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MORTGAGE STRATEGY MONTHLY | 2020 OUTLOOK

Three Main Topics p. 2

1. Brief Recap of 2019
2. Supply/Demand Dynamics
3. Index Valuations Provide Guidance

– Walt Schmidt

Prepayment Highlights p. 21

Prepayments increased significantly during the second half of 2019 following the sharp rally in the rates markets as $2.4 trillion UPB in 30yr MBS and $276 billion UPB in 15yr MBS moved into-the-money. In 2020, the prepayment landscape will be dominated by many of the same issues that affected speeds in the second half of 2019. Faster speeds, steeper S-curves, and accelerated WALA ramps are the new normal. Estimating burnout in 2018 production will be a focus for 2020 valuations. Prepayment uncertainty in TBA will likely keep payups elevated for specified pools. We will examine the prepayment drivers in TBA collateral and identify value in specific loan characteristics. – Alexis Vilimas

Market Update p. 38

Month-to-date, conventional 30yr outperformed UST hedges but underperformed on the upper wing, 15yr production coupon MBS outperformed UST with an exception of 4.0s which underperformed. Conventional 30yr has outperformed their swap hedge ratios but underperformed on the upper wing, while 15yr has outperformed swaps with the exception of 4.0s which underperformed. 2-4yr CMO spreads are 3bps tighter since December. Hybrid spreads are 2bps tighter. The payups for loan balance specified pools 3.0s-5.0s increased by 2-4 ticks since the end of last month. 100% NY specified pools payups for 3.0s-4.5s increased by as much as 4/32. Fixed-rate prepayment speeds slightly increased in December by 1.3%. Winter seasonals and a slightly higher driving rate were offset by a higher day count of two business days, which paved the way for a benign prepayment report. – Dylan White

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Three Topics:

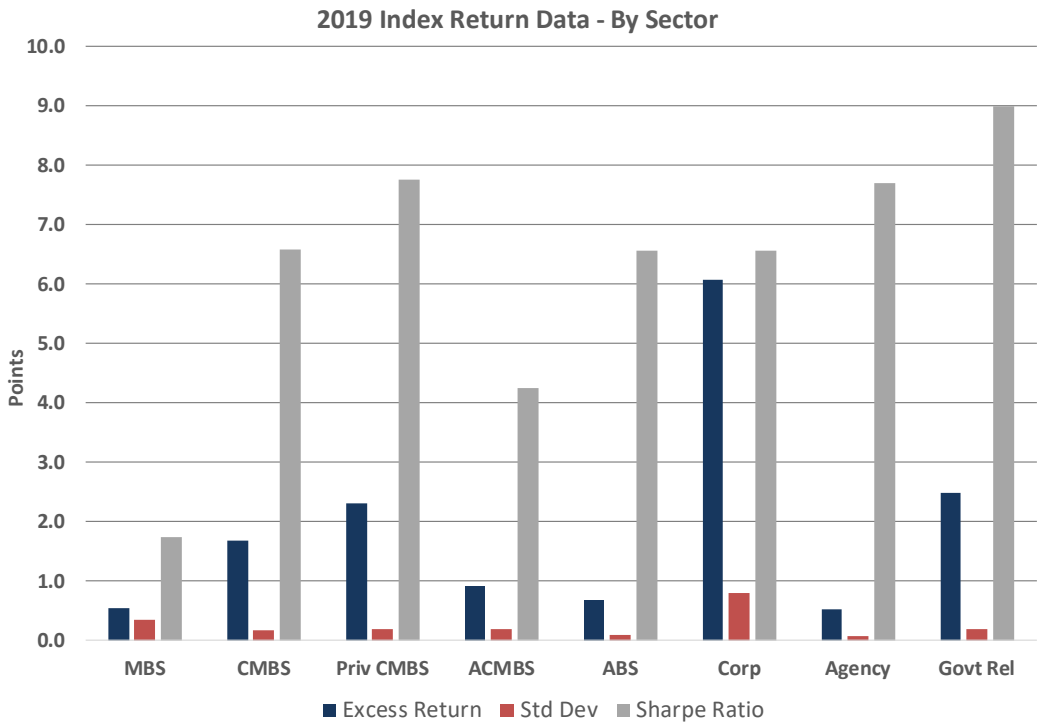
1. **Brief Recap of 2019**
2. **Supply/Demand Dynamics**
3. **Index Valuations Provide Guidance**

Brief Recap of 2019

Mortgages outperformed Treasuries in 2019, and not much else. Of all of the taxable fixed income subsectors in the US Bloomberg Aggregate Index, only the Agency sector failed to keep pace with MBS, and that differential was a de-minimus two basis points.

Figure 1: A Positive Year for Spread Product in 2019

MBS did fine in 2019, just not as well as other spread sectors.



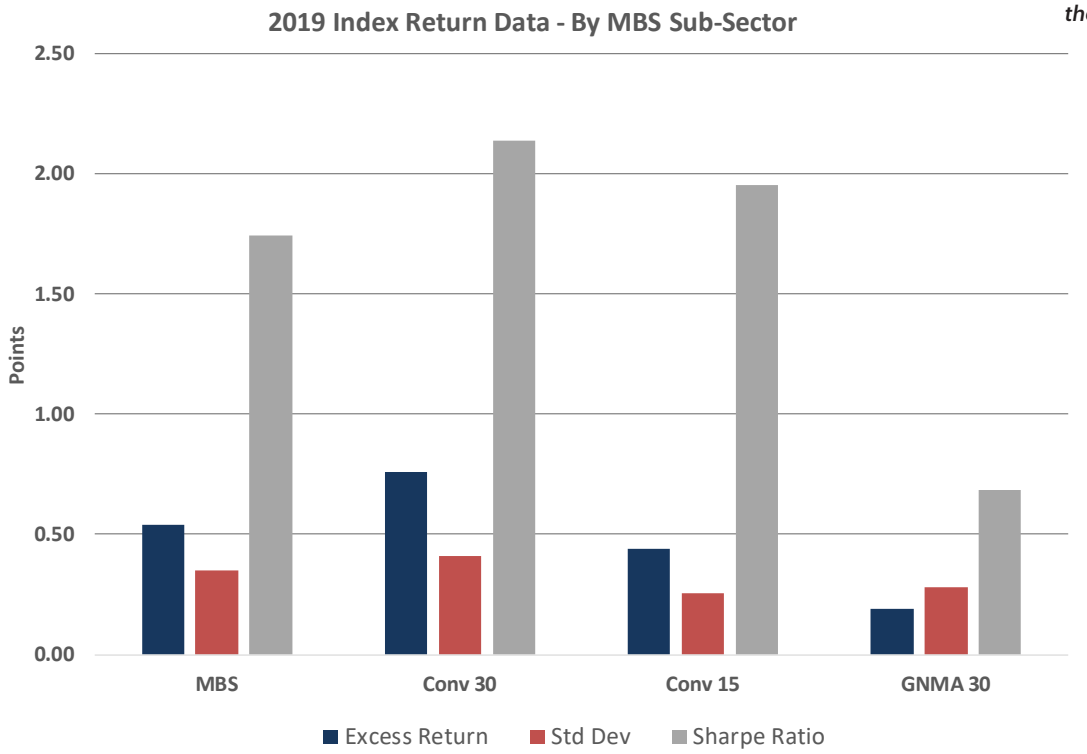
Source: FHN Financial and Bloomberg

The excess return performance in 2019 was especially strong for corporates in cumulative, but government-related, private label CMBS and Agency sectors had the highest Sharpe ratios when judged on a monthly cumulative basis. Mortgages beat Treasuries, but little else.

Within the MBS sector, the clear winner was the conventional 30yr sector. Thanks to a decent fourth quarter, and especially in December, the 30yr Ginnie sector managed to remain positive for the year, but not by much. The 15yr sector lagged 30yr conventionals considerably in nominal terms, but the Sharpe ratios were very close. Like an offensive lineman who gets very little glory, the 15yr sector simply did its job in terms of performance.

Figure 2: Sliding Scale of Performance Among 30yr, 15yr and Ginnie

30yr conventionals led the way for the sector.

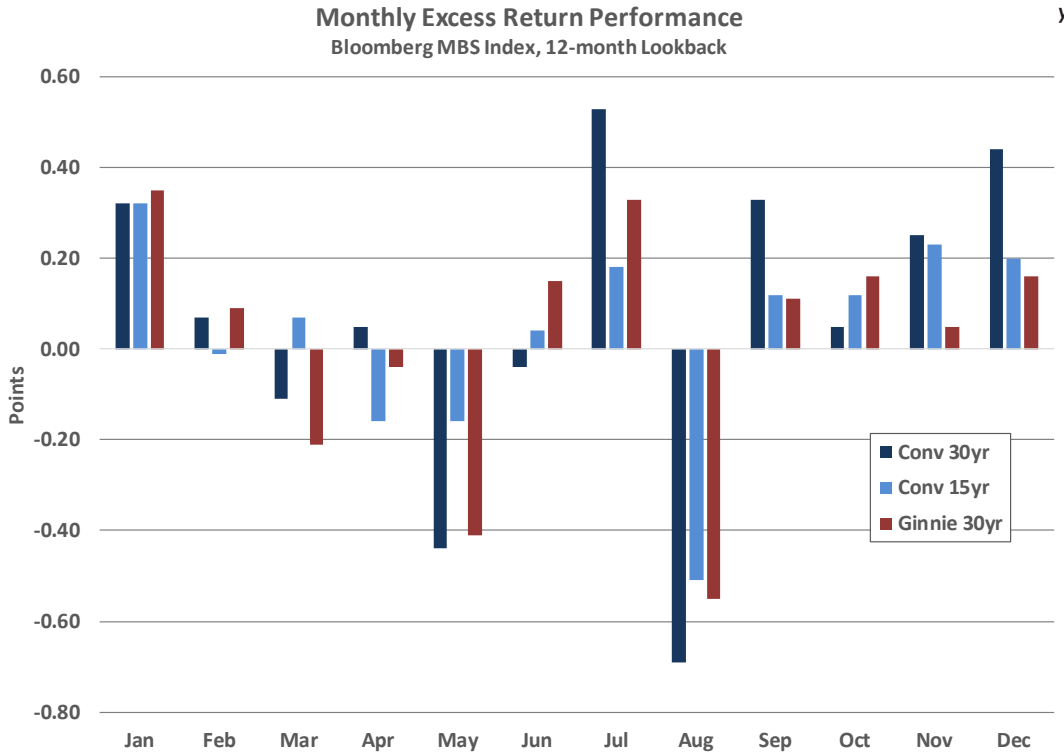


Source: FHN Financial and Bloomberg

The monthly history of performance in 2019 is also useful. The January effect was real, but so was the swoon in both May and especially August when prepayments surprised to the upside. The entire sector was in danger of posting a negative year in terms of excess return performance before hitting a good stride in September and throughout 4Q19.

Figure 3: Fourth Quarter Recovery Essential for the MBS Basis

Good 4Q19 offset mid-year volatility.

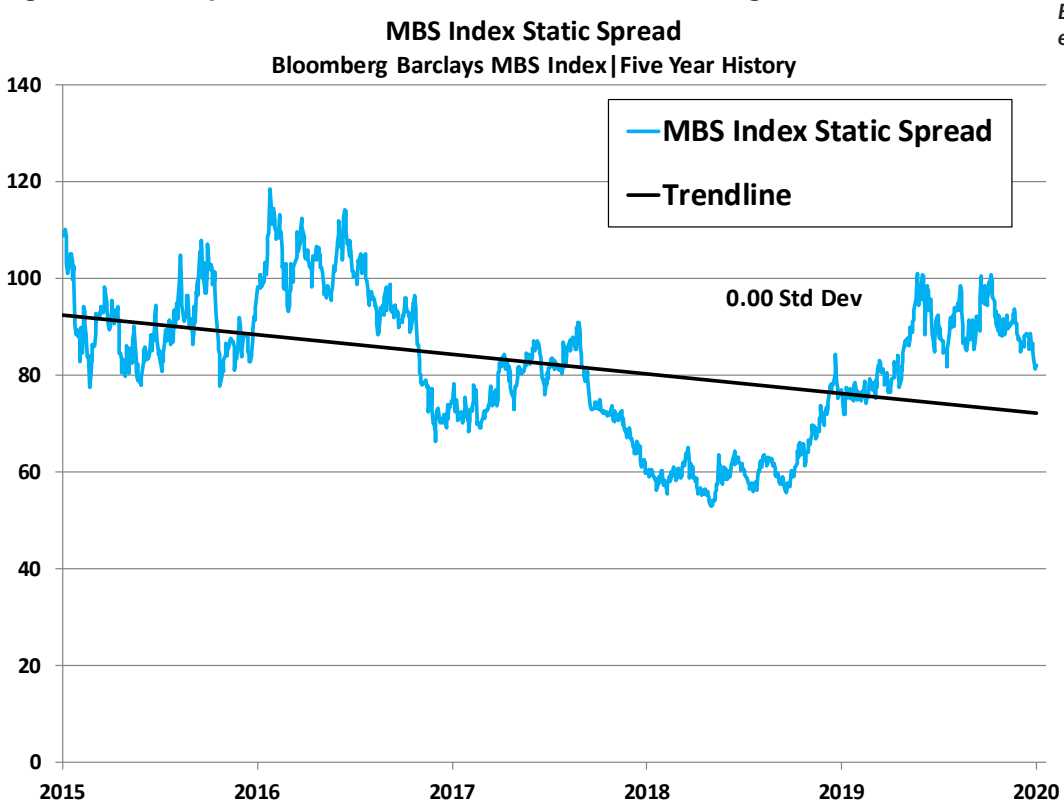


Source: FHN Financial and Bloomberg

With 2019 in the rear view, the focus shifts to 2020. The main takeaway regarding current MBS valuations is that they are neither expensive nor cheap. In fact, that is exactly the takeaway from observing the static spread of the MBS index relative to Treasuries: they are exactly on top of the five-year average.

Figure 4: Static Spreads Wider Than Trend, At Five-Year Average

Base static spreads exactly "fair".

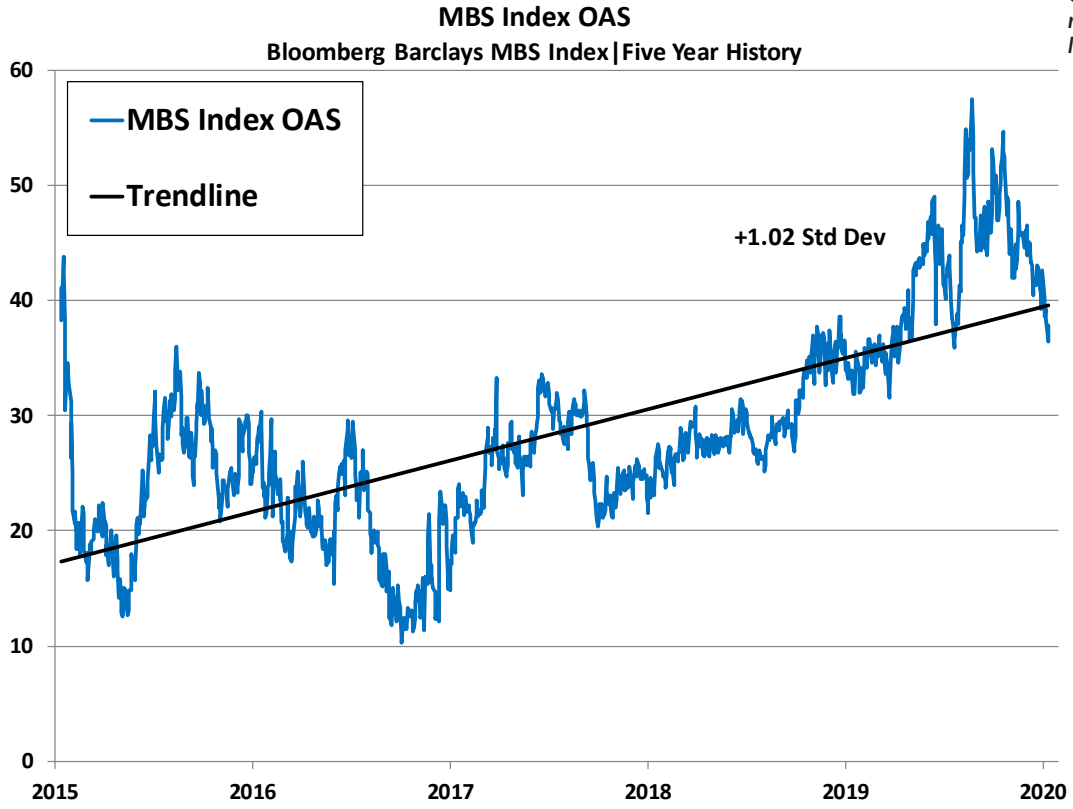


Source: FHN Financial and Bloomberg

For comparison purposes, many investment managers utilize OAS as the main measure of spread, and that is currently more generous on a five-year lookback period. The main reason for this is low implied volatility that is currently 1/3 of a standard deviation below the five-year average.

Figure 5: MBS OAS Through Trend, but Still One Standard Deviation Wide

OAS levels still wide, room to run if vol stays low.

