PMI market trends and highlights: 2Q 2021

Shift to a purchase market, new notices decline to pre-COVID levels, an uptick in cures as borrowers exit forbearance, and an update on 2021 MILNs

Historically high purchase volume drove strong NIW for the industry in 2Q 2021. Declines in new notices and increases in cures drove an increase in the cure to notice ratio for the quarter. Persistency on in-force policies ticked up slightly and foreclosure moratoriums continue to dampen paid claims. Milliman also summarizes 2021 mortgage insurance-linked note issuances.

The U.S. private mortgage insurer (PMI) market is made of up six insurers—Arch, Genworth,[1] NMI, Radian, MGIC, and Essent. As part of their financial disclosures, the PMIs summarize their new insurance written (NIW) during a given reporting period as well as the size and performance of their insurance in force (IIF).

Milliman has compiled this data to build an aggregate view of the quarter in terms of NIW and performance data. Furthermore, key statements from the PMIs' earnings calls are summarized to provide additional insight into industry trends and developments. The following update highlights key trends Milliman identified during the most recent quarter.

The PMIs' reported second quarter (2Q) 2021 earnings in August. This quarter continued to deliver high NIW for the industry relative to prior years (see Figure 1). However, Milliman noted the composition of the NIW was more heavily weighted towards purchase originations than in recent quarters. Milliman analyzes the differences in NIW driven by purchases versus refinances. Furthermore, as borrowers continued to exit forbearance, IIF performance improved via increased cures, and the primary delinquency rate decreased for all the PMIs.

As of this publication, all six PMIs have issued capital markets insurance-linked notes (ILNs) transactions in 2021. Given the expectation for continued high 2021 NIW, we anticipate additional mortgage ILN (MILN) issuance. Additional information on ILN issuance and performance (e.g., collateral composition and cash flow estimates from both the collateral and securities) can be obtained from Milliman Mortgage Platform for Investments and Reinsurance (M-PIRe).

For 2Q 2021, this report provides a:

- Summary of NIW
  - Purchase vs. refinance share
  - Mortgage insurance (MI) penetration rate by loan purpose
- Summary of IIF
  - Volume/persistency
  - Performance
- Summary of capital markets MILN issuances
  - New issuance
- Appendix: Additional excerpts from earnings calls

[1] Genworth recently rebranded its U.S. mortgage insurance segment, Genworth Mortgage Holdings, Inc., to Enact Holdings, Inc. (Enact). In future editions of this report, we will refer to Genworth as Enact. See https://newsroom.genworth.com/2021-05-24-Introducing-Enact,-a-Leading-Private-Mortgage-Insurance-Group.

Introduction

Milliman provides consulting services and an analytic platform (Milliman M-PIRe) to mortgage credit risk investors. Both Milliman M-PIRe and associated consulting services provide fundamental analysis on the risk profile of mortgage investments, including government-sponsored enterprise (GSE) credit risk transfer (CRT) securities, mortgage insurance-linked notes (ILNs), and whole loans. Many of our clients either insure mortgage credit risk (direct or through reinsurance) and/or are investors in CRT and ILNs. This report is created and published to help summarize key trends in the mortgage insurance industry to help our clients make informed decisions on their participation in the sector.

Quarterly NIW results and IIF trends

SUMMARY OF QUARTERLY RESULTS

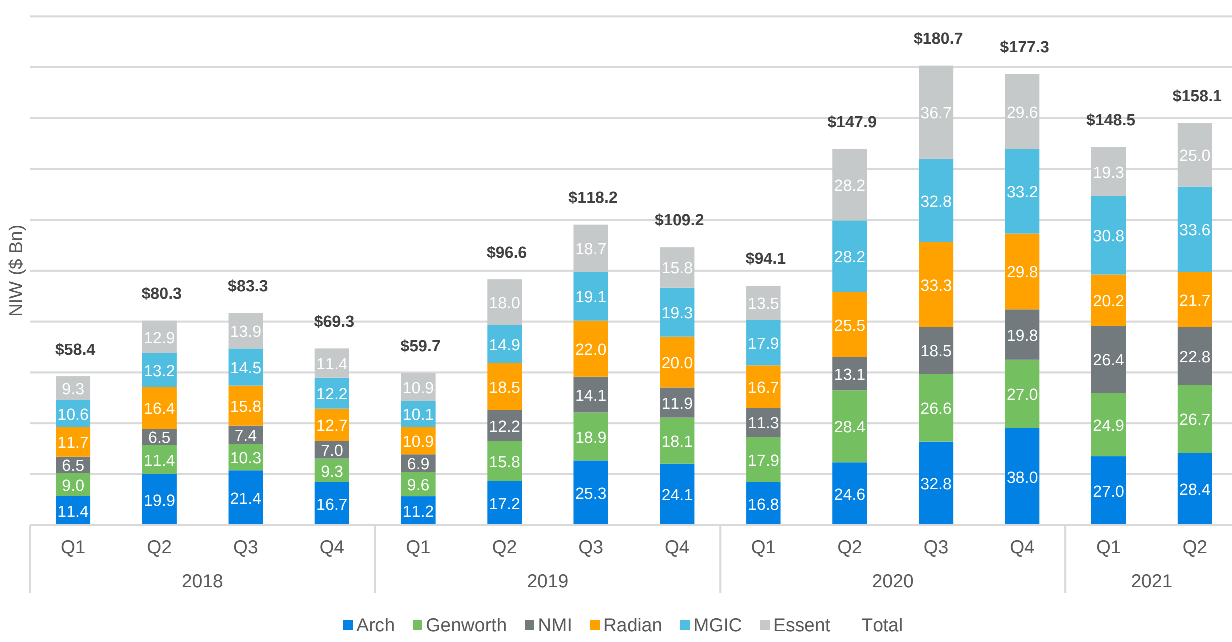
Low-interest rates and strong purchase demand continue to lead to high NIW. However, purchase originations comprised a larger majority of the NIW than in recent quarters. The figures below decompose the NIW market into purchases and refinances to illustrate how the two loan purposes differ (e.g., MI penetration rate, etc.).

IIF was up modestly across the industry, quarter-over-quarter, with all but one insurer experiencing IIF growth. The muted changes in IIF were driven by continued fast prepayment speeds. However, this quarter showed slight increases in persistency—possibly indicative of waning refinance opportunities for existing borrowers and the potential for further persistency increases.[2]

NIW VOLUME AND MARKET SHARE

Primary NIW in 2Q 2021 was $158.1 billion, an increase of 7% quarter-over-quarter and an increase of 7% year-over-year. This was comprised of $128.9 billion of purchase mortgages (82%) and $29.1 billion of refinance mortgages (18%).

FIGURE 1: QUARTERLY NEW INSURANCE WRITTEN, $ BILLION BY PMI, 2018-2021

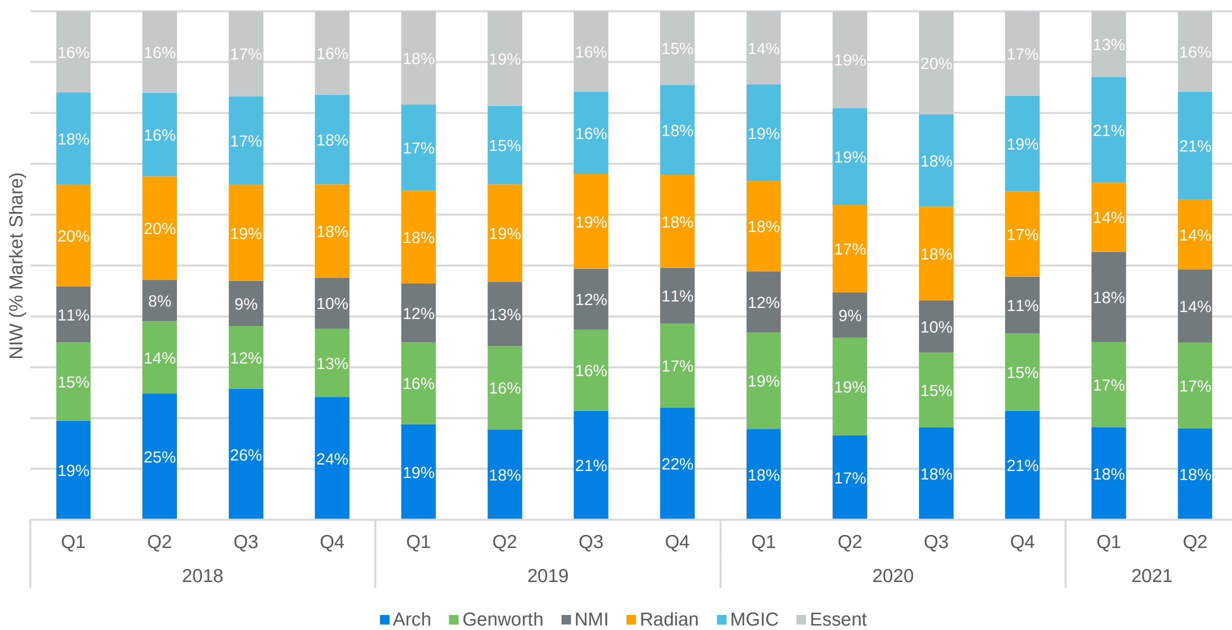


Source: PMI Earnings Releases, Financial Supplements, and 10-K/Qs.

[2] As a caveat, the Freddie Mac 30-year fixed-rate mortgage (FRM) Primary Mortgage Market Survey rate fell from 3.18% on April 1, 2021, to 2.77% on August 5, 2021, potentially providing further opportunity for borrowers to refinance. See Freddie Mac (August 26, 2021). Mortgage Rates. Retrieved September 12, 2021, from http://www.freddiemac.com/pmms/#.

MGIC reported the largest market share in the quarter, writing $33.6 billion (21.3%), followed by Arch ($28.4 billion, 17.9%), Genworth ($26.7 billion, 16.9%), Essent ($25.0 billion, 15.8%), NMI ($22.8 billion, 14.4%), and Radian ($21.7 billion, 13.7%).

FIGURE 2: QUARTