## Understand a Critical Model Assumption     p. 2

There has been recently a noticeable backup in Treasury rates and a steepening of the 2/10 yield curve.  However, primary mortgage rates remain at or below all-time lows.  This month, we take a deep dive into the effects of a wide primary/secondary spread on the market and its potential implications for performance in the MBS portfolio.                                    – Walt Schmidt

## Non-Bank Buyouts in Ginnie     p. 12

Nonbank buyout activity ticked higher in October for the first time this year.  The two largest Ginnie Mae servicers, Lakeview and PennyMac, bought out over $3.8 billion in delinquent loans last month.  However, over $158 billion of the Ginnie universe is still in 60D+ delinquency.  The timing and magnitude of nonbank buyouts will drive GN prepayments over the next few months.  The following analysis will identify where buyout risk is the most concentrated by servicer and coupon.                                    – Alexis Vilimas

## Market Update     p. 21

Month-to-date, 30yr and 15yr coupons are showing varying performance against their swap and treasury hedges. The upper wings of the coupon stack have underperformed, while the current production coupons have mostly outperformed during November.  CMO spreads are unchanged, with the exception of ARMs tightening by 9bps.  Payups for loan balance specified pools are mixed throughout the coupon stack. For October, overall prepayment speeds increased by 5.5%. Faster speeds were a common theme throughout due to strong home sales and an exceptionally low rate environment. Speeds for the Ginnie Mae sector increased by 5.6% for the month.                                    – Brandon Messing

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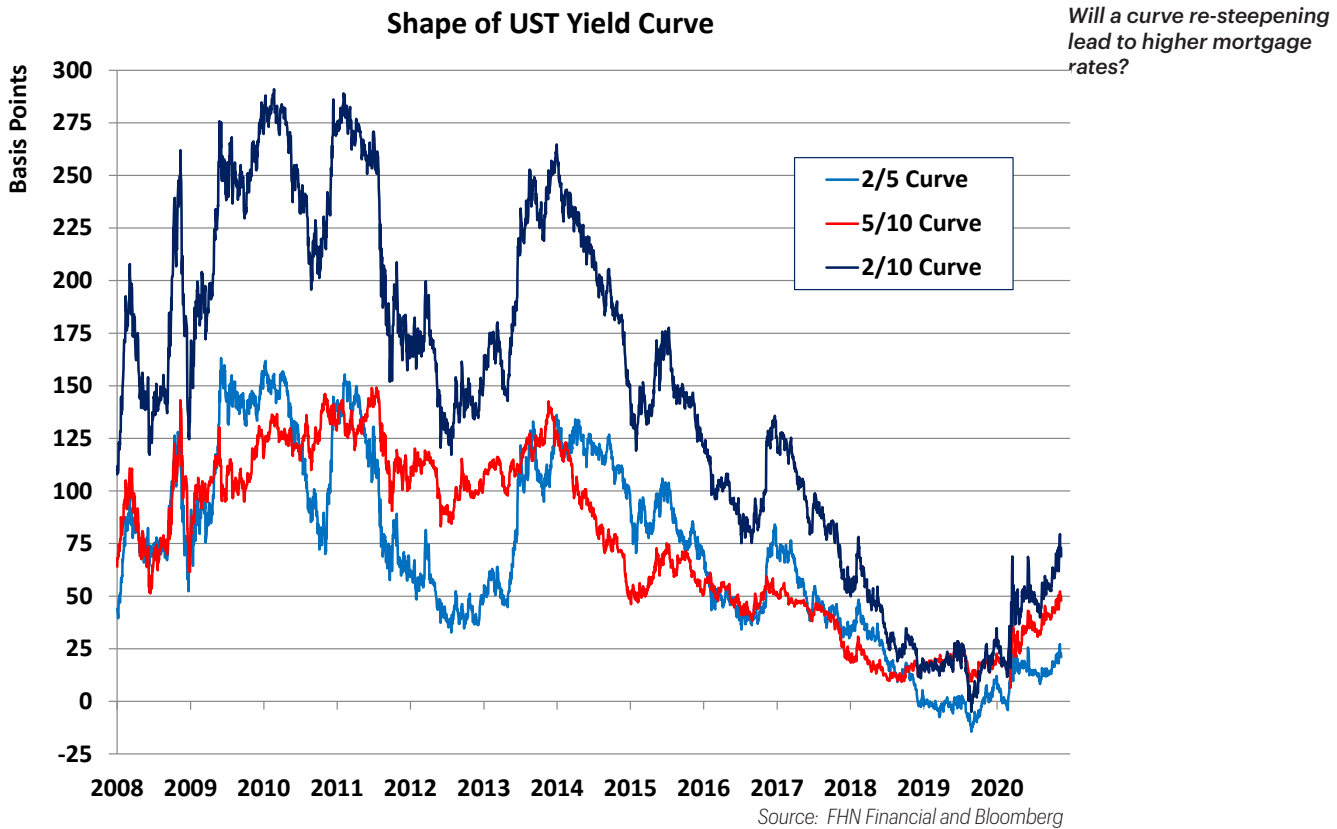alexis.vilimas@fhnfinancial.com

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**Executive Summary: There has been recently a noticeable backup in Treasury rates and a steepening of the 2/10 yield curve. However, primary mortgage rates remain at or below all-time lows. This month, we take a deep dive into the effects of a wide primary/secondary spread on the market and its potential implications for performance in the MBS portfolio.**
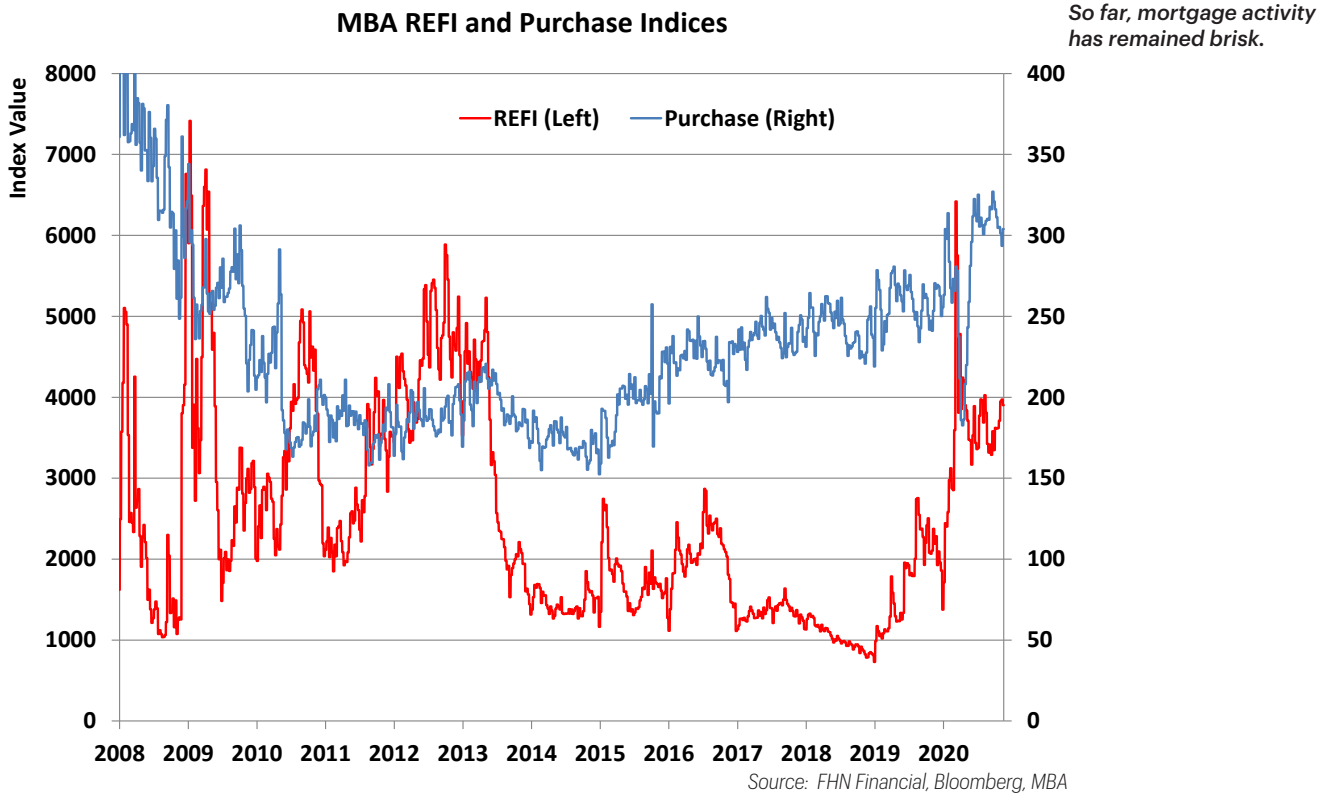
After spending most of 2019 and almost two months of 2020 in a fairly narrow range, the shape of the area of the US Treasury yield curve that most affects MBS prepayment assumptions and performance has steepened noticeably.

**Figure 1: Still Flat by Historical Standards, the 2/10 UST Curve Is On a Steepening Trend**

*Will a curve re-steepening lead to higher mortgage rates?*



**Shape of UST Yield Curve**

Legend:
— 2/5 Curve
— 5/10 Curve
— 2/10 Curve

Y-axis: Basis Points (-25 to 300)
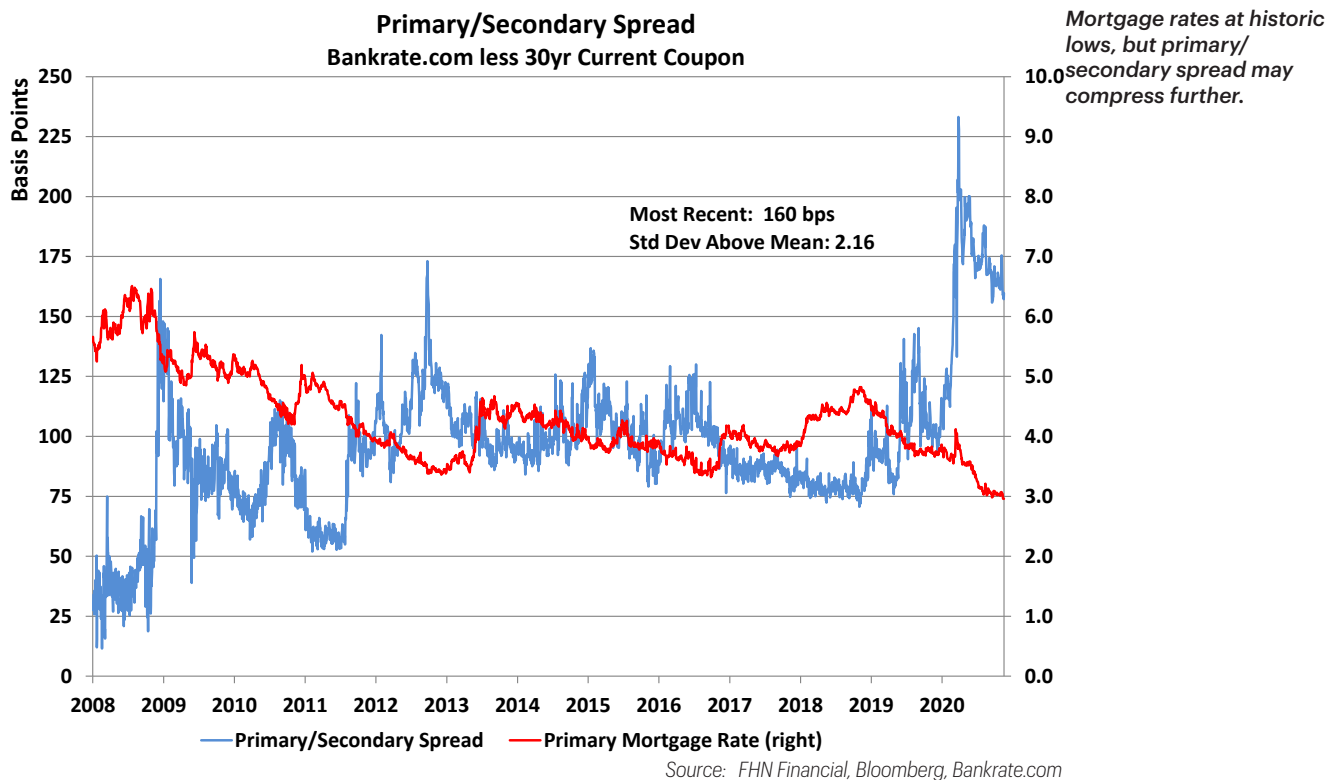X-axis: 2008–2020

*Source: FHN Financial and Bloomberg*

Despite the recent steepening of the yield curve and the increase of more than 35 basis points in the yield of the 10yr Treasury Note from early August, both refinance and purchase activity in the mortgage market have remained very robust.

