.1 | 2.8 | 2.2 | 0.9 |
| Aircraft | 0.4 | 0.6 | 1.5 | 2.9 | 0.8 |
| Railcar | 0.5 | 0.5 | 1.0 | 1.0 | 0.7 |
| Miscellaneous | 0.6 | 0.3 | 1.1 | 0.6 | 0.5 |
| Insurance Premium | 0.8 | 0.7 | 0.9 | 0.4 | 0.4 |
| Servicer Advance | 2.2 | 5.0 | 2.7 | 4.6 | 0.4 |
| Healthcare | | | 0.2 | | 0.3 |
| Solar | | 0.1 | 0.3 | 0.2 | 0.3 |
| Royalties | 0.2 | | | | 0.1 |
| Containers | 2.7 | 3.3 | 2.8 | 0.5 | 0.1 |
| Infrastructure | | | | | 0.1 |
| SBL | | | | 0.1 | |
| Stranded Ast | 2.5 | 1.6 | 0.8 | 0.1 | |
| Tax Liens | 0.1 | 0.2 | 0.3 | 0.4 | |
| Tobacco | | 0.0 | | | |
| Trade Receivables | 0.4 | | 0.3 | | |
| Total | 14.0 | 18.7 | 22.2 | 26.4 | 11.5 |

Source: J.P. Morgan, Bloomberg, IFR

ABS. While the concessions are attractive based on fundamentals, off-the-run riskier ABS will be hard-pressed to outperform and will remain the most susceptible to technical weakness on generally more skittish sentiments.

Our recommendations remain unchanged. On the AAA side, we like private credit student loan ABS. We see plenty of room for spreads to tighten as the contagion effect from the FFELP ABS rating downgrade issue should fade over the next six month. We also look for private credit spreads to compress versus FFELP given the positive and stable performance trends on the private credit side versus the increased modeling and rating complexity as well as the lack of data and transparency in income based repayment performance with FFELP loans. For spread pickup, we like subordinate subprime auto ABS from GM Financial (AmeriCredit) and Santander Consumer. These bonds have built in spread tightening potential through roll down and possible rating upgrades. The top tier sponsors are also better able to withstand systemic risks with lower idiosyncratic seller/servicer risk.

**Issuance pace to hold steady in 2H16**

Year-to-date ABS supply stands at $90.5bn (Exhibit 3), compared to $69.7bn in 2H15 and $108.4bn in 1H15. We expect that the ABS market will be able to at least maintain the current pace over the second half of the year, which would bring the full year total to roughly $180bn, edging out last year's $178bn total. We still believe there is more room for upsizing on aggregate ABS supply than down. Tighter spreads as we have projected should encourage more sponsors to take advantage of ABS funding. Even wider credit spreads, likely accompanied by lower rates, imply that all-in cost will be little changed near absolute lows, and securitization funding remains attractive relative to unsecured alternatives for most ABS sponsors. In addition, economic and consumer credit growth also support the need for ABS funding.

Auto ABS issuance is on target to reach our full year forecast of $95bn, having checked in at the mid-point at $48.2bn. The sector has been the bedrock of the ABS primary market since the financial crisis. Auto sales are projected to hold steady for the year (17.4mn Saar each

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quarter after 17.1mn Saar for 1Q16), which suggests regular activity from captives and top tier sponsors. Securitization funding also remains attractive, and more critical, to specialty finance and smaller bank issuers.

For credit card ABS supply, Canadian bank sponsors have provided a much needed bump in volume this year, with TD Bank and the Bank of Nova Scotia launching new cross-border US ABS programs. Bank capital considerations have pushed the Canadian banks to the US securitization market as a stable funding source. However, Canadian banks, just like US banks, are quite sensitive to ABS pricing spreads, since securitization offers diversification rather than a critical funding source. Our call for more issuance in the sector is linked to tighter spreads in the year ahead. Current spreads remain wide of the tights at the end of 1H15. We saw $17.5bn in 1H15 supply versus $14.5bn thus far in 2H15. With roughly $20+bn slated to mature in 2H16 (after $12bn in 1H16 runoff), we think there should be sufficient capacity to absorb more credit card ABS paper at tighter spreads (versus current levels).

The student loan ABS sector should see more primary market activity in 2H16 as well with Moody's having published its final rating methodology for FFELP on June 14th and Fitch set to release its criteria by early August. Navient successfully sold four FFELP new issues (and one private credit ABS) over the past six months. The publication of the final rating criteria should help encourage other FFELP ABS issuers to get back in the game. The resolution of the FFELP ABS rating reviews should also help improve execution on new issues across student loans for FFELP and private credit ABS.

In "other" ABS supply, consumer loans continue to be a growth sector (Exhibit 4). OneMain and CHAI (Citi Held for Asset Issuance) have been the leaders in this ABS asset class in terms of volume. The sector also saw new entrants. Avant debuted its first term ABS in February, followed by its second deal in April. Another issuer, regularly active in private credit student loan ABS since 2013, completed its first consumer loan securitization in June. The ABS market as a funding source continues to attract diverse new sponsors across asset classes.

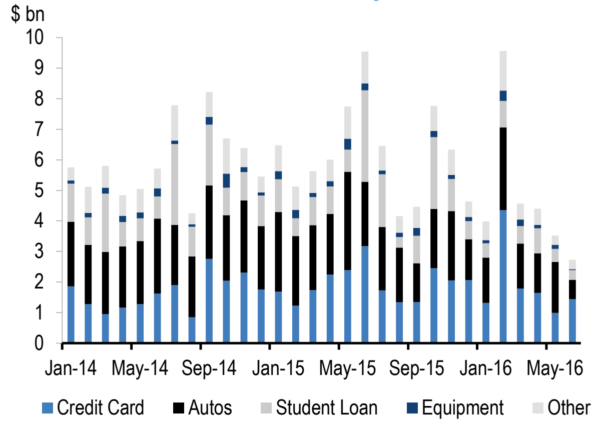
With the slow pace of new issues in 2H15 and 1Q16, the ABS market saw an estimated $699bn outstanding, down from $708bn in 1Q15. The decline, albeit small, follows three years of expansion. In terms of composition, the asset class breakdown remains roughly the same as last year, with 28% in student loan ABS, 18% in credit card, 27% in auto, 7% and equipment, and 19% in other ABS. The share of other ABS increased by 3%yoy.

**Exhibit 5: ABS BWICs by month**
$ bn

| | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|
| Jan | 1.3 | 4.0 | 3.7 | 5.7 | 6.5 | 4.0 |
| Feb | 0.8 | 6.0 | 6.7 | 5.1 | 5.1 | 9.6 |
| Mar | 2.1 | 12.7 | 6.1 | 5.8 | 5.6 | 4.6 |
| Apr | 2.0 | 8.0 | 4.5 | 4.8 | 6.0 | 4.4 |
| May | 1.1 | 6.0 | 5.0 | 5.0 | 7.7 | 3.5 |
| Jun | 1.4 | 8.1 | 7.1 | 5.7 | 9.5 | 2.7 |
| July | 1.0 | 3.5 | 4.6 | 7.8 | 6.5 | |
| Aug | 1.4 | 5.0 | 3.6 | 4.3 | 4.2 | |
| Sep | 1.4 | 10.6 | 6.8 | 8.2 | 4.5 | |
| Oct | 3.4 | 5.4 | 5.4 | 6.7 | 7.8 | |
| Nov | 2.5 | 4.2 | 3.8 | 6.4 | 6.3 | |
| Dec | 1.3 | 3.5 | 4.3 | 5.5 | 4.6 | |
| Total | 19.7 | 77.0 | 61.6 | 71.1 | 74.3 | 28.8 |

Source: J.P. Morgan, TRACE ABS

**Exhibit 6: ABS BWIC volumes by sector**




Source: J.P. Morgan, TRACE ABS

**BWICs down significantly**

BWIC volumes totaled $29bn so far this year, compared to $41bn in 1H15. The amount of trading on BWICs is roughly 10%-12% lower than 2013 and 2014 levels. 2016 saw the busiest month by BWIC volume in February, with $4.4bn of credit card ABS on BWICs versus the typical $1-$2bn per month. In addition, the auto sector saw nearly $3bn versus the usual $1-$2bn and

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other ABS saw $1.3bn compared to typically under $800mn. The return of investor appetite and interest coincided with the return of new supply. February saw $18.2bn of new issues, and after 3 months of supply under $10bn.

February aside, on aggregate thus far this year, BWIC activity has been depressed, but particularly in autos and student loans. 1H15 saw $14bn of auto ABS trade on BWICs, while this year only saw $9bn. In student loans, the $7.2bn in 1H15 is more than twice the $3.5bn that traded in secondary in 1H16. That is largely due to the skittishness of investors from the FFELP-rating downgrade review and in part due to the correlated lack of new paper.

## Week in review

This week saw $4.5bn of new issues price in the market across 11 transactions, including a FFELP student loan, retail card, prime and subprime auto, solar, consumer loan, timeshare, aircraft, equipment, and servicer advance ABS. Half of the week's supply total came from two deals, a prime auto and a credit card ABS while the rest were tiny, off-the-run issues. These included a new subprime auto specialty lender Sierra Auto, where the BBB and BB tranches reportedly priced at swaps +600bp and +875bp, respectively, 75-100bp wide of initial guidance, a notable example of the significant tiering in subprime auto. One issuer, whom previously has only issued private credit student loan ABS, launched their inaugural unsecured marketplace consumer loan ABS this week. The platform lends to the same borrower type as its student loan program and saw decent ABS investor interest, was three-times oversubscribed and traded tighter on the follow.

In secondary, the ABS market saw spreads mostly stable through Thursday as the consensus in financial markets seemed to be a "remain" outcome on the Brexit vote. On Friday with the "leave" side in a surprise win, ABS spreads saw slight widening of 0-2bp on plain vanilla ABS spreads and up to 20bp on off-the-run ABS spreads on low trading flow. Despite the touch of weakness on spreads, liquidity and demand remained fair in the ABS market on Friday. Heading into next week ahead of the July 4th holiday, the ABS calendar should be quite light for both primary and secondary. The ABS market will likely use the lull to fully assess Brexit fallout.

Following Moody's finalization of FFELP student loan ABS rating criteria last week, secondary flow has been muted. On May 31, SLMA 2008-5 A-4 saw a TRACE print on a $220,000 trade at +97bp. Last week, SLMA 2008-5 A-4 traded in odd lot sizes at +111bp. This week the bond traded in large sizes (over $1.8mn) at +112bp and +108bp. In aggregate, TRACE ABS reported $92mn following Moody's methodology, compared to $162mn the prior week Secondary will likely continue remain slow as investors digest the new methodology and until Moody's takes action. In the meantime, the active new issue FFELP ABS market has been a positive sign of demand in the sector.

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### Exhibit 7: ABS spread performance

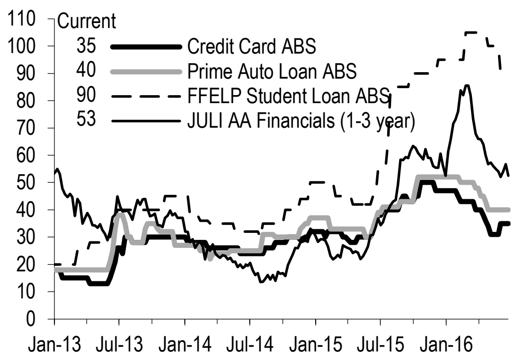
Spread to benchmark (bp)

| | | Current | 1-wk | 10-week | | | | | Current | 1-wk | 10-week | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Benchmark | 6/23/16 | Change | Avg | Min | Max | | Benchmark | 6/23/16 | Change | Avg | Min | Max |
| **Credit Card - Fixed Rate** | | | | | | | **Student Loans (FFELP)** | | | | | | |
| 2-yr AAA | Swaps | 21 | 0 | 24 | 21 | 29 | 3-yr AAA | Libor | 90 | 0 | 97 | 90 | 105 |
| 3-yr AAA | Swaps | 32 | 0 | 35 | 32 | 40 | 7-yr AAA | Libor | 125 | 0 | 132 | 125 | 140 |
| 5-yr AAA | Swaps | 55 | 0 | 58 | 55 | 63 | **Private Credit Student Loan** | | | | | | |
| 10-yr AAA | Swaps | 75 | 0 | 78 | 75 | 83 | 3-yr AAA | Libor | 115 | 0 | 120 | 115 | 130 |
| B-Piece (5-yr) | Swaps | 76 | 0 | 79 | 76 | 84 | **Global RMBS (UK Bullet)** | | | | | | |
| C-Piece (5-yr) | Swaps | 96 | 0 | 99 | 96 | 104 | 3-yr AAA | Libor | 75 | 0 | 75 | 75 | 75 |
| **Credit Card - Floating Rate** | | | | | | | 5-yr AAA | Libor | 95 | 0 | 95 | 95 | 95 |
| 2-yr AAA | Libor | 23 | 0 | 24 | 23 | 28 | **Stranded Assets** | | | | | | |
| 3-yr AAA | Libor | 35 | 0 | 33 | 31 | 36 | 2-yr AAA | Swaps | 31 | 0 | 32 | 31 | 35 |
| 5-yr AAA | Libor | 48 | 0 | 49 | 48 | 53 | 3-yr AAA | Swaps | 41 | 0 | 42 | 41 | 45 |
| 10-yr AAA | Libor | 76 | 0 | 77 | 76 | 81 | 5-yr AAA | Swaps | 61 | 0 | 62 | 61 | 65 |
| B-Piece (5-yr) | Libor | 79 | 0 | 80 | 79 | 84 | 10-yr AAA | Swaps | 86 | 0 | 87 | 86 | 90 |
| C-Piece (5-yr) | Libor | 99 | 0 | 100 | 99 | 104 | **Auto - Subprime** | | | | | | |
| **Auto - Prime** | | | | | | | 1-yr AAA | EDSF | 60 | 0 | 62 | 60 | 68 |
| 1-yr AAA | EDSF | 23 | 0 | 23 | 23 | 26 | 2-yr AAA | Swaps | 65 | 0 | 67 | 65 | 73 |
| 2-yr AAA | Swaps | 30 | 0 | 30 | 30 | 33 | 3-yr AA | Swaps | 105 | 0 | 109 | 105 | 120 |
| 3-yr AAA | Swaps | 35 | 0 | 35 | 35 | 38 | 3-yr A | Swaps | 150 | 0 | 158 | 150 | 180 |
| 3-yr A | Swaps | 100 | 0 | 100 | 100 | 103 | 3-yr BBB | Swaps | 200 | 0 | 215 | 200 | 250 |