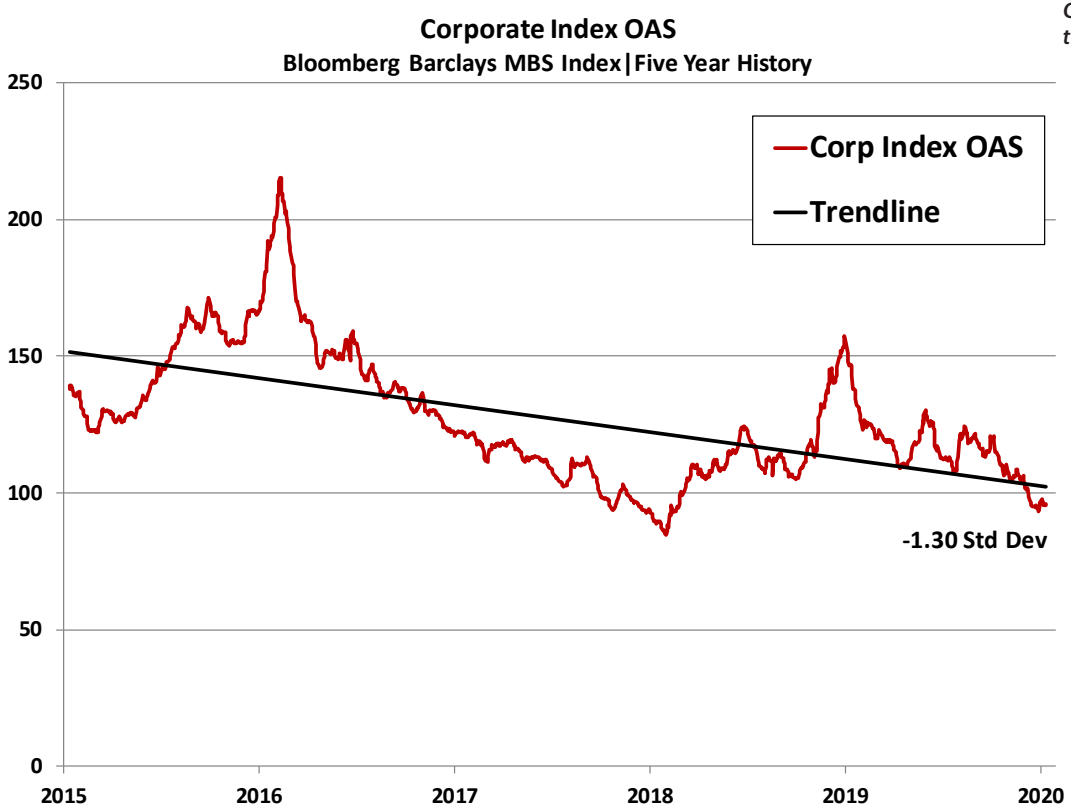


Source: FHN Financial and Bloomberg

The main large sector comparison for MBS is corporate credit. To be sure, corporates had a banner 2019 in terms of both excess return and Sharpe ratio. Furthermore, corporate OAS/spreads are "always" wider than MBS OAS levels due to the inherent credit component. However, it is interesting to note that, relative to their own five-year history, spreads in the corporate credit market are neither "cheap" nor "fair".

Figure 6: Corporate Credit OAS Levels Stand Very Close to Tightest Levels in Five Years

Corporate OAS levels through fair.



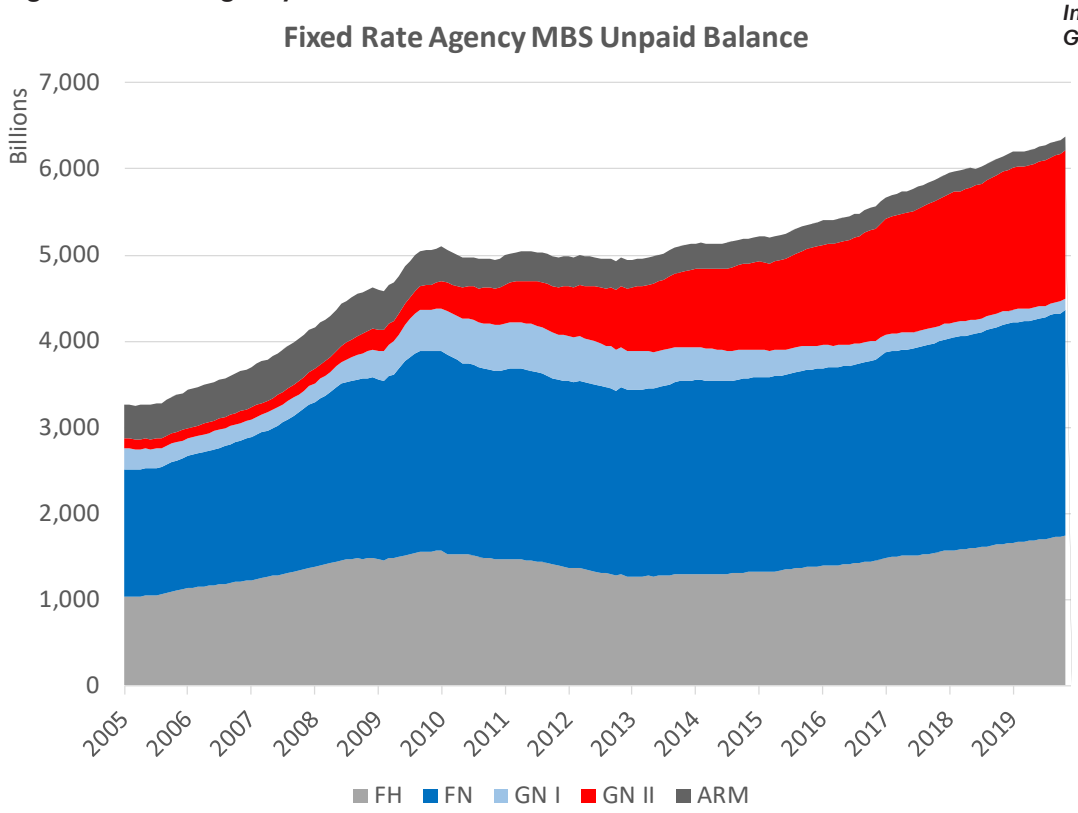
Source: FHN Financial and Bloomberg

Supply/Demand Dynamics

The supply side of the equation for the agency MBS market is much better-defined, so we begin there. The first view is simply the unpaid balance of the Agency 1-4 family MBS market going back to 2005 on a monthly basis broken out by major sector.

Figure 7: Size of Agency MBS Market Has Doubled Since 2005

Impressive growth in Ginnie since crisis.

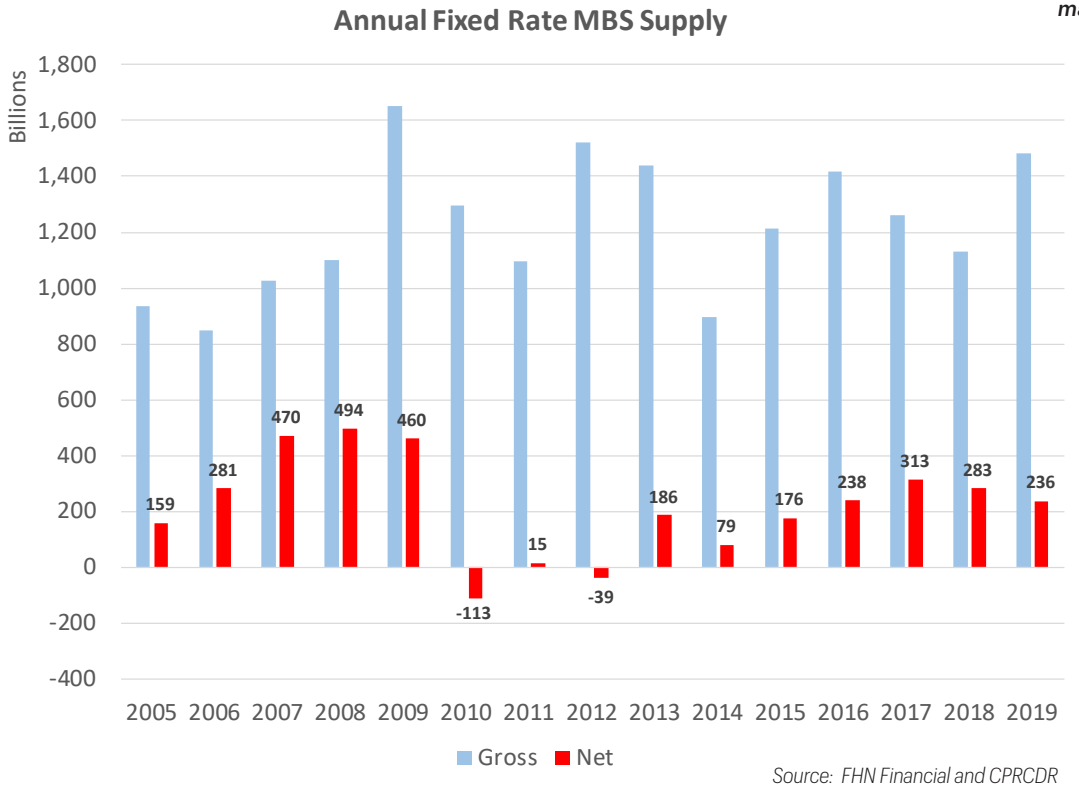


Source: FHN Financial and CPRCDR

Most of the growth in the MBS market since the crisis has taken place in the Ginnie II sector as the FHA and VA origination channels have become the lenders for the less-than-prime segment of the market. Most investors want to know what the supply picture looks like on an annual basis, especially at this point in the year. The rolled up monthly issuance of gross and net MBS supply into annual buckets is displayed below.

Figure 8: Annual Net Supply Continues on a Downtrend, for Now

Annual net supply marginally lower in 2019.

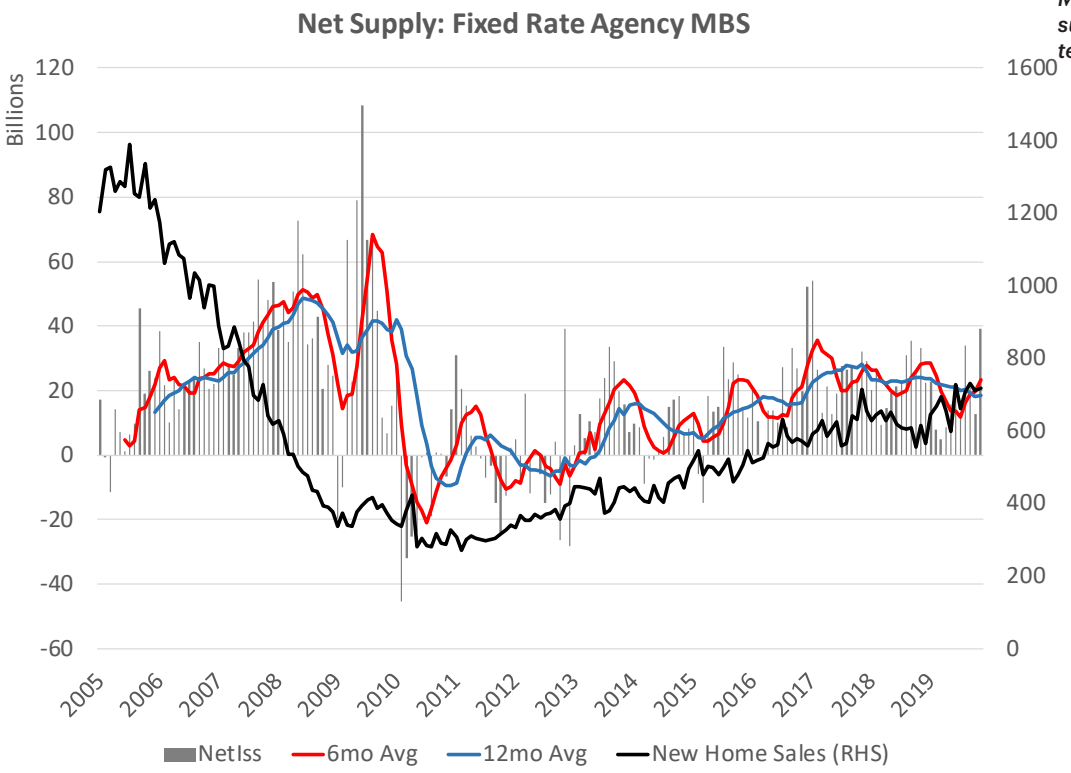


Source: FHN Financial and CPRCDR

Annual supply ratcheted lower during the past two years and was almost identical in 2019 to what it was in 2016. There are many factors that play into net supply, and one of the most telling we have found is New Home Sales. To be more precise, the moving average monthly supply is well-informed by new home sales. The month-to-month prints can be too volatile to be useful.

Figure 9: New Home Sales Just "Crossed Over" Supply Averages to the Upside

Making sense of net supply over the long term.

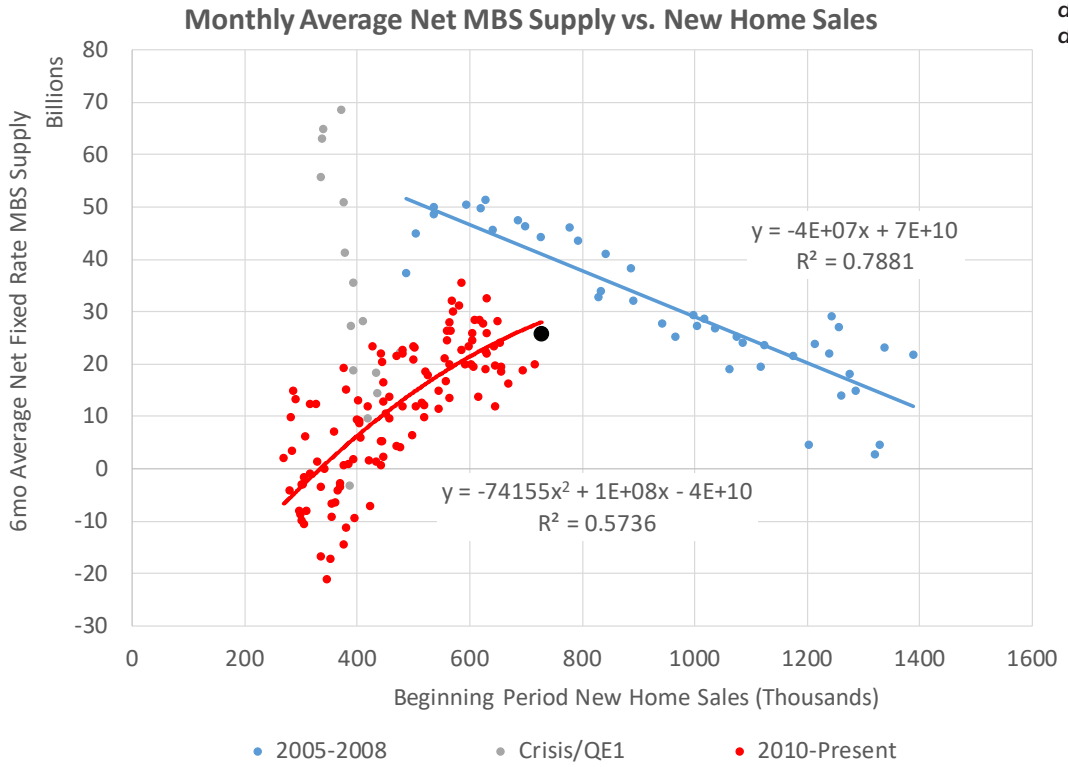


Source: FHN Financial, CPRCDR, and Bloomberg

Relative to the two y-axis scales of this chart, the new home sales time series is starting to "cross over" the average monthly supply series. That could be a harbinger of more supply ahead. But that takeaway is based on the view that new home sales and supply are positively correlated. A closer view of these data reveal three different phases: a pre-crisis inverse relationship, a crisis-era lack of relationship and a post-crisis positive relationship. This is highlighted even more clearly below.

Figure 10: Three Phases of New Home Sales' Influence on Net MBS Supply

Pre- and post-crisis differences in supply drivers.



Source: FHN Financial, CPRCDR, and Bloomberg

This scatter-plot charts the new home sales print on the x-axis vs. the future six-month average of the monthly net MBS supply on the y-axis. The results for the crisis period in grey make sense. After all, it was a crisis and the Fed was launching a then-unheard-of effort to buy and finance a litany of private market assets, including agency MBS. The differences between the pre-crisis and post-crisis outcomes are more interesting.

The pre-crisis series in blue is both more tightly clustered and inverse in relationship. We believe that this is a function of the tremendous growth in cash-out refi's. This was happening in a large scale both in the agency MBS and RMBS markets. Even though actual sales were starting to fall from incredibly high historical levels, the size of the MBS market grew rapidly. According to Freddie Mac, more than 30% of all dollars funded in mid-2006 were for cash-out refis.

The story for the post-crisis period in red is much different. In this series, there is a more logical positive relationship between new home sales and average MBS supply. We also ran average monthly supply vs. existing home sales and the MBA purchase index. The results for existing home sales were very similar to those for new home sales, but on a different scale. The purchase index has a very weak relationship with supply, both in the pre-crisis and post-crisis periods. The table below summarizes our view for supply given different levels of home sales.

Table 1: Agency MBS Supply Estimates from Home Sales Regressions

Home Sales (Thousands)	Supply Estimate ($Billions)	
New	Monthly	Annual
300	0	0
400	7	84
500	18	216
600	21	252
700	25	300
800	30	360
Current (729)	26	312

Exisiting	Monthly	Annual
4000	0	0
4500	0	0
5000	8	96
5500	23	276
6000	40	480
Current (5350)	26	312

Source: FHN Financial, CPRCDR, and Bloomberg

The results of this do not necessarily mean that we think net supply will be higher than $300 billion in 2020. However, it must be acknowledged that home sales are starting to pick up and if they remain at these elevated levels – both new and existing home sales are at post-crisis highs – net supply will likely increase for the first time in three years in 2020.