**Figure 2: Higher Treasury Yields Are Not Having a Deleterious Effect on Mortgage Activity**

*So far, mortgage activity has remained brisk.*



MBA REFI and Purchase Indices

REFI (Left) — Purchase (Right)

*Source: FHN Financial, Bloomberg, MBA*

The main reason that applications activity remains robust is that despite the fact that Treasury yields are higher, primary mortgage rates are actually lower. This seemingly inconsistent outcome is due to the fact that both the spread between MBS and UST yields is tighter and what is known as the "primary/secondary" spread is also tighter. This is simply the spread between the primary mortgage rate offered to the borrower (we use the daily bankrate.com rate with no points) and the implied yield of the underlying MBS. Both the actual primary rate and the primary/secondary spread are displayed in Figure 3 below.
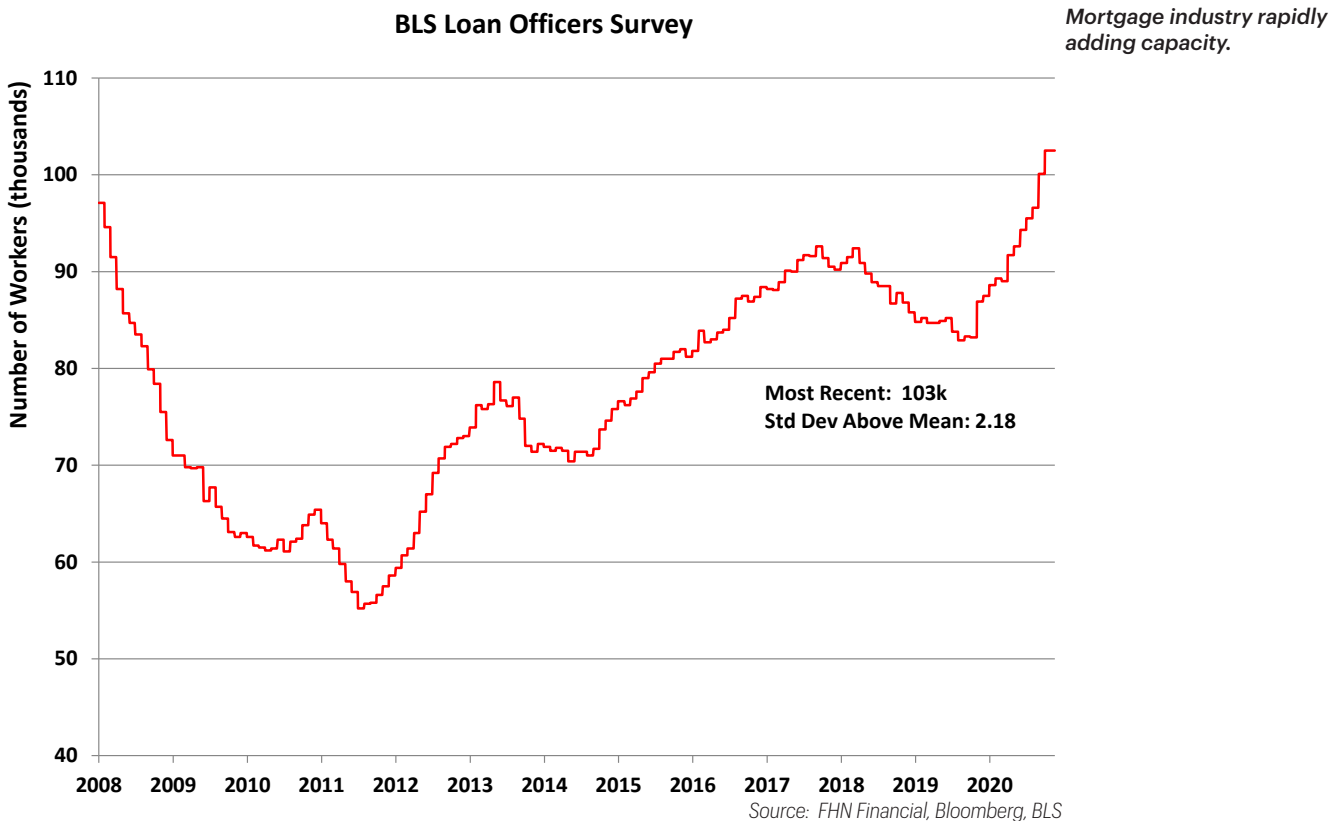
**Figure 3: Rates Are at Historic Lows, but Spreads Suggest They Can Go Lower Still**



Primary/Secondary Spread
Bankrate.com less 30yr Current Coupon

Most Recent: 160 bps
Std Dev Above Mean: 2.16

*Mortgage rates at historic lows, but primary/secondary spread may compress further.*

Primary/Secondary Spread — Primary Mortgage Rate (right)

*Source: FHN Financial, Bloomberg, Bankrate.com*

The primary/secondary spread has contracted significantly from around 230 basis points in late-March to 160 basis points currently. However, the long-term historical average is around 100 basis points, which means that the current spread is more than two standard deviations wide. The long-term average is also a good target for the post 2008/2009 crisis period as there were many prints around a narrow range of 100 basis points in that era before Covid-19. The question then becomes: will the primary/secondary spread retreat to this level and if so, what effect will that have on prepayments?

A viable response to the second half of the question is the subject of the final portion of this missive. But as to the question of "whether" a further spread tightening will come to pass, there are some potentially conflicting forces at work.

Perhaps the best argument in favor of a further contraction of the primary/secondary spread is the tremendous growth in industry capacity during the past few months. While large swaths of the global economy have been severely and negatively impacted by Covid-19-related shut-downs, the mortgage origination industry has thrived – and grown.

**Figure 4: BLS Loan Officers' Survey Indicates a One-Way Direction in Capacity Growth**

**BLS Loan Officers Survey**

*Mortgage industry rapidly adding capacity.*

Most Recent: 103k
Std Dev Above Mean: 2.18

*Source: FHN Financial, Bloomberg, BLS*

The mortgage origination industry is now larger than at any time since the mid-2000s. That is quantifiable. In addition, there are less quantifiable factors that tend to increase prepayment speeds, such as technology improvements and closing-friendly policies adopted by the regulator of the GSEs, the Federal Housing Finance Administration (FHFA), in light of the social-distance requirements of the Covid-19 lockdowns.

On the other hand, the GSEs will be charging 50 basis points up front as a loan level price adjustment (LLPA) for any refinance loan starting on December 1, 2020. The present value of that up-front fee is anywhere from 5-15 basis points (depending on what average life one applies to the loan) when applied to the monthly payment. That would be the same number of basis points that would impact the elbow of the refi-response. So net of that fee, the primary/secondary spread may not narrow as much as it otherwise would.

Our general view on the primary/secondary spread can be summarized with the following:

1. The spread will likely contract to the long-term historical averages in a rate backup, meaning that primary mortgage rates will not increase much if the UST and MBS markets back up 25-50 basis points from here. This is because originators, who recently hired a good deal of new capacity and are still enjoying wide spreads, will not want to lose market share.

2. The spread will likely not contract much more from here in a UST market rally as the media effect and a general high level of activity will not mean that originators will need to drop rates substantially.

3.  The main unknown is what happens in the "base case". If underlying UST and MBS yields do not change much over the next several months, will primary mortgage rates continue to drift lower? The answer is likely "yes", but at a slower pace than the primary/secondary spread has tightened over the previous six months.

The notion of whether the spread will tighten and by how much has potentially enormous implications for the performance of *most* mortgage-related assets. In order to get a sense of this, we conducted a not-comprehensive, but somewhat-representative study of various MBS and CMO assets in the YieldBook™.

The current version of YieldBook (v21.6) assumes that the primary/secondary spread will decay by approximately 50 basis points on a fairly straight-line basis during the next 12 months. That directly impacts what is known as the "driving mortgage rate", which also falls by 50 basis points. In other words, a bond that is at the money today will be 50 basis points in-the-money in 12 months *with no change in underlying UST or MBS yields*. And regular readers of this space know that prepayments for most mortgage assets can be double or more at 50 basis points in-the-money relative to at-the-money.

The experiment, then, is simple. We calculated traditional mortgage-related statistics such as average life, yield, effective duration, OAS, etc. on two portfolios of assets. The first is low-WALA, low-payup specified pools that represent the current coupons. The second is "story" bonds in both pool and CMO form that have some sort of convexity attribute in either the collateral or structure, or both. At this point, we will reveal the bottom line results before we display them: *investors who want to mitigate the risk of a further compression of the primary/secondary spread should consider a higher weight to the "story" portfolio.*

The data in Table 1 below display the securities used in the analysis. There are only six securities in each "portfolio" to allow the reader to see the results for each security more clearly. The "pool" portfolio is simply a mixture of 10yr through 30yr passthrus with coupons that range from 1.50% to 2.50%. The "story" portfolio is a combination of pools and CMOs with a mixture of call and yield protection attributes in the form of collateral, structure and coupon characteristics.

**Table 1: The Test Case Portfolios**

*The decision set.*

| Security | Mtg Collateral | Type | Price | WALA | WAM | Current Coupon | WAC | FICO | WA Ln Size | Curr LTV | YTM | Avg Life | Cons WAL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *YieldBook Model v21.6* | | | | | | | | | | | | | |
| | | Pool Avg | 103.74 | 1 | 240 | 1.92 | 2.74 | 769 | 316,603 | 63.7 | 0.67 | 3.22 | 3.93 |
| FR RD5042 | FNCN | 10yr 1.5 | 103.00 | 1 | 119 | 1.50 | 2.35 | 777 | 254,355 | 48.9 | 0.35 | 2.72 | 2.72 |
| FN MA4205 | FNCI | 15yr 1.5 | 102.47 | 1 | 179 | 1.50 | 2.25 | 779 | 328,745 | 58.6 | 0.62 | 2.96 | 4.09 |
| FN MA4206 | FNCI | 15yr 2.0 | 104.06 | 1 | 179 | 2.00 | 2.64 | 774 | 315,337 | 59.0 | 0.35 | 2.57 | 3.92 |
| FR RB5090 | FNCT | 20yr 2.0 | 103.97 | 1 | 239 | 2.00 | 2.89 | 766 | 297,620 | 64.1 | 0.63 | 3.06 | 4.25 |
| FN BQ6117 | FNCL | 30yr 2.0 | 103.91 | 2 | 359 | 2.00 | 2.97 | 772 | 369,578 | 74.2 | 1.03 | 4.38 | 4.88 |
| FN BQ6035 | FNCL | 30yr 2.5 | 104.97 | 2 | 359 | 2.50 | 3.35 | 748 | 333,450 | 77.1 | 1.01 | 3.60 | 3.70 |
| | | "Story" Average | 103.33 | 20 | 305 | 1.82 | 3.52 | 743 | 384,573 | 66.3 | 1.00 | 3.77 | 4.01 |
| FR ZT1257 | FNCL | Seas 110k Max 3.0 | 109.59 | 91 | 254 | 3.00 | 3.55 | 763 | 68,910 | 36.8 | 0.95 | 4.99 | 3.45 |
| FN BQ8450 | FNCI | Quicken 150k FNCI 2 | 104.25 | 0 | 175 | 2.00 | 2.69 | 756 | 138,519 | 56.7 | 0.55 | 3.08 | 3.94 |
| FHR 5034 ND | FRJM32.5 | 1.25 Conf Jumbo PAC | 100.56 | 2 | 357 | 1.25 | 3.39 | 758 | 622,510 | 70.8 | 0.94 | 2.09 | 2.60 |
| GNR 2020-134 AQ | G2SF 3 | 100% HFA GNR PAC | 100.32 | 3 | 357 | 1.00 | 3.31 | 758 | 318,900 | 95.4 | 0.91 | 4.18 | 3.01 |
| FNR 2020-92 PH | FNJMC2.5 | New Par PAC Jumbo | 99.98 | 0 | 359 | 1.00 | 3.28 | 758 | 612,752 | 70.7 | 0.98 | 1.91 | 2.59 |
| FNR 2019-70 MB | FNJMCK 4 | Seas CK 4.0 LCF PAC | 104.63 | 19 | 338 | 2.50 | 4.87 | 738 | 576,630 | 70.2 | 1.69 | 6.22 | 8.35 |
| | | | | | | | | | | | | | |
| *No Primary/Secondary Spread Decay* | | | | | | | | | | | | | |
| | | Pool Avg | 103.74 | 1 | 240 | 1.92 | 2.74 | 769 | 316,603 | 63.7 | 1.06 | 4.93 | 3.93 |
| FR RD5042 | FNCN | 10yr 1.5 | 103.00 | 1 | 119 | 1.50 | 2.35 | 777 | 254,355 | 48.9 | 0.57 | 3.38 | 2.72 |
| FN MA4205 | FNCI | 15yr 1.5 | 102.47 | 1 | 179 | 1.50 | 2.25 | 779 | 328,745 | 58.6 | 0.92 | 4.54 | 4.09 |
| FN MA4206 | FNCI | 15yr 2.0 | 104.06 | 1 | 179 | 2.00 | 2.64 | 774 | 315,337 | 59.0 | 0.85 | 3.75 | 3.92 |
| FR RB5090 | FNCT | 20yr 2.0 | 103.97 | 1 | 239 | 2.00 | 2.89 | 766 | 297,620 | 64.1 | 1.10 | 4.78 | 4.25 |
| FN BQ6117 | FNCL | 30yr 2.0 | 103.91 | 2 | 359 | 2.00 | 2.97 | 772 | 369,578 | 74.2 | 1.42 | 7.50 | 4.88 |
| FN BQ6035 | FNCL | 30yr 2.5 | 104.97 | 2 | 359 | 2.50 | 3.35 | 748 | 333,450 | 77.1 | 1.51 | 5.59 | 3.70 |
| | | "Story" Average | 103.33 | 20 | 305 | 1.82 | 3.52 | 743 | 384,573 | 66.3 | 1.15 | 5.15 | 4.01 |
| FR ZT1257 | FNCL | Seas 110k Max 3.0 | 109.59 | 91 | 254 | 3.00 | 3.55 | 763 | 68,910 | 36.8 | 1.17 | 5.67 | 3.45 |
| FN BQ8450 | FNCI | Quicken 150k FNCI 2 | 104.25 | 0 | 175 | 2.00 | 2.69 | 756 | 138,519 | 56.7 | 0.86 | 3.94 | 3.94 |
| FHR 5034 ND | FRJM32.5 | 1.25 Conf Jumbo PAC | 100.56 | 2 | 357 | 1.25 | 3.39 | 758 | 622,510 | 70.8 | 1.10 | 4.35 | 2.60 |
| GNR 2020-134 AQ | G2SF 3 | 100% HFA GNR PAC | 100.32 | 3 | 357 | 1.00 | 3.31 | 685 | 318,900 | 95.4 | 0.92 | 4.89 | 3.01 |
| FNR 2020-92 PH | FNJMC2.5 | New Par PAC Jumbo | 99.98 | 0 | 359 | 1.00 | 3.28 | 758 | 612,752 | 70.7 | 0.99 | 4.60 | 2.59 |
| FNR 2019-70 MB | FNJMCK 4 | Seas CK 4.0 LCF PAC | 104.63 | 19 | 338 | 2.50 | 4.87 | 738 | 576,630 | 70.2 | 1.81 | 7.35 | 8.35 |