Note: Tier 1 names represented by above.
Source: J.P. Morgan

### Exhibit 8: AAA cross sector spreads (3-year)

bp




Source: J.P. Morgan

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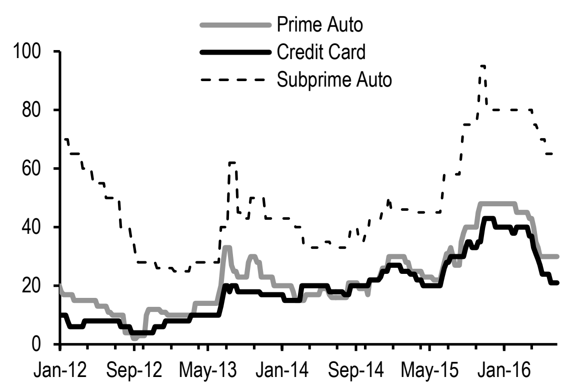
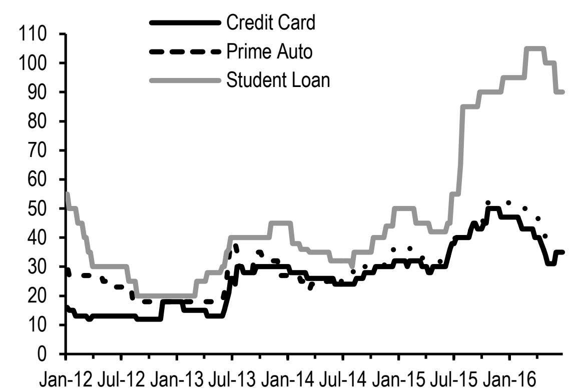
### Exhibit 9: 2-year fixed-rate AAA ABS spread to swaps

(bp)



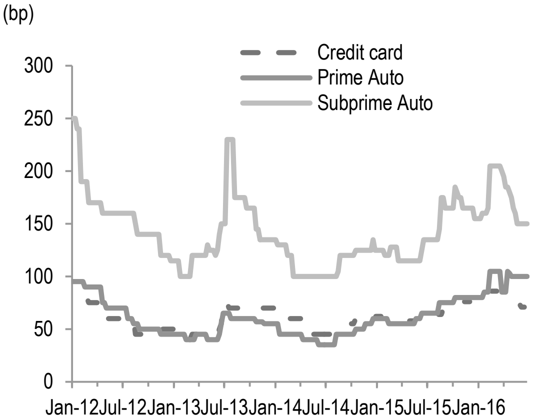

### Exhibit 11: 3-year floating-rate AAA ABS spread to Libor

(bp)



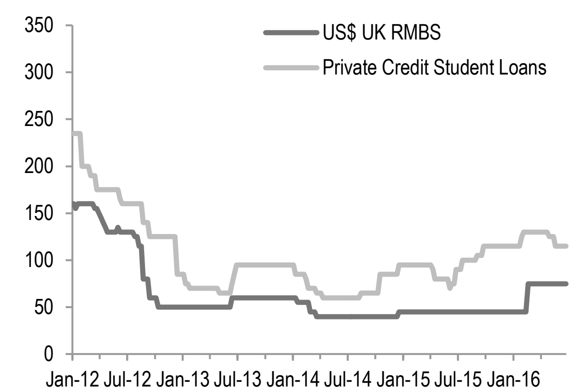

### Exhibit 10: 3-year single-A fixed-rate ABS spread to swaps

(bp)



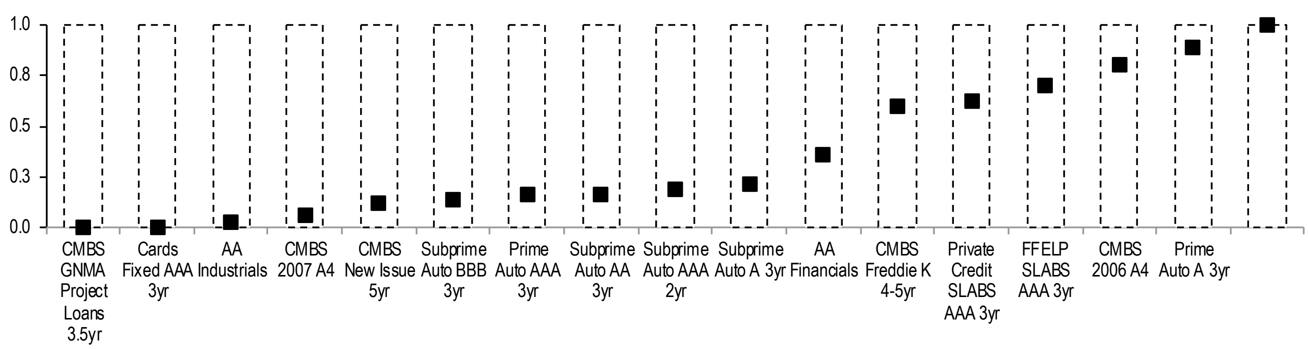

### Exhibit 12: 3-year floating-rate AAA ABS spreads to Libor

(bp)




### Exhibit 13: Rolling 52-week normalized spreads

Normalized spreads with 52 week low set at 0 and the 52 week high set at 1




Nominal Spreads (bp)

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cur | 100 | 32 | 52 | 144 | 70 | 200 | 35 | 105 | 65 | 150 | 84 | 62 | 115 | 90 | 241 | 120 | 165 |
| Min | 100 | 32 | 50 | 139 | 66 | 185 | 32 | 95 | 58 | 135 | 59 | 35 | 90 | 55 | 168 | 80 | 95 |
| Max | 110 | 50 | 115 | 226 | 98 | 295 | 50 | 155 | 95 | 205 | 128 | 80 | 130 | 105 | 258 | 125 | 165 |

Source: J.P. Morgan

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# CMBS Midyear Outlook

- **In our H2 2016 outlook, we discuss major themes investors are focused on for the near to medium term including Risk Retention, market liquidity, market size/supply, yield/spread environment, the refi wall, and commercial real estate fundamentals**
- **Given the sluggish pace of private label CMBS supply so far this year, we revise our gross issuance target down to $60bn from $80-85bn. Most of our adjustments come from single asset/borrower issuance expectations. We also adjust our Agency CMBS gross issuance forecast slightly up to $75bn from $73bn**
- **Private label net issuance can reach -$85bn this year, which would mark the most acute year of net negative supply post-crisis. Such acute net negative supply should be supportive of CMBS spreads at least on the margin**
- **Based on primary market data, we find that insurance companies were stronger sponsors of investment grade CMBS bonds in 2016 year-to-date versus 2015. BBB- sponsorship has significantly shifted to specialized real estate investors while hedge funds have become smaller players. We do not expect this dynamic to change in a meaningful way in the near term**
- **While markets have reacted violently to the United Kingdom's decision to leave the European Union, we see the selloff in CMBS markets as an opportunity to add given our relatively sanguine view of commercial real estate fundamentals in the near to medium term as well as an acute supply/demand imbalance for the remainder of the year**

## H2 2016 market themes

Spending much of the last month on the road visiting investor accounts, we have distilled our conversations into a number of broad market themes which seem to be front-of-mind across a broad swathe of the CMBS investor community. We set out the most consistently discussed themes below (excluding Brexit, which has

### Exhibit 1: CMBS spread summary

| | This Week | Change | | |
|---|---|---|---|---|
| | | 1 WK | 1 MTH | YTD |
| **Legacy (to Swaps)** | | | | |
| **10yr 30% AAA** | 145 | 5 | 5 | -30 |
| **10yr Mezz AAA** | 285 | 10 | 10 | -15 |
| **10yr Jr AAA** | 700 | 25 | 25 | -35 |
| **New Issue CMBS (Swap)** | | | | |
| **5yr Super-Senior AAA** | 77 | 3 | -3 | -8 |
| **10yr Super-Senior AAA** | 120 | 4 | 3 | -16 |
| **AS** | 155 | 8 | 8 | -5 |
| **AA** | 200 | 5 | 5 | -20 |
| **A** | 330 | 0 | 15 | -13 |
| **BBB-** | 630 | 10 | 15 | 60 |
| **XA** | 255 | 5 | 5 | 10 |
| **Agency CMBS** | | | | |
| **Freddie K A1 (10yr coll.)** | 62 | 0 | 0 | -3 |
| **Freddie K A2 (10yr coll.)** | 79 | 0 | 4 | -5 |
| **Freddie K B (10yr coll.)** | 330 | 0 | 0 | -20 |
| **Freddie K C (10yr coll.)** | 545 | 0 | 15 | 70 |
| **Freddie K X1** | 255 | 0 | 0 | 30 |
| **Freddie K X3** | 675 | 0 | -20 | 90 |
| **FNMA DUS 10/9.5** | 87 | 0 | 7 | -7 |
| **GNMA Project Loan (3.5yr)** | 100 | 0 | 0 | -5 |

Note: One week change is from Friday 6/24 to Thursday 6/16 (last published marks).
Source: J.P. Morgan

### Exhibit 2: Summary of private label issuance and dealer holdings

| YTD Issuance ($bn) | 2016 | 2015 | Delta |
|---|---|---|---|
| Conduit | $18.5 | $28.8 | -36% |
| SASB | $6.5 | $19.5 | -67% |
| Other | $1.1 | $1.8 | -38% |
| **Total Private Label** | **$26.1** | **$50.1** | **-48%** |
| **Agency CMBS** | **$39.9** | **$31.7** | **26%** |

| Dealer Holdings ($bn) | Current week | 1 Wk. Ago | 4 Wks. Ago |
|---|---|---|---|
| Private Label | $5.751 | $6.015 | $6.354 |
| Agency CMBS | $5.312 | $5.409 | $4.284 |

Note: Dealer holdings reported with a 1-week lag
Source: J.P. Morgan, Commercial Mortgage Alert, Federal Reserve Bank of New York

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instilled a shot of volatility in today's market following Vote Leave).

**Risk retention: Retaining the market's attention… just**

The seemingly perennial issue of **Risk Retention** (RR) continues to occupy the minds of most market participants in our view, but we also sense that the debate has moved on somewhat from earlier in the year, where it cast a relatively long shadow over the viability of the product heading into 2017. In contrast, currently we see something of widespread acceptance by investors that implementation will be much less disruptive for the product. In fact most accounts we have spoken to of late seem to have concluded that the ultimate form of RR compliance is more of an issue for the structuring banks, rather than for themselves. The obvious exception to this notion are those accounts that play in the BBB- rated tranche, whose future availability could become constrained by adoption of the horizontal approach (unlike the vertical RR approach, the 5% horizontal approach is based on market value, and would likely eat into the amount of BBB- bonds available for distribution to third party investors).

With the increasing acceptance that no one model for RR compliance will be presented to the market, latent concerns surrounding both the availability and ultimate terms attached to RR-compliant B-piece money also seem to have eased with the belief that arranging banks will switch between horizontal and vertical approaches depending on the prevailing economics at the time of structuring. With 'teaser' RR deals expected to be launched early in H2 giving investors a flavor of structures to come in 2017, it appears that one potential roadblock to the market's functioning has become more of a speedbump, in our opinion.