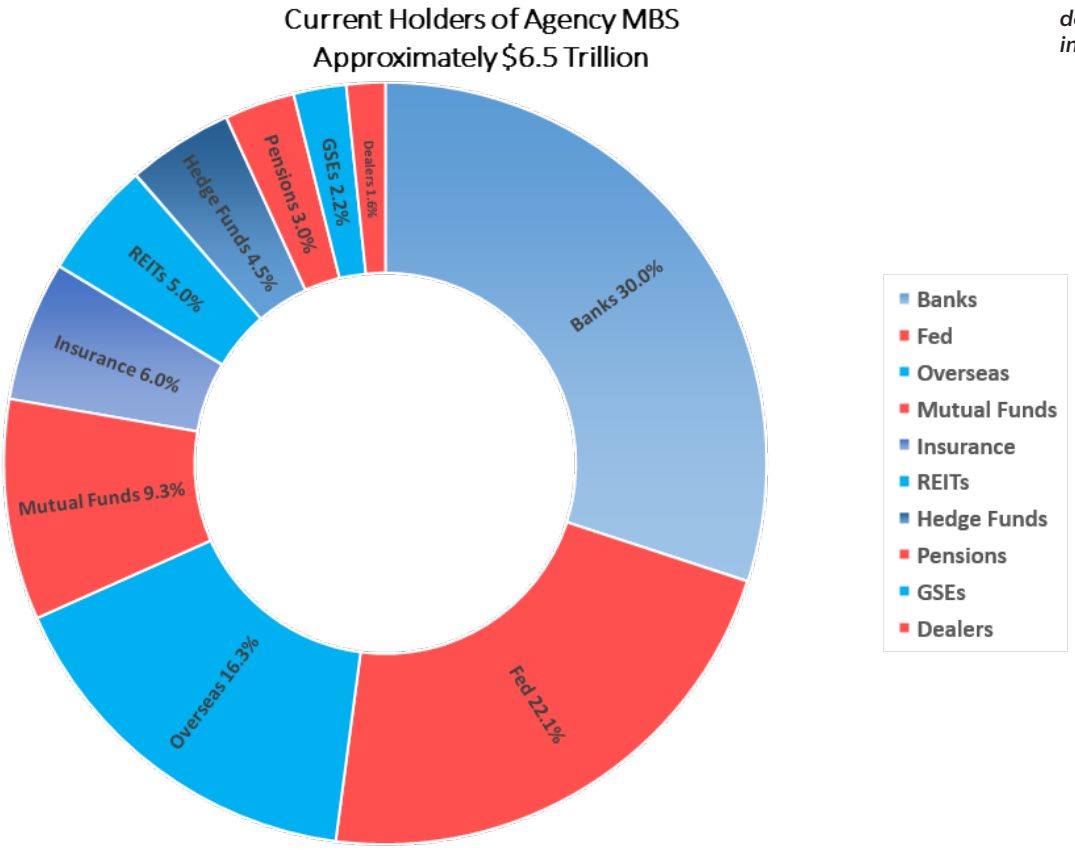
There is a big qualifier, however. We believe that the Ginnie Mae market will continue to grow market share as displayed in Figure 7 above and that G2/FN valuations will continue to be stressed because of this and other factors. The stated policy goal of the FHFA is to shrink the footprints of the conventional GSEs and recapitalize them. Therefore, it is reasonable to expect that net MBS supply growth will continue to generally follow home sales, but will increasingly come up short of expectations. Therefore, we think organic net supply will be in the range of $250-$275 billion in 2020.

Before looking at demand, a quick word about the "implied" MBS supply from the Fed's portfolio. The MBS portion of the Fed's portfolio is expected to decline by $200 billion in 2020 based on current prepayment estimates. However, that is less than the approximately $230 billion that rolled off in 2019. Whether it is correct to net this $30 billion differential against our supply estimate for 2020 is an interesting thought experiment. But at the very least, the roll-off of the Fed's MBS portfolio will become less and less of a factor as time goes on and the differential should be a positive for the basis in 2020.

The demand side of the equation is a bit less straightforward to read. We can conclusively identify approximately 70% of MBS holders at the Fed and domestic banks, money managers, REITs and dealers. But there is a very large "overseas" category and smaller categories of domestic insurance, pension and hedge funds that are more difficult to nail down in the aggregate. Our estimate is displayed below.

Figure 11: Top Four Investor Categories of MBS Control 78% of the Market

Mortgage holdings dominated by four investor types.



Source: FHN Financial, Federal Reserve, Bloomberg

As the Fed's MBS portfolio continues to decrease in favor of UST holdings, more of burden of funding the MBS market will lie with domestic banks and money managers and overseas investors. The market is at a crossroads in that regard. Bank holdings of MBS have more than doubled in the 10 years since the crisis to over $2 trillion. Foreign holdings have increased by 50% since the current data set became available in 2011.

The only category of MBS holders that has not seen a dramatic increase in MBS holdings over the past 10 years is mutual funds. In fact, holdings among mutual funds have ***dropped*** by about a third to around $650 billion from just over $900 billion since the high water mark in 2013. There have been some impressive flows reported into mortgage-related funds during the second half of 2019 and the quarterly Flow of Funds data from the Fed recently revealed a second consecutive strong uptick in MBS holdings. The current level of just under $650 billion is the highest since 2Q15.

To use an election year analogy, it looks as if money managers have the "swing vote" in MBS demand in 2020. Bank and overseas demand will likely remain strong with the Fed on hold and against a general view of a strong US Dollar. But the impressive growth rates in those two investor types are likely to slow. Therefore, it will be up to money managers to continue to pick up the slack and absorb the projected marginal supply increase if mortgage spreads are going to tighten from here.

Guidance from Index Valuations

For most MBS investors, the critical decisions are duration and security selection. Sector decisions (specifically sub-sector within MBS) are important and can interplay with the duration decision (i.e. 15yr vs. 30yr), but focusing too much on one or two sectors can unnecessarily eliminate value in others.

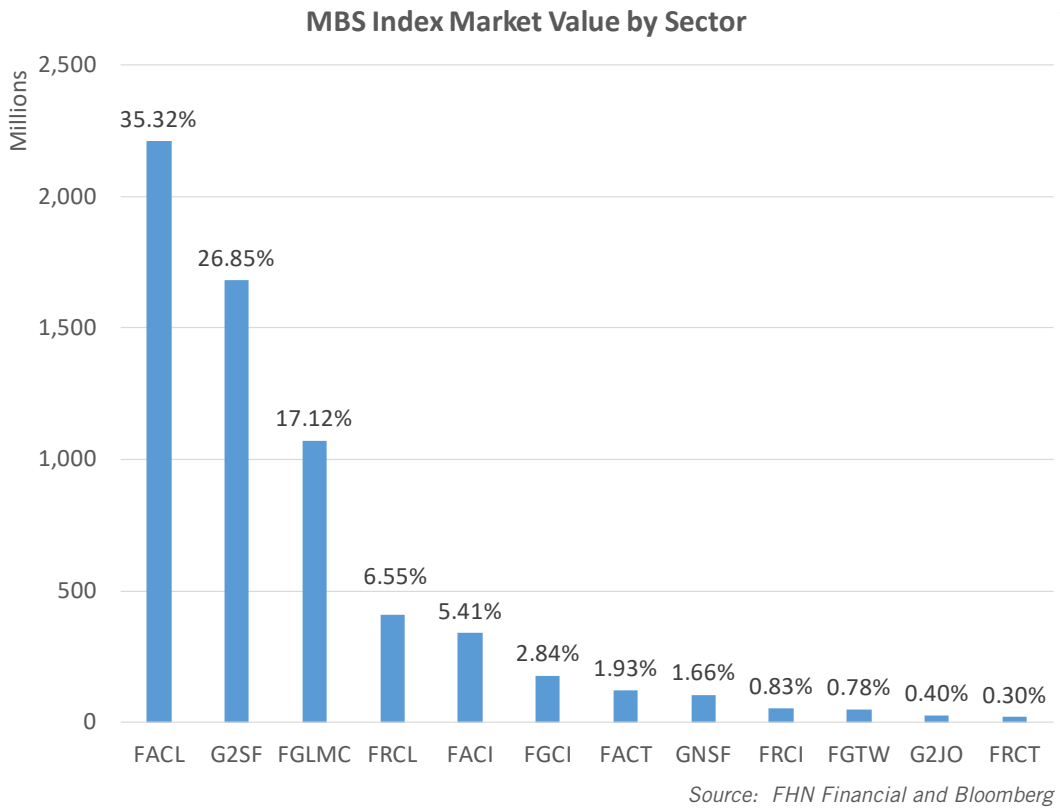
That being said, the MBS index is comprised of spec pool roll-ups into cohorts, which create large sectors and sub-sectors. Therefore, any meaningful comprehensive review of value at the overall MBS sector level will require analysis of these cohorts, or sub-sectors.

The MBS index is somewhat limiting in that is allows investors and analysts to operate on only three planes: program, coupon, vintage. For example, FACL 3.5 2018 represents ALL 30yr Fannie-issued 3.5s from the 2018 vintage. The corresponding Freddie-issued cohorts would be FGLMC 3.5 2018 for all legacy 45-day delay securities still outstanding and FRCL 3.5 2018 for converted 55-day delay securities. No new FGLMC securities are being issued, so this sub-sector will eventually amortize away.

Despite having only three planes, or three dimensions, with which to work, there are a surprising number of relative value judgements that can be made from the index data. The first is very simple, yet important: the basic composition of the index.

Figure 12: The 30yr Sector Dominates the MBS Index

Index still dominated by 30yr sectors.

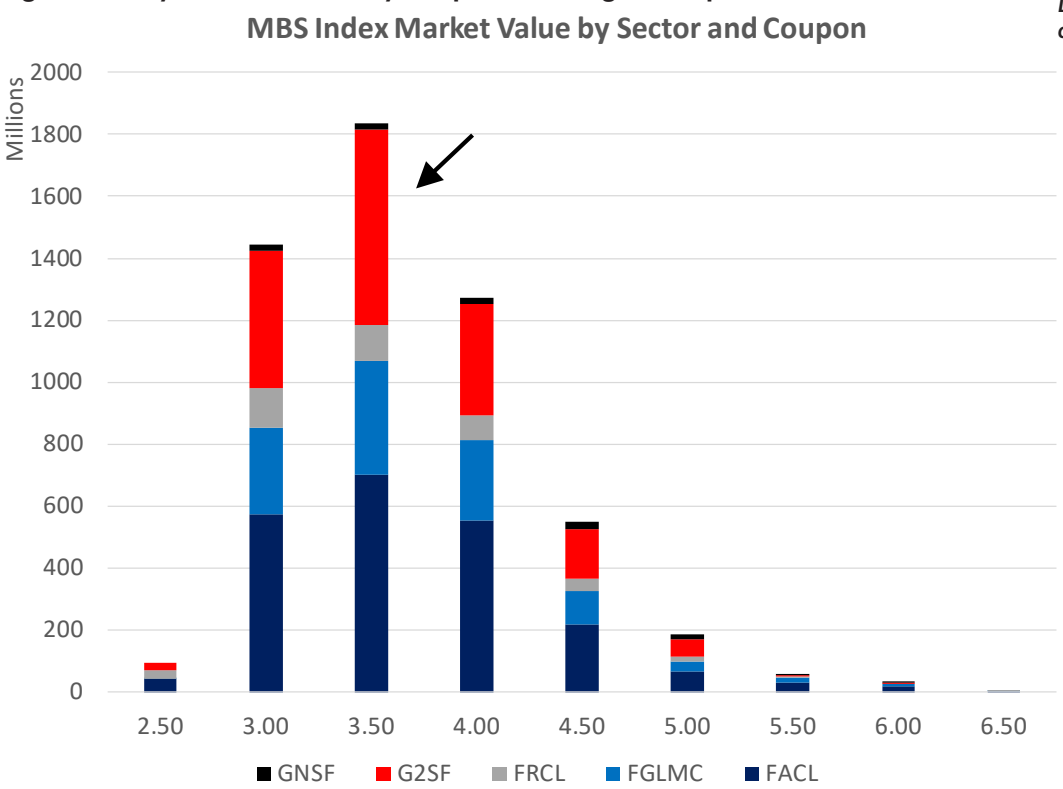


Source: FHN Financial and Bloomberg

The combined 30yr cohorts – FACL, FGLMC, FRCL, G2SF and GNSF – comprise 88% of the $6.3 trillion market value of the MBS index. Because these program types dominant the aggregate, and to create useful graphs, we will look next at coupon and vintage breakdowns along these dimensions only.

Figure 13: 30yr Index Cohorts by Coupon Show Tight Compression

Lack of tradable coupon dispersion in index.

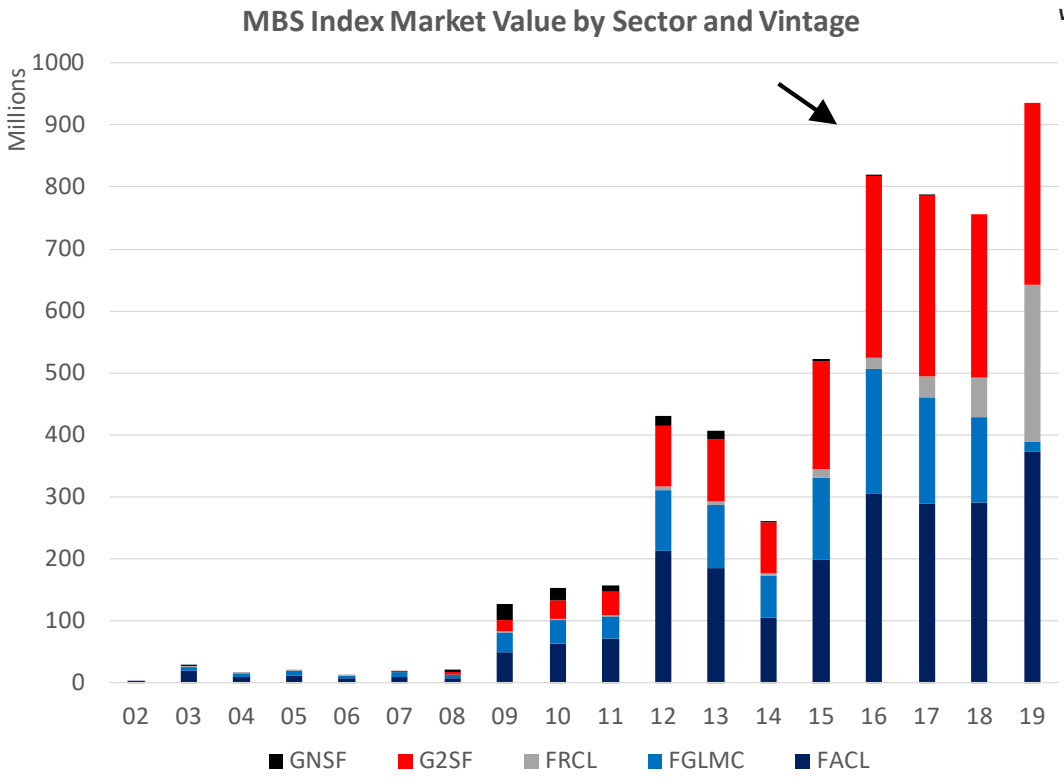


Source: FHN Financial and Bloomberg

Approximately 80% of the MBS index is in the 3.0-4.0 coupons, and that is true of the rolled-up 30yr cohorts, as well. There is some viability to reviewing coupon swaps involving 2.5s and 4.5s, but most of the action is in the three main coupons.

Figure 14: More Dispersion and Relative Value Choices in Vintage Space

More versatility among vintage choices.



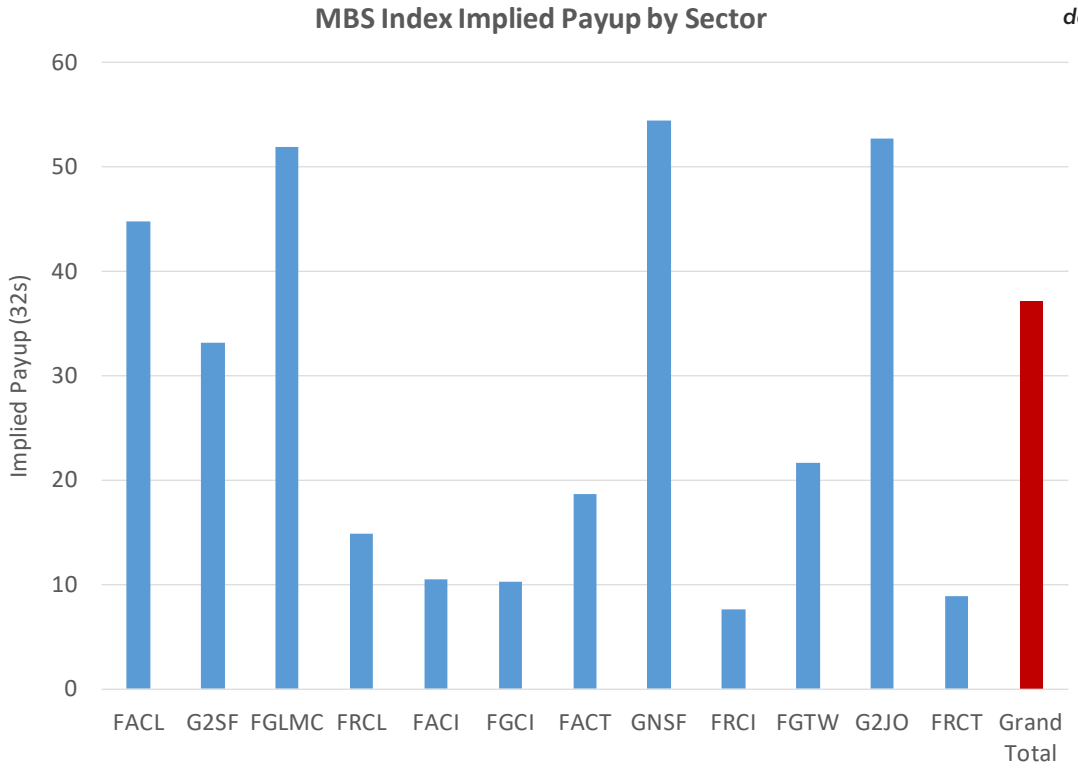
Source: FHN Financial and Bloomberg

The vintage breakdown of the 30yr portion of the index provides more variety. It is certainly dominated by more recent vintages, but there are meaningful balances in 10-11 vintage years as opposed to the tight compression into only 3-5 viable coupons.