All analytics performed on the Yield Book using the current prepayment model.
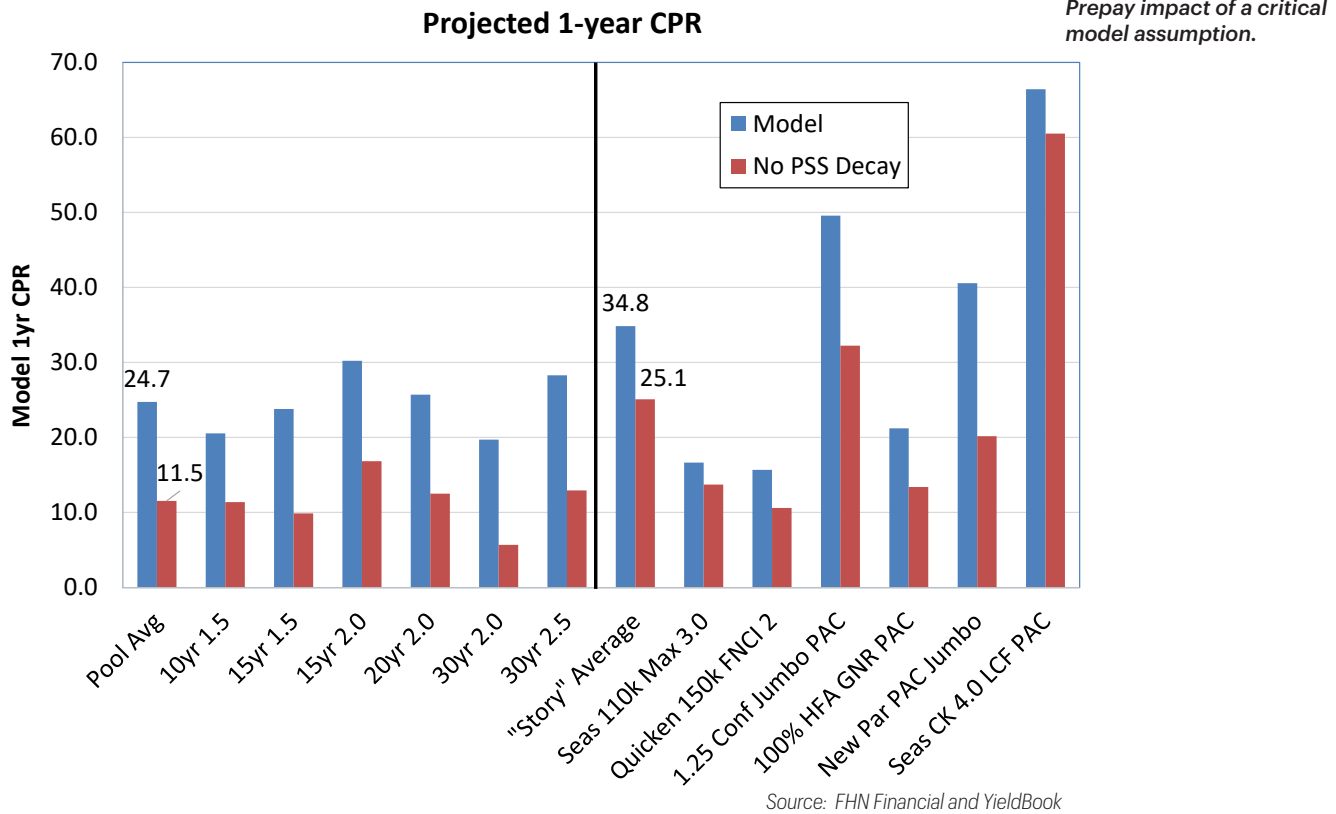
*Source: FHN Financial and YieldBook*

This table displays descriptive information as well as yield and average life. The roll-up totals are based on a simple average of the six assets in each portfolio. To provide a recognized benchmark to which to compare, we also display consensus speed average life. There are charts below that spell out additional conclusions. But even from this table one can clearly see the two main takeaways:

1. The primary/secondary spread assumption has a very large impact on the "pool" portfolio. The actual model *with the decay assumption* produces an average life that is much shorter than consensus, whereas the model *without the decay assumption* produces a much longer average life (red highlights in table). Therefore, the yield of the "pool" portfolio is much better if the primary/secondary spread does not decay.

2. The average life for the "story" portfolio also increased based on the change in the primary/secondary spread decay assumption. However, the yield profile changed only very little from 1.00% to 1.15%.

The data are easier to see in graph form, so we display the other pertinent details that way. The first one is the projected one-year CPR. In each case, eliminating the primary/secondary spread decay reduces the one-year CPR by approximately 13. However, that 13 represents a much higher percentage of the prepay profile of the "pool" portfolio. That is why the yield impact was much larger for the "pool" portfolio than for the "story" portfolio. It also had a larger impact on TRR and spread, as we will see below.

**Figure 5: The Model Assumption Has Larger Comparative Impact on "Pool" Portfolio**

*Prepay impact of a critical model assumption.*



Projected 1-year CPR

*Source: FHN Financial and YieldBook*

The effective duration change is also very different between the "pool" and "story" portfolios. For the former, the effective duration extends by 40% if the decay is turned off. For the latter, the extension is only 5%. Certainly, a longer effective duration and average life under the no decay assumption would be valuable for the "pool" portfolio from the standpoint of yield. But the benefit of the results for the "story" portfolio is much less uncertainty *regardless of the decay assumption.*

**Figure 6: Effective Duration Differential Very Small for "Story" Portfolio**

*Effective duration differential very low with "story" portfolio.*



**Effective Duration**

Source: FHN Financial and YieldBook
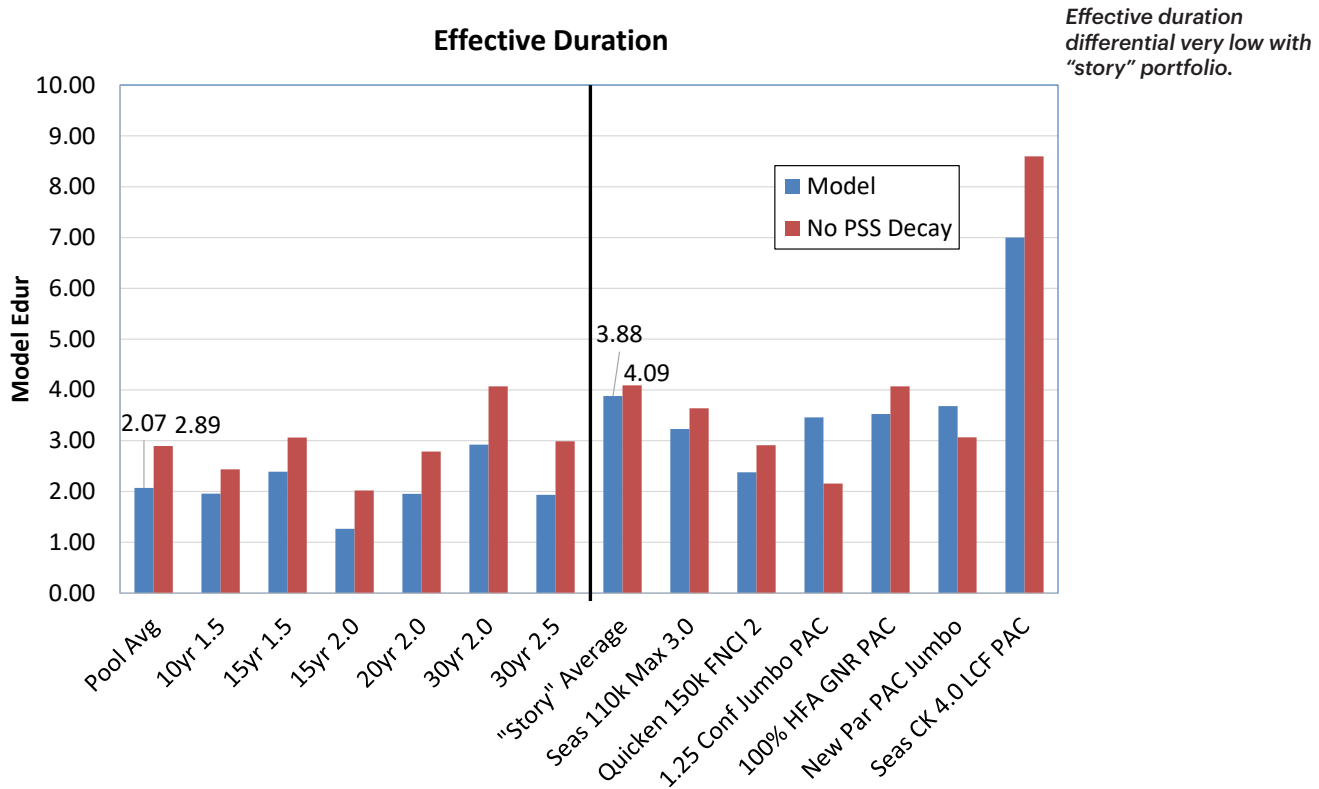
Perhaps the two most impressive results from this analysis are static spread and one-year projected TRR. In each case, the "story" portfolio – much like the yield result we already observed – does not change much regardless of what decay assumption is being used for the primary/secondary spread.

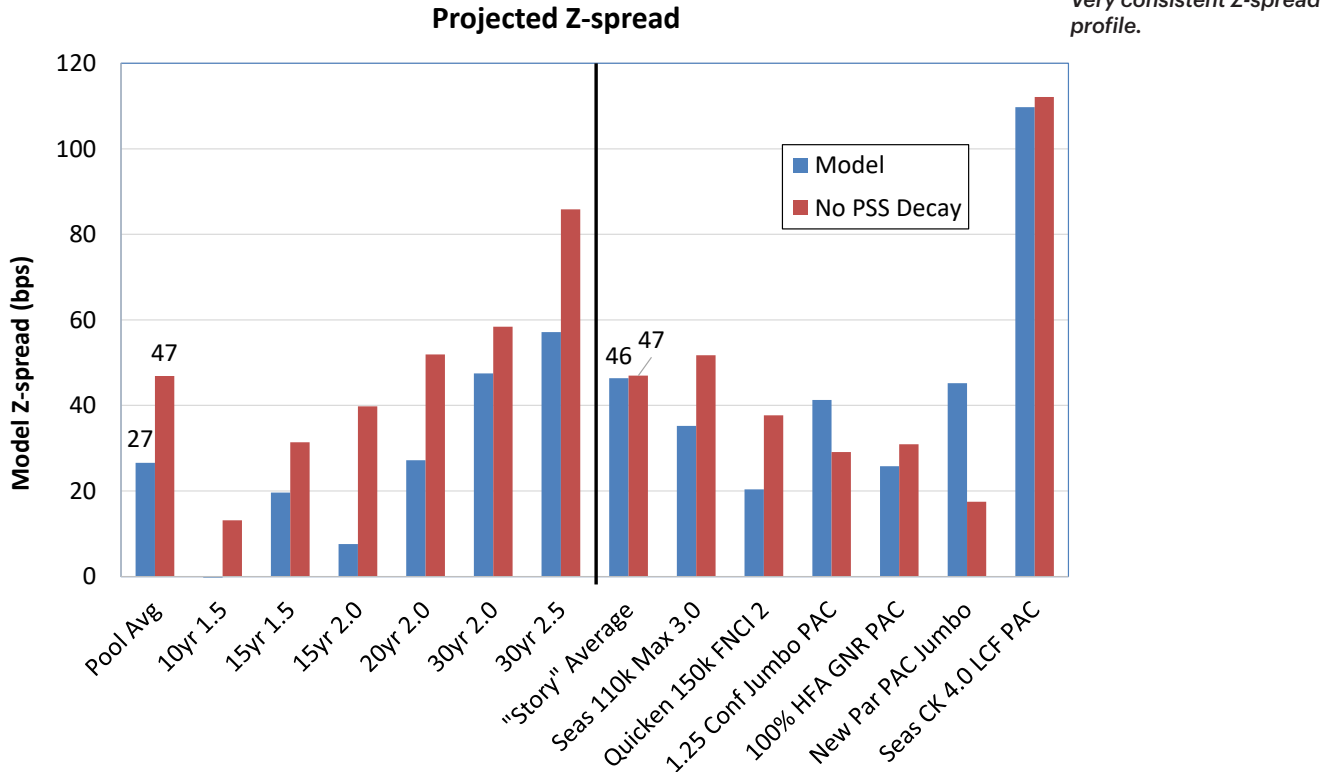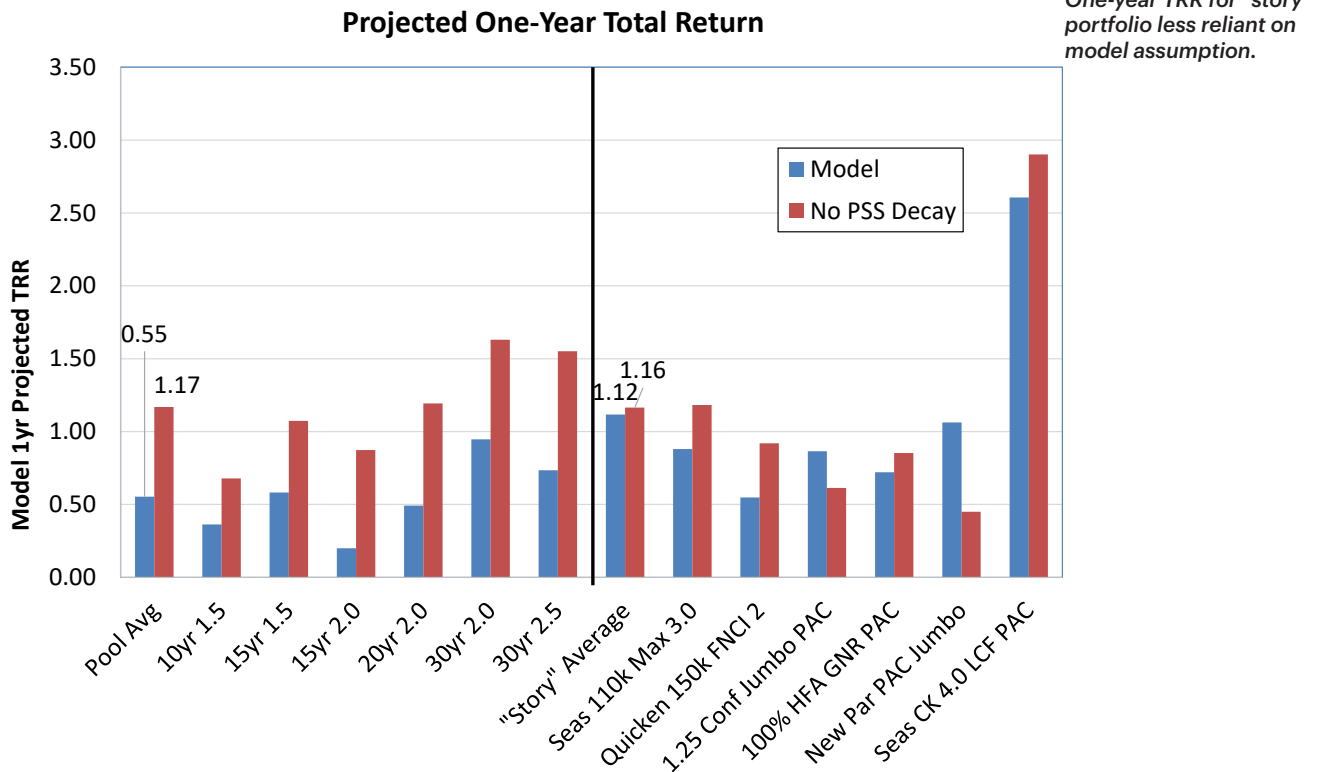**Figure 7: Average Z-spread Results More Consistent for "Story" Portfolio**