**Liquidity: Knee deep in places, ankle deep in others**

Rising up the list of market observations in many investor meetings has been the discussion of **Liquidity** in the CMBS (and even CMBX) product. While there is broad recognition that at the top of the stack, liquidity remains largely prevalent across the board, some accounts highlighted differing levels of liquidity within even this seniority of bonds. This we believe is most obviously reflected in the basis currently on offer between new issue bank and non-bank transactions, which has been as wide as 13bp at pricing during H1. At the opposite end of the spectrum, the liquidity assumption appears to reverse in the investor base, with accounts assuming there is little liquidity, irrespective of shelf. While we disagree with this comment to some extent, we obviously recognize that the shelf-bias of broker-dealers will play a larger role wherever capital consumption is higher. With more constrained balance sheet and capital allocated to the asset class, sponsor firms will naturally focus liquidity provision with one eye on the franchise. At the bottom of the stack, we therefore see the basis between the bank and non-bank shelves (for lack of a better label) to be reflective of both credit *and* liquidity.

CMBX is not excluded from the investor liquidity discussion, with the subset of accounts that trade the synthetic product finding that tranches outside the barbell of AAA-BBB- are often more difficult to transact. Interestingly from our perspective, the liquidity comments are also advanced in relation to the other securitized asset classes, suggesting that clients are finding it more difficult to transact across the whole gamut of SPG, rather than this being a CMBS-specific issue.

**Market Size: Enforced diet**

Much airtime has been given over to the subject of primary **Market Sizing**–particularly prevalent as we prepare to enter H2 and consider the revision of our FY issuance forecasts (see supply section below). Many investors have been highlighting the difficulties they face in exercising business plans agreed back when expectations of new issue volumes were significantly higher at the tail-end of 2015. Conduit new issue activity currently running some 36% below last year's levels ($18.5bn currently vs $28.8bn previously), and SASB volumes almost negligible at $6.5bn (YTD 2015, $19.5bn). While we feel that conduit primary volumes have been somewhat temporarily suppressed in H1 due to the market's abrupt closure in Q1, we note that our outlook for future SASB issuance patterns remains more subdued into the medium term given the acute competition from balance sheet lenders for collateral in this segment although we do expect SASB issuance to pick up in H2. We note that in 2016, private label bonds have become the junior partner to Agency CMBS for the first time since 2012.

Given the differing price points between the two 'halves' of the CMBS market however, supplemental supply on

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one side of the market cannot simply replace the dearth of supply in the other in our view. Our hypothesis is therefore that we should expect to see spread outperformance in the private label space, while the material increase in supply in Agency CMBS largely driven by the Freddie K program points to a much looser technical backdrop–at best in our view resulting in equilibrium demand-supply (i.e. flat spreads), but also recognizing the possibility of over-supply and subsequent investor indigestion as the year wears on.

With no significant reversion in private label primary issuance patterns forecast for the remainder of the year (given the other market issues discussed here), we believe accounts have accepted the idea of a smaller, tighter product for the foreseeable future. While a handful of the most bearish participants question the market's ultimate future in the medium term, we believe these concerns are unwarranted. In fact, we see a meaningful role for CMBS over the next few years as an exit for some of today's most competitive balance sheet lenders given the increased regulatory commentary around the size of CRE balances at some of the smaller institutions.

**Yield targets: Straightjacket**

One of the most commonly discussed issues facing investors continues to be the difficulty in meeting portfolio yield targets given the current low-yield environment. While some investors have clearly taken to the strategy of stepping outside their natural habitat and reaching down the stack to increase the blended yield across their CMBS investments, others naturally remain nervous to do so given perceptions about the current point in the CRE cycle. Given the comparatively subdued new issue volumes that we expect over the course of 2016, we expect yield targeting to be of more acute concern as the demand-supply imbalance continues.

Here, we note two changes in client behavior as a consequence of the low yield environment: first, a stated readiness from the investor base to act in periods of volatility ("if only we had bought towards the wides in early February") and second, a willingness to consider investment in other securitized asset classes (most often mentioned, CLOs). The former change could be particularly interesting given the litany of potential volatility-inducing macro events that the remainder of 2016 presents us with. With the majority of accounts that we have spoken to over the last month expecting periods of volatility in H2, and a significant subset of those same investors indicating that they would view this as a buying opportunity, the expected volatility could in fact be more muted than experienced in the near past. If this is the case, and given new issue shortages, the ability to meet yield targets may remain just as out-of-reach in H2 as it was in H1.

**Noteworthy topics that receive comparatively little airtime…**

Somewhat surprising to us over the last few weeks, has been how little attention has been directed at the impending "**Refi Wall**". Given that required refinancing balances from legacy CMBS stepped up significantly starting in June, and now remain elevated until July 2017, we would have thought this would have been front-and-center for legacy bond holders. In the discussions where the issue did raise its head, there was something of a resigned, "what will come, will come" perspective on refinancing prospects. Despite this seeming lack of interest in the subject, we continue to monitor the market's "refinancability" (see below for our latest discussion of the refi wall) for both an indication of potential improvement in new issue conduit CMBS volumes; and any changes in special servicer behavior.

Similarly, a discussion of **Fundamentals** still remains relatively far down the list of current client topics–different from Q1 where nascent weakness in the Moody's/RCA CPPI index and CRE transaction volumes suggested the turning of the property cycle. On balance, it appears the investment grade investor base is relatively sanguine concerning the outlook for the commercial property market, with only a subset of typically higher-yield investors having more pronounced views on CRE weakness largely in the retail segment.

## Supply and demand outlook

**Supply**

Year-to-date private label CMBS issuance is $26bn, 48% below last year's pace. While issuance underperformance has been broad across private label CMBS, single asset/borrower deal flow has been especially slow at only about $7bn year-to-date or 67% below last year's pace. Q1 skittishness around CMBS loan pricing and more competitive pricing from portfolio lenders undoubtedly disproportionately impacted the single asset/borrower market given the higher quality nature of their collateral relative to conduit CMBS

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collateral. Agency CMBS issuance, on the other hand, has continued to march on with $40bn pricing to date, 26% ahead of last year's pace.

In light of the slower pace of issuance in private label CMBS, we again revise our issuance forecasts for full-year 2016 and now expect total private label gross issuance to reach $60bn (Exhibit 3). Most of our adjustments come from our expectations around single asset/borrower issuance, which we now see reaching about $18bn for the year. H1 2016 single asset/borrower issuance was largely impacted by the lack of loan pricing competitiveness of CMBS versus portfolio lenders, particularly as the type of collateral that backs single asset/borrower deals are "trophy" type assets. In our view, the second half of the year should prove to be more accommodative for single asset/borrower deals given that CMBS mortgage rates have become much more competitive recently relative to portfolio lenders and the fact that a greater number of large legacy CMBS loans are coming due for refinancing. Given that the conduit CMBS market cannot accommodate very large deals ($1bn+) at the moment, we think the single asset/borrower market will be a better fit for some of the large loans coming due. As for Risk Retention considerations, the willingness of many of the dealers to retain the vertical slice (and obtain loan treatment) should help the case for greater single asset/borrower issuance.

On the conduit CMBS side, we expect second half issuance to accelerate modestly relative to the first half of this year. Our thoughts around this again revolve around how competitive CMBS loan pricing has become in recent weeks. Generically, we estimate current conduit CMBS loan pricing to be in the low 4% area, much lower than the 6% coupons on legacy loans that are maturing in the next several months. However, we acknowledge that, given a somewhat consolidated investor base and how low yields have fallen in high quality CMBS classes, the current demand environment cannot support a constant supply of large deals ($1bn+). As such, the upside in conduit supply is inherently limited, assuming roughly one conduit deal prices per week for the remainder of the year (excluding holiday weeks).

A lower gross issuance forecast in private label CMBS also translates into lower net issuance expectations. We now expect private label CMBS net issuance to register around -$85bn for the year, which if realized, will mark the most acute year of net negative supply in private label CMBS post-crisis (Exhibit 4). On the margin, we expect this dynamic to be supportive of CMBS spreads.

We also marginally adjust our Agency CMBS issuance forecasts, slightly moving up our total gross issuance expectations to $75bn from $73bn and our net issuance expectations to +$50bn from +$48bn. Our adjustments are driven by the increased level of issuance activity from Freddie Mac, particularly in light of the FHFA's decision on May 4 to increase the multifamily lending cap to $35bn from $31bn.

**Exhibit 3: We revise our private label CMBS issuance expectations lower to $60bn for full-year 2016**

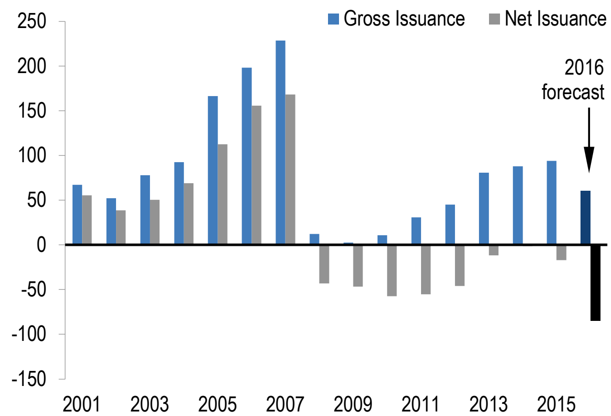
J.P. Morgan's 2016 CMBS issuance forecast ($bn)

| Gross Issuance ($bn) | 2015 YTD | 2016 YTD | YTD % Diff. | FY 2015 | 2016 Old Forecast | 2016 New Forecast |
|---|---|---|---|---|---|---|
| **Private Label** | **50** | **26** | **-48%** | **94** | **80-85** | **60** |
| Conduit | 29 | 18 | -36% | 62 | 45-50 | 40 |
| SASB | 20 | 7 | -67% | 30 | 30 | 18 |
| Other | 2 | 1 | -38% | 2 | 5 | 2 |
| **Agency CMBS** | **32** | **40** | **26%** | **67** | **73** | **75** |
| Freddie K | 15 | 25 | 66% | 36 | 41 | 45 |
| FRESB | 0 | 2 | n/a | 2 | 4 | 4 |
| Fannie ACES | 8 | 6 | -34% | 14 | 13 | 12 |
| Ginnie PL | 8 | 7 | -12% | 16 | 15 | 14 |
| **Net Issuance ($bn)** | **2015 YTD** | **2016 YTD** | **YTD % Diff.** | **FY 2015** | **2016 Old Forecast** | **2016 New Forecast** |
| Private Label | 2 | -26 | -1599% | -18 | -60-65 | -85 |
| Agency CMBS | 17 | 27 | 54% | 46 | 48 | 50 |

Note: Year-to-date net issuance data is as of May month-end.
Source: J.P. Morgan, Commercial Mortgage Alert

**Exhibit 4: Given our lower gross issuance expectations, 2016 is expected to be the most acute year of net negative supply in private label post-crisis**

Monthly gross and net issuance and full-year forecasts for 2016 ($bn)




Source: J.P. Morgan, Commercial Mortgage Alert

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**Exhibit 5: Real money sponsorship has held steady as a share of primary purchases, insurance and pension funds have overtaken asset managers as the largest sponsors of conduit IG bonds**

2016 versus 2015 conduit CMBS investor participation by investor type and tranche

| | 2016 | | | | | | 2015 | | | | | | y/y change | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Investor | 10yr AAA | AS | AA | A | BBB | IG | 10yr AAA | AS | AA | A | BBB | IG | 10yr AAA | AS | AA | A | BBB | IG |
| Asset Manager | 39% | 24% | 46% | 24% | 11% | 36% | 57% | 13% | 56% | 46% | 39% | 52% | -18% | 11% | -11% | -22% | -28% | -16% |
| Insurance / Pension | 47% | 73% | 50% | 15% | 0% | 46% | 32% | 76% | 24% | 12% | 0% | 30% | 15% | -3% | 25% | 3% | 0% | 16% |
| Bank | 12% | 3% | 2% | 5% | 0% | 9% | 8% | 11% | 3% | 1% | 0% | 7% | 4% | -8% | -1% | 4% | 0% | 3% |
| Specialized REI | 0% | 0% | 3% | 0% | 72% | 4% | 0% | 0% | 0% | 0% | 21% | 1% | 0% | 0% | 3% | 0% | 51% | 2% |
| Hedge Fund | 1% | 0% | 0% | 56% | 17% | 5% | 2% | 0% | 16% | 39% | 40% | 8% | 0% | 0% | -16% | 17% | -22% | -3% |
| Other | 0% | 0% | 0% | 0% | 0% | 0% | 2% | 0% | 0% | 2% | 0% | 1% | -2% | 0% | 0% | -2% | 0% | -1% |

Note: Reflects only deals in which J.P. Morgan was involved. Specialized REI represents specialized real estate investors. Hedge fund groups include hedge funds and private equity.
Source: J.P. Morgan

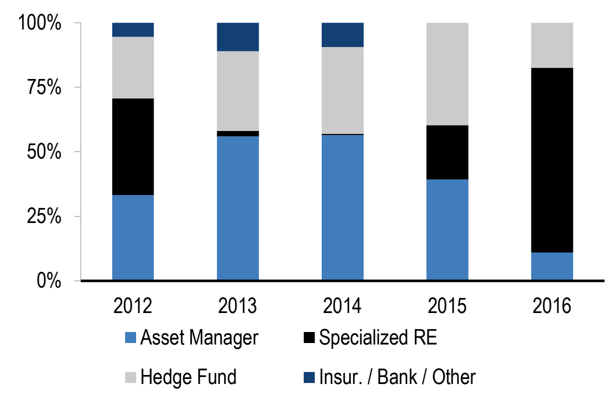
The wildcard and downside risk to our forecast comes from the UK's decision to leave the European Union. As market volatility earlier this year demonstrated, sustained periods of extreme CMBS market volatility inevitably lead to slower origination volumes. The January/February volatility episode arguably subtracted 2-3 months of CMBS issuance. If the markets experience a sustained period of extreme volatility following this week's voet, there is a risk of issuance slowing down yet again just as origination activity is beginning to pick up. However, given increased refinance needs in the second half and the fact that lack of primary issuance in the near term limits pricing cues to the origination side of the market, we currently do not expect issuance to shut down.