One of the main themes that Alexis Vilimas addresses in the next section on prepayments is how the performance of the TBA deliverable has deteriorated during the past year. This has caused specified pool payups vs. the cheapest-to-deliver TBA cohort to increase noticeably. The result of this can be seen in the index, as well. After all, the index is nothing more than a large roll-up of the underlying outstanding pools in the market. With over 450 index cohorts and hundreds of thousands of pools that roll up into the index, some of the daily pricing is quite theoretical. But pricing in the aggregate should allow the investor or analyst to make some relative value judgements.

Figure 15: The Average "Payup" of the MBS Index Has Doubled in One Year

Implied index "payup" has doubled over past year.

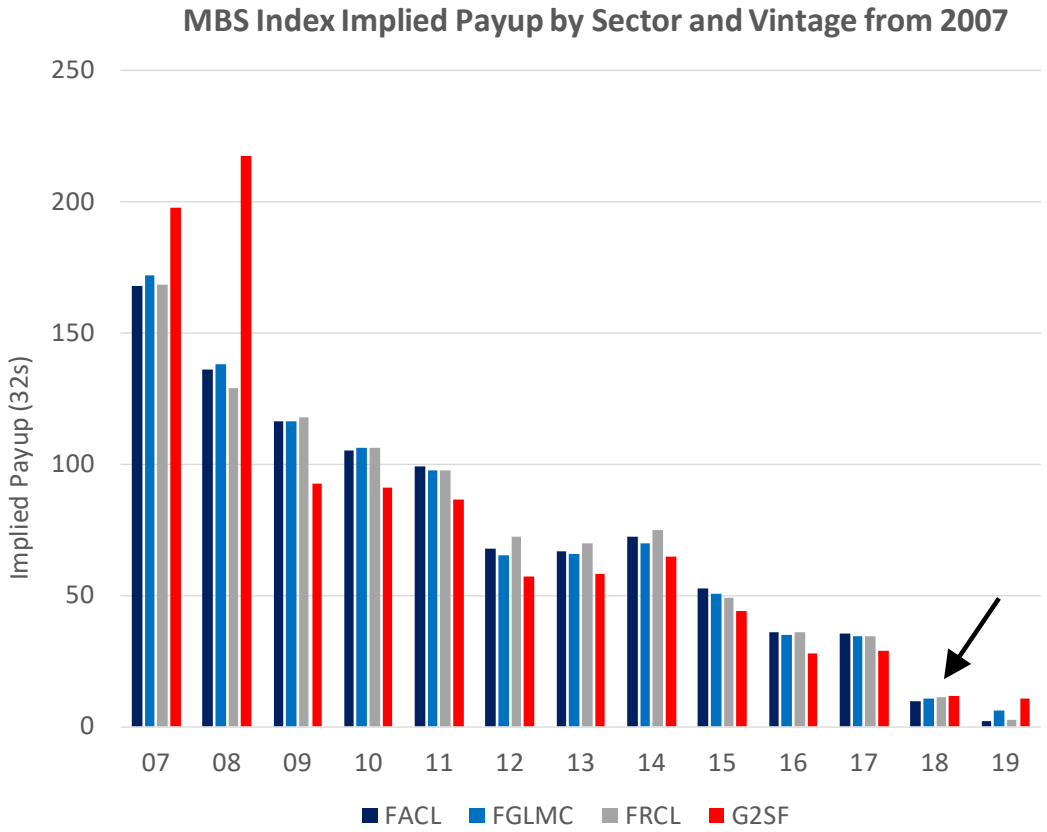


Source: FHN Financial and Bloomberg

The sectors are listed from left to right in the same order as in Figure 12; that is, largest to smallest. There is also a highlight for the weighted average payup implied by index pricing in red. That value of just over 37/32 is almost double the implied payup of 19/32 for the MBS index in late December 2018. This verifies that payups are higher – the market is aware of that.

Figure 16: Payups by Vintage Begin to Reveal Value

Payup is extremely vintage-dependent in the aggregate.

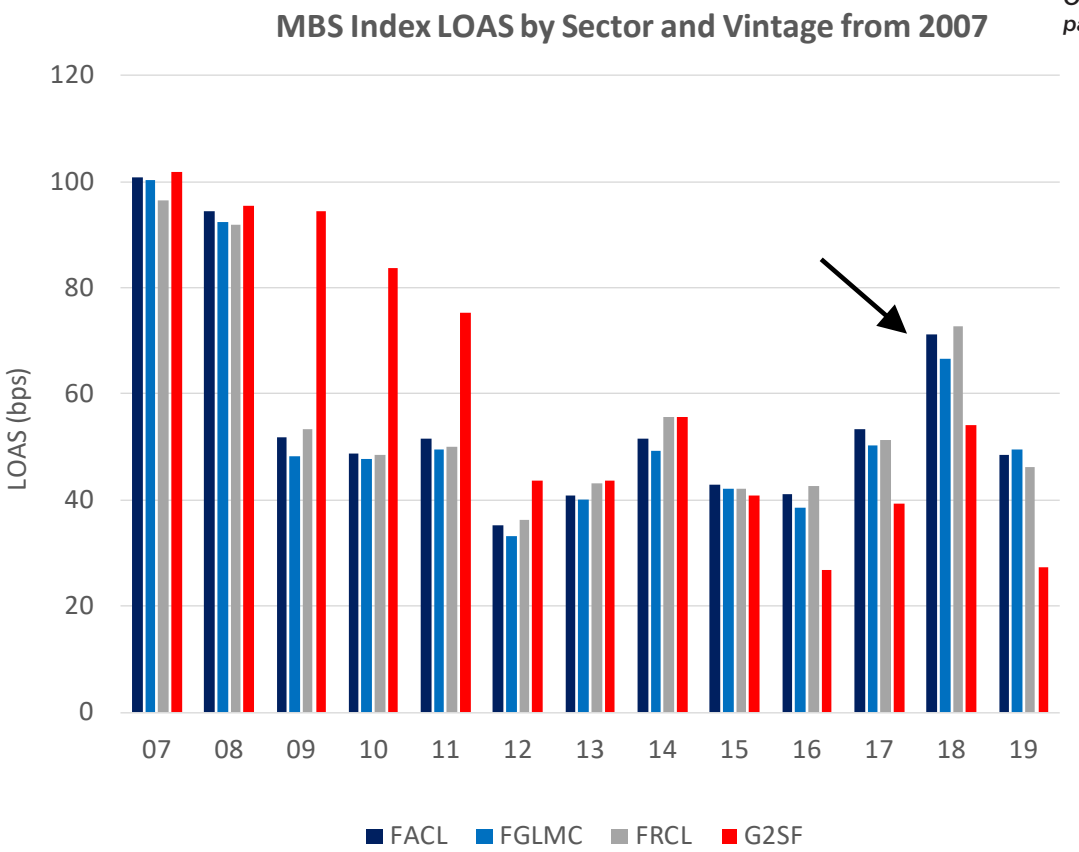


Source: FHN Financial and Bloomberg

That the 2018 vintage is a particularly poor cohort from a convexity standpoint is also not unknown. If it is, the next section on prepays provides a quick review. What may not be well known is just how low the payup for 2018 vintage cohorts is relative to other vintages. (We dropped the GNSF sector for the remainder of the article, because there is no representation in the recent vintages.) This quickly caught our attention, so we calculated vintage-level OASs for these same index cohorts.

Figure 17: Noticeable Value in OAS Space for the 2018 Cohort

OAS level reflects low payup for 2018 vintage.

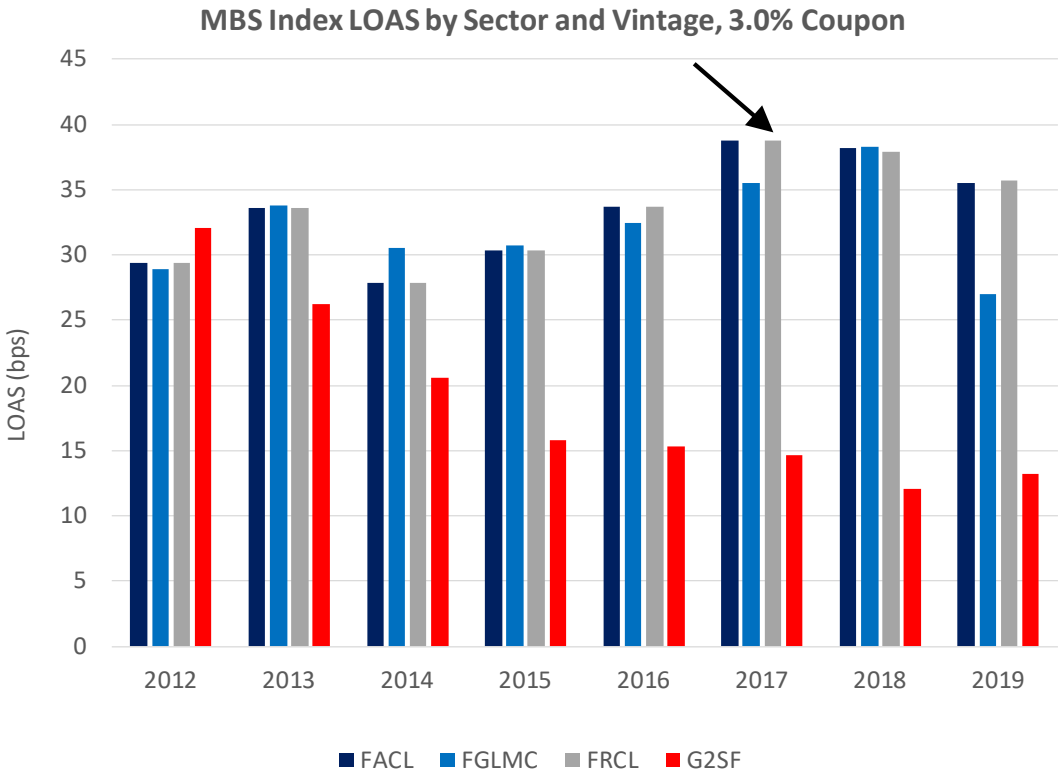


Source: FHN Financial, Bloomberg, and YieldBook

The 2018 vintage is by far the cheapest on the basis of OAS among the easily tradable vintages. There is one important technical that is driving some of these results in 2018 vintage, but there is also some actual value to be had. On the technical side, the 2018 vintage is dominated by the 4.0 coupon. That coupon has a 50 OAS or better across vintages and the 2018 vintage is similar to the others going back to 2012 in the 4.0 coupon. On the other hand, the OAS profile for the 2018 vintage is demonstrably better than that for the other vintages in both the 3.0 and 3.5 coupons. The results for the 3.5 coupon are displayed below.

Figure 18: The 2018 Vintage is Demonstrably Cheap for the 30yr 3.5 Coupon

Current value in 2018 is not simply dependent on higher coupons.



Source: FHN Financial, Bloomberg, and YieldBook

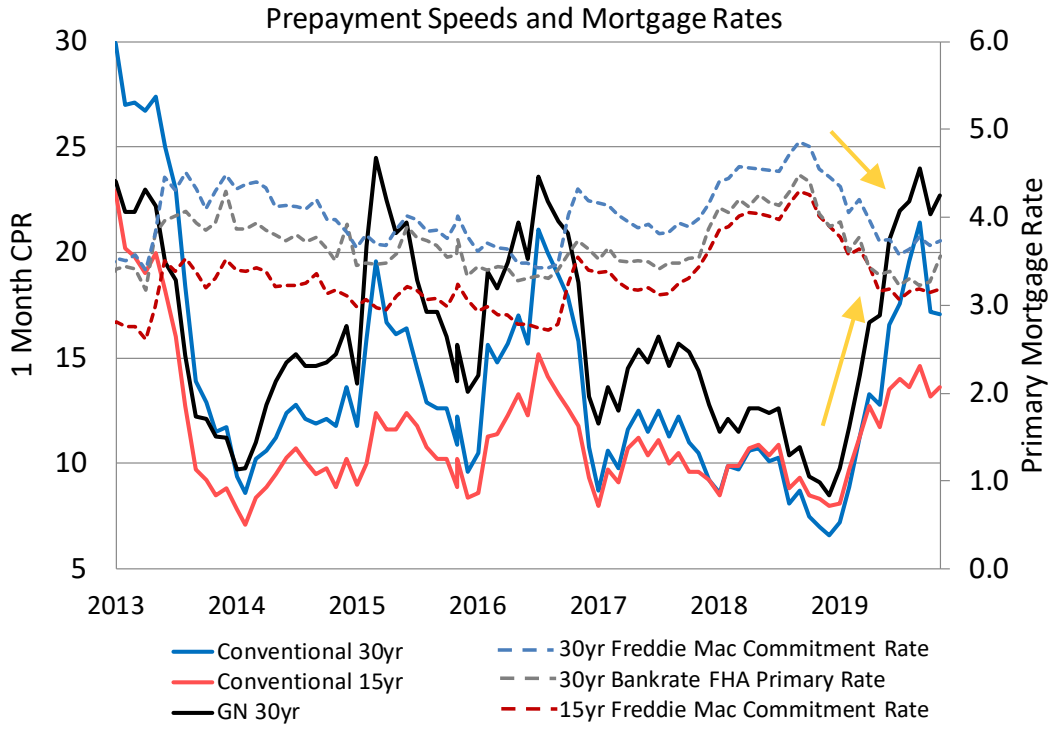
There are a number of other ways to ferret out relative value from the index data, including projected total return, which we will leave for another time. But the bottom line is that ***we see value in paper that is about to enter the burnout phase of the seasoning ramp.*** In fact, with all of the factors that will likely contribute to faster prepays for newer collateral (see the next section for details) we think ***seasoning/burnout and the ability to accurately time the ramp will be the main relative value theme for 2020.***

Prepayments increased significantly during the second half of 2019 following the sharp rally in the rates markets as $2.4 trillion UPB in 30yr MBS and $276 billion UPB in 15yr MBS moved into-the-money. In 2020, the prepayment landscape will be dominated by many of the same issues that affected speeds in the second half of 2019. Faster speeds, steeper S-curves, and accelerated WALA ramps are the new normal. Estimating burnout in 2018 production will be a focus for 2020 valuations. Prepayment uncertainty in TBA will likely keep payups elevated for specified pools. We will examine the prepayment drivers in TBA collateral and identify value in specific loan characteristics.

The 30yr Freddie Mac mortgage rate peaked at 4.94% in November2018 and bottomed at 3.49% in September 2019, decreasing 145bps in just 10 months. The 15yr rate followed the same progression, hitting its high of 4.36% in November 2018 and ending last year in the 3.10s. Prepayments for all products surged in response to the UST market rally. Specifically, 30yr conventional prepayments increased from 6.6 CPR in January 2019 to 17.1 CPR in December 2019. 30yr Ginnie Mae prepayments also increased even more, from 8.5 CPR to 22.7 CPR.

Figure 1- Current Rate and Prepayment Environment

Prepayments spiked in 2H 2019.

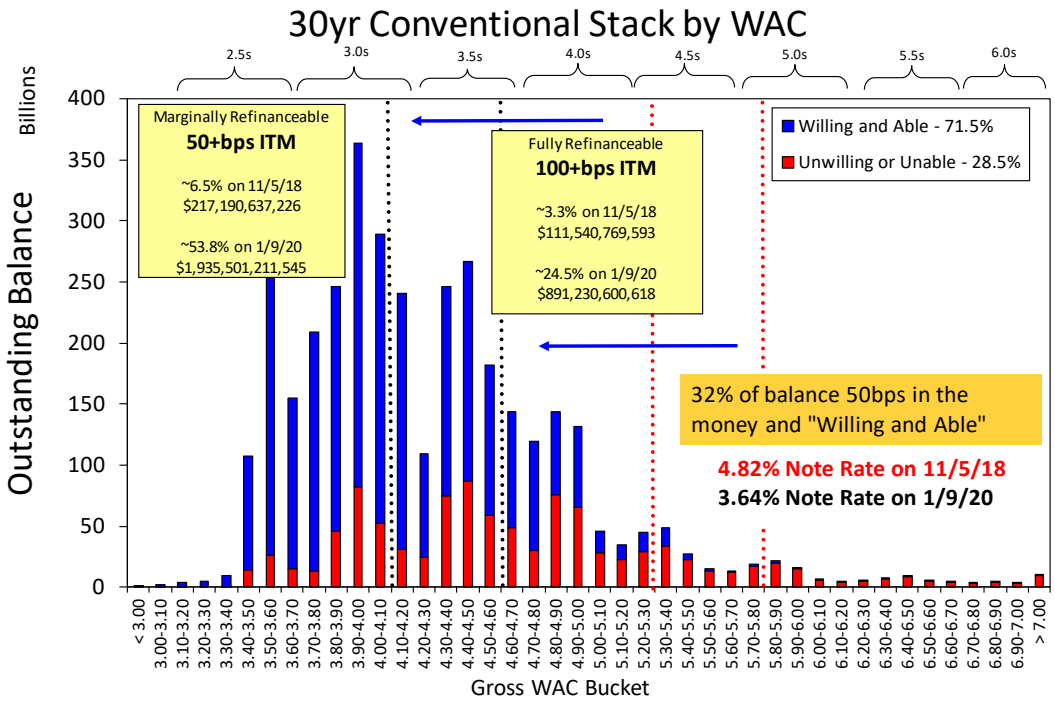


Source: FHN Financial, Bloomberg, and KDS Global

Figure 2 illustrates that more than half of the entire current 30yr market is in-the-money (ITM). Each bar on the graph represents how much UPB is outstanding in each 10 basis-point Gross WAC bucket. An estimate of the corresponding coupon is overlaid on the top of the graphs. At the end of 2018, 6.5% of the outstanding 30yr conventional market was "marginally refinanceable", or 50bps in the money. Currently, 54% of the universe has at least 50bps incentive to refinance. **Most importantly, 32% of 30yr borrowers are able to refinance after taking into account loan balance, LTV, and FICO.**

Figure 2- Majority of Market Now In-the-Money

~54% of 30yr borrowers have at least 50bps of incentive.