### Projected Z-spread

*Very consistent Z-spread profile.*



*Source: FHN Financial and YieldBook*

**Figure 8: One-Year TRR Results Also More Consistent for "Story" Portfolio**

### Projected One-Year Total Return

*One-year TRR for "story" portfolio less reliant on model assumption.*



*Source: FHN Financial and YieldBook*

There is one very important caveat to this notion of a more consistent performance profile for the "story" portfolio relative to the "pool" portfolio. That is, the "story" portfolio contains line items whose performance profiles offset each other, whereas all of the assets in the "pool" portfolio move in the same direction based on the primary/secondary decay assumption. In other words, there is better **diversification** in the "story" portfolio.

Also, the weighted average yield, spread and TRR profiles for the "story portfolio" **under both decay assumptions** are similar to those of the "pool" portfolio under only the "no decay" assumption. In other words, going long the "pool" portfolio is a one-way wager that the primary/secondary spread will not decay further from here. We do not know whether this decay will turn out to be true, but we think it is important for investors to understand that "no decay" is the implied assumption in choosing the "pool" portfolio.
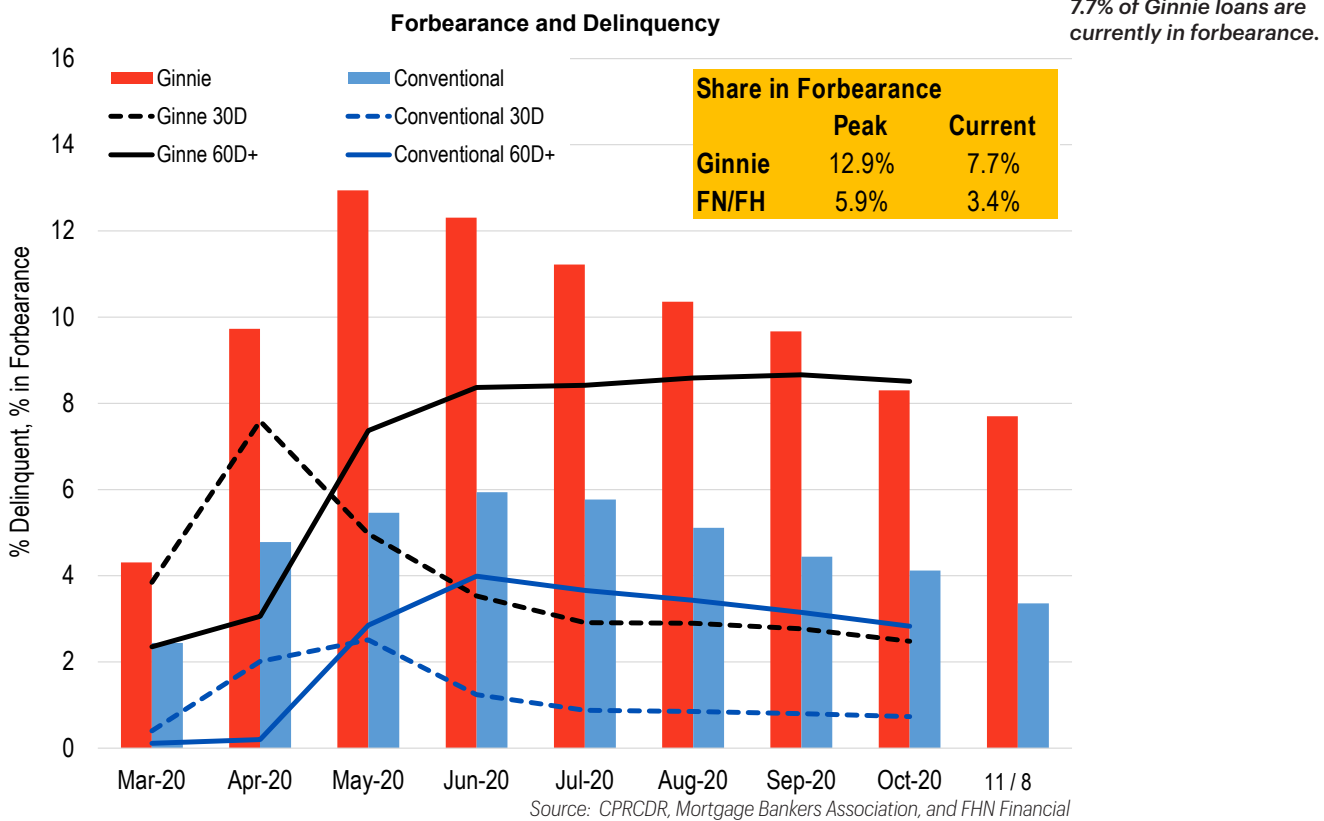
There are two important lessons here. First, it is important understand critical assumptions in a model when using it. This primary/secondary spread decay feature is likely the single most important assumption right now in prepayment modeling, because it controls the driving mortgage rate. Second, adding convexity benefits to the portfolio is still important given the amount of uncertainty that this model assumption illuminates in the current market landscape.

**Nonbank buyout activity ticked higher in October for the first time this year. The two largest Ginnie Mae servicers, Lakeview and PennyMac, bought out over $3.8 billion in delinquent loans last month. However, over $158 billion of the Ginnie universe is still in 60D+ delinquency. The timing and magnitude of nonbank buyouts will drive GN prepayments over the next few months. The following analysis will identify where buyout risk is the most concentrated by servicer and coupon.**

Forbearance timelines and delinquency rates inform future buyouts. The balance in forbearance is declining as borrowers exit plans. According to the Mortgage Bankers Association report released earlier this week, the overall forbearance rate dropped to 5.47% from 5.67% week-over-week. Currently, 7.7% of Ginnie Mae loans are in forbearance and 3.4% of conventional loans are in forbearance. However, the percentage of loans in 60D+ delinquency remains elevated, especially in GN MBS.

Figure 1 displays the share of loans in forbearance and delinquency since March. The share of Ginnie loans in forbearance has been roughly twice the share of conventional loans in forbearance. Notice that the share in forbearance was higher than the share in 60D+ delinquency until last month. Between June and November, 30.6% of borrowers in forbearance continued to make their monthly payments, never rolling into delinquency.

**Figure 1- Balance in Forbearance**

*7.7% of Ginnie loans are currently in forbearance.*



**Forbearance and Delinquency**

| Share in Forbearance | | |
|---|---|---|
| | **Peak** | **Current** |
| **Ginnie** | 12.9% | 7.7% |
| **FN/FH** | 5.9% | 3.4% |

Source: CPRCDR, Mortgage Bankers Association, and FHN Financial

In the Ginnie sector, delinquencies are significantly higher in FHA issuance. Figure 2 illustrates the delinquency pipelines for FHA and VA going back to the beginning of this year. In April, 30D delinquencies peaked for both FHA and VA, at 10.0% and 4.13%, respectively. The percentage in 60D+ delinquency increased through June and has since stabilized near 11% in FHA and 5% in VA.

**Figure 2- Percent of Delinquent Loans in 2020**

*FHA 60D+ delinquency ~11%, VA 60D+ delinquency ~5.5%.*



Delinquency Pipeline by Program

*Source: FHN Financial and CPRCD*
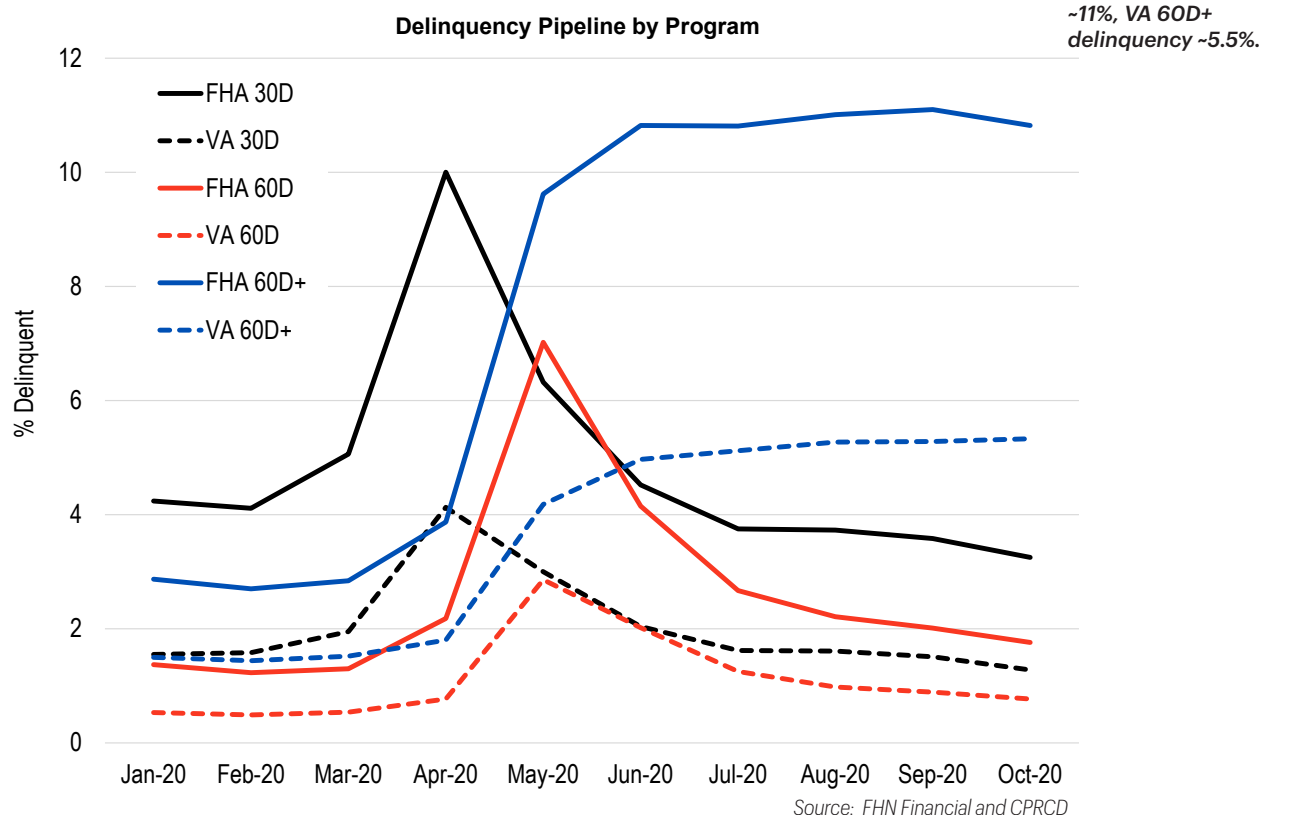
***What are the buyout implications?*** Forbearance and delinquency levels are significant to investors because they inform how much of the balance can be bought out each month. However, predicting the timing and magnitude of monthly buyouts is more involved than merely observing the balance in serious delinquency.
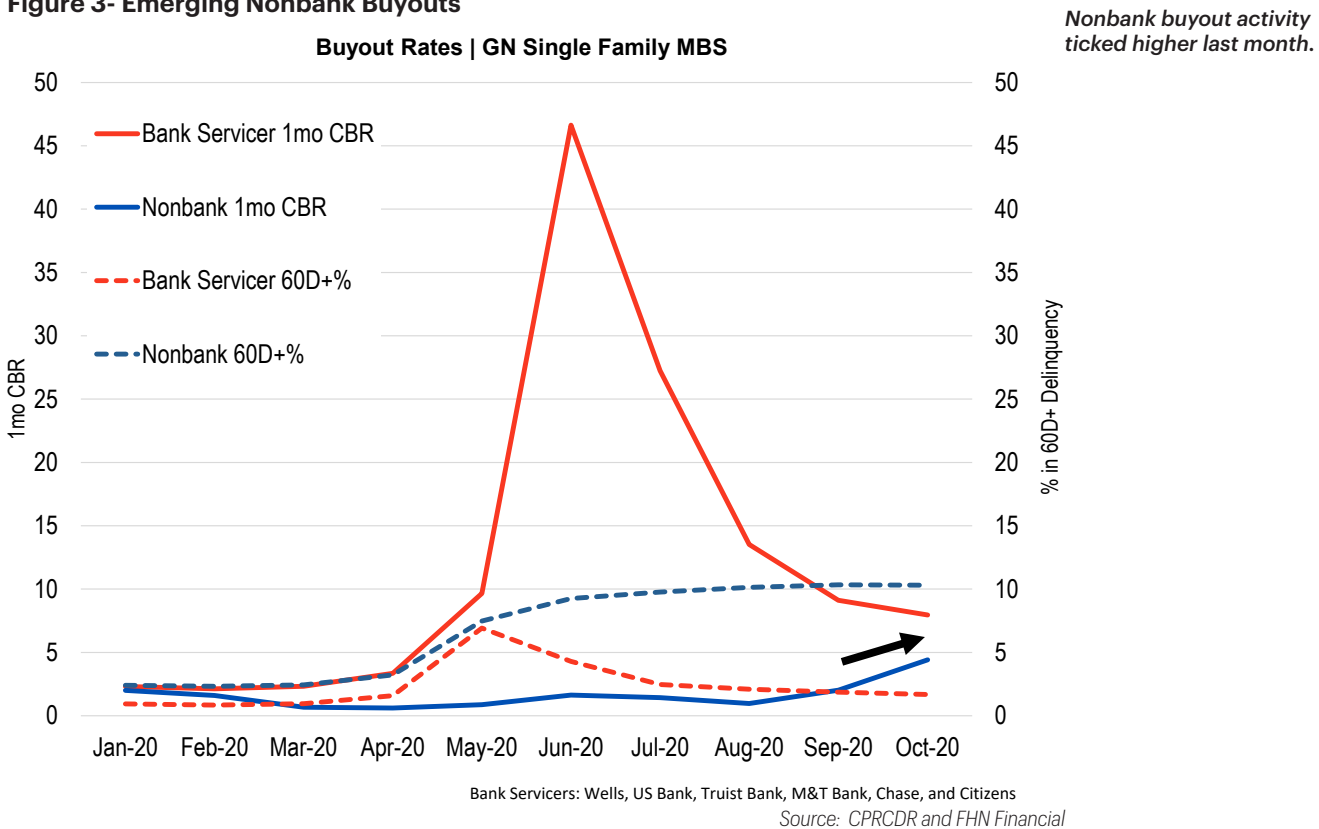
In Ginnie space, buyout decisions hinge on two factors. ***One, Ginnie servicers front the cash for buyouts themselves. Two, servicers can buy loans out of pools at any time after they go delinquent for three months, whether or not the loan is still in forbearance.*** The distinction between a loan that is 90D delinquent and in forbearance versus a loan that is 90D delinquent not in forbearance is inconsequential to GN investors.

The result for the MBS investor is that different servicers will handle Ginnie buyouts differently. Each servicer will weigh the costs and benefits for timing buyouts. A Ginnie servicer **may decide to buyout** the loan as soon as a borrower misses three payments if the cost of funding the buyout is less than the projected P&I advances and/or the servicer believes the loan will re-perform and therefore make a profit when they re-pool the loan. Ginnie servicers **must buy out the loan** after a permanent modification or if the mortgage defaults and moves towards foreclosure.
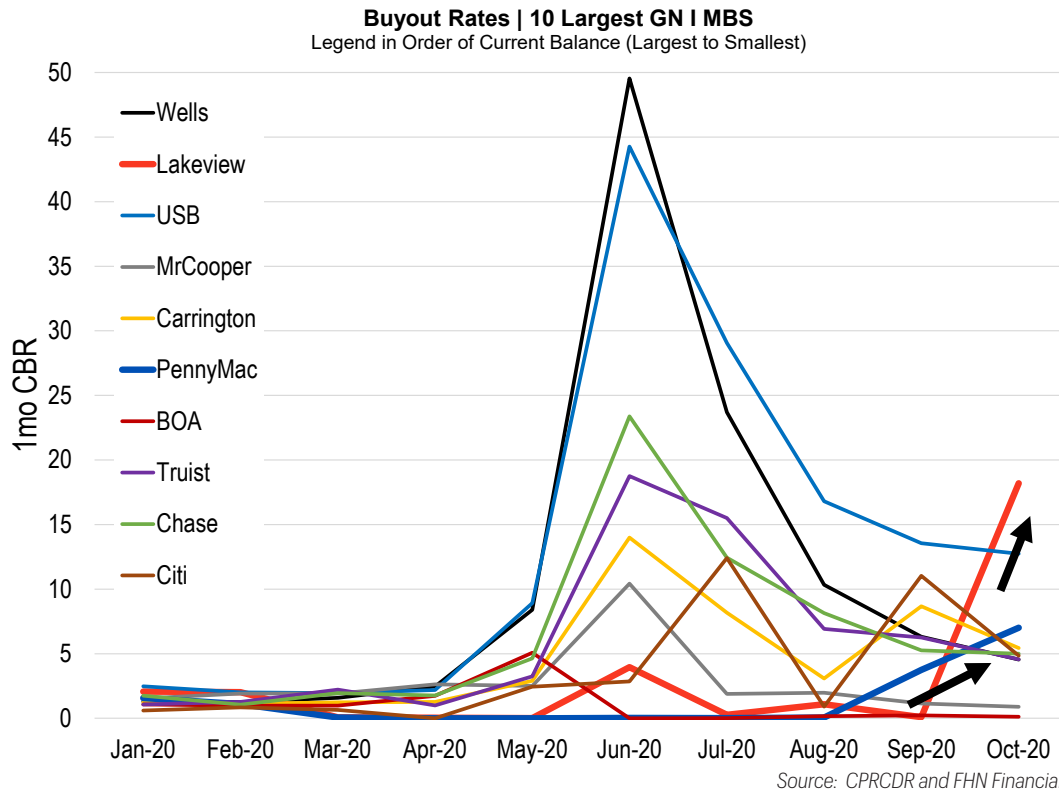
Servicer balance sheet is a consideration for the timing and size of buyouts. Servicers without access to significant financing, like many nonbanks, may have to postpone buyouts even if they would profit from re-pooling the loan. Large banks have access to deposits and capital that nonbanks do not. For this reason, large bank GN servicers were incredibly efficient at executing buyouts at the first opportunity this year. Figure 3 is a time series of 1mo CBR (conditional buyout rate) prints and the percentage of the balance in serious delinquency.

Bank buyout rates peaked in June at 45 CBR, exactly three months after borrowers entered forbearance plans. Since then, GNMA bank buyouts have stabilized below 10 CBR and the percentage of loans in 60D+ delinquency is very low, just over 1.5%. Nonbank delinquencies increased in line with bank delinquencies through May but have remained in delinquent status rather than bought out of their pools. Over 10% of loans serviced by nonbanks are at least 60D delinquent. Nonbank buyouts ticked higher last month for the first time, from 2 CBR to 4.4 CBR. This is the first indication that nonbank servicers are beginning to buyout delinquent loans.

**Figure 3- Emerging Nonbank Buyouts**

*Nonbank buyout activity ticked higher last month.*



**Buyout Rates | GN Single Family MBS**

Bank Servicers: Wells, US Bank, Truist Bank, M&T Bank, Chase, and Citizens
*Source: CPRCDR and FHN Financial*

Large banks only service 13% of the entire outstanding Ginnie balance so any change to nonbank buyout activity is significant. Overall, nonbanks have increased their market share tremendously over the past five years and a few servicers have consolidated a majority of the market share. ***The three largest nonbanks in GN MBS are Lakeview, PennyMac, and Freedom and together they service over a THIRD of the entire balance. The ten largest nonbanks service over HALF of the GN MBS universe.*** The increase in nonbank buyouts last month was due to the increase in activity by just a couple servicers. Figures 4 and 5 display the 1mo CBR since the beginning of the year for the ten largest servicers in GN and G2 MBS.

**Figure 4- Buyout Rates by Servicer, GN I MBS**

*Lakeview buyout rates increased to 18.1 CBR and PennyMac to 7.1 CBR.*

**Buyout Rates | 10 Largest GN I MBS**
Legend in Order of Current Balance (Largest to Smallest)



Source: CPRCDR and FHN Financial

All bank buyouts in GN I MBS peaked in June and have come down since. Carrington and MrCooper (formerly Nationstar) are both nonbanks but have also been moderately active buying out delinquent loans. Lakeview and PennyMac stand out the most in the last two months. Lakeview buyouts increased significantly month-over-month, from 0.2 CBR to 18.1 CBR. PennyMac buyouts increased over the last two months, from 0.6 CBR in August, to 3.7 CBR in September, and then to 7.1 CBR in October.

**Figure 5- Buyout Rates by Servicer, GN II MBS**
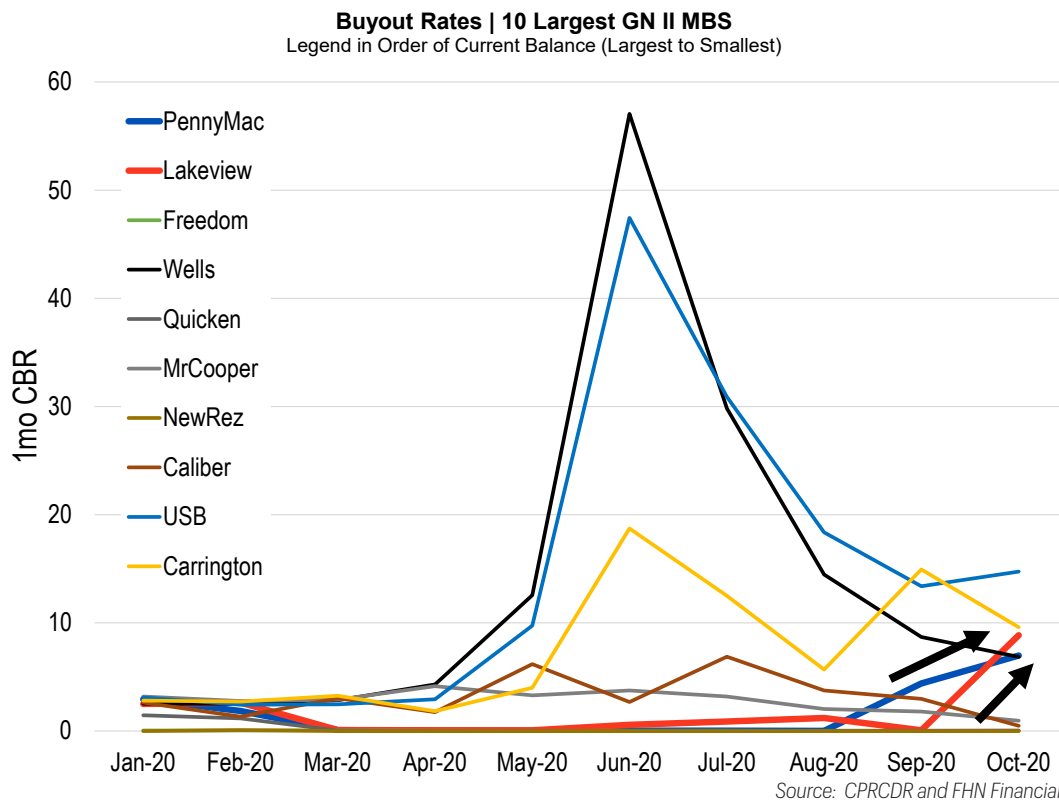
*Lakeview and PennyMac buyout rates increased noticeably.*

**Buyout Rates | 10 Largest GN II MBS**
Legend in Order of Current Balance (Largest to Smallest)



Source: CPRCDR and FHN Financial

The same servicers stand out in G2 performance, PennyMac and Lakeview. The Lakeview buyout rate increased from essentially zero in September to 8.8 CBR in October. PennyMac has increased buyouts two months in a row, printing 4.4 CBR in September and 6.9 CBR in October. Like in GN I, Carrington has also had higher buyout rates throughout the year in their GN II servicing book. However, the balance serviced by Carrington is significantly smaller so the impact of faster buyout speeds is less impactful to overall GN speeds.