## Demand

Based on primary market activity, sponsorship for conduit bonds in H1 2016 across the credit stack remained stratified by investor type. Real money continued to pick up the vast majority of AAA through AA bonds, while avoiding lower rated tranches. Insurance and pension funds have overtaken asset managers as the primary buyers of AAAs, the former rising from 32% of AAA purchases in 2015 to 47% as asset manager purchases fell from 57% to 39% (Exhibit 5). Bank purchases rose a modest 3% to 12% of purchases, while fast money and more specialized real estate investors continued to avoid these low-yielding products. Asset managers have ceded ground overall in primary, as their share of IG purchases in 2016 has fallen to 36% compared to 52% in 2015. In the belly of the curve, hedge funds dropped AA purchases, while real money picked up 96% of those bonds. But just downstream in single-A's the story is reversed, with

**Exhibit 6: Specialized real estate investors have dominated BBB- conduit sponsorship thus far in 2016**

Share of 10yr BBB- conduit bonds purchased by investor type




Note: Reflects only deals in which J.P. Morgan was involved. . Hedge fund groups include hedge funds and private equity.
Source: J.P. Morgan

hedge funds comprising over half of all purchases, up 17% from last year.

Hedge funds reduced their share of BBB- purchases substantially in 2016, as the space came to be dominated by specialized real estate investors, who also comprise the bulk of B-piece purchases. As hedge fund demand for these relatively low-enhanced bonds has faded, the same investors bidding to be the controlling certificate holder has come into this higher rated space, having already completed the credit legwork. Asset managers have likewise held off from BBB- purchases in the wake of recent volatility. Exhibit 6 shows how, after a few years in which broader fund managers have dominated BBB- purchases, the space has ceded to the realm of real estate focused buyers, at least in primary.

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**Exhibit 7: Year-to-date refi success rate is tracking 72%**
Current status of loans by original maturity year, % by securitized balance

| Orig. | Liquidated | | | | Retired | | | | Outstanding | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mat. Period | Before Mat. Yr | In Mat. Yr | After Mat. Yr | Total | Before Mat. Yr | In Mat. Yr | After Mat. Yr | Total | Perf. | Perf. Mod. | DLQ | DLQ Mod. | Total | Secur. Bal. ($bn) |
| 2005 | 2% | 4% | 4% | 10% | 34% | 51% | 5% | 90% | 0% | 0% | 0% | 0% | 0% | 1.2 |
| 2006 | 7% | 2% | 1% | 11% | 36% | 50% | 1% | 87% | 2% | 0% | 0% | 0% | 2% | 1.4 |
| 2007 | 6% | 1% | 1% | 9% | 50% | 39% | 1% | 91% | 0% | 0% | 0% | 0% | 0% | 7.6 |
| 2008 | 5% | 2% | 3% | 10% | 33% | 55% | 2% | 90% | 0% | 0% | 0% | 0% | 0% | 20.2 |
| 2009 | 4% | 3% | 12% | 19% | 16% | 39% | 23% | 77% | 0% | 0% | 1% | 1% | 3% | 17.0 |
| 2010 | 3% | 6% | 16% | 25% | 11% | 38% | 22% | 71% | 1% | 1% | 1% | 1% | 3% | 28.5 |
| 2011 | 4% | 5% | 18% | 26% | 9% | 45% | 16% | 70% | 0% | 2% | 1% | 1% | 4% | 33.8 |
| 2012 | 6% | 7% | 11% | 25% | 8% | 46% | 11% | 66% | 0% | 7% | 2% | 1% | 10% | 47.6 |
| 2013 | 5% | 4% | 4% | 13% | 17% | 65% | 2% | 85% | 0% | 1% | 1% | 1% | 3% | 31.5 |
| 2014 | 8% | 2% | 3% | 13% | 16% | 61% | 2% | 80% | 0% | 4% | 2% | 1% | 7% | 42.8 |
| 2015 | 10% | 3% | 1% | 15% | 12% | 65% | 1% | 78% | 1% | 1% | 5% | 0% | 7% | 81.2 |
| 2016 | 13% | 2% | 0% | 15% | 28% | 44% | 0% | 72% | 2% | 2% | 9% | 1% | 13% | 54.8 |

Note: Data as of the June remittance period. Defeased loans are excluded from these calculations. Liquidated loans reflect loans retired with a non-zero loss amount
Source: J.P. Morgan, Trepp

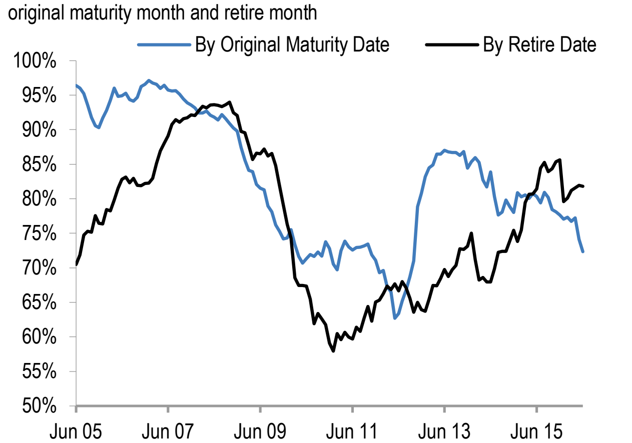
Heading into the second half of 2016, we expect continued healthy conduit sponsorship. The top of the credit stack has remained well bid throughout recent bouts of volatility, and the continued search for yield in this ongoing low-rate environment can continue to drive demand in the belly of the curve. Indeed, our recent investor survey revealed willingness among investors to maintain CMBS exposures and even increase exposure down in credit, though the attractiveness of the belly is likely tempered by ongoing macroeconomic uncertainty and the potential for revived spread volatility.

We're left to wonder if the retreat from BBB-s among broad market investors is a temporary reaction to spread volatility in the Q1 2016. In particular, if Risk Retention strategies among originators gravitate towards the horizontal option, a broader class of market players could make a bid for upcoming publicly offered conduit BBBs, anticipating a scarcity premium in the years to come. Overall with continued broader macro uncertainty, concerns over the maturing credit cycle and more onerous regulations in the near future, we continue to see little potential for overall growth in the CMBS investor base.

## Refi success outlook

The year-to-date refinance success rate has tracked 72% through the June remittance period (Exhibit 7). We define the refi success rate based on the percentage of loans that paid off without losses before, after, or at the original scheduled maturity date. An alternative measure of the refi success rate is based on the retire date of the loans, which does not necessarily coincide with the scheduled maturity dates. As Exhibit 8 shows, the refi success rate based on the retire date is substantially higher than the rate based on the original maturity date but we believe using the former is a better measure as the latter introduces more selection bias.

**Exhibit 8: We prefer to measure the refi success rate based on original scheduled maturity dates rather than retire dates**
6-month moving average of the refinance success rate for conduit CMBS loans by original maturity month and retire month




Note: Defeased loans are excluded from these calculations.
Source: J.P. Morgan, Trepp

Our preferred measure registered 63% and 65% in May and June, respectively, a step down from the 74-80%

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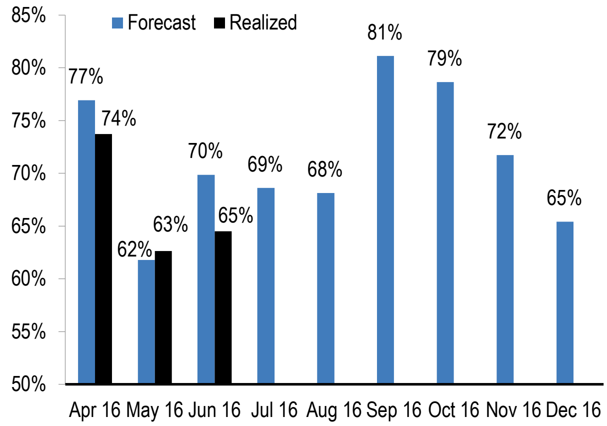
### Exhibit 9: The slow pace of CMBS originations could be having a more significant impact on legacy refis

J.P. Morgan monthly legacy conduit CMBS refinance success rate forecast versus realized refinance success rate




Note: Two approaches are utilized for the refinance success analysis. The forecast methodology employs forecasting property values and net cash flows to maturity. The market cap rate methodology revalues all properties by using recently observed cap rates for comparable properties in similar regions. Cash flows are forecasted using the prior methodology. For both methodologies, balloon LTVs and debt yields are estimated using these forecasts and the ability to refinance is judged based on the estimated LTVs and debt yields. The average refinance success rate from the two methodologies is used.
Source: J.P. Morgan, Trepp, Bloomberg, Real Capital Analytics, CoStar, NCREIF

range in the four months prior and underperforming our monthly refi success forecast based on our previous work on the refi wall[9] (Exhibit 9). In our view, the slower origination environment could be contributing to the decline in the refi success rate, particularly as the deterioration of underwriting quality in CMBS has slowed. For example, average underwritten and Moody's stressed LTVs are 61.3% and 114.8%, respectively this year versus 64.5% and 115.8%, respectively in 2015. With CMBS originators less willing to stretch underwriting for now, less legacy loans qualify for refinancing via CMBS.

In Exhibit 10, we update our previous work[10] in understanding where legacy conduit CMBS loans have gone to refi so far this year. Based on 86 of the largest loans that have paid off so far this year, representing about 30% of total balances retired, the refi/payoff rate was 77%, not too dissimilar from the total year-to-date refi success rate of 72%. We note that some 30 loans appear to have been retired out of the sponsors' pockets but it is likely that at least some of this is rather due to a

### Exhibit 10: Our sampling of the largest loans that have paid of this year shows a 77% refi/payoff rate

Percentage breakout of outcomes for a sample of 86 of the largest conduit CMBS loans that paid off this year, by count and by original securitized balance

| | Count | % of Total Count | Original Securitized Bal. ($bn) | % of Total Sec. Bal. |
|---|---|---|---|---|
| Refi | 37 | 43% | 8.9 | 53% |
| Retired w/o Refi | 30 | 35% | 4.1 | 24% |
| Liquidation | 12 | 14% | 2.0 | 12% |
| N/A | 7 | 8% | 1.9 | 11% |
| **Total** | **86** | **100%** | **17.0** | **100%** |

Note: Sample represents 30% of the total balance of retired loans.
Source: J.P. Morgan, Trepp, Real Capital Analytics

### Exhibit 11: Only 14% of legacy conduit CMBS loans have been recycled back into CMBS, 20% excluding the large Stuytown payoff

Percentage breakout of lenders that refinanced from our sample of 86 of the largest conduit CMBS loans that paid off this year, by count and by original securitized balance

| Lender | Count | % of Total Count | Original Securitized Bal. ($bn) | % of Total Sec. Bal. |
|---|---|---|---|---|
| GSE | 1 | 3% | 3.00 | 34% |
| Bank | 20 | 54% | 3.34 | 37% |
| *Loan Syndication* | *3* | *8%* | *0.97* | *11%* |
| *Investment Bank* | *3* | *8%* | *0.65* | *7%* |
| *Regional Bank* | *4* | *11%* | *0.50* | *6%* |
| *Large Bank* | *6* | *16%* | *0.73* | *8%* |
| *Large / Regional Bank* | *1* | *3%* | *0.17* | *2%* |
| *Foreign Bank* | *3* | *8%* | *0.34* | *4%* |
| CMBS | 6 | 16% | 1.25 | 14% |
| *Conduit CMBS* | *3* | *8%* | *0.58* | *7%* |
| *SASB CMBS* | *2* | *5%* | *0.44* | *5%* |
| *Conduit / SASB CMBS* | *1* | *3%* | *0.23* | *3%* |
| Insurance | 6 | 16% | 0.87 | 10% |
| Other | 4 | 11% | 0.48 | 5% |
| *Institutional Investor* | *2* | *5%* | *0.23* | *3%* |
| *Private Investor* | *2* | *5%* | *0.25* | *3%* |
| **Total** | **37** | **100%** | **8.95** | **100%** |

Source: J.P. Morgan, Trepp, Real Capital Analytics

lack of visibility on refinancing. Of the 37 loans in our sample that refinanced successfully, only about 14% by balance were recycled back into CMBS (Exhibit 11). Excluding the large Stuytown payoff, about 20% of the refinancings were done through CMBS. Banks, unsurprisingly, met the bulk of the legacy conduit CMBS refi needs. We also note that it is possible for the CMBS