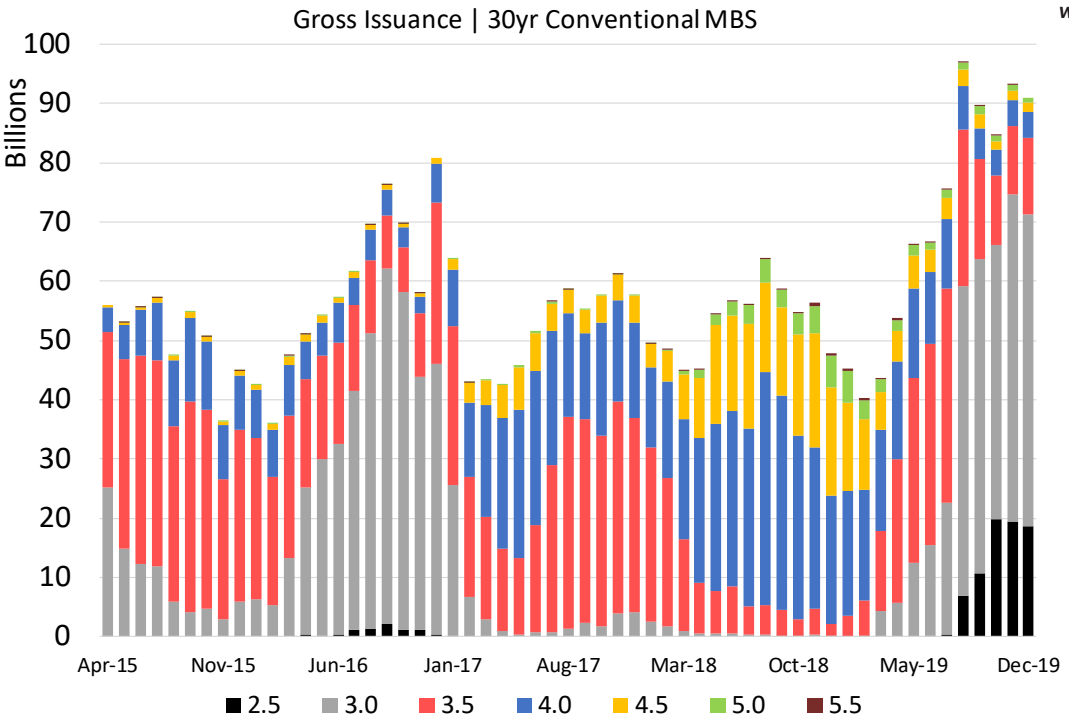
Source: FHN Financial, Bloomberg, and KDS Global

The 15yr coupon stack followed a similar path to 30yrs. Falling interest rates increased the refinanceability of the 15yr coupon stack. At current rates, 24.3% of borrowers are marginally refinanceable and 8.1% are fully refinanceable; 9.0% of 15yr borrowers are able to refinance after taking into account loan balance, LTV, and FICO. ***Since November 2018, $2.4 trillion UPB in 30yr MBS and $276 billion UPB in 15yr MBS have moved into-the-money.***

As interest rates decreased last year and primary mortgage rates moved downward, new origination shifted into lower coupons. In 2018, 75% of 30yr new origination was in 4.0 and 4.5 coupons. In 2019, 72% of new origination was in 3.0s and 3.5 coupons.

Figure 3- New Production Shifted into Lower Coupons

72% of 2019 origination was in 3.0s and 3.5s.

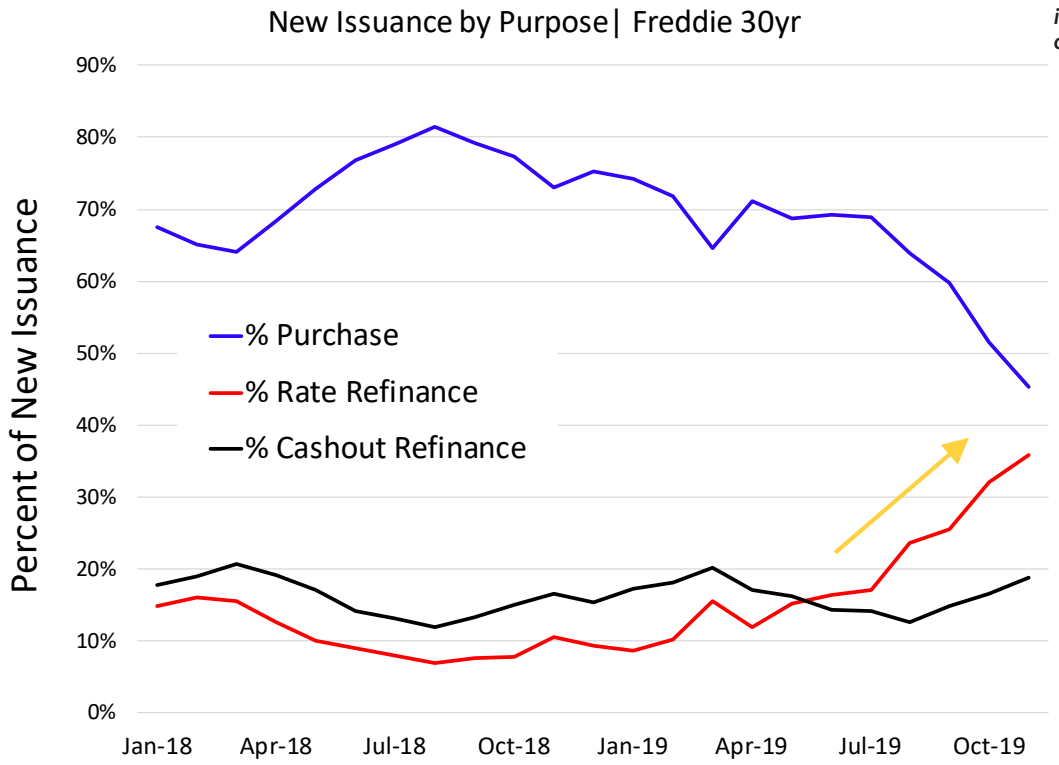


Source: FHN Financial and KDS Global

The current borrower pipeline will have a long-term impact on the prepay performance. The percent of 2019 production originated through a non-cashout refinance increased from 9% of new issuance in January 2019 to 36% of new issuance in December 2019. In other words, any future rally will likely produce even faster speeds at any given level of refinance incentive.

Figure 4- Strong Refi Response

Non-cashout refinancing increased significantly during 2019.

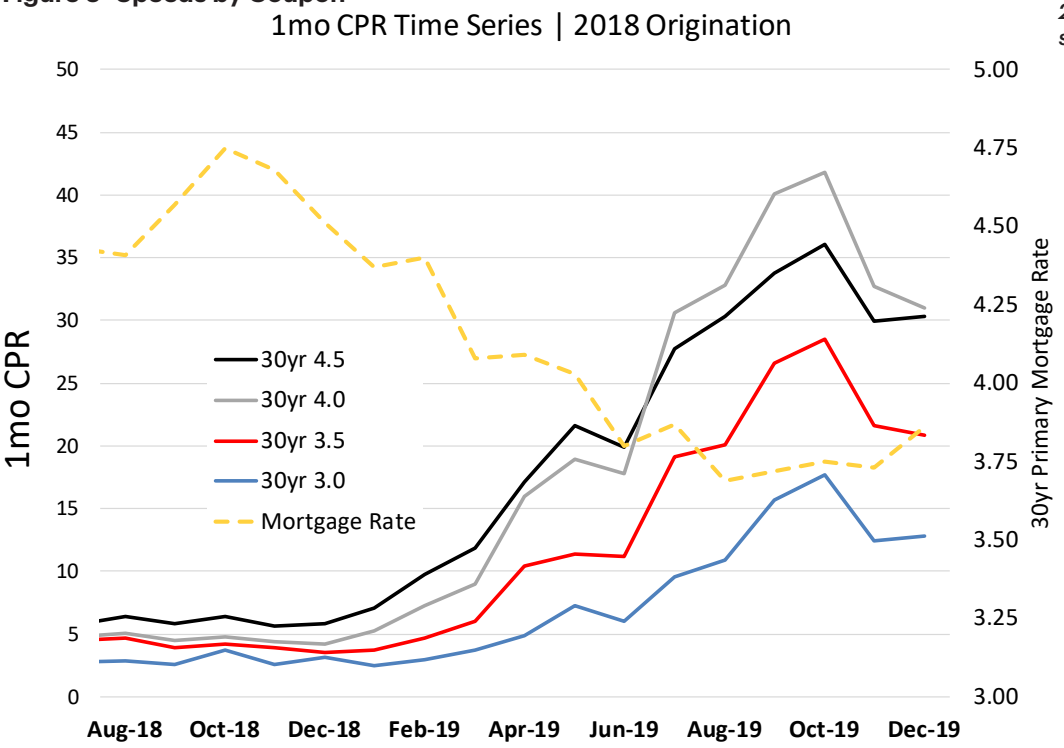


Source: FHN Financial and KDS Global

Many of the loans originated in 2019 were refinanced loans originally issued in 2018. We identified the callability of the 2018 vintage in last year's outlook and speeds materialized following the UST market rally in 2019. On average, 2018-vintage borrowers had lower SATOs, higher fico scores, and lower LTVs than in previous years. Loans originated in the 2018 cohort were also more likely to be non-bank originated and/or the result of a cash-out refi, both of which drive faster prepayments. The result for the MBS investor was a worse convexity profile for the 2018 pools. Speeds on these pools soared when mortgage rates dropped as predicted. Over 24% of 2018 origination has already paid off.

Figure 5- Speeds by Coupon

2018 origination speeds soared last year.

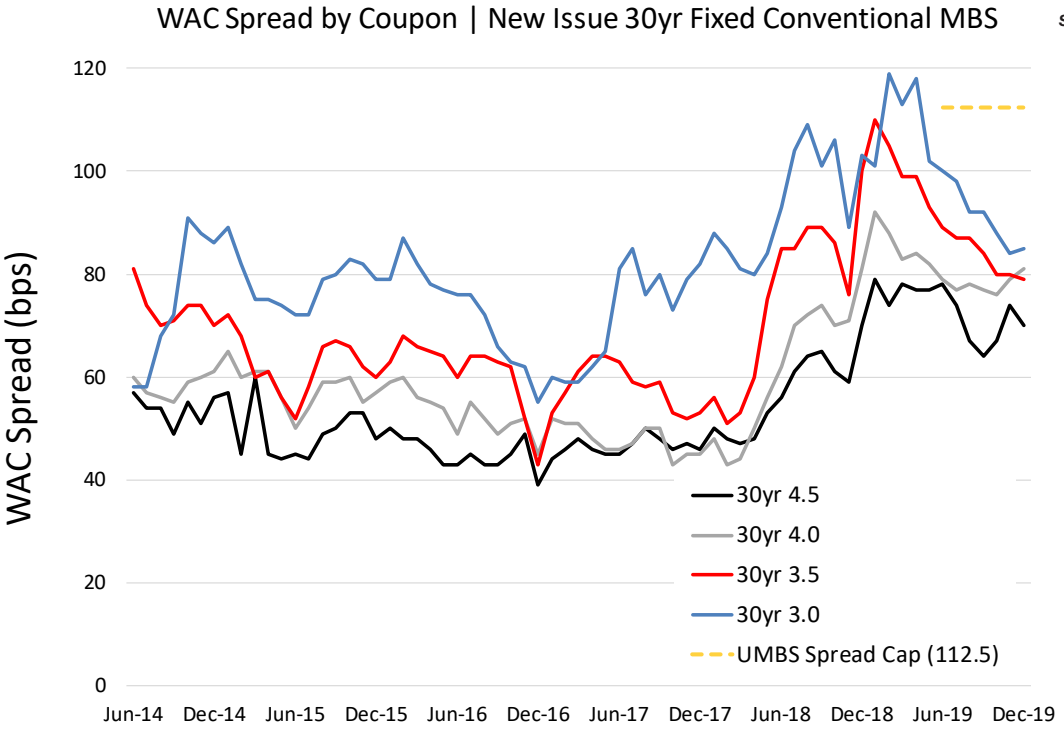


Source: FHN Financial, Bloomberg, and KDS Global

Besides the favorable loan characteristics listed previously, the 2018 vintage had higher WAC spreads. Overall year-over-year WAC spreads increased again in 2019. In the past few months, WAC spreads have declined from their record highs. Average WAC spreads for 3.0-4.5s were close to 90bps in 2019 vs. 72bps in 2018. In June 2019, the 112.5 WAC spread cap went into effect as part of the Single Security initiative. Following the implementation of the cap, 30yr 3.0 WAC spreads declined. Production coupon WAC spreads will likely remain in the same range for 2020. The key here for the investor is that more of what is TBA deliverable is comprised of pools with generally higher WACs.

Figure 6- WAC Spreads Still Elevated

Year-over-year WAC spreads higher in 2019.



Source: FHN Financial and KDS Global

2019 collateral is potentially even more negatively convex than 2018 collateral. If there is another massive rally in Treasuries, lower coupons would slide into-the-money. Besides higher WAC spreads (Figure 6), 2019 collateral has larger loan sizes, modestly higher LTVs, higher refi share, lower investor share and higher broker share.

Table 1- 30yr Conventional Issuance Trends

2019 collateral is more callable than 2018 collateral.

Issuance Year	2014	2015	2016	2017	2018	2019
Issued ($bn)	443	592	705	638	638	848
WAC	4.48	4.11	3.87	4.23	4.68	4.26
FICO	745	750	751	745	743	749
LTV	78	77	76	76	77	79
Loan Size	214	229	237	232	238	260
% Broker	10	11	10	10	11	14
% Purchase	61	54	54	65	72	59
% Owner	86	88	90	88	89	91

Source: FHN Financial and KDS Global

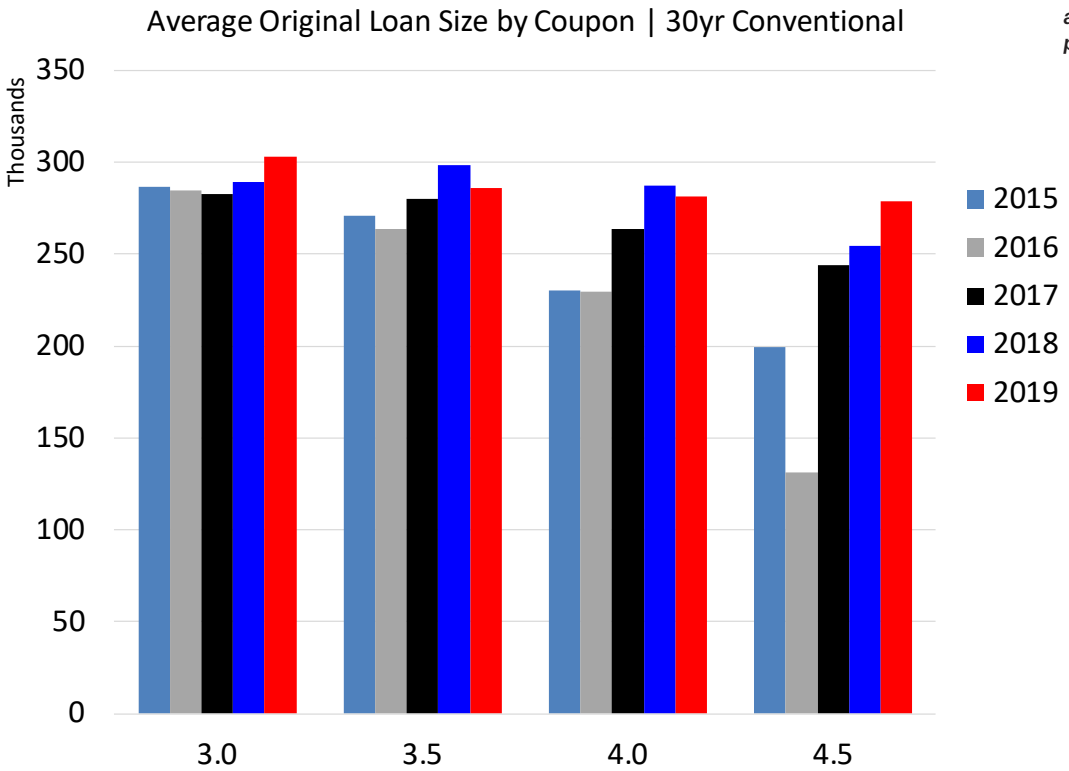
Additionally, the set of 2018 borrowers who refinanced in 2019 were the most reactive to changes in rates. These same borrowers are also prime targets if originators designate them as likely to get an appraisal waiver (or another waiver), accelerating prepayments even higher. Fannie Mae changed the appraisal waiver eligibility, which is Part of the Day 1 Certainty program. The website states "Effective June 22, 2019, the borrower name no longer needs to match the name on a prior appraisal for a refinance transaction to be eligible for an appraisal waiver offer." ***Servicers have incentive to target borrowers for an appraisal waiver because it shortens closing times and helps to alleviate capacity constraints.***

This month, Fannie and Freddie both announced that they will disclose a new loan attribute called Property Valuation Method that will *"indicate the method by which the value of the subject mortgaged property was obtained. This attribute will also identify loans that have received an appraisal waiver."* The disclosures will start in March 2020 for Fannie and Freddie loans and the data will include historical information going back to 2017 origination. After the release, we will be able to quantify the true impact of the appraisal waiver program on prepayments and identify those loans within securities that are not "supers".

Other characteristics may also influence TBA valuations next year. In November, the FHFA announced an increase to conforming and "high cost" loan limits for loans originated in 2020. The conforming loan limits will rise from $484,350 in 2019 to $510,400 in 2020. Figure 7 shows that after loan limits were increased between 2017 and 2018 and again between 2018 and 2019, average loan sizes increased. Borrowers often take out loans with balances close to or exactly up to the new loan limit. The average loan size of TBA deliverable pools is likely to increase again in 2020. Holding all else constant, higher loan sizes drive faster prepayment speeds.

Figure 7- Loan Sizes Increase when Loan Limits Rise

Average loan sizes are increasing in new production pools.

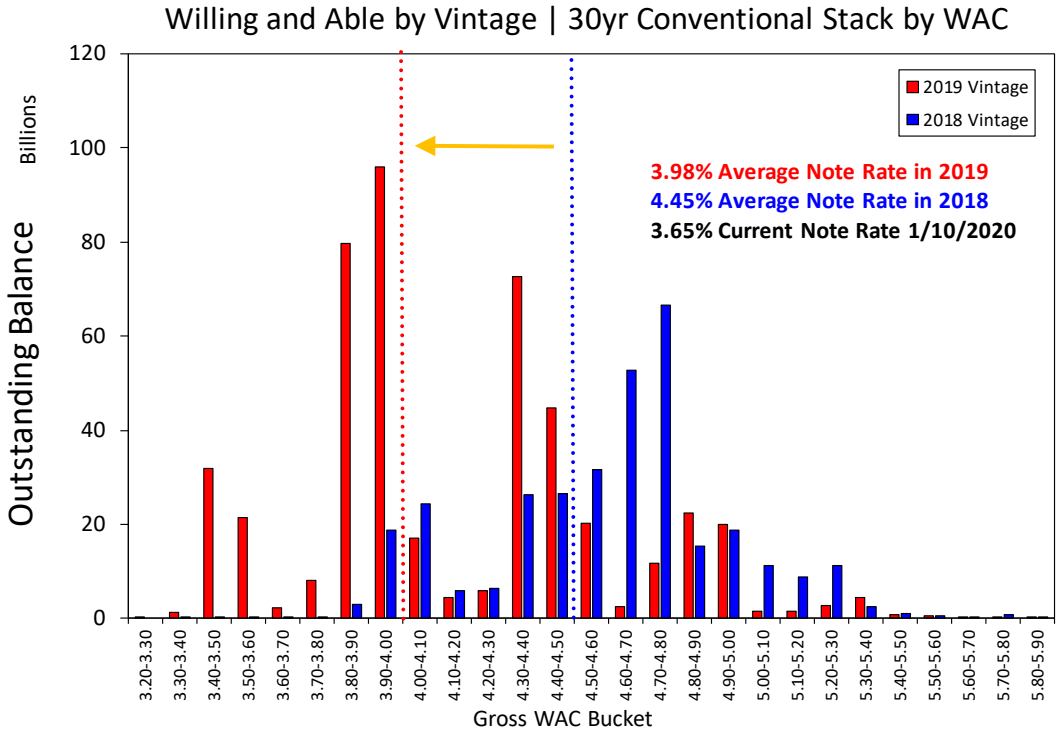


Source: FHN Financial and KDS Global

If interest rates stay close to today's levels, will 2018 collateral continue to print fast prepayments or are there signs of burnout? How long will it take for the current TBA collateral to burn out? Figure 8 isolates the willing and able balance of 2018 and 2019 origination by WAC. There is over $334 billion outstanding in the 2018 vintage that has at least 50bps rate incentive (current interest rate higher than 4.15%) and the creditworthiness to obtain a new mortgage. However, those borrowers have not pursued a refi despite having rate incentive in 2019.

Figure 8- Stack by WAC for 2018 and 2019 Origination

There are still 2018 quality loans with incentive that could refinance.



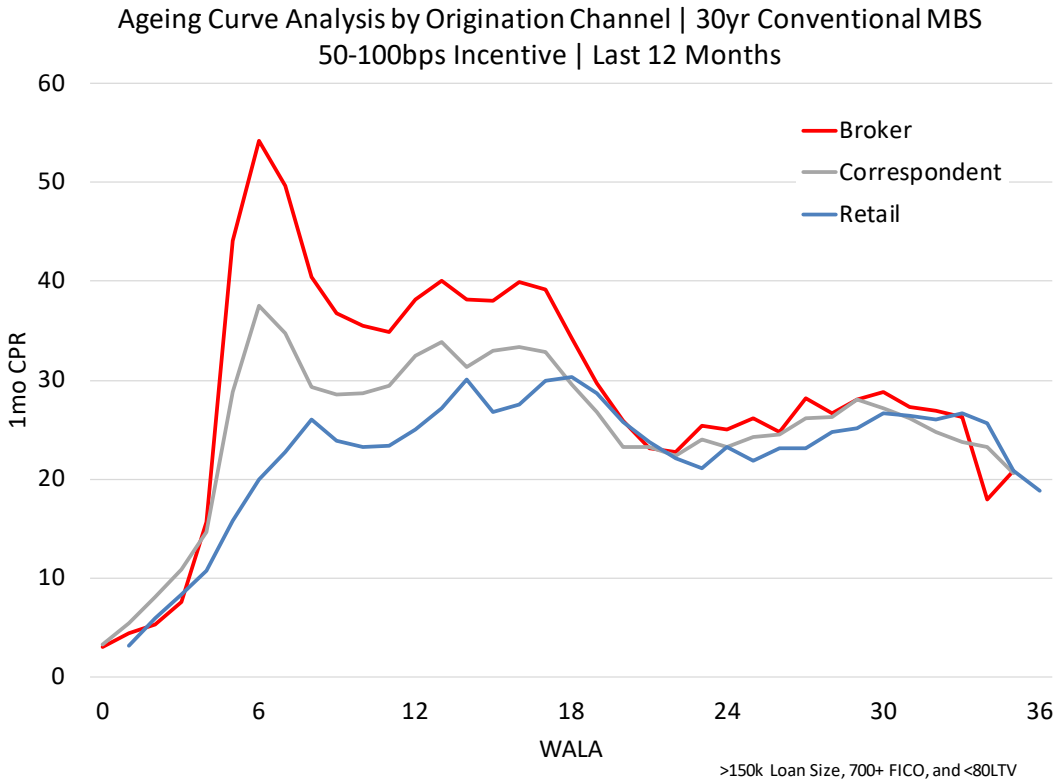
Source: FHN Financial, Bloomberg, and KDS Global

Last October we wrote about the impact of pool seasoning on prepayments ("Older Bonds Age Well," *Mortgage Strategy Monthly*). Mortgage product displays slower prepayments as the pool or cohort ages. This effect is known as "burnout". The borrowers who are left in the pool or cohort are much less likely to refi at the second, third, etc. opportunities. Based on age alone, it is reasonable to expect the 2018 vintage pool speeds to slow down.

Breaking out the data for the ageing curve by origination channel provides a more precise estimate for burnout in recent vintages. The ageing graph below shows that 2018 loans have reached or are about to reach peak speeds based on WALA ramps. Broker and correspondent WALA ramps peak between 6-8 WALA, decline between 8-12 WALA, and remain elevated through 18 WALA. Loans originated through the retail channel ramp up slower and to a lesser degree overall. At 18 WALA, the channel speeds converge and the channel is not a differentiating factor for prepayments. The average age of the remaining willing and able 2018 balance is 17 WALA and half of that balance is third party originated (TPO). Brokers led the prepayment response in 2019 in terms of magnitude and timing. Broker speeds are ~20 CPR faster than retail. ***According to the WALA ramps in Figure 9, the 2018 vintage will start to show signs of burnout over the next six to nine months.***

Figure 9- TPO Drives Speeds

Broker peak speeds are ~20 CPR faster than retail.



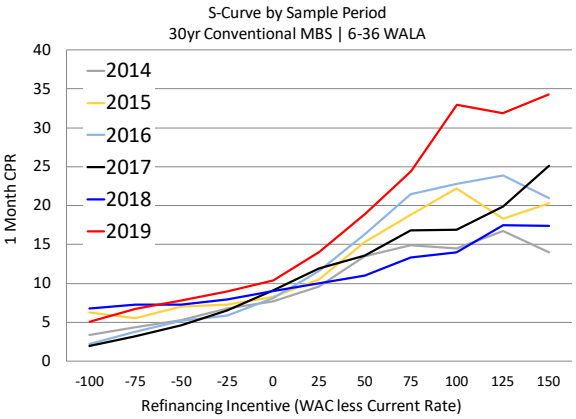
Source: FHN Financial, Bloomberg, and KDS Global

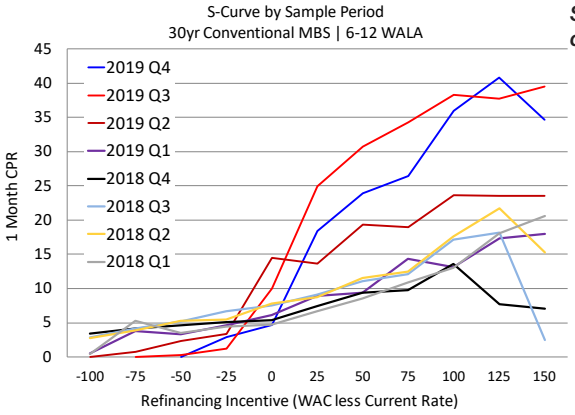
Another way to identify burnout in collateral is to observe speeds on the next most callable segments of the market. Originators will focus their attention on segments of the market that have not participated in the first stage of the refi wave if there is burnout in the most favorable loans. The average loan size of a refinanced loan was 233k in 2018 and 282k in 2019. If loan size dips in 2020 it could be a signal originators are broadening their refi targets.

While higher WAC profiles have led to faster speeds at the coupon level, S-curves were also much steeper in 2019 than in recent years. Figure 10 shows S-curves steepened dramatically due to higher loan sizes, wider WAC spreads, servicer origination efficiencies, aggressive broker practices and an elevated media effect. In 2016, an increase in rate incentive from 0 to 100 basis points produced a prepayment speed increase of 13.1 CPR. In 2019, the same change in incentive resulted in an increase of over 20 CPR. A closer look at 2019 using an even tighter WALA range, 6-12 months, shows that the steepening started in the second half of 2019.

There has been a default adjustment to the WALA range for base S-curve analysis. In the past, we showed S-curves for loans with 12-48 WALA. Due to the rapid change in interest rates in 2019, we shifted the WALA bucket forward to show the 6-36 WALA bucket for prepayment analysis.

Figures 10 and 11- Prepayments by Year and by Quarter





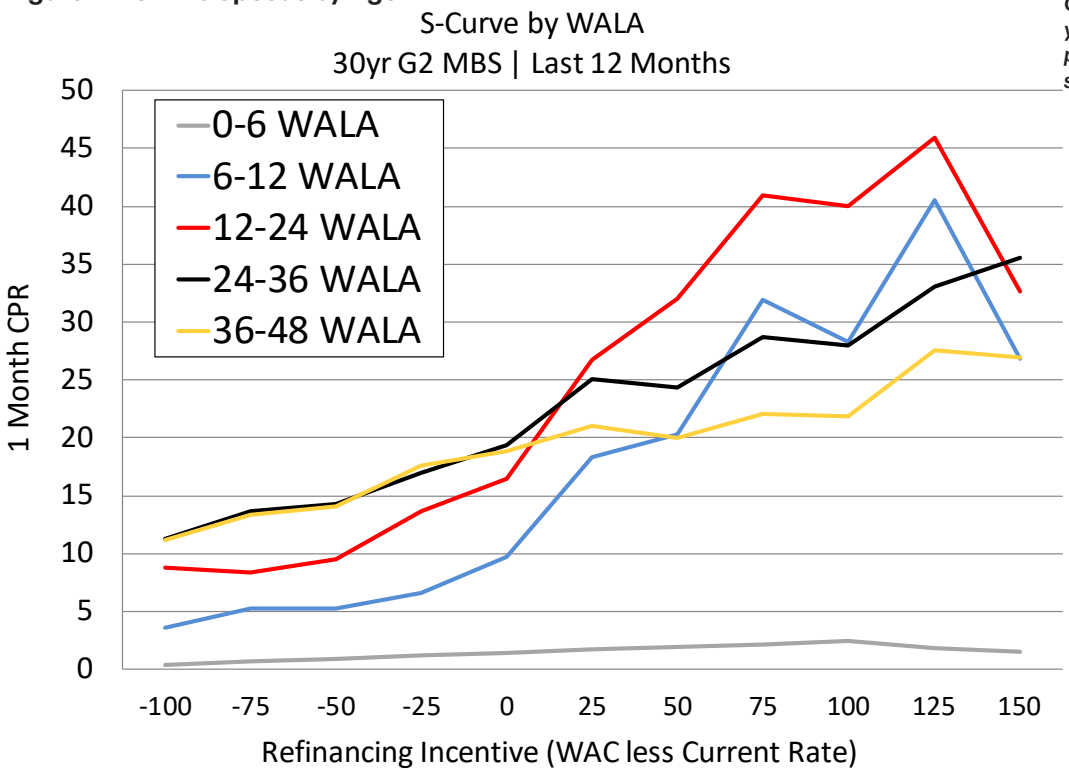
S-curves steepened dramatically.

Source: FHN Financial and KDS Global

Ginnie S-curves also steepened significantly year-over-year. However, unlike conventional speeds that peaked for loans with 6-12 months of seasoning, Ginnie peak speeds were concentrated in loans with 12-24 months of seasoning. Figure 12 shows that G2 loans with 100bps of incentive and 12-24 months of seasoning produce speeds 10 CPR higher than loans with either 6-12 or 24-36 months of seasoning.

Policy changes over the past two years have had an impact on Ginnie speeds. Ginnie Mae took a variety of steps to prevent churning, including sending warning letters to aggressive servicers, instituting a six month loan age minimum, establishing cashout LTV limits, and banning particular servicers. In 2019, Ginnie lifted the ban on New Day, SunWest, Freedom, and Loan Depot. We will watch these servicers closely to see if they revert to faster refinancing and if that approach spreads to other servicers. Non-banks, including these four, now service over 60% of all G2 paper.

Figure 12- Ginnie Speeds by Age



Ginnie pools with 1-2 years of seasoning printed the fastest speeds.

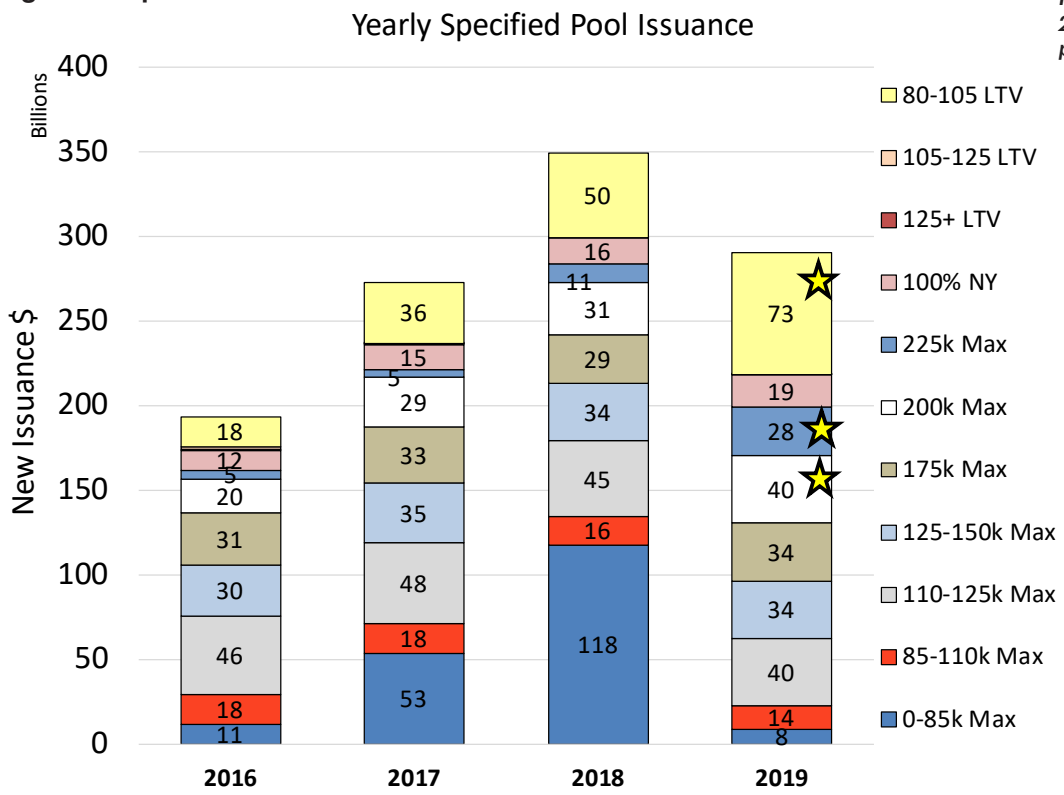
Source: FHN Financial and KDS Global

Demand for specified pools soared in 2019 and we expect demand to remain generally strong for call protection in 2020. The factors that are worsening the convexity of generic cohorts are well known by the market including higher WACS, larger loan sizes, more non-bank servicing and more broker channel origination.

Lenders pooled 27% of 30yr new issuance into specialty/convexity pools in 2019, a similar percentage to 2017 and 2018. Two lower payup stories stand out as the fastest growing pool types. Issuance of 80-105 LTV pools has more than doubled over the past two years, from 36bln in 2017 to 73bln in 2019. The issuance of 200k and 225k max loan size pools has also increased materially year-over-year, from $42bln to $68bln.