***Which servicers have the highest buyout risk going forward?*** Table 1 displays the buyout rate, buyout dollar amount, and the remaining balance in serious delinquency for the 25 largest Ginnie servicers by current balance. Together the three largest servicers, Lakeview, PennyMac, and Freedom service over $620 billion, or 32% of the total outstanding Ginnie universe. Of the 60D+ delinquent loans outstanding, they service 45%. Each have over $20b of delinquent loans remaining. MrCooper has the next most outstanding in 60D+ delinquency at $11b. It is interesting that the third largest servicer, Freedom, also a nonbank with a similar amount in delinquency has yet to signal a change to their buyout activity.
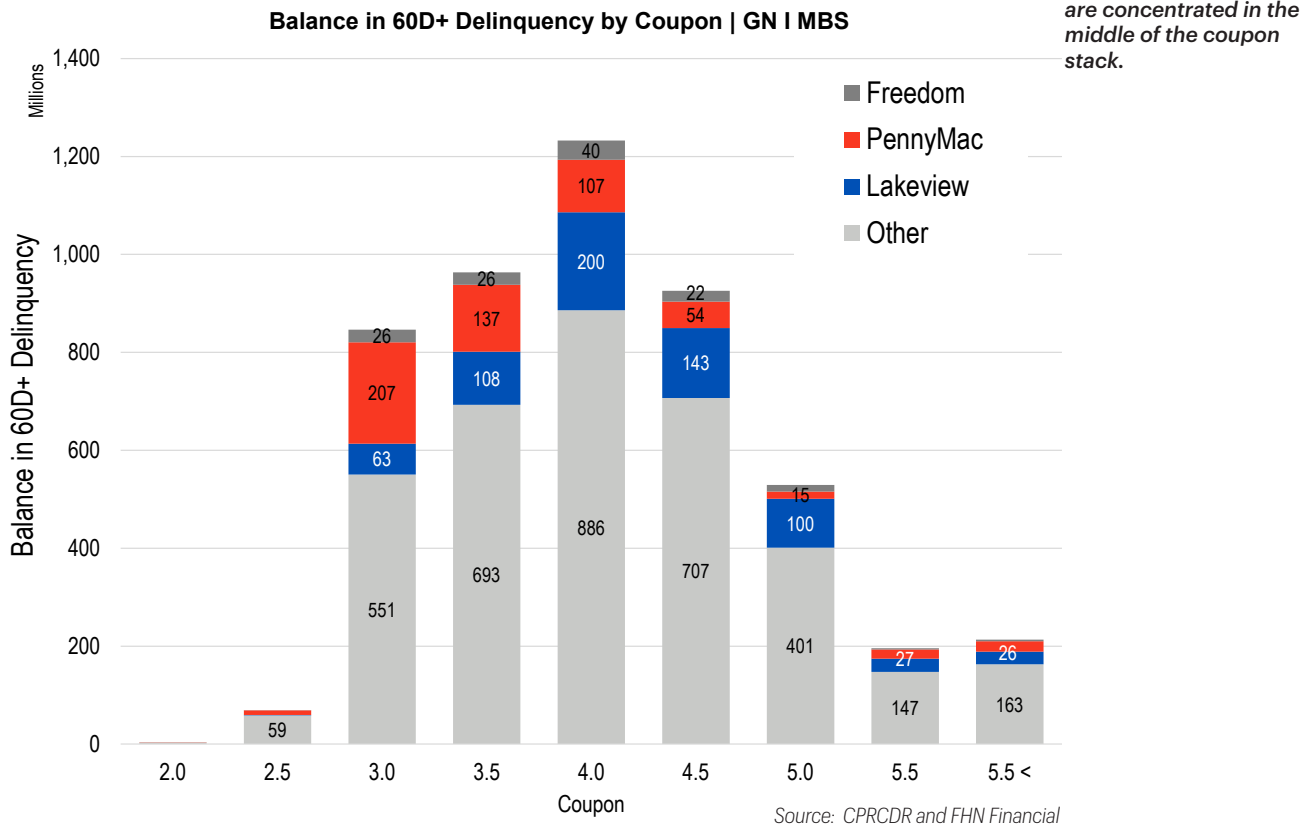
**Table 1- Key Buyout Fields**

| | GN I | | | | | GN II | | | | | Total | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1mo CBR | | | Oct | 60D+ Balance | 1mo CBR | | | Oct | 60D+ Balance | 1mo CBR | | | Oct | 60D+ Balance |
| | Oct | Sep | Chg | Buyout $ (000) | Remaining $ (000) | Oct | Sep | Chg | Buyout $ (000) | Remaining $ (000) | Oct | Sep | Chg | Buyout $ (000) | Remaining $ (000) |
| Total | 6.1 | 10.0 | -4.0 | 637,861 | 4,554,818 | 4.2 | 3.9 | 0.3 | 7,991,987 | 154,333,697 | 4.3 | 4.2 | 0.1 | 8,629,848 | 158,888,514 |
| Lakeview | 18.2 | 0.1 | 18.1 | 207,902 | 618,755 | 8.9 | 0.1 | 8.8 | 1,984,929 | 24,963,918 | 9.3 | 0.1 | 9.3 | 2,192,831 | 25,582,673 |
| PennyMac | 7.0 | 3.7 | 3.3 | 41,838 | 537,570 | 7.0 | 4.4 | 2.6 | 1,575,728 | 23,151,708 | 7.0 | 4.4 | 2.6 | 1,617,566 | 23,689,278 |
| Freedom | 0.0 | 0.0 | 0.0 | 43 | 127,008 | 0.0 | 0.0 | 0.0 | 2,041 | 21,695,098 | 0.0 | 0.0 | 0.0 | 2,085 | 21,822,106 |
| Wells | 4.5 | 6.3 | 1.8 | 114,805 | 248,794 | 6.9 | 8.7 | 1.8 | 991,164 | 1,884,166 | 6.5 | 8.3 | 1.8 | 1,105,969 | 2,132,960 |
| MrCooper | 0.9 | 1.1 | 0.3 | 7,124 | 532,044 | 1.0 | 1.8 | 0.9 | 87,320 | 10,826,206 | 1.0 | 1.7 | 0.8 | 94,444 | 11,358,250 |
| Quicken | 0.0 | 0.1 | 0.1 | 0 | 55,333 | 0.0 | 0.0 | 0.0 | 4,586 | 6,656,314 | 0.0 | 0.0 | 0.0 | 4,586 | 6,711,647 |
| NewRez | 0.0 | 0.0 | 0.0 | 0 | 63,305 | 0.0 | 0.0 | 0.0 | 0 | 5,738,046 | 0.0 | 0.0 | 0.0 | 0 | 5,801,351 |
| USB | 12.7 | 13.6 | 0.8 | 110,177 | 129,117 | 14.7 | 13.4 | 1.3 | 686,092 | 702,215 | 14.4 | 13.4 | 1.0 | 796,269 | 831,332 |
| Caliber | 0.0 | 0.0 | 0.0 | 0 | 2,306 | 0.5 | 3.0 | 2.5 | 23,799 | 2,998,638 | 0.5 | 3.0 | 2.5 | 23,799 | 3,000,944 |
| Carrington | 5.4 | 8.7 | 3.2 | 33,927 | 142,274 | 9.6 | 14.9 | 5.3 | 378,750 | 2,518,008 | 9.0 | 14.1 | 5.0 | 412,677 | 2,660,282 |
| USAA | 0.0 | 0.1 | 0.1 | 0 | 40,028 | 0.0 | 0.0 | 0.0 | 231 | 1,996,512 | 0.0 | 0.0 | 0.0 | 231 | 2,036,540 |
| Amerihome | 3.9 | 1.6 | 2.3 | 4,413 | 97,491 | 4.6 | 3.4 | 1.3 | 169,441 | 3,587,128 | 4.6 | 3.3 | 1.3 | 173,853 | 3,684,619 |
| Navy | 1.9 | 20.3 | 18.3 | 1,670 | 23,067 | 3.4 | 36.6 | 33.2 | 99,922 | 1,324,610 | 3.4 | 36.2 | 32.8 | 101,592 | 1,347,677 |
| Truist | 4.6 | 6.3 | 1.7 | 9,542 | 11,636 | 7.2 | 9.8 | 2.6 | 212,619 | 200,474 | 7.0 | 9.5 | 2.5 | 222,161 | 212,110 |
| United Shore | 0.0 | 0.0 | 0.0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0 | 1,936,684 | 0.0 | 0.0 | 0.0 | 0 | 1,936,684 |
| Loan Depot | 13.1 | 29.2 | 16.1 | 1,608 | 14,565 | 7.3 | 5.5 | 1.8 | 202,186 | 1,484,199 | 7.4 | 5.7 | 1.7 | 203,794 | 1,498,764 |
| Home Point | 2.9 | 0.0 | 2.9 | 399 | 11,815 | 1.5 | 0.3 | 1.3 | 42,146 | 3,162,438 | 1.5 | 0.3 | 1.3 | 42,545 | 3,174,253 |
| Money Source | 0.0 | 0.0 | 0.0 | 0 | 3,580 | 0.0 | 0.1 | 0.1 | 666 | 2,236,694 | 0.0 | 0.1 | 0.1 | 666 | 2,240,274 |
| Guild | 0.0 | 0.0 | 0.0 | 0 | 30,413 | 0.0 | 0.0 | 0.0 | 0 | 1,427,125 | 0.0 | 0.0 | 0.0 | 0 | 1,457,538 |
| Planet Home Len | 19.2 | 0.0 | 19.2 | 7,194 | 17,932 | 22.9 | 0.0 | 22.9 | 450,674 | 1,236,008 | 22.8 | 0.0 | 22.8 | 457,868 | 1,253,939 |
| Chase | 5.0 | 5.3 | 0.3 | 21,293 | 32,361 | 5.3 | 6.7 | 1.3 | 70,398 | 158,156 | 5.3 | 6.3 | 1.1 | 91,691 | 190,517 |
| MidFirst | 6.1 | 6.7 | 0.7 | 10,575 | 16,041 | 12.1 | 12.6 | 0.6 | 190,089 | 1,326,981 | 11.4 | 12.0 | 0.6 | 200,664 | 1,343,022 |
| Mortgage Resea | 0.0 | 0.0 | 0.0 | 0 | 0 | 0.0 | 0.0 | 0.0 | 0 | 586,462 | 0.0 | 0.0 | 0.0 | 0 | 586,462 |
| Citizens | 0.0 | 0.0 | 0.0 | 0 | 7,422 | 0.1 | 0.1 | 0.0 | 1,164 | 1,158,858 | 0.1 | 0.1 | 0.0 | 1,164 | 1,166,281 |
| M&T | 10.3 | 7.5 | 2.8 | 4,939 | 4,876 | 13.0 | 13.4 | 0.4 | 194,112 | 287,664 | 12.9 | 13.2 | 0.3 | 199,051 | 292,540 |

*Source: CPRCDR and FHN Financial*

***Where is buyout risk concentrated by coupon?*** Figures 6 and 7 display the balance in 60D+ delinquency by coupon for the three largest servicers, Lakeview, PennyMac, and Freedom. In GN I MBS, buyout risk is concentrated in the middle of the coupon stack. The percentage of each coupon in 60D+ for 3.5s, 4.0s, and 4.5s is 5.2%, 5.6%, and 4.1%, respectively. An increase in speeds across nonbanks would move prepayments for those coupons but to a lesser degree than in G2 MBS because the share of 60D+ loans in each coupon is less.

**Figure 6- Delinquency by Coupon, GN I MBS**

*60D+ delinquencies are concentrated in the middle of the coupon stack.*



**Balance in 60D+ Delinquency by Coupon | GN I MBS**

Legend: ■ Freedom ■ PennyMac ■ Lakeview ■ Other

Y-axis: Balance in 60D+ Delinquency (Millions)

| Coupon | Other | Lakeview | PennyMac | Freedom |
|--------|-------|----------|----------|---------|
| 2.0 | | | | |
| 2.5 | 59 | | | |
| 3.0 | 551 | 63 | 207 | 26 |
| 3.5 | 693 | 108 | 137 | 26 |
| 4.0 | 886 | 200 | 107 | 40 |
| 4.5 | 707 | 143 | 54 | 22 |
| 5.0 | 401 | 100 | | 15 |
| 5.5 | 147 | 27 | | |
| 5.5 < | 163 | 26 | | |

*Source: CPRCDR and FHN Financial*

The G2 universe is significantly larger than the G1 universe so an uptick in buyouts by G2 nonbanks will affect more holdings and more investors. The percentage of each coupon in 60D+ delinquency is also significantly larger. The balance by coupon in 60D+ delinquency for 3.0s, 3.5s, 4.0s, and 4.5s is 6.8%, 10.4%, 13.1%, and 13.9%. The three largest servicers carry similar balances to each other across coupons. A change to the buyout activity of any one of those three servicers, or all of them, will meaningfully affect speeds.