9 See our *CMBS Weekly* published on April 1, 2016.
10 See our *CMBS Weekly* published on May 20, 2016.

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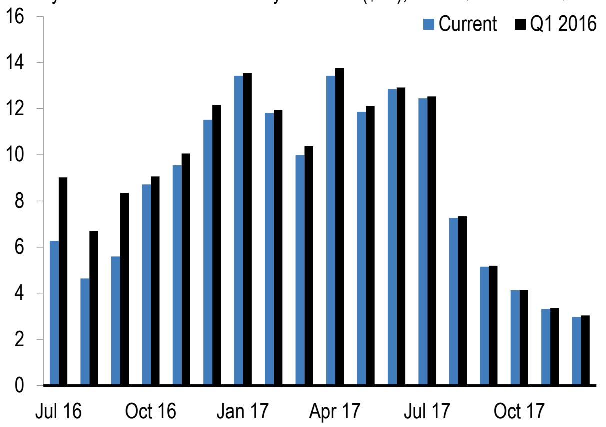
**Exhibit 12: Prepayments have reduced the amount of scheduled maturities over the next three months**

Monthly conduit CMBS loan maturity schedule ($bn), as of Q2 016 and Q1 2016



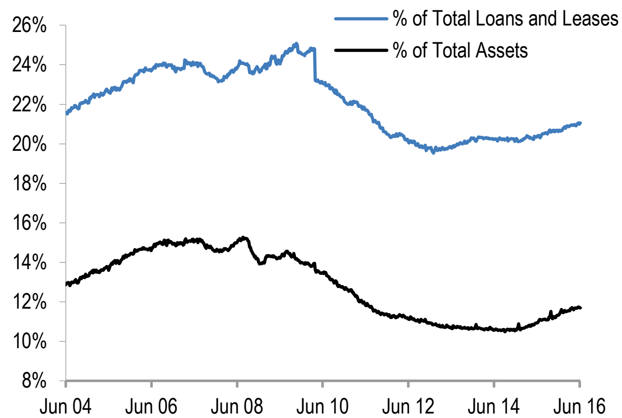

Source: J.P. Morgan, Trepp

share to be somewhat understated as some of these loans that banks refinanced may currently be sitting in warehousing for future securitizations.

Irrespectively, we view any potential downside to the refi success rate as largely limited given the experience to date: portfolio lenders appear willing and able to refinance many of the legacy loans coming due. With prepayments (CPY) having away at the scheduled maturity profile this summer ($5.5bn per month of scheduled maturities over the next three months versus $8bn per month when we counted in Q1), it appears the next big test begins in October (Exhibit 12). 2006 vintage CPY has tracked about 90% and we expect CPY to remain high, which should further eat away at the maturities scheduled for the latter half of this year. In our opinion, even if CMBS issuance remains subdued for the remainder of the year, it appears that commercial banks can continue to serve as a CMBS substitute to refi legacy maturities even as regulatory scrutiny is increasing around bank CRE lending. For context, at roughly $1.9tn, CRE lending constitutes about 21% of

**Exhibit 13: Bank CRE loan concentrations have been rising but even a small increase translates into large CRE loan volumes**

Bank CRE loan holdings as a percentage of total loans and leases and total assets




Source: J.P. Morgan, Federal Reserve

**Exhibit 14: Vacancy rates remain stable across sectors and market tiers; rent growth likewise continues apace**

| | | Vacancy Rate | | | Eff Rent Growth | | | Net Absorption | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Multifamily | Office | Retail | Multifamily | Office | Retail | Multifamily (1000 units) | Office (1000 SF) | Retail (1000 SF) |
| National | 16Q1 | 4.5% | 16.1% | 10.0% | 4.5% | 3.2% | 2.2% | 30 | 11119 | 2499 |
| | 15Q1 | 4.2% | 16.6% | 10.1% | 4.0% | 3.3% | 2.1% | 44 | 7281 | 3533 |
| | 13-15Q1 | 4.3% | 16.9% | 10.4% | 3.7% | 2.5% | 1.5% | 42 | 7139 | 2568 |
| Major | 16Q1 | 3.7% | 12.6% | 8.8% | 5.4% | 4.6% | 2.3% | 0.6 | 771 | 75 |
| | 15Q1 | 3.5% | 13.3% | 9.0% | 4.3% | 4.5% | 2.4% | 1.2 | -138 | 54 |
| | 13-15Q1 | 3.4% | 13.7% | 8.9% | 4.0% | 3.9% | 1.6% | 1.2 | 625 | -190 |
| Energy | 16Q1 | 5.5% | 17.8% | 11.1% | 4.5% | 2.6% | 2.5% | 0.9 | 663 | 42 |
| | 15Q1 | 5.1% | 17.7% | 11.5% | 5.3% | 4.4% | 2.0% | 2.4 | 296 | 288 |
| | 13-15Q1 | 5.2% | 17.9% | 12.0% | 4.4% | 3.3% | 1.9% | 2.2 | 329 | 189 |
| Non-Major | 16Q1 | 4.4% | 17.0% | 10.0% | 4.2% | 2.4% | 2.1% | 0.5 | 113 | 54 |
| | 15Q1 | 4.2% | 17.6% | 10.1% | 3.7% | 2.3% | 2.0% | 0.7 | 84 | 42 |
| | 13-15Q1 | 4.3% | 17.8% | 10.4% | 3.5% | 1.5% | 1.4% | 0.6 | 90 | 38 |

Major markets consist of New York, Los Angeles, Chicago, San Francisco, Boston and D.C. metros. “Energy Markets” consist of Houston, Denver, Dallas, Oklahoma City, Tulsa, Midland, Pittsburgh and New Orleans MSAs. Non-major markets include all other locales.
Source: J.P. Morgan, REIS

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total bank loan books or about 12% of total bank assets (Exhibit 13). The majority of bank CRE loans (85%) are multifamily or other commercial real estate loans with the remaining in construction and development loans. Holding total loan and lease balances constant (~$9tn), a modest increase in CRE's share to 23% of the total bank loan book generates about $175bn of additional CRE lending.

Considering the dearth of issuance in conduit CMBS this year, the refi success rate has held up well. We continue to expect the full-year refi success rate to come in at around 70%.

## CRE fundamentals

Vacancy rates remain stable across core property types, both nationally and broken out by market tier (Exhibit 14), though we note a slight uptick in national multifamily from 4.3% for the trailing past 3 first quarters to 4.5% in 1Q 2016, seen across market tiers. Effective rents held apace in office and retail properties while increasing by 0.5% to 4.5% in multifamily, driven most strongly by major markets. Multifamily continues to see constrained net absorption, despite a continuing acceleration in new construction (Exhibit 15). New construction has now begun to slow in the anemic retail sector, which could be supportive for fundamentals going forward.

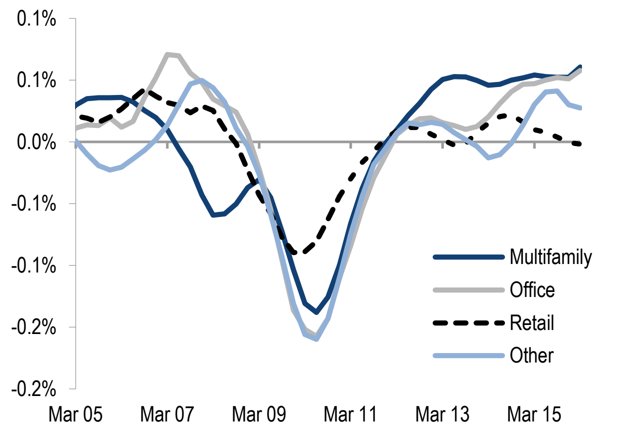
Cashflows sounded a strong note this past year: for properties securitized in CMBS conduits, cashflows grew 3.2% in 2015, up from a 1.3% annualized growth the prior three years. Growth was positive across all sectors with the strongest numbers seen in hotels (7.6%) and multifamily (5.9%). Growth was comparatively tepid in retail (1.6%) and office properties (1.9%). Compared to annualized growth in cashflows over the prior three fiscal years, for both major and non-major markets, national average cashflow growth has in fact *accelerated* in every sector except retail (Exhibit 16), with "secondary markets" (large US cities beyond the six major markets) consistently outperforming post-crisis.[11]

## Trading themes

The UK's decision to leave the European Union was a shock to markets, but J.P. Morgan's house view is that Brexit is problematic for the region rather than a global shock. Given our relatively sanguine expectations on

**Exhibit 15: Pace of office and multifamily construction continues to grow at strong rate; retail construction declined for latest year-long period**

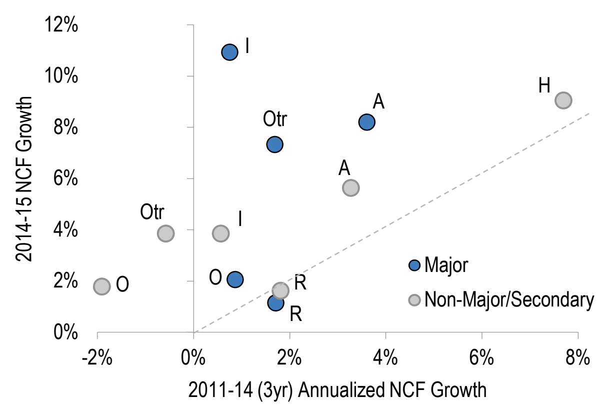
YoY change in trailing 4Q gross private fixed investment in structures by type as % of GDP




Source: J.P. Morgan, BEA, Moody's economy.com

**Exhibit 16: Growth in 2015 exceeded its 3-year post-crisis average across most sectors, with the notable exception of retail**

2014-15 percent change in NCF versus previous 3-year, annualized NCF growth




R = Retail, O = Office, A = Apartment (Multifamily), H = Hotel, I = Industrial, Otr = Other

Note: Includes only loans with reported cashflows in 2011, 2014 and 2015, along with at underwriting, or roughly 50% of outstanding conduit loans. Major markets include Manhattan, Los Angeles, Chicago, San Francisco, Boston and DC.

Source: J.P. Morgan, Trepp, Real Capital Analytics

CRE fundamentals in the near to medium term and an acute supply/demand imbalance for the remainder of the year, we view any selloff in the CMBS markets as temporary and a buying opportunity for investors who have been starved of yield of late. This view is of course

[11] See our CMBS Weekly published on June 17.

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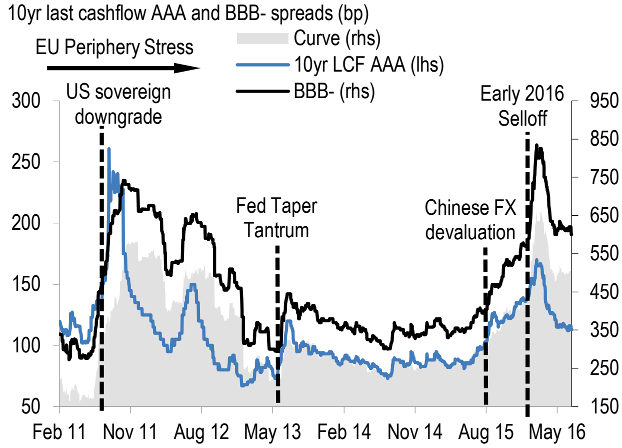
contingent on the political fallout from Brexit being limited (i.e. no other major exits from the EU).

Prior episodes of volatility in the CMBS market arising from external shocks give us some guidance around how CMBS spreads behaved with the episode in January/February serving as the most recent guide (Exhibit 17). Over the last several years, widening episodes catalyzed by macroeconomic uncertainties have lasted several weeks to months including the Eurozone/Grexit induced selloff in 2011-2012, the Taper Tantrum in 2013, and most recently, the Janunary/February broad risk market selloff. The January/February selloff was characterized by 10yr LCF AAAs and BBB-s widening by 34bp and 265bp, respectively in the course of 6 weeks. However, in the subsequent 11 weeks or so, spreads tightened by 55bp and 235bp, respectively.

Widening in CMBS spreads should be an attractive opportunity to layer into high quality bonds in our view. Further down in BBB-s, while we are wary of these bonds from a long-term credit view, we acknowledge that spreads widening to a significant degree (i.e. 150bp+) would present a tactical buying opportunity.

**Exhibit 17: Prior CMBS market selloffs have lasted several weeks to months; we see the Brexit induced selloff as a buying opportunity**

10yr last cashflow AAA and BBB- spreads (bp)




Source: J.P. Morgan, Pricing Direct

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# CLO Midyear Outlook

- **The CLO market has been on a roller coaster ride in 2016, with Brexit throwing a wrench into the works. The early market response to Brexit is flight-to-quality, with US CLO spreads 10-65bp and Euro CLO spreads 28-200bp wider on the week. Our base case is that Brexit is a regional rather than a global shock and more impacts the UK than the Euro-area**
- **In recognition of the uncertainty, we lower our European CLO supply forecast to €10bn. Our US CLO supply forecast is unchanged at $35-45bn, as while the trend has been tracking higher there is now additional macro risk along with pre-existing trends (light loan supply, etc)**
- **We take a more cautious view for now, turning Neutral European CLO mezz (BBB on down). We leave our US CLO recs unchanged, staying Overweight seniors (AAA to A) but in the short term are biased to short-duration**
- **As far as US CLOs are concerned, tail/idiosyncratic credit risks are increasing and we continue to expect more dispersion/tiering and a steeper credit curve, a view which has played out well in the last 6-12 months. Credit fundamentals are slowly deteriorating with an uptick in defaults, downgrades, and failing OCs**
- **The US CLO market in 16H1 consists of 51 managers (61 deals), down from last year's 85 managers (191 deals, $99bn). The percent of first time post-crisis managers has been trending down since 2010 and is 8% of 16H1 managers.**
- **Trade 1: Buy short-duration US/EUR CLO 2.0s following the initial risk-off**
- **Trade 2: Buy senior US CLOs (AAA to A) at wider spreads**
- **Trade 3: Hold European 2.0 mezz and equity, for now, and re-assess valuations as the dust settles**

### Exhibit 1: Global CLO spreads & recommendations (bp)

| Sector | Current WAL (yrs) | Current Spread | Change vs 06/17 | Change YTD | Change in 2015 | Recommendation |
|---|---|---|---|---|---|---|
| **US CLO** | | | | | | |
| **Benchmark** | | | | | | |
| Super Senior | 0.5-1.5 | 145 | 15 | 35 | 45 | Overweight |
| AAA | 0.5-1.5 | 155 | 15 | 15 | 65 | Overweight |
| AA | 1.5-2 | 180 | 15 | 20 | 40 | Overweight |
| A | 1.5-2.5 | 225 | 15 | 35 | 45 | Overweight |
| BBB | 2.5-3.5 | 375 | 60 | 100 | 65 | Overweight |
| BB | 3-4 | 560 | 35 | 60 | 105 | Overweight |
| **3.0** | | | | | | |
| AAA | 4.0-5.5 | 160 | 10 | -12 | | Overweight |
| AA | 5.5-7.0 | 230 | 25 | -10 | | Overweight |
| A | 6.5-8.0 | 350 | 45 | 15 | | Overweight |
| BBB | 7.0-8.5 | 575 | 40 | 65 | | Neutral |
| BB | 7.5-9.0 | 1000 | 65 | 175 | | Neutral |
| B | 8.0-9.5 | 1450 | 65 | 325 | | Neutral |
| **New Issue*** | | | | | | |
| AAA | 5-6 | 153-175 | 0 | 5 | 1 | Overweight |
| AA | 6-8 | 210-260 | 0 | -3 | -20 | Overweight |
| A | 6-9 | 290-360 | 0 | -15 | -23 | Overweight |
| BBB | 7-9 | 450-600 | 0 | 48 | -10 | Neutral |
| BB | 7-9 | 820-1000 | 0 | 115 | 83 | Neutral |
| B | 7-9 | 1050-1200 | 0 | 88 | 200 | Neutral |
| **EUR CLO** | | | | | | |
| **EUR 2.0** | | | | | | |
| AAA | 4-5 | 170 | 28 | 20 | | Overweight |
| AA | 6-7 | 250 | 35 | 27 | | Overweight |
| A | 6-7 | 375 | 65 | 65 | | Overweight |
| BBB | 6-7 | 510 | 85 | 95 | | **Neutral** |
| BB | 7-8 | 815 | 128 | 170 | | **Neutral** |
| B | 7-8 | 1150 | 200 | 305 | | **Neutral** |
| **New Issue** | | | | | | |
| AAA | 5-6 | 140 | 10 | -10 | 18 | Overweight |
| AA | 7-8 | 210 | 5 | -10 | 10 | Overweight |
| A | 7-8 | 325 | 25 | 15 | -7 | Overweight |
| BBB | 7-8 | 450 | 30 | 40 | 0 | **Neutral** |
| BB | 8-9 | 725 | 25 | 100 | -25 | **Neutral** |

Spread to Libor or Euribor (bp) for originally-rated categories
Source: J.P. Morgan. *New issue spreads represent a range of spreads to indicate manager tiering. Benchmark spreads represent the 2006/2007 vintage midpoint. 3.0 spreads represent 'mid-quality' of secondary levels of CLOs issued after 2013. Note: 1: AAA is weighted average pass-through spreads. 2: Our series represents 'mid-quality' pricing in secondary trading. 3: Current WAL. 4: Between November 21, 2008 and December 9, 2010, AA to BB spreads are estimated using simplified duration and other assumptions; thereafter, indicative spread levels are used.



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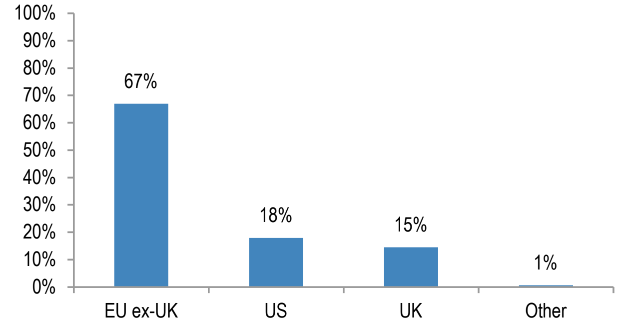
# Mid-year CLO Outlook 2016: Keep Calm and Carry On

The CLO market has been on a roller coaster ride, with Brexit throwing a wrench into the works. The early market response to Brexit is flight-to-quality, with US CLO spreads 10-65bp and Euro CLO spreads 28-200bp wider on the week. Our base case is that Brexit is a regional rather than a global shock and more impacts the UK than the Euro-area (UK exposure is 15% of European CLOs, Exhibit 2). Our economists expect weaker Euro area growth this year (0.4% lower to 1.5%) and more QE. We expect the BOE to cut rates by 50bp by August, an ECB deposit rate cut of 10bp (to -50bp), and €480bn more ECB asset purchases than already anticipated.

As for the impact of Brexit on the US economy, our economists are pushing back their Fed call from September to December. Also, they modestly lowered their outlook for second-half US GDP growth from 2.25% to 2.0%. Weaker foreign growth and somewhat tighter financial conditions should have a direct, measurable, and modest impact on activity. While the Fed playbook calls for proactive cuts in times of financial crisis, there are, thus far, few signs of funding stresses that are symptomatic of a broader freezing up of credit channels.

In recognition of the uncertainty, we lower our European CLO supply forecast to €10bn. Our US CLO supply forecast is unchanged at $35-45bn, as while the trend has been tracking higher there is now additional macro risk along with pre-existing trends of light loan supply, tepid equity demand, etc. Geopolitical events are notoriously hard to predict. However, to the extent our base case proves right, and as volatility starts to subside, risk appetite will renew. As of June 23, as much as 35% of global government bond yields were negative (Exhibit 4), so there will be appetite for yield. Over time, we expect CLO spreads to retrace part of their widening and revert to market-specific factors. For now, we take a more cautious view on European CLO mezz (BBB on down), turning tactically Neutral. We leave our US CLO recommendations unchanged, staying Overweight seniors (AAA to A). In the very short-term, until the macro implications become clear, we have a bias to short-duration. As and when the US outlook improves, rising Libor with Fed rate hikes will help the case for floating-rates, albeit the Fed is likely on hold for some time with OIS markets now pricing in only a ~15%

### Exhibit 2: European CLO Regional Exposure



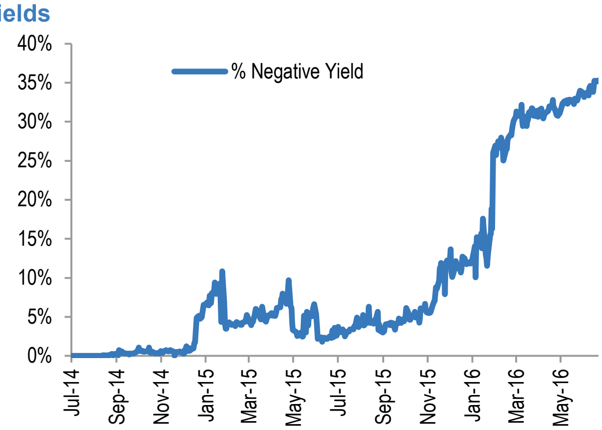

Source: J.P. Morgan, INTEX.

### Exhibit 3: J.P. Morgan US Interest Rate Outlook

| | Actual 24 Jun 16 | 1m ahead 24 Jul 16 | 3Q16 30 Sep 16 | 4Q16 31 Dec 16 | 1Q17 31 Mar 17 | 2Q17 30 Jun 17 |
|---|---|---|---|---|---|---|
| **Rates (%)** | | | | | | |
| Effective funds rate | 0.39 | 0.35 | 0.35 | 0.65 | 0.90 | 0.90 |
| 3-mo LIBOR | 0.62 | 0.65 | 0.65 | 0.95 | 1.20 | 1.15 |
| | | | | | | |
| 2-yr Treasury | 0.65 | 0.65 | 0.70 | 0.90 | 1.15 | 1.25 |
| 3-yr Treasury | 0.76 | 0.80 | 0.85 | 1.05 | 1.25 | 1.35 |
| 5-yr Treasury | 1.09 | 1.10 | 1.15 | 1.30 | 1.50 | 1.60 |
| 7-yr Treasury | 1.37 | 1.40 | 1.45 | 1.55 | 1.65 | 1.75 |
| 10-yr Treasury | 1.58 | 1.60 | 1.65 | 1.70 | 1.75 | 1.80 |
| 30-yr Treasury | 2.43 | 2.45 | 2.45 | 2.50 | 2.50 | 2.50 |
| **Spreads (bp)** | | | | | | |
| Fed funds/3m Libor | 23 | 30 | 30 | 30 | 30 | 25 |
| Fed funds/2yr | 26 | 30 | 35 | 25 | 25 | 35 |
| 2s/10s | 93 | 95 | 95 | 80 | 60 | 55 |
| 2s/5s | 44 | 45 | 45 | 40 | 35 | 35 |
| 5s/10s | 49 | 50 | 50 | 40 | 25 | 20 |
| 5s/30s | 133 | 135 | 130 | 120 | 100 | 90 |
| 2s/30s | 178 | 180 | 175 | 160 | 135 | 125 |

Source: J.P. Morgan.

### Exhibit 4: Proportion of sovereign debt with negative yields




Source: J.P. Morgan. % of GBI index at negative yield.



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chance of a hike in 2016. As far as US CLO-specific risks are concerned, tail/idiosyncratic risks are already increasing in US leveraged credit and we continue to expect more dispersion/tiering and a steeper CLO credit curve. Credit fundamentals are slowly deteriorating with an uptick in defaults, downgrades, and failing OC tests.

## Supply/Demand

**Slowdown in supply**

The new issue CLO market got off to a rocky start in 2016 due to broader market volatility. As sentiment improved, global issuance normalized with monthly issuance from March to June ranging $6.91-8.00bn. The pace of global new issue has slowed to about half compared to this time last year (Exhibit 5), averaging $5.64bn per month for the first 6 months versus $11.47bn over the same period last year. The US market has seen increased volume in each successive month of the year through June, which saw 14 deals for $8.00bn. The YTD total in the US is now $25.7bn, trending higher than the upper bound of our $35-45bn gross forecast. We believe the rise in macro uncertainty, along with pre-existing issues (arbitrage, loan sourcing, tepid demand for equity) will constrain supply. We maintain our YE forecast of $35-45bn gross and $20bn net, which would only call for about $10-20bn more in CLO new issues in the next ~6 months as the YTD total is $25.7bn on 61 deals. We lower our European CLO supply forecast from €15bn to €10bn as we expect volatility and uncertainty around the future state of European regulation to potentially slow down new issue. As a parallel, our European ABS strategists also lowered their FY 2016 supply forecast from €85bn to €60bn.