Figure 13- Specified Pool Issuance

Issuance of 80-105 LTV, 200k Max, and 225 Max pools increased in 2019.



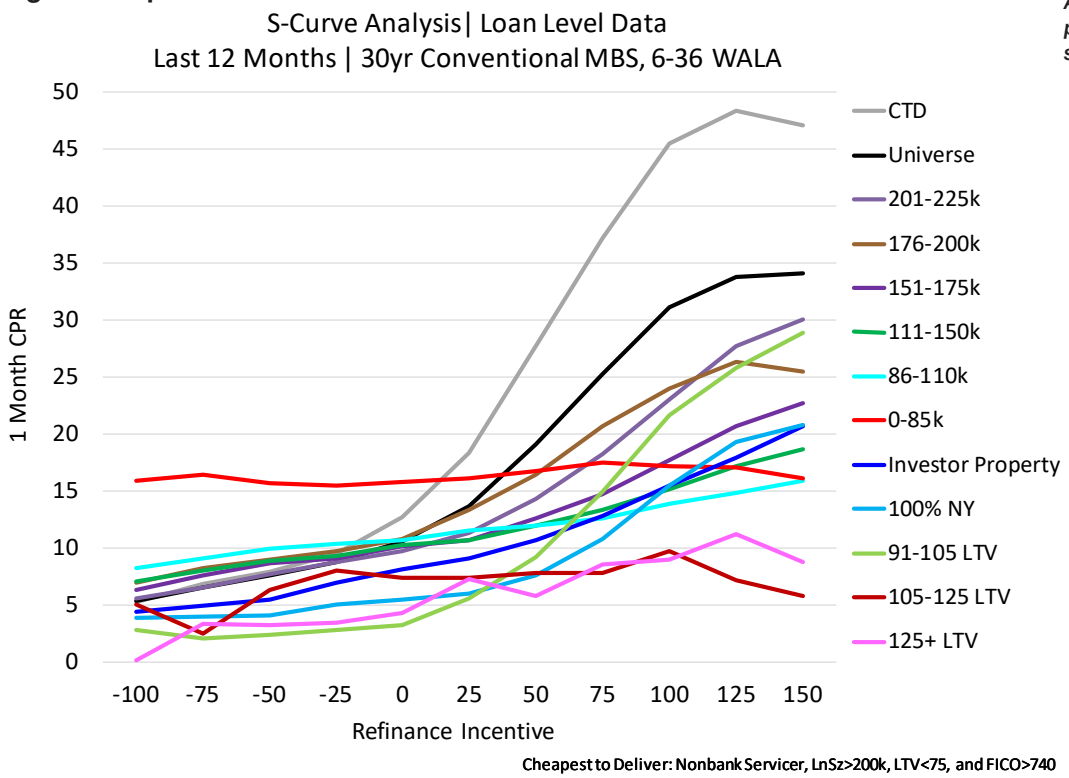
Source: FHN Financial and KDS Global

Figure 14 displays the current S-curves for the major specified pool stories. There is significant call protection in every prepayment story compared to TBA (cheapest-to-deliver). At 100 basis points of incentive, the TBA cohort prepays at 45 CPR. With the same amount of incentive, LLB prints 17 CPR, MLB prints 14 CPR, HLB prints 15 CPR, and 100% NY prints 15 CPR. Loan size and 100% NY pools are the gold standard of prepayment stories but they are also the most expensive.

Some investors may prefer lower payup stories that provide moderate call protection and are less vulnerable in a sell off. 200k Max and 225k Max still provide loan balance protection but with more limited payup risk. Each year as loan sizes increase in new production pools (Figure 7), 225k Max and 200k Max pools become more valuable. High LTV is a lower payup than traditional loan balance stories because the call protection decreases as the loans age. 105-125 LTV and >125 LTV pools have two of the best convexity profiles within the 6-36 WALA range. Texas and Florida are two geography stories that provide call protection but do not demand the high payups of NY pools. Other lower payup categories include low FICO, investor, high SATO, and certain bank-serviced pools.

Figure 14- Specified Pool S-Curves

Attractive convexity profiles available in specified pool stories.



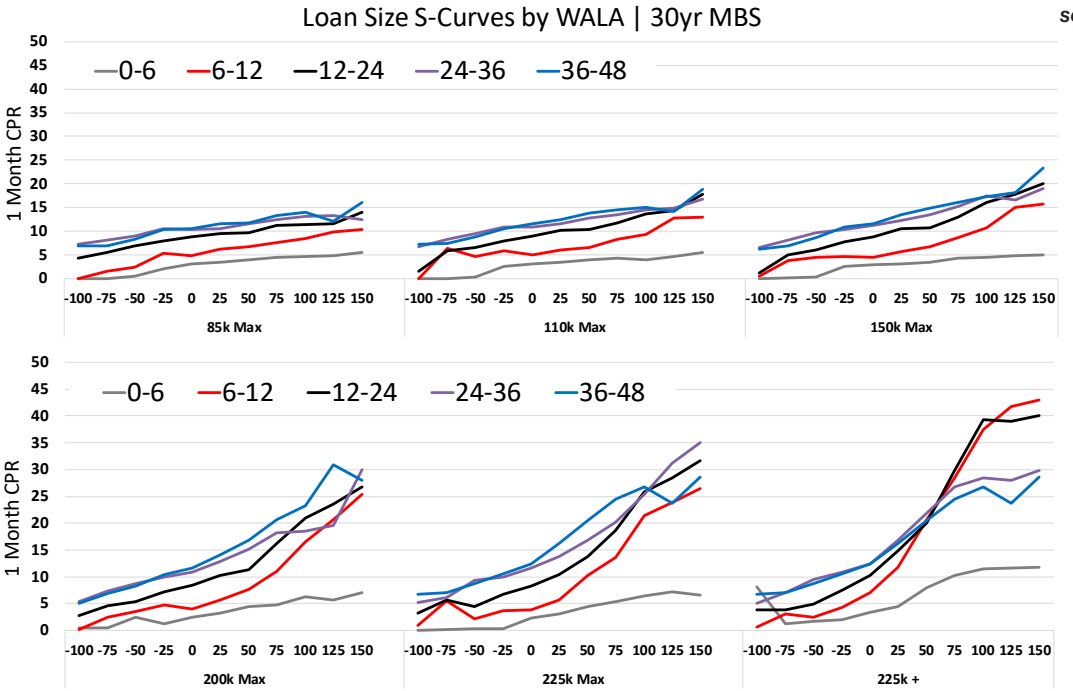
Source: FHN Financial and KDS Global

Seasoning will also be a focus for investors in 2020 especially with the worsening convexity profile of TBA collateral front of mind. Figure 15 displays loan size S-curves by WALA bucket. The S-curves for LLB, MLB, HLB are stable across loan age. The range of prepayments between the different WALA buckets is relatively consistent across incentive buckets. For loans with 75 basis points of incentive, the difference between 0-6 WALA to 6-12 WALA is 4 CPR, between 6-12 WALA and 12-24 WALA is 3 CPR, and between 12-24 and higher WALA buckets is 2 CPR.

Even though the 225k and 200k have much steeper S-curves and print faster speeds than the standard low loan balance stories, it is important to see that "normal" age progression is still intact. In CTD collateral (225k+ in Figure 15), the 6-12 and 12-24 WALA bucket speeds surpassed those of higher WALA buckets for loans with 50 basis points of incentive or more in the past 12 months. The recent trends in CTD have not bled over into any of the loan balance categories. Next month we plan to publish a new monthly prepayment report, the **FHN Financial Collateral Breakout Report** that will present prepayments by age, by age and LTV, and by age and loan size.

Figure 15- Loan Size S-Curves by WALA Bucket, Last 12 Months

Seasoning important for security selection.

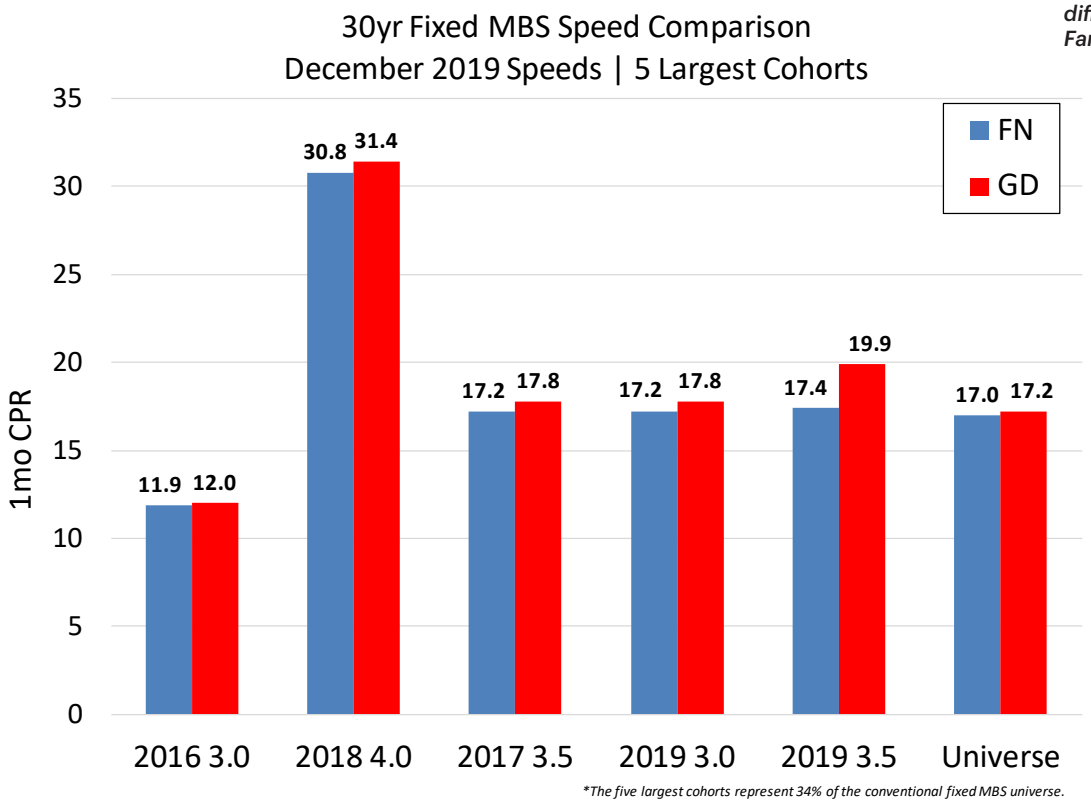


Source: FHN Financial and KDS Global

Single Security/ UMBS went live on June 3, 2019. If it were not for the massive move in rates, the UMBS rollout would have been the largest headline of the year in agency MBS. There are three points about the rollout that deserve attention from a prepayment perspective. First, the FHFA limited the spread between Gross WAC of any loan in a pool and the pool's coupon to 112.5 basis points. Second, the FHFA limited the servicing fee to 50 basis points. Third, they established misalignment and material misalignment definitions. A 2 CPR divergence is considered misalignment and a 3 CPR divergence is considered material misalignment. Figure 16 shows the December 1mo speeds for the five largest UMBS cohorts. The speeds are all within the 2CPR alignment threshold for UMBS, except for the 2019 3.5 cohort.

Figure 16- Speed Differentials in Largest UMBS Vintage Cohorts

Very small speed differences between Fannie and Gold in UMBS.



**The five largest cohorts represent 34% of the conventional fixed MBS universe.*

Source: FHN Financial and KDS Global

Prepayments in 2020 will remain elevated until the 2018 vintage begins to burnout. If there is another massive rally in Treasuries this year, the 2019 vintage could potentially print even faster speeds than the 2018 vintage performed last year. Steep S-curves and faster seasoning are the new normal. If rates stay close to today's levels, we expect signs of burnout in the next six to nine months. However, there are other factors could affect the rate of burnout and keep speeds elevated for longer than just interest rates would imply. Originators may focus their attention on segments of the market that have not participated in the first stage of the refi wave such as loans in 200k Max and 225k Max pools. New mortgage origination technology such as an application that could identify borrowers for the appraisal waiver would also drive speeds faster. In other words, the unexpected risk to prepayments remains to faster, not slower, speeds. Therefore, investing in the 1-4 family mortgage market will continue to require a strict adherence to a disciplined security selection process above all else.

There is an example of a trade idea below that pulls together many of these concepts. The idea is that seasoning for older vintages is too expensive, but the current carry for 2018-vintage pools is a challenge given current speeds. Therefore, one can match a 2018-vintage 30yr 3.5 with a convexity CMO and compare that combination to a more seasoned 30yr 3.5.

Figure 17: Convexity Barbell Trade to Onboard Proper Seasoning Position

Swap/Switch Analysis

as of 1/17/2020

	Security	Mtg Collateral	Type	Price	Par Amount	Market Value	WALA	WAM	Current Coupon	WAC	FICO	WA Ln Size	Curr LTV
Sell:	FN AE0828	FNCL	MBS 30yr	105.69	40,000,000	42,275,000	111	235	3.50	4.07	773	190,842	34.5
Buy:	FR ZS4789	FNCL	MBS 30yr	103.44	21,000,000	21,721,875	19	338	3.50	4.37	762	310,998	71.0
	FNR 2019-69 A	FNMDI3 4	Agency CMO	100.94	21,000,000	21,196,875	30	284	2.50	4.63	661	213,467	61.4
Buy Totals:				**102.20**	**42,000,000**	**42,918,750**	**24**	**311**	**3.01**	**4.50**	**712**	**262,829**	**66.2**
Sell Totals:				**105.69**	**40,000,000**	**42,275,000**	**111**	**235**	**3.50**	**4.07**	**773**	**190,842**	**34.5**
Net Effect				***-3.48***	***2,000,000***	***643,750***	***-87***	***76***	***-0.49***	***0.43***	***-61***	***71,987***	***31.8***

	Security	Mtg Collateral	Type	YTM	Avg Life	Static Spread	LIBOR OAS	Eff Dura	Eff Convx	Vol Duration*	YB Projection 1yr CPR	YB Projection LT CPR	Historical 1mo CPR	Historical 3mo CPR
Sell:	FN AE0828	FNCL	MBS 30yr	2.28	5.32	58.3	30.1	3.25	-1.65	1.28	13.6	12.4	14.6	15.0
Buy:	FR ZS4789	FNCL	MBS 30yr	2.49	4.02	82.2	39.1	2.08	-2.40	1.97	28.5	20.5	32.8	38.2
	FNR 2019-69 A	FNMDI3 4	Agency CMO	2.24	4.54	52.0	33.5	4.05	-0.57	1.84	16.9	17.1	18.5	15.6
Buy Totals:				**2.37**	**4.28**	**67.3**	**36.3**	**3.05**	**-1.50**	**1.90**	**22.8**	**18.8**	**25.7**	**27.0**
Sell Totals:				**2.28**	**5.32**	**58.3**	**30.1**	**3.25**	**-1.65**	**1.28**	**13.6**	**12.4**	**14.6**	**15.0**
Net Effect				***0.09***	***-1.04***	***9.0***	***6.2***	***-0.19***	***0.15***	***0.62***	***9.2***	***6.4***	***11.1***	***12.0***

	Security	Mtg Collateral	Type	12mo TRR Forward	upsteep	upflat	up100	base	dn100	dnflat	dnsteep
Sell:	FN AE0828	FNCL	MBS 30yr	2.35	0.10	1.26	-0.89	2.33	4.03	3.19	3.37
Buy:	FR ZS4789	FNCL	MBS 30yr	2.52	0.85	1.65	-0.02	2.47	2.82	2.40	3.28
	FNR 2019-69 A	FNMDI3 4	Agency CMO	2.19	-0.35	1.19	-1.24	2.20	5.08	4.06	3.20
Buy Totals:				**2.36**	**0.26**	**1.42**	**-0.62**	**2.33**	**3.93**	**3.22**	**3.24**
Sell Totals:				**2.35**	**0.10**	**1.26**	**-0.89**	**2.33**	**4.03**	**3.19**	**3.37**
Net Effect				***0.01***	***0.16***	***0.16***	***0.27***	***0.00***	***-0.09***	***0.03***	***-0.13***

**** Grossed up by a factor of 100.***

Source: FHN Financial and YieldBook

The CMO in the trade is seasoned/modified collateral that provides a good deal of convexity. As a combination, this trade has very similar duration and convexity profile relative to the 111-WALA 30yr 3.5. Furthermore, the 19-WALA 30yr 3.5 is priced more than two points behind the 111-WALA bond, so one would expect the former to perform well if/ when prepayments move into the burn-out phase of the ageing curve.

In conclusion, ***seasoning/burnout will become a main focus for investors throughout 2020, if it has not already.*** There are many ways that investors can play this trade, and much of the performance will be duration-dependent. With our marginally constructive outlook on the basis and with spec pool prepayments very high by historical standards, it is incumbent upon investors to use ageing curves to find marginal value within the sector.

MBS Snapshot

				Change			52 Week		
		January 10, 2020	Z-Score*	Week	MTD	YTD	High	Low	Avg
Prices									
30 Year	3.0	101.75	1.1	0.06	0.02	2.83	102.27	97.23	100.24
	3.5	103.00	1.2	0.03	0.00	1.56	103.05	99.66	101.83
	4.0	104.23	1.5	0.11	0.14	1.36	104.25	101.69	103.20
	4.5	105.39	1.3	0.03	0.03	1.38	105.58	103.36	104.59
	5.0	106.91	1.0	(0.03)	(0.02)	1.61	107.19	104.75	106.09
	5.5	107.73	0.7	0.02	(0.08)	0.81	108.50	105.94	107.22
15 Year	2.5	101.20	1.1	0.02	0.00	0.27	101.63	97.53	99.97
	3.0	102.67	1.2	(0.03)	(0.02)	0.16	102.73	99.53	101.46
	3.5	103.91	1.4	0.05	0.09	0.09	104.00	101.36	102.86
	4.0	104.50	1.3	0.17	0.16	0.00	104.55	102.45	103.63
	4.5	102.88	0.5	(0.03)	0.06	0.06	105.00	101.27	102.50
	5.0	105.66	2.0	(0.13)	(0.13)	(0.11)	106.27	100.53	102.78
	5.5	106.56	1.2	(0.22)	(0.30)	(0.28)	107.02	98.25	103.07
20 Year	3.0	102.63	1.0	0.02	0.30	0.48	103.02	98.47	101.24
	3.5	104.19	1.2	0.00	0.11	0.27	104.19	100.58	102.88
	4.0	105.23	1.6	0.14	0.27	0.44	105.23	102.50	104.09
	4.5	106.27	1.4	0.03	0.16	0.16	106.27	104.06	105.35
	5.0	106.91	1.0	(0.02)	(0.02)	(0.02)	107.14	104.84	106.09
	5.5	107.73	0.7	(0.08)	(0.19)	(0.08)	108.50	106.00	107.23
I-Spreads (UST)									
30 Year	3.0	75.6	-0.3	(2.9)	(5.5)	0.8	108.7	59.2	79.0
	3.5	77.9	-1.2	(2.8)	(5.3)	-4.1	122.5	73.0	91.6
	4.0	85.2	-2.1	(5.0)	(8.5)	-4.2	118.2	83.9	99.3
	4.5	78.5	-1.7	(6.7)	(10.0)	-5.6	117.9	76.3	95.7
	5.0	67.0	-1.0	(6.0)	(10.6)	-2.7	122.0	53.2	89.4
	5.5	85.7	-0.5	(5.5)	(10.2)	-2.0	145.3	51.0	100.3
	6.0	85.6	-0.9	(10.1)	(11.8)	-4.9	159.1	53.4	114.0
	6.5	134.6	-1.3	(2.4)	(3.7)	2.2	227.9	96.0	182.2
15 Year	2.5	36.9	-1.6	(2.0)	(2.6)	-3.9	63.1	34.6	45.6
	3.0	37.2	-1.5	2.5	1.3	2.5	68.9	32.9	49.4
	3.5	33.9	-1.5	(2.9)	(6.9)	-4.9	69.0	29.7	45.6
	4.0	37.4	-0.4	(0.4)	(3.5)	1.2	154.1	22.5	42.8

Primary Market

							52 Week		
Mortgage Rates									
Conforming	30 Year	3.65	-1.2	(0.09)	(0.09)	(0.21)	4.57	3.37	3.95
	15 Year	3.22	-0.5	(0.06)	(0.06)	(0.19)	3.76	2.67	3.33
	5x1 Hybrid	3.98	0.2	0.02	0.01	0.49	4.25	2.87	3.96
Borrower Activity							52 Week		
MBA Refinance Index		2,445	1.3	731	1,070	586	2,755	1,019	1,771
MBA Purchase Index		304	3.2	41	48	54	304	229	260

Z-Score (12mo):

Green	1.0 standard deviation low price or high yield/spread
Yellow	Mean
Red	1.0 standard deviation high price or low yield/spread

CMO Spreads

				Change			52 Week		
		January 10, 2020	Z-Score	Week	MTD	YTD	High	Low	Avg
PACs									
30 Year	2 yr	39	-1.6	(3)	(3)	(3)	55	39	46
	3 yr	45	-2.5	(3)	(3)	(3)	60	45	53
	4 yr	57	-2.5	(3)	(3)	(3)	72	57	66
	5 yr	64	-2.2	(3)	(3)	(3)	75	64	70
	7 yr	67	-2.6	(3)	(3)	(3)	85	67	80
	10 yr	84	-2.5	(3)	(3)	(3)	110	84	102
15 Year	2 yr	39	-1.6	(3)	(3)	(3)	55	39	46
	3 yr	45	-2.2	(3)	(3)	(3)	60	45	52
	4 yr	57	-1.9	(3)	(3)	(3)	67	57	62
	5 yr	62	-1.6	(3)	(3)	(3)	75	62	67
	7 yr	62	-2.3	(3)	(3)	(3)	85	62	75
	10 yr	82	-2.5	(3)	(3)	(3)	107	82	99
Sequentials									
30 Year	2 yr	39	-1.6	(3)	(3)	(3)	55	39	46
	3 yr	45	-2.2	(3)	(3)	(3)	60	45	52
	4 yr	57	-2.3	(3)	(3)	(3)	72	57	65
	5 yr	64	-2.2	(3)	(3)	(3)	75	64	70
	7 yr	67	-2.6	(3)	(3)	(3)	85	67	80
	10 yr	84	-2.3	(3)	(3)	(3)	110	84	103
15 Year	2 yr	39	-1.6	(3)	(3)	(3)	55	39	46
	3 yr	45	-1.6	(3)	(3)	(3)	66	45	53
	4 yr	57	-1.3	(3)	(3)	(3)	67	55	61
	5 yr	62	-1.6	(3)	(3)	(3)	75	62	67
	7 yr	62	-2.3	(3)	(3)	(3)	85	62	75
	10 yr	82	-2.2	(3)	(3)	(3)	107	82	98
ARM (Z-spreads)									
5x1 2/2/5	2.00	52	0.0	(2)	(2)	(2)	77	27	53
	2.50	58	0.0	(2)	(2)	(2)	83	32	58
	3.00	62	0.0	(2)	(2)	(2)	87	35	62
	3.50	66	0.0	(2)	(2)	(2)	91	40	66
7x1 5/2/5	2.00	60	0.0	(2)	(2)	(2)	85	34	60
	2.50	66	0.0	(2)	(2)	(2)	91	40	66
	3.00	76	0.2	(2)	(2)	(2)	101	40	72
	3.50	84	0.2	(2)	(2)	(2)	109	45	79
10x1 5/2/5	2.00	78	0.0	(2)	(2)	(2)	103	52	78
	2.50	84	0.0	(2)	(2)	(2)	109	57	84
	3.00	89	0.1	(2)	(2)	(2)	114	58	87
	3.50	91	0.0	(2)	(2)	(2)	116	63	91

* YTM

** Spreads calculated to 15 CPB.

CMO Floater (Discount Margins)									
Passthru	6.5 Cap	52	1.9	2	2	11	52	42	47
	7.0 Cap	49	2.0	2	2	12	49	38	44
Support	5.0 Cap	100	0.2	0	0	(15)	115	85	99
	5.5 Cap	95	0.5	0	0	(10)	105	75	90
	6.0 Cap	90	0.8	0	0	(5)	95	70	83

Alternative Markets

				Change			52 Week		
		January 10, 2020	Z-Score	Week	MTD	YTD	High	Low	Avg
CMBS Spreads									
New Issue	3y	40	-0.1	(1)	(3)	(3)	45	34	40
	5y	65	0.5	(5)	(7)	(7)	72	53	63
	7y	82	0.3	(3)	(5)	(5)	88	68	80
	10y	85	-2.1	(7)	(10)	(10)	100	83	94
ACMBS									
Fixed (N-Spread)	7y	46	0.2	0	(1)	(1)	51	40	45
	10y	52	-2.0	0	(1)	(1)	64	52	57
Floating (DM)	7y	50	1.4	0	(1)	(1)	51	40	46
	10y	55	1.2	0	(2)	(2)	57	44	51
RMBS 2.0									
AAA CC Price Drop	15yr	(0.50)	0.93	0.00	0.00	0.00	(0.50)	(1.00)	(0.67)
	30yr	(0.94)	1.04	0.00	0.00	0.00	(0.94)	(1.69)	(1.23)
Sprd to Swaps	Front SEQ	74	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Agencies									
Bullets	2y	2.3	0.4	0.8	0.7	2.5	4.5	(0.5)	1.9
	3y	2.0	-2.2	(3.4)	(2.8)	(3.4)	7.2	1.5	4.8
	5y	4.3	-0.8	0.0	1.2	1.0	11.2	3.1	6.0
	10y	21.7	-0.4	(0.2)	(0.0)	(0.2)	33.5	18.4	23.1
Callables	5NC1	28.0	-1.8	(2.2)	(0.9)	0.3	58.6	27.0	42.0
	7NC1	43.0	-1.8	(0.6)	0.4	4.1	82.0	38.9	62.6
	10NC1	72.2	-1.4	1.7	2.5	0.4	105.7	69.7	85.5
	15NC1	85.6	-1.4	3.3	3.9	(1.0)	131.7	81.7	101.9

MBS Index

			Change			52 Week		
			Week	MTD	YTD	High	Low	Avg
Static								
Price	104.61	1.1	0.05	0.03	0.20	106.44	100.56	103.14
Coupon	3.56	-2.8	0.00	0.00	(0.02)	3.67	3.56	3.61
Yield	2.40	-1.1	(0.02)	(0.01)	(0.06)	3.46	2.03	2.80
WAL	4.81	-0.7	(0.03)	(0.00)	(0.04)	6.83	3.87	5.38
Option-Adjusted								
Effective Duration	2.94	-0.4	(0.02)	0.00	(0.11)	4.38	2.05	3.21
Effective Convexity	-1.81	-0.6	(0.01)	0.02	(0.05)	-0.82	-2.10	-1.65
LOAS (bps)	40	-0.5	(0.01)	(1.77)	2.61	62	32	43
Mix								
30YR	90.0%	1.4	0.0%	0.0%	0.1%	90.0%	86.9%	89.6%
15YR	10.0%	-1.4	0.0%	0.0%	-0.1%	13.1%	10.0%	10.4%

Nominal Return	
5 Day	0.25%
10 Day	0.33%
MTD	0.35%
QTD	0.87%
YTD	4.58%
12 Month	6.22%

Source: MTGINDEX data from the Yield Book.

Specified Pool Carry and Breakevens

As of 1/10/2020

Coupon	Specification	Payup (ticks)	Price	WAC	WALA	1-Month Proj CPR ^	Cohort Hist. CPR 1mo	Cohort Hist. CPR 3mo	Carry (ticks)	B/E Months	YTM	WAL	Libor OAS	Effective Duration	Effective Convexity
3.0	TBA (Cheapest to Deliver)		101.266	3.93	7	13.0	4.9	5.7	0.33		2.70	5.33	45.20	3.40	-3.62
3.0	LLB 85k	66.0	103.328	3.51	39	7.7	7.4	7.5	-0.16	n/a	2.43	6.98	51.90	5.47	-0.67
3.0	MLB 110k	56.0	103.016	3.57	41	8.4	6.7	7.3	-0.06	n/a	2.46	6.71	51.87	5.12	-0.98
3.0	HLB 150k	48.0	102.766	3.51	40	8.7	5.9	6.8	-0.11	n/a	2.49	6.50	48.14	4.58	-1.52
3.0	175k Max	38.0	102.453	3.67	43	9.2	5.7	6.6	-0.02	n/a	2.53	6.27	49.41	4.31	-1.71
3.0	200k Max	24.0	102.016	3.68	42	9.7	4.9	6.0	0.14	n/a	2.60	6.11	54.61	4.21	-1.80
3.0	New Wala	2.0	101.328	4.13	14	25.9	0.1	0.0	-1.33	n/a	2.63	4.51	43.48	3.10	-3.38
3.0	20yr	28.0	102.141	3.61	41	9.3	5.1	5.6	-0.02	n/a	2.47	4.78	53.60	3.27	-1.59
3.0	Conv. Jumbo (CK)	-22.0	100.578	3.77	42	10.5	3.8	4.0	0.49	n/a	2.85	5.31	62.06	3.65	-2.99
3.0	100% Investor	8.0	101.516	3.92	45	8.0	4.9	4.9	0.54	37.9	2.72	6.74	60.82	4.34	-2.16
3.5	TBA (Cheapest to Deliver)		102.469	4.44	7	25.9	7.3	8.0	-0.25		2.72	3.83	58.61	2.16	-2.85
3.5	LLB 85k	114.0	106.031	4.02	30	8.1	6.5	7.2	0.10	324.8	2.44	6.69	50.63	4.84	-1.00
3.5	MLB 110k	102.0	105.656	4.05	33	8.7	6.9	7.4	0.10	294.8	2.47	6.49	50.21	4.45	-1.32
3.5	HLB 150k	80.0	104.969	4.04	25	8.5	6.3	7.0	0.27	156.3	2.55	6.20	51.74	3.88	-1.87
3.5	175k Max	64.0	104.469	3.96	44	10.6	6.1	6.5	0.28	121.4	2.60	5.86	56.83	3.69	-1.79
3.5	200k Max	52.0	104.094	3.95	28	9.3	3.5	4.9	0.46	73.9	2.68	5.95	59.11	3.48	-2.26
3.5	New Wala	16.0	102.969	4.64	13	52.6	2.7	2.7	-4.79	n/a	2.09	2.41	2.45	0.26	-2.72
3.5	20yr	39.0	103.688	4.00	36	14.3	5.5	6.2	-0.98	n/a	2.49	4.21	56.82	2.60	-1.61
3.5	Conv. Jumbo (CK)	-23.0	101.750	4.29	43	23.3	5.5	4.9	-0.64	n/a	2.94	3.83	83.43	2.82	-2.52
3.5	100% Investor	30	103.406	4.18	45	10.0	5.6	6.3	0.49	40.8	2.80	5.86	66.10	3.32	-2.60
4.0	TBA (Cheapest to Deliver)		103.672	4.90	7	35.7	6.6	7.1	-0.83		2.63	3.13	62.29	1.36	-2.13
4.0	LLB 85k	158.0	108.609	4.40	30	9.3	8.4	8.7	-0.07	209.0	2.41	6.33	48.46	4.32	-1.04
4.0	MLB 110k	136.0	107.922	4.39	28	9.5	7.4	8.3	-0.04	173.7	2.48	6.09	50.88	3.83	-1.43
4.0	HLB 150k	96.0	106.672	4.43	33	11.6	7.2	7.9	-0.45	254.6	2.58	5.50	58.25	3.19	-1.74
4.0	175k Max	76.0	106.047	4.38	44	11.9	7.0	7.7	-0.17	116.0	2.70	5.50	70.25	3.26	-1.67
4.0	200k Max	65.0	105.703	4.39	31	13.0	5.0	5.6	-1.04	n/a	2.69	5.10	63.85	2.61	-2.12
4.0	New Wala	26.0	104.484	4.91	14	26.4	3.6	3.4	-0.64	142.9	2.48	3.39	54.70	1.92	-1.39
4.0	20yr	28.0	104.547	4.40	32	17.3	7.3	8.3	-0.36	59.6	2.66	3.90	76.72	2.31	-1.34
4.0	Conv. Jumbo (CK)	-44.0	102.297	4.65	34	32.4	8.7	7.5	-1.23	n/a	3.05	2.93	106.55	2.09	-2.23
4.0	100% Investor	44.0	105.047	4.65	35	13.2	7.2	7.5	-0.95	n/a	2.78	4.87	69.20	2.21	-2.56
4.5	TBA (Cheapest to Deliver)		105.219	5.37	7	35.7	9.8	10.0	-1.14		2.43	2.88	56.81	1.18	-1.38
4.5	LLB 85k	188.0	111.094	4.93	28	10.1	8.1	9.1	-0.24	208.2	2.44	6.31	53.40	4.23	-0.88
4.5	MLB 110k	166.0	110.406	4.88	36	11.5	9.2	9.4	-0.91	724.9	2.43	5.84	48.35	3.43	-1.38
4.5	HLB 150k	136.0	109.469	4.94	35	12.3	8.3	9.3	-0.41	186.3	2.51	5.54	55.64	3.09	-1.51
4.5	175k Max	74.0	107.531	4.84	47	13.1	8.0	9.0	-0.48	111.3	2.83	5.33	87.74	3.09	-1.42
4.5	200k Max	56.0	106.969	4.88	32	15.5	12.8	4.6	-1.41	n/a	2.78	4.75	81.22	2.45	-1.58
4.5	New Wala	26.0	106.031	5.37	14	28.4	4.3	3.7	-1.26	n/a	2.26	3.03	46.58	1.60	-0.79
4.5	20yr	20.0	105.844	5.01	30	17.9	7.2	9.3	-0.08	18.9	2.76	3.85	94.14	2.54	-0.76
4.5	Conv. Jumbo (CK)	-54.0	103.531	4.90	42	18.2	6.9	8.9	1.74	n/a	3.56	4.60	164.05	3.69	-1.27
4.5	100% Investor	33.0	106.250	4.84	44	12.9	8.8	9.4	-0.54	55.1	3.06	5.16	103.31	2.58	-2.01
5.0	TBA (Cheapest to Deliver)		107.016	5.39	69	18.0	8.8	12.4	2.54		3.46	5.54	157.50	3.78	-0.70
5.0	LLB 85k	190.0	112.953	5.57	33	11.7	8.5	9.0	-0.91	n/a	2.50	6.04	61.79	4.01	-0.73
5.0	MLB 110k	156	111.891	5.30	36	11.9	11.4	14.2	-1.10	n/a	2.59	5.78	66.52	3.27	-1.29
5.0	HLB 150k	106	110.328	5.31	33	13.8	9.3	9.5	-1.55	n/a	2.61	5.02	69.94	2.71	-1.26
5.0	175k Max	88	109.766	5.27	48	16.0	11.8	15.3	-1.37	n/a	2.62	4.74	74.30	2.59	-1.05
5.0	200k Max	72	109.266	5.65	31	21.6	5.9	6.8	-2.27	n/a	2.22	3.75	41.56	1.73	-0.81
5.0	New Wala	10	107.328	5.94	13	24.6	4.3	4.3	-1.67	n/a	2.66	3.59	81.92	1.72	-1.01
5.0	100% Investor	18	107.578	5.32	34	22.6	11.2	12.2	-3.01	n/a	2.75	3.90	87.44	1.64	-1.25

^ Source: FHN Financial, Yieldbook