**Figure 7- Delinquency by Coupon, GN II MBS**
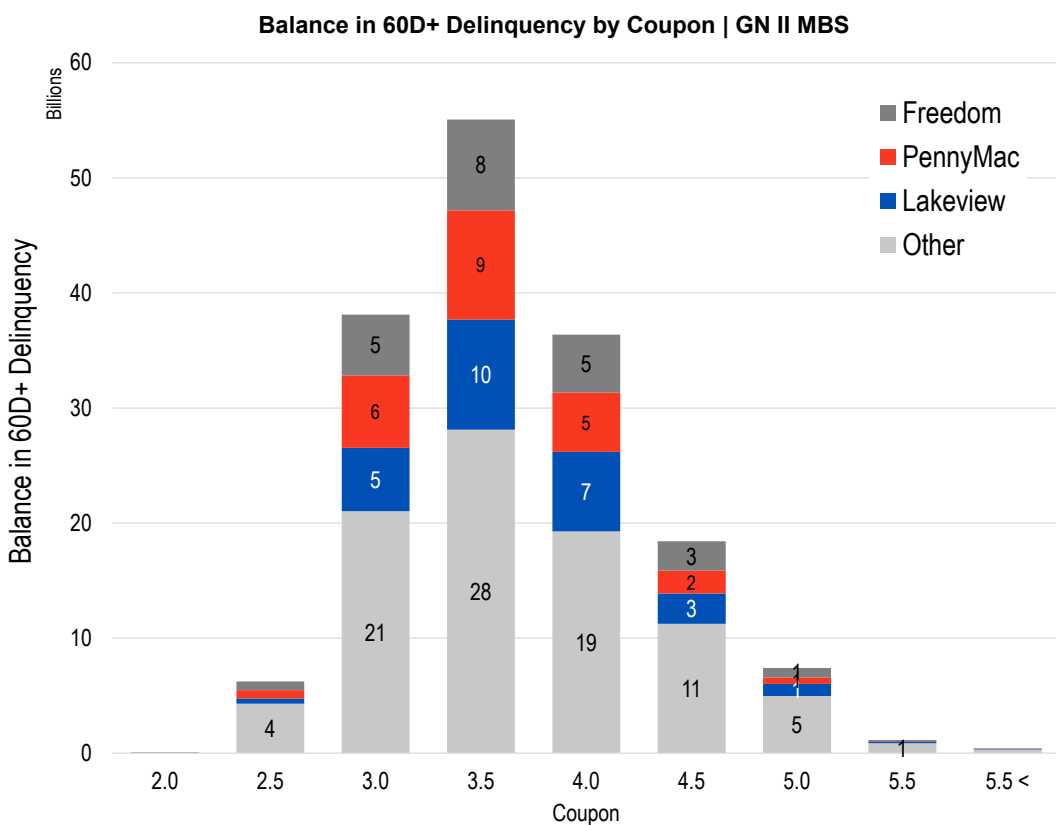
*Freedom, PennyMac, and Lakeview service nearly half of the loans in delinquency across coupons in G2 MBS.*

**Balance in 60D+ Delinquency by Coupon | GN II MBS**



Source: CPRCDR and FHN Financial

***How long will it take to clear the current delinquency pipelines? How much faster will prepayment speeds be during nonbank buyout programs?*** Table 2 shows the voluntary speeds and buyout rates (1mo VPR + 1mo CBR= 1mo CPR) by coupon for loans serviced by Lakeview and PennyMac. It also displays the amount each servicer bought out last month across the coupon stack and the balance of seriously delinquent loans remaining. The far right column displays how many months it would take to clear out the pipeline of delinquent loans by coupon, assuming current rates.

The exercise is worthwhile because it provides context between the amount of loans likely to be bought out and the current buyout rates. However, there are three important caveats. One, typically servicers buyout delinquent loans in chunks rather than a steady amount each month. Two, the exercise assumes the entire 60D+ balance remains seriously delinquent and no new loans roll into serious delinquency. Three, and most importantly, it assumes current speeds. ***The October speeds provide a floor for involuntary prepayments over the next 6 months. Overall CPR prints will most likely increase as buyouts continue and voluntary speeds remain elevated.***

**Table 2- Number of Months to Clear Delinquency Pipelines**

Lakeview

|  |  | Speed Componant | | | 60D+ Balance | Months to Clear |
| --- | --- | --- | --- | --- | --- | --- |
|  | 1mo CPR | 1mo VPR | 1mo CBR | Buyout $ | Remaining $ | DQ Pipeline |
| 3.0 | 40.8 | 40.7 | 0.1 | 2,888,973 | 4,857,570,654 | 1,681 |
| 3.5 | 36.5 | 36.4 | 0.1 | 3,780,135 | 8,580,694,756 | 2,270 |
| 4.0 | 36.5 | 30.6 | 5.9 | 240,628,311 | 6,342,118,774 | 26 |
| 4.5 | 62.7 | 16.5 | 46.2 | 1,094,230,267 | 2,403,057,690 | 2 |
| 5.0 | 60.4 | 13.5 | 46.9 | 406,239,888 | 961,786,797 | 2 |
| 5.5 | 53.3 | 10.9 | 42.4 | 75,033,269 | 139,824,685 | 2 |

PennyMac

|  |  | Speed Componant | | | 60D+ Balance | Months to Clear |
| --- | --- | --- | --- | --- | --- | --- |
|  | 1mo CPR | 1mo VPR | 1mo CBR | Buyout $ | Remaining $ | DQ Pipeline |
| 3.0 | 41.5 | 37.8 | 3.7 | 246,217,544 | 5,782,710,833 | 23 |
| 3.5 | 43.1 | 34.0 | 9.1 | 663,770,343 | 8,810,660,061 | 13 |
| 4.0 | 43.2 | 30.8 | 12.4 | 420,850,199 | 4,863,278,636 | 12 |
| 4.5 | 42.7 | 27.7 | 15.0 | 174,413,102 | 1,879,725,472 | 11 |
| 5.0 | 40.7 | 24.7 | 16.0 | 45,487,955 | 522,535,231 | 11 |
| 5.5 | 29.1 | 16.5 | 12.6 | 4,454,937 | 38,292,306 | 9 |

*Source: CPRCDR and FHN Financial*

At current speeds, Lakeview could clear out the delinquency pipeline in 4.5s-5.5s in just two months. It would take 26 months, at 5.9 CBR, for Lakeview to clear out the delinquent balance in 4.0s. They have essentially not started buyouts in a meaningful way for 3.0-3.5s. It would take PennyMac 9-13 months to buyout all of their delinquent loans in 3.5s-5.5s, assuming monthly buyouts between 9-16 CBR. In 3.0s, it would take almost two years for PennyMac to buy out the $5.78b delinquent loans remaining in the coupon.

If other nonbank servicers follow a similar pattern, higher coupons carry the most buyout risk over the next 1-3 months. After completing the buyouts in the higher coupons, servicers will focus on the lower coupons over the next 2-6 months. The scale of the buyouts for the largest nonbanks is significant.

***In summary, buyout risk will remain at the forefront of investors' minds. Forbearance timelines, delinquencies pipelines, and an increasing role of nonbank servicers will influence valuations.*** Certainly, other factors will also impact the Ginnie prepayment landscape next year, such as policy and leadership changes. We will address the many of these themes in the *FHN Financial Mortgage Strategy Annual Outlook* next month. **Below are the key points from this analysis:**

- Forbearance is declining and the majority of borrowers will end the 12-month forbearance period in 1Q21. However, the percentage of loans in 60D+ delinquency remains elevated, especially in FHA issuance.
- The pickup in buyouts by Lakeview and PennyMac in October is the first sign of an increase in nonbank buyouts to come.
- Lakeview, PennyMac, and Freedom are the three largest servicers in GN MBS. Together they service 32% of the entire outstanding balance and 45% of the loans in serious delinquency.
- Buyout risk is concentrated in the middle of the coupon stack by the three largest servicers. Servicers may clear out the smaller balances of delinquencies in higher coupons before lower coupons.

## MBS Snapshot

| November 18, 2020 | | Z-Score* | Bhange | | | 52 Week | | |
|---|---|---|---|---|---|---|---|---|
| | | | Week | MTD | YTD | High | Low | Avg |
| **Prices** | | | | | | | | |
| 30 Year | 1.5 | 0.4 | (0.36) | 0.14 | 0.16 | 101.33 | 100.25 | 100.77 |
| | 2.0 | 103.48 | 1.2 | (0.16) | 0.33 | 1.20 | 103.75 | 102.28 | 103.13 |
| | 2.5 | 104.58 | 0.8 | (0.02) | 0.36 | 5.66 | 105.39 | 98.47 | 102.86 |
| | 3.0 | 104.61 | 0.4 | 0.20 | 0.08 | 3.17 | 106.06 | 101.00 | 104.02 |
| | 3.5 | 105.64 | 0.8 | 0.14 | 0.02 | 4.20 | 106.11 | 101.50 | 104.64 |
| | 4.0 | 106.58 | 0.7 | (0.08) | (0.23) | 3.70 | 106.94 | 103.19 | 105.75 |
| 15 Year | 1.5 | 102.31 | 0.5 | (0.05) | 0.19 | 0.58 | 102.75 | 101.73 | 102.21 |
| | 2.0 | 103.92 | 0.9 | (0.02) | 0.16 | 5.19 | 104.28 | 98.33 | 102.20 |
| | 2.5 | 104.09 | 0.4 | 0.09 | 0.11 | 3.16 | 105.25 | 100.47 | 103.47 |
| | 3.0 | 104.73 | 0.4 | 0.02 | 0.02 | 2.22 | 105.64 | 101.66 | 104.29 |
| | 3.5 | 105.78 | 1.0 | 0.06 | 0.11 | 1.97 | 106.13 | 103.38 | 105.01 |
| | 4.0 | 106.06 | 0.8 | (0.03) | (0.05) | 1.56 | 107.00 | 104.20 | 105.52 |
| | 4.5 | 104.02 | -0.4 | (1.11) | (0.98) | 1.20 | 106.50 | 102.66 | 104.41 |
| 20 Year | 2.0 | 103.53 | 0.5 | (0.36) | 0.19 | 0.37 | 103.89 | 103.08 | 103.40 |
| | 2.5 | 104.78 | 0.8 | (0.22) | 0.31 | 2.64 | 105.59 | 99.97 | 103.33 |
| | 3.0 | 104.89 | 0.3 | 0.02 | (0.02) | 0.97 | 106.31 | 102.14 | 104.48 |
| | 3.5 | 105.80 | 0.8 | 0.17 | 0.05 | 1.00 | 106.42 | 103.53 | 105.14 |
| | 4.0 | 106.83 | 0.8 | 0.05 | (0.11) | 0.72 | 107.03 | 104.25 | 106.16 |
| | 4.5 | 108.28 | 0.9 | 0.16 | (0.02) | 1.36 | 108.69 | 105.09 | 107.48 |
| | 5.0 | 109.97 | 1.2 | (0.22) | 0.06 | 2.16 | 110.19 | 106.02 | 108.59 |
| **I-Spreads (UST)** | | | | | | | | |
| 30 Year | 2.0 | 71.9 | 0.9 | 6.8 | (10.7) | 107.2 | 84.2 | 4.9 | 56.7 |
| | 2.5 | 58.5 | 0.0 | 11.8 | (12.8) | 93.8 | 149.0 | (46.1) | 56.9 |
| | 3.0 | 75.6 | 0.1 | 5.7 | 1.3 | 52.3 | 158.0 | 18.8 | 73.2 |
| | 3.5 | 54.0 | -1.5 | (7.0) | (9.4) | -5.9 | 195.4 | 53.7 | 84.9 |
| | 4.0 | 41.3 | -1.7 | (0.7) | (2.5) | -17.6 | 200.5 | 37.3 | 82.6 |
| | 4.5 | 41.7 | -1.4 | (1.7) | (1.5) | -17.7 | 212.1 | 38.7 | 76.3 |
| | 5.0 | 49.3 | -1.5 | (0.0) | (7.1) | -27.8 | 191.4 | 47.2 | 83.0 |
| 15 Year | 2.0 | 22.4 | -0.4 | 12.9 | (2.3) | 33.7 | 159.2 | (25.2) | 32.7 |
| | 2.5 | 33.0 | -0.2 | 0.6 | (4.7) | 27.6 | 151.9 | (4.1) | 36.6 |
| | 3.0 | 34.8 | -0.8 | (5.1) | (4.9) | -16.1 | 178.6 | 32.8 | 47.4 |
| | 3.5 | 36.3 | -1.0 | 3.4 | 2.8 | -37.1 | 175.3 | 27.4 | 55.6 |
| | 4.0 | 16.8 | -1.6 | (9.4) | (4.0) | -19.4 | 148.1 | 16.8 | 47.5 |

## Primary Market

**Mortgage Rates** | | | | | | 52 Week | | |

| | | | Z-Score | Week | MTD | YTD | High | Low | Avg |
|---|---|---|---|---|---|---|---|---|---|
| Conforming | 30 Year | 2.96 | -1.5 | (0.10) | (0.10) | (0.90) | 4.12 | 2.96 | 3.43 |
| | 15 Year | 2.48 | -1.6 | (0.14) | (0.15) | (0.93) | 3.44 | 2.45 | 2.91 |
| | 5x1 Hybrid | 3.03 | -1.2 | 0.00 | (0.01) | (0.46) | 4.24 | 2.89 | 3.38 |

**Borrower Activity** | | | | | 52 Week | | |

| | | Z-Score | Week | MTD | YTD | High | Low | Avg |
|---|---|---|---|---|---|---|---|---|
| MBA Refinance Index | 3,902 | 0.6 | (72) | (48) | 2,043 | 6,419 | 1,375 | 3,388 |
| MBA Purchase Index | 304 | 0.6 | 10 | 3 | 54 | 327 | 186 | 283 |