**Issuing CLO mangers**

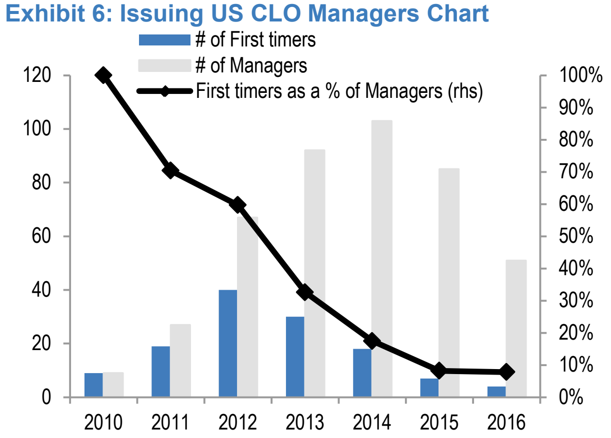
The US CLO market in 2016 consists of 51 managers that priced 61 deals, significantly down from last year's 85 managers that priced 191 deals for $99bn. In Exhibit 6, we analyze how many managers first entered or re-entered the CLO market after 2009. From 2010-2016, a total of 127 managers priced their first post-crisis deal with 75 (60%) that had at least one pre-crisis deal. This year, four managers entered the CLO market for the first time ever. This compares to last year, when 6 managers entered the 2.0 CLO market for the first time and 1 manager returned after pricing a 1.0 deal. The percent of first time post-crisis managers has been trending down year over year since 2010 and is currently at 8% of 2016 managers. We acknowledge that consolidation over time makes this analysis challenging, but the point is as the

**Exhibit 5: Global CLO Supply trend**

| | | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|---|---|
| US New Issuance ($bn) | | | | | | | | |
| | 1H | 1.59 | 6.69 | 18.50 | 45.47 | 60.97 | 60.38 | 25.72 |
| | FY | 3.89 | 13.58 | 55.71 | 86.08 | 124.10 | 99.07 | 40.00* |
| Euro New Issuance (€bn) | | | | | | | | |
| | 1H | | | | 2.39 | 6.92 | 7.56 | 7.21 |
| | FY | 1.41 | | | 7.77 | 14.49 | 13.56 | 10.00* |
| US Refinance/Repricing ($bn) | | | | | | | | |
| | 1H | - | - | - | 1.20 | 2.61 | 7.94 | 0.55 |
| | FY | - | - | - | 1.20 | 7.35 | 10.11 | |
| Euro Refinance/Repricing (€bn) | | | | | | | | |
| | 1H | - | - | - | - | - | - | - |
| | FY | - | - | - | - | - | 0.31 | |

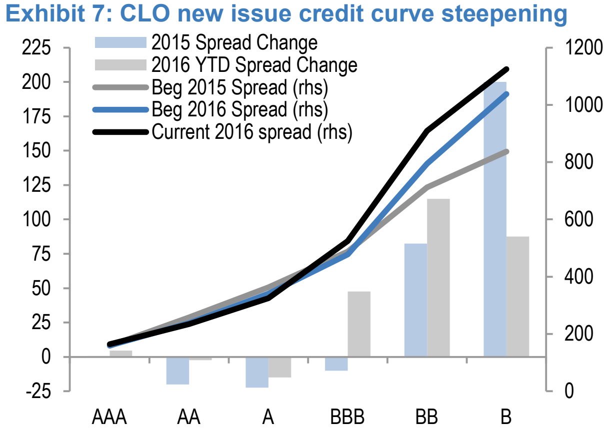
Source: J.P. Morgan. 2016 1H is to June 24, 2016.

**Exhibit 6: Issuing US CLO Managers Chart**




Source: J.P. Morgan

**Exhibit 7: CLO new issue credit curve steepening**




Source: J.P. Morgan



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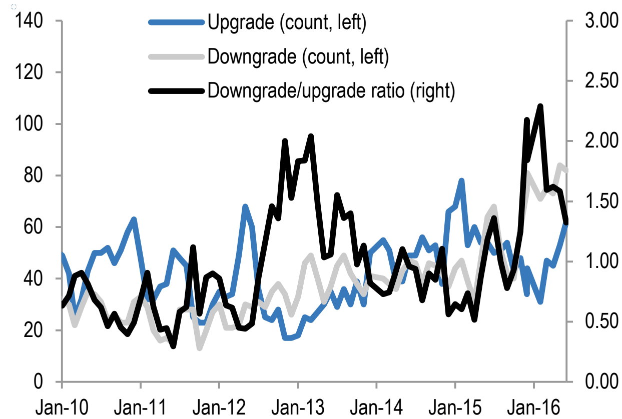
market has peaked and risk retention looms, fewer and fewer first-time managers are entering the space.

**Tepid demand for lower mezz & equity**
Up until the Brexit, demand continues to be steady in IG-rated US CLO tranches, which rallied 30-120bp over the past 4 months buoyed by consistent real money demand. As we noted last week, US Banks increased their total exposure to CLOs by $3bn in 16Q1. Where we continue to see more tepid demand is in lower mezz to equity. For example, single-Bs, which first started appearing in new issue in 2013, are largely absent in new deals today. By our tally, only 4 of the 61 (7%) US CLOs that priced this year include Single-B versus 49% of deals in 2013. As we called for in our CLO outlook, the credit curve has steepened across the CLO capital structure (Exhibit 7), a dynamic we believe should persist as we move further along the economic expansion and we continue to see an uptick in defaults/downgrades.

## Fundamentals

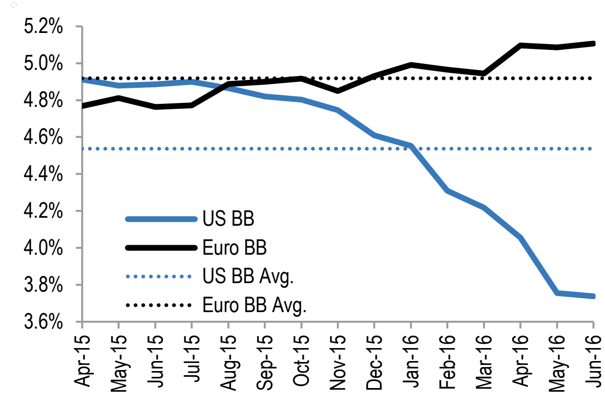
US leveraged loan fundamentals deteriorated in the 1st half of the year. Default rates by issuer count (our preferred default metric for CLOs given obligor concentration limits) of 2.46% in May 2016 are the highest they've been since December 2010. YTD we've seen 16 loan issuer defaults for $8.6bn, of which 10 for $5.8bn have come within the Energy and Mining Sectors. LTM loan recovery rates of $44.98 have been much lower than the historical 18-year average of $67. The Energy and Metals/Mining (Coal) sectors have had an impact (Energy recovery is 35% and Metals is 44%). The

**Exhibit 8: Rolling 3m leveraged loan rating migration**




Source: S&P LCD, J.P. Morgan

**Exhibit 9: Par Sub OC trend**




Source: J.P. Morgan. Based on a sample of 514 US and 58 EUR CLOs.

**Exhibit 10: Price stratifications of US leveraged loans by sector**

| | $50>X | $50≤X<$60 | $60≤X<$70 | $70≤X<$80 | $80≤X<$90 | $90≤X<$100 | $100≤X |
|---|---|---|---|---|---|---|---|
| AUTOMOTIVE | 2.7% | 0.0% | 2.7% | 2.7% | 5.4% | 70.3% | 16.2% |
| BROADCASTING | 0.0% | 0.0% | 0.0% | 9.7% | 6.5% | 71.0% | 12.9% |
| CABLE AND SATELLITE | 0.0% | 0.0% | 0.0% | 0.0% | 2.5% | 87.5% | 10.0% |
| CHEMICALS | 0.0% | 0.0% | 1.2% | 0.0% | 2.5% | 81.5% | 14.8% |
| CONSUMER PRODUCTS | 6.2% | 3.1% | 1.5% | 6.2% | 9.2% | 61.5% | 12.3% |
| DIVERSIFIED MEDIA | 9.3% | 0.0% | 4.7% | 2.3% | 8.1% | 69.8% | 5.8% |
| ENERGY | 20.2% | 15.8% | 10.5% | 6.1% | 18.4% | 23.7% | 5.3% |
| FINANCIAL | 4.3% | 0.0% | 0.0% | 3.3% | 3.3% | 77.2% | 12.0% |
| FOOD AND BEVERAGES | 0.0% | 0.0% | 0.0% | 2.6% | 6.6% | 75.0% | 15.8% |
| GAMING LODGING AND LEISURE | 1.9% | 0.9% | 0.9% | 0.9% | 0.9% | 75.5% | 18.9% |
| HEALTHCARE | 0.5% | 1.1% | 0.0% | 4.8% | 4.8% | 76.5% | 12.3% |
| HOUSING | 4.7% | 0.0% | 0.0% | 0.0% | 0.0% | 81.4% | 14.0% |
| INDUSTRIALS | 3.1% | 0.0% | 2.4% | 3.9% | 11.0% | 74.0% | 5.5% |
| METALS AND MINING | 21.2% | 3.0% | 0.0% | 9.1% | 18.2% | 48.5% | 0.0% |
| PAPER AND PACKAGING | 2.0% | 0.0% | 2.0% | 0.0% | 7.8% | 82.4% | 5.9% |
| RETAIL | 5.5% | 4.4% | 0.0% | 6.6% | 13.2% | 57.1% | 13.2% |
| SERVICES | 2.4% | 0.8% | 1.6% | 3.7% | 9.8% | 70.2% | 11.4% |
| TECHNOLOGY | 1.0% | 0.0% | 1.0% | 3.0% | 8.5% | 72.4% | 14.1% |
| TELECOMMUNICATIONS | 0.0% | 0.0% | 2.2% | 6.7% | 4.4% | 75.6% | 11.1% |
| TRANSPORTATION | 2.6% | 0.0% | 2.6% | 2.6% | 12.8% | 76.9% | 2.6% |
| UTILITY | 10.2% | 0.0% | 0.0% | 5.1% | 13.6% | 67.8% | 3.4% |
| Total | 4.2% | 1.6% | 1.7% | 3.7% | 8.2% | 69.6% | 11.0% |

Source: J.P. Morgan



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reason for the low recovery is that there have not been many defaults outside of the scope of the two commodity sectors and a few low recoveries (Sports Authority 12.5% and NewPage 24.5%) have dragged down the average significantly.

We estimate that 74% of 661 Post-Crisis US CLOs currently carry defaulted assets, and a total cumulative defaulted balance of $2.7bn. The total default percentage on a par-weighted basis is 0.85% in our sample. Within the 74% of deals that carry defaulted assets, the average par-weighted default rate is 1.12%. By vintage, the 2015 vintage has best avoided defaults with 55% of our vintage sample with defaulted assets. The 2012 and 2013 vintages carry the highest default exposure with an average of 1.07% and 1.08% of total defaults on a par-weighted basis.

As we've noted in the past, apart from a material pickup in defaults, an increase in CCC-rated assets increases the risk of cashflow diversion in CLOs. Within US CLOs, we estimate the average Moody's Caa1 or less exposure in 588 deals is 5.07%, while the S&P CCC or less exposure in 541 deals is 3.96%. Interestingly, we find that Moody's CCC buckets are generally higher than S&P's. The 2012 vintage, on average, carries the highest exposure to Caa1 or less assets at 6.39%, and the 2014 vintage carries the highest exposure to CCC or less rated assets at 4.55%.

**Par OCs**

To consider cashflow performance in a deteriorating credit environment, we update our historical monthly Par OC Cushions beginning in April 2015 (Exhibit 9). In focus are US CLO BB and Euro CLO BB, where the divergence has widened out to 1.4% this month. US CLO AA and BB OC cushions currently average 9.2% and 3.7%, which have been consistently trending down since April 2015, when the averages were 10.6% and 4.9%, respectively. The opposite is true in Europe, where CLO AA and BB OC Cushions average 10.0% and 5.1% in June 2016, an increase from averages of 9.6% and 4.8% in April of last year. US CLO BB from the 2015 vintage have remained range-bound between 4.6% and 4.3% since April 2015 whereas the 2012/2013/2014 vintages have each declined by ~1.1% over the last year. As it stands, we estimate that currently four US CLOs are failing their Par OC tests, and eleven US CLOs are failing their reinvestment OC tests.

**CLO liability rating trends**

This year, we've begun to see a handful of Post-Crisis CLO tranche ratings downgrades (Exhibit 11) for the first time in the current cycle. By our count, 17 tranches from 7 deals have been downgraded by either S&P or Moody's. At the moment, the downgraded subset is limited to a small percent of deals with outsized exposure to distressed/defaulted credits. In addition, six out of the seven deals that have been downgraded are experiencing a failure of either par OC or reinvestment OC tests. We

**Exhibit 11: Downgraded CLO 2.0 tranches by Moody's and S&P in 2016**

| Deal Name | Vintage | CLASS | Original Rating | Date of CW NEG | Downgrade Date | S&P Rating as of June 2016 | Moodys Rating as of June 2016 |
|---|---|---|---|---|---|---|---|
| ECP CLO 2013-5, Ltd. | 2013 | E | B | 12/23/2015 | 1/28/2016 | B- | - |
| ICE Global Credit CLO Ltd. | 2012 | D | BBB | 1/25/2016 | 4/22/2016 | BB+ | - |
| ICE Global Credit CLO Ltd. | 2012 | E | BB | 1/25/2016 | 4/22/2016 | B+ | - |
| Mountain Hawk II CLO, Ltd. | 2013 | D | BBB | 2/10/2016 | 5/9/2016 | BBB- | - |
| Mountain Hawk II CLO, Ltd. | 2013 | E | BB | 2/10/2016 | 5/9/2016 | B | - |
| Mountain Hawk I CLO Ltd | 2013 | E | BB | 4/1/2016 | 5/9/2016 | BB- | - |
| ICE 3: Global Credit CLO Limited | 2013 | D | BBB | 4/5/2016 | 4/22/2016 | BB+ | - |
| ICE 3: Global Credit CLO Limited | 2013 | E | BB | 4/5/2016 | 4/22/2016 | B+ | - |
| Silver Spring CLO Ltd. | 2014 | C-1 | A2 | | 2/22/2016 | - | A3 |
| Silver Spring CLO Ltd. | 2014 | C-2 | A2 | | 2/22/2016 | - | A3 |
| Silver Spring CLO Ltd. | 2014 | D | Baa3 | | 2/22/2016 | - | Ba1 |
| Silver Spring CLO Ltd. | 2014 | E | Ba3 | | 2/22/2016 | - | B1 |
| Silver Spring CLO Ltd. | 2014 | F | B2 | | 2/22/2016 | - | Caa1 |
| Silvermore CLO Ltd. | 2014 | B | A2 | | 2/22/2016 | - | A3 |
| Silvermore CLO Ltd. | 2014 | C | Baa3 | | 2/22/2016 | - | Ba1 |
| Silvermore CLO Ltd. | 2014 | D | Ba3 | | 2/22/2016 | - | B2 |
| Silvermore CLO Ltd. | 2014 | E | B2 | | 2/22/2016 | - | Caa2 |

Source: S&P, Moody's, J.P. Morgan



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note that no tranche originally rated above single-A has yet to be downgraded.