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

| | November 18, 2020 | Z-Score | Change Week | MTD | YTD | 52 Week High | Low | Avg |
|---|---|---|---|---|---|---|---|---|
| **PACs** | | | | | | | | |
| 30 Year | 2 yr | 57 | -0.3 | 0 | 0 | 15 | 108 | 39 | 63 |
| | 3 yr | 60 | -0.4 | 0 | 0 | 12 | 114 | 45 | 68 |
| | 4 yr | 65 | -0.7 | 0 | 0 | 5 | 126 | 57 | 77 |
| | 5 yr | 70 | -0.7 | 0 | 0 | 3 | 133 | 64 | 83 |
| | 7 yr | 80 | -0.4 | 0 | 0 | 10 | 136 | 67 | 88 |
| | 10 yr | 100 | -0.4 | 0 | 0 | 13 | 153 | 84 | 106 |
| 15 Year | 2 yr | 50 | -0.6 | 0 | 0 | 8 | 108 | 39 | 60 |
| | 3 yr | 60 | -0.4 | 0 | 0 | 12 | 114 | 45 | 68 |
| | 4 yr | 65 | -0.6 | 0 | 0 | 5 | 126 | 57 | 77 |
| | 5 yr | 70 | -0.6 | 0 | 0 | 5 | 131 | 62 | 82 |
| | 7 yr | 80 | -0.3 | 0 | 0 | 15 | 131 | 62 | 85 |
| | 10 yr | 100 | -0.3 | 0 | 0 | 15 | 151 | 82 | 104 |
| **Sequentials** | | | | | | | | |
| 30 Year | 2 yr | 57 | -0.3 | 0 | 0 | 15 | 108 | 39 | 63 |
| | 3 yr | 60 | -0.4 | 0 | 0 | 12 | 114 | 45 | 68 |
| | 4 yr | 65 | -0.7 | 0 | 0 | 5 | 126 | 57 | 77 |
| | 5 yr | 70 | -0.7 | 0 | 0 | 3 | 133 | 64 | 83 |
| | 7 yr | 80 | -0.4 | 0 | 0 | 10 | 136 | 67 | 88 |
| | 10 yr | 100 | -0.4 | 0 | 0 | 13 | 153 | 84 | 106 |
| 15 Year | 2 yr | 50 | -0.6 | 0 | 0 | 8 | 108 | 39 | 60 |
| | 3 yr | 60 | -0.4 | 0 | 0 | 12 | 114 | 45 | 68 |
| | 4 yr | 65 | -0.6 | 0 | 0 | 5 | 126 | 57 | 77 |
| | 5 yr | 70 | -0.6 | 0 | 0 | 5 | 131 | 62 | 82 |
| | 7 yr | 80 | -0.3 | 0 | 0 | 15 | 131 | 62 | 85 |
| | 10 yr | 100 | -0.3 | 0 | 0 | 15 | 151 | 82 | 105 |
| **ARM (Z-spreads)** | | | | | | | | |
| 5x1 2/2/5 | 2.00 | 33 | -1.4 | (4) | (9) | (21) | 124 | 33 | 69 |
| | 2.50 | 39 | -1.4 | (4) | (9) | (21) | 130 | 39 | 75 |
| | 3.00 | 43 | -1.4 | (4) | (9) | (21) | 134 | 43 | 79 |
| | 3.50 | 48 | -1.4 | (4) | (9) | (20) | 138 | 48 | 83 |
| 7x1 5/2/5 | 2.00 | 41 | -1.4 | (4) | (9) | (21) | 132 | 41 | 77 |
| | 2.50 | 47 | -1.4 | (4) | (9) | (21) | 138 | 47 | 83 |
| | 3.00 | 57 | -1.4 | (4) | (9) | (21) | 148 | 57 | 93 |
| | 3.50 | 65 | -1.4 | (4) | (9) | (21) | 156 | 65 | 101 |
| 10x1 5/2/5 | 2.00 | 51 | -1.5 | (4) | (9) | (29) | 150 | 51 | 92 |
| | 2.50 | 65 | -1.4 | (4) | (9) | (21) | 156 | 65 | 101 |
| | 3.00 | 70 | -1.4 | (4) | (9) | (21) | 161 | 70 | 106 |
| | 3.50 | 76 | -1.3 | (4) | (9) | (17) | 163 | 76 | 109 |

\* YTM

\*\* Spreads calculated to 15 CPB.

| **CMO Floater (Discount Margins)** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Passthru | 6.5 Cap | 29 | -1.1 | 0 | 0 | (12) | 70 | 23 | 41 |
| | 7.0 Cap | 29 | -1.1 | 0 | 0 | (8) | 70 | 23 | 40 |
| Support | 5.0 Cap | 75 | -1.2 | 0 | 0 | (40) | 125 | 75 | 89 |
| | 5.5 Cap | 70 | -1.2 | 0 | 0 | (35) | 120 | 70 | 84 |
| | 6.0 Cap | 65 | -1.2 | 0 | 0 | (30) | 115 | 65 | 79 |

## Alternative Markets

| | | November 18, 2020 | Z-Score | Change Week | MTD | YTD | 52 Week High | Low | Avg |
|---|---|---|---|---|---|---|---|---|---|
| **CMBS Spreads** | | | | | | | | | |
| New Issue | 3y | 36 | -1.0 | (2) | (2) | (7) | 175 | 36 | 83 |
| | 5y | 68 | -0.9 | (2) | (4) | (4) | 190 | 62 | 104 |
| | 7y | 85 | -0.7 | 0 | (2) | (2) | 200 | 73 | 112 |
| | 10y | 87 | -0.8 | (2) | (3) | (8) | 225 | 79 | 118 |
| **ACMBS** | | | | | | | | | |
| Fixed (N-Spread) | 7y | 31 | -1.2 | (1) | (4) | (16) | 100 | 31 | 46 |
| | 10y | 35 | -1.1 | (1) | (2) | (18) | 115 | 35 | 51 |
| Floating (DM) | 7y | 31 | -1.2 | 0 | 1 | (20) | 70 | 28 | 43 |
| | 10y | 33 | -1.3 | 0 | 1 | (24) | 80 | 30 | 49 |
| **RMBS 2.0** | | | | | | | | | |
| AAA CC Price Drop | 15yr | (1.50) | (0.05) | 0.25 | 0.25 | (1.00) | (0.50) | (2.25) | (1.47) |
| | 30yr | (2.00) | (0.10) | 0.25 | 0.25 | (1.06) | (0.94) | (2.75) | (1.93) |
| Sprd to Swaps | Front SEQ | 110 | n/a | n/a | n/a | n/a | n/a | n/a | n/a |
| **Agencies** | | | | | | | | | |
| Bullets | 2y | 2.1 | -0.6 | 0.4 | (0.2) | 0.4 | 19.1 | (0.5) | 4.5 |
| | 3y | 3.7 | -0.8 | 0.7 | 0.5 | (1.0) | 25.9 | 2.0 | 7.7 |
| | 5y | 12.4 | -0.3 | (0.2) | (1.9) | 9.3 | 31.3 | 3.1 | 14.4 |
| | 10y | 26.2 | -0.6 | 2.2 | (2.0) | 4.5 | 63.8 | 21.0 | 32.1 |
| Callables | 5NC1 | 17.7 | -1.4 | (3.7) | (3.0) | (11.2) | 95.8 | 17.7 | 38.3 |
| | 7NC1 | 25.1 | -1.4 | (4.7) | (5.3) | (17.5) | 111.7 | 25.1 | 50.4 |
| | 10NC1 | 46.4 | -1.4 | (2.1) | (4.5) | (23.3) | 134.1 | 46.4 | 74.0 |
| | 15NC1 | 65.3 | -1.1 | (8.7) | (2.0) | (16.4) | 159.2 | 61.4 | 90.6 |

## MBS Index

| | | | Z-Score | Change Week | MTD | YTD | 52 Week High | Low | Avg |
|---|---|---|---|---|---|---|---|---|---|
| **Static** | | | | | | | | | |
| Price | | 106.62 | 0.3 | (0.06) | (0.08) | 2.21 | 107.43 | 103.30 | 106.26 |
| Coupon | | 3.23 | -2.2 | 0.00 | (0.05) | (0.34) | 3.59 | 3.23 | 3.46 |
| Yield | | 0.84 | -0.7 | 0.05 | (0.01) | (1.62) | 2.84 | 0.53 | 1.37 |
| WAL | | 3.00 | -0.7 | 0.06 | 0.02 | (1.85) | 6.25 | 2.65 | 3.56 |
| **Option-Adjusted** | | | | | | | | | |
| Effective Duration | | 1.33 | -0.8 | 0.06 | 0.03 | (1.72) | 3.86 | 1.15 | 1.83 |
| Effective Convexity | | -1.02 | -0.2 | (0.12) | (0.07) | 0.74 | -0.02 | -1.99 | -0.89 |
| LOAS (bps) | | 22 | -0.9 | (0.27) | 1.21 | (15.37) | 153 | 14 | 39 |
| **Mix** | | | | | | | | | |
| 30YR | | 89.0% | -2.6 | 0.0% | -0.3% | -0.9% | 90.0% | 89.0% | 89.8% |
| 15YR | | 11.0% | 2.6 | 0.0% | 0.3% | 0.9% | 11.0% | 10.0% | 10.2% |
| **Nominal Return** | | | | | | | | | |
| 5 Day | | 0.03% | | | | | | | |
| 10 Day | | -0.06% | | | | | | | |
| MTD | | -0.06% | | | | | | | |
| QTD | | -0.13% | | | | | | | |
| YTD | | 3.48% | | | | | | | |
| 12 Month | | 3.85% | | | | | | | |

Source: MTGINDEX data from the Yield Book.

# Specified Pool Carry and Breakevens

as of 11/18/2020

| Coupon | Specification | Payup (ticks) | Price | WAC | WALA | 1-Month Proj CPR ^ | Cohort Hist. CPR 1mo | 3mo | Carry (ticks) | B/E Months | YTM | WAL | Libor OAS | Effective Duration | Effective Convexity |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.0 | TBA (Cheapest to Deliver) | | 104.609 | 3.70 | 49 | 40.4 | 4.9 | 5.7 | 0.33 | | 1.37 | 3.10 | 57.29 | 1.48 | -1.74 |
| 3.0 | LLB 85k | 208.0 | 111.109 | 3.51 | 49 | 14.3 | 7.4 | 7.5 | -0.16 | n/a | 0.86 | 5.53 | -0.69 | 3.72 | -1.34 |
| 3.0 | MLB 110k | 193.0 | 110.641 | 3.57 | 51 | 16.6 | 6.7 | 7.3 | -0.06 | n/a | 0.76 | 5.03 | -7.85 | 2.97 | -1.61 |
| 3.0 | HLB 150k | 157.0 | 109.516 | 3.51 | 50 | 23.1 | 5.9 | 6.8 | -0.11 | n/a | 0.60 | 4.16 | -18.90 | 1.36 | -1.96 |
| 3.0 | 175k Max | 157.0 | 109.516 | 3.66 | 53 | 27.7 | 5.7 | 6.6 | -0.02 | n/a | 0.33 | 3.69 | -38.03 | 0.55 | -1.69 |
| 3.0 | 200k Max | 96.0 | 107.609 | 3.67 | 52 | 29.9 | 4.9 | 6.0 | 0.14 | n/a | 0.73 | 3.53 | -2.08 | 0.84 | -1.81 |
| 3.0 | New Wala | 34.0 | 105.672 | 4.11 | 24 | 55.6 | 0.1 | 0.0 | -1.33 | n/a | 0.29 | 2.19 | -8.96 | -0.03 | -0.06 |
| 3.0 | 20yr | 8.0 | 104.859 | 3.62 | 51 | 34.0 | 5.1 | 5.6 | -0.02 | n/a | 1.23 | 2.96 | 62.00 | 1.61 | -1.03 |
| 3.0 | Conv. Jumbo (CK) | -34.0 | 103.547 | 3.77 | 52 | 62.8 | 3.8 | 4.0 | 0.49 | n/a | 0.95 | 1.87 | 46.27 | 0.64 | -0.36 |
| 3.5 | TBA (Cheapest to Deliver) | | 105.641 | 4.07 | 38 | 42.2 | 7.3 | 8.0 | -0.25 | | 1.55 | 3.18 | 81.43 | 1.41 | -1.31 |
| 3.5 | LLB 85k | 250.0 | 113.453 | 4.02 | 40 | 18.2 | 6.5 | 7.2 | 0.10 | 712.3 | 0.66 | 4.98 | -12.82 | 2.76 | -1.16 |
| 3.5 | MLB 110k | 222.0 | 112.578 | 4.05 | 43 | 21.7 | 6.9 | 7.4 | 0.10 | 641.6 | 0.57 | 4.50 | -16.89 | 1.99 | -1.21 |
| 3.5 | HLB 150k | 176.0 | 111.141 | 4.03 | 35 | 29.3 | 6.3 | 7.0 | 0.27 | 343.8 | 0.50 | 3.88 | -17.84 | 0.95 | -1.13 |
| 3.5 | 175k Max | 166.0 | 110.828 | 3.96 | 54 | 29.0 | 6.1 | 6.5 | 0.28 | 315.0 | 0.42 | 3.65 | -22.31 | 0.60 | -1.17 |
| 3.5 | 200k Max | 112.0 | 109.141 | 3.95 | 38 | 36.5 | 3.5 | 4.9 | 0.46 | 159.1 | 0.55 | 3.25 | -4.85 | -0.05 | -1.05 |
| 3.5 | New Wala | 40.0 | 106.891 | 4.57 | 22 | 69.6 | 2.7 | 2.7 | -4.79 | n/a | -1.69 | 1.32 | -132.97 | -1.62 | 3.15 |
| 4.0 | TBA (Cheapest to Deliver) | | 106.578 | 4.48 | 33 | 40.6 | 6.6 | 7.1 | -0.83 | | 1.67 | 3.12 | 104.48 | 1.34 | -0.86 |
| 4.0 | LLB 85k | 272.0 | 115.078 | 4.40 | 40 | 19.8 | 8.4 | 8.7 | -0.07 | 359.8 | 0.70 | 4.82 | -4.62 | 2.55 | -0.92 |
| 4.0 | MLB 110k | 220.0 | 113.453 | 4.39 | 38 | 23.4 | 7.4 | 8.3 | -0.04 | 281.0 | 0.67 | 4.24 | -1.34 | 1.69 | -0.94 |
| 4.0 | HLB 150k | 162.0 | 111.641 | 4.43 | 43 | 31.8 | 7.2 | 7.9 | -0.45 | 429.7 | 0.67 | 3.67 | 6.25 | 0.97 | -0.73 |
| 4.0 | 175k Max | 187.0 | 112.422 | 4.38 | 54 | 28.3 | 7.0 | 7.7 | -0.17 | 285.5 | 0.49 | 3.68 | -7.71 | 0.83 | -0.70 |
| 4.0 | 200k Max | 140.0 | 110.953 | 4.39 | 41 | 40.1 | 5.0 | 5.6 | -1.04 | n/a | 0.18 | 2.96 | -21.03 | -0.38 | -0.09 |
| 4.0 | New Wala | 44.0 | 107.953 | 4.91 | 24 | 55.7 | 3.6 | 3.4 | -0.64 | 241.8 | -0.10 | 2.00 | -22.36 | 0.11 | 1.16 |

^ Source: FHN Financial, Yieldbook