**Price stratifications by sector**

To start the year, the Energy & Mining loan sectors garnered most of the headlines. However, in the second quarter of 2016, these two sectors outperformed returning 25% and 28% since February 11th. These two sectors still have the highest percentages of loans trading below $50 (20.2% for Energy and 21.2% for Metals and Mining) and still have the most default risk priced in. Apart from these two sectors, the Consumer Products (16.9%), Retail (16.5%), and Diversified Media (16.3%) sectors have the highest percent of loans trading below $80. In our 16Q2 survey (see here), investors felt the Retail sector was the most concerning US credit sector apart from Energy and Metals & Mining.

## Relative Value

At time of writing the UK voted to leave the EU, triggering risk-off moves. The weekly change in spreads across the CLO capital structure in the US ranges 10-45bp at the senior end to 40-65bp at the subordinate end and in Europe, 28-65bp and 85-200bp, respectively. However, with only one day of trading after the vote, and a less liquid CLO market relative to other asset classes, we expect the initial negative price impacts of the Brexit vote to continue to be felt in the very near term. In the interim, we expect near term illiquidity and a higher percentage of DNTs on BWIC compared to the 19% of DNTs on BWIC we saw in May.

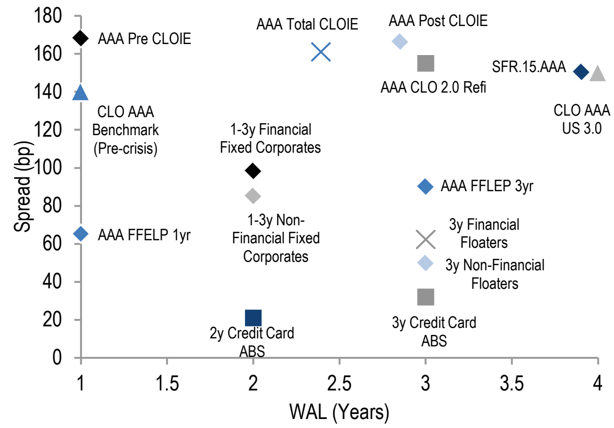
While we think the fundamental impact to the CLO market will mostly be contained, pointing to the limited direct UK exposure, there is still a trend of credit metric deterioration in the US CLO market, and now of course, uncertainty in Europe. We turn tactically Neutral mezzanine to subordinate European CLO tranches, and would buy once there is some stability. While we remain Overweight Seniors globally, we see spreads resetting wider in the near-term as macro uncertainty rises.

## Trading themes

**Buy short-duration US/EUR CLO 2.0s in the initial risk-off**

- Short duration CLO 2.0s will offer less mark to market volatility with decent carry and minimal spread give-up to longer duration counterparts.

**Exhibit 12: Senior CLO spreads versus other asset classes, by WAL**




Source: J.P. Morgan

**Exhibit 13: 1Y total return performance**

| Asset | Annualized Return | Annualized Volatility | Modified Sharpe Ratio |
|---|---|---|---|
| Fixed Income | | | |
| 5-year Treasury | 3.87% | 2.75% | 1.41 |
| 10-year Treasury | 7.58% | 4.14% | 1.83 |
| JPMorgan MBS Bond Index | 3.87% | 1.38% | 2.80 |
| Investment grade bonds | 6.77% | 2.98% | 2.27 |
| AAA-Rated bonds | -0.19% | 1.33% | -0.14 |
| AA-Rated bonds | -0.26% | 1.38% | -0.19 |
| A-Rated bonds | 0.18% | 2.23% | 0.08 |
| JPMorgan EMBI | 8.17% | 5.91% | 1.38 |
| JPM HY bond index | 1.01% | 8.86% | 0.11 |
| BB-rated HY bonds | 2.37% | 6.83% | 0.35 |
| B-rated HY bonds | -1.72% | 7.98% | -0.21 |
| CCC-rated HY bonds | -1.62% | 16.89% | -0.10 |
| Leveraged loans | 1.94% | 3.89% | 0.50 |
| BB-rated loans | 3.05% | 2.64% | 1.15 |
| B-rated loans | 1.51% | 4.55% | 0.33 |
| CCC-rated loans | -11.78% | 18.30% | -0.64 |
| Post-Crisis CLOIE Total | 0.60% | 3.24% | 0.18 |
| CLO AAA* | 1.54% | 1.44% | 1.07 |
| CLO AA* | 1.24% | 3.23% | 0.38 |
| CLO A* | 1.62% | 5.30% | 0.31 |
| CLO BBB* | -2.31% | 10.60% | -0.22 |
| CLO BB* | -8.31% | 19.43% | -0.43 |
| CLO B* | -19.69% | 23.80% | -0.83 |
| JP Morgan ABS Auto | 1.71% | 0.66% | 2.60 |
| JP Morgan ABS Card | 1.67% | 0.70% | 2.38 |
| JP Morgan ABS FFELP | -1.24% | 2.10% | -0.59 |
| JP Morgan ABS PCSL | -0.01% | 1.37% | -0.01 |
| Other | | | |
| Gold | 8.42% | 18.52% | 0.45 |
| S&P 500 | 3.45% | 14.52% | 0.24 |
| Russell 2000 | -6.67% | 17.43% | -0.38 |

Source: J.P. Morgan. As of June 21, 2016.



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**Buy senior US CLOs (AAA to A) at wider spreads**

- Senior US CLO bonds should continue to benefit from a real-money bid. Although we expect near term weakness across the capital structure, senior US CLOs are more insulated to developments in the UK and Europe.

**Hold European 2.0 mezz and equity, for now**

- In the near term, we expect continued risk-off sentiment in Europe, and there are longer-term fundamental uncertainties. Counterbalancing this are expectations of more favorable accommodative-monetary policy from the ECB and BOE. We turn tactically Neutral and will re-appraise valuations when the dust settles.



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## Exhibit 14: CLOIE total returns and discount margin

| | Total Returns (%) | | | | Discount Margin (bp) | | | |
|---|---|---|---|---|---|---|---|---|
| | MTD | QTD | YTD2016 | YTD2015 | Current | 1m Change | YTD Change | 1yr Change |
| **Total CLOIE** | | | | | | | | |
| Total | 0.38% | 1.98% | 1.82% | 2.02% | 306 | 7 | 17 | 59 |
| AAA | 0.33% | 1.19% | 1.61% | 1.14% | 161 | -5 | -14 | 11 |
| AA | 0.20% | 2.12% | 2.30% | 2.72% | 247 | -0 | -15 | 48 |
| A | 0.55% | 3.50% | 2.42% | 3.32% | 350 | -15 | -2 | 68 |
| BBB | 0.39% | 5.46% | 2.25% | 4.36% | 537 | 1 | 12 | 152 |
| BB | 0.92% | 5.56% | 3.00% | 6.57% | 905 | -6 | 25 | 303 |
| B | 3.44% | 6.30% | -4.94% | 7.19% | 1,373 | -56 | 195 | 589 |
| **Pre-Crisis CLOIE** | | | | | | | | |
| Total | 0.26% | 1.15% | 1.14% | 0.75% | 311 | 1 | 49 | 115 |
| AAA | 0.16% | 0.75% | 1.07% | 0.31% | 168 | -2 | 11 | 46 |
| AA | 0.27% | 1.19% | 1.33% | 0.76% | 224 | -2 | 15 | 72 |
| A | 0.32% | 1.39% | 1.28% | 1.20% | 289 | -1 | 29 | 98 |
| BBB | 0.31% | 1.76% | 1.01% | 2.52% | 411 | 9 | 61 | 128 |
| BB | 0.77% | 2.70% | 0.58% | 2.30% | 692 | -1 | 117 | 193 |
| **Post-Crisis CLOIE** | | | | | | | | |
| Total | 0.40% | 2.10% | 1.89% | 2.41% | 306 | 7 | 15 | 52 |
| AAA | 0.34% | 1.23% | 1.66% | 1.38% | 161 | -5 | -15 | 8 |
| AA | 0.19% | 2.29% | 2.47% | 3.37% | 248 | -0 | -18 | 39 |
| A | 0.60% | 4.01% | 2.66% | 4.22% | 357 | -16 | -6 | 51 |
| BBB | 0.41% | 6.46% | 2.52% | 5.18% | 550 | -1 | -0 | 141 |
| BB | 0.94% | 6.13% | 3.39% | 7.90% | 923 | -10 | 8 | 306 |
| B | 3.52% | 6.42% | -5.22% | 7.27% | 1,373 | -56 | 196 | 589 |

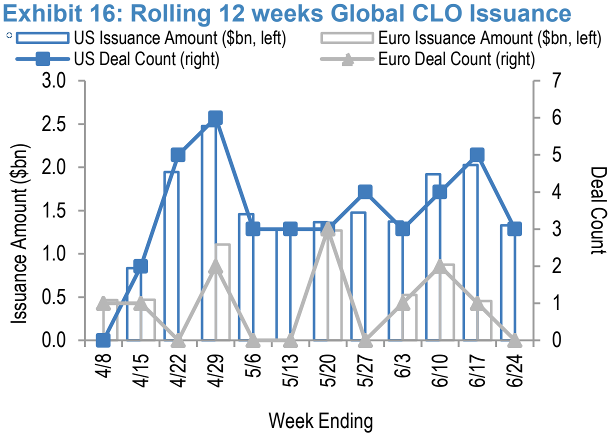
Source: J.P. Morgan

## Exhibit 15: CLO annual issuance totals

| | | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | YTD15 | YTD16 |
|---|---|---|---|---|---|---|---|---|---|
| US Issuance ($bn) | Total | 3.89 | 13.58 | 55.71 | 87.28 | 131.46 | 109.17 | 64.42 | 26.27 |
| | New | 3.89 | 13.58 | 55.71 | 86.08 | 124.10 | 99.07 | 56.48 | 25.72 |
| | Refinance/Repricing | 0.00 | 0.00 | 0.00 | 1.20 | 7.35 | 10.11 | 7.94 | 0.55 |
| Euro Issuance (€bn) | Total | 1.41 | 0.00 | 0.00 | 7.77 | 14.49 | 13.86 | 7.14 | 7.21 |
| | New | 1.41 | 0.00 | 0.00 | 7.77 | 14.49 | 13.56 | 7.14 | 7.21 |
| | Refinance/Repricing | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.31 | 0.00 | 0.00 |
| Global Issuance ($bn) | Total | 5.69 | 13.58 | 55.71 | 97.61 | 150.57 | 124.53 | 72.40 | 34.41 |
| | New | 5.69 | 13.58 | 55.71 | 96.42 | 143.21 | 114.07 | 64.45 | 33.86 |
| | Refinance/Repricing | 0.00 | 0.00 | 0.00 | 1.20 | 7.35 | 10.45 | 7.94 | 0.55 |

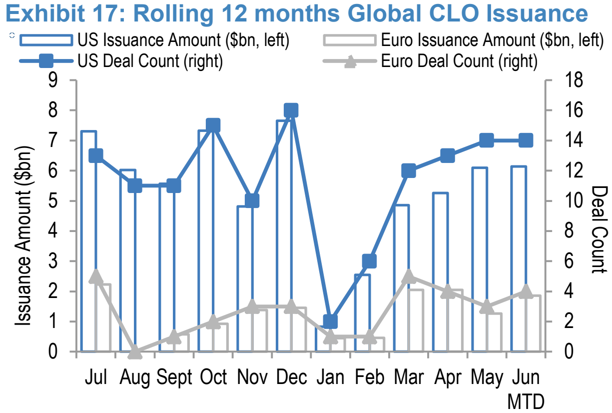
Source: J.P. Morgan

## Exhibit 16: Rolling 12 weeks Global CLO Issuance




Source: J.P. Morgan. Data excludes refinanced and repriced CLOs.

## Exhibit 17: Rolling 12 months Global CLO Issuance




Source: J.P. Morgan. Data excludes refinanced and repriced CLOs.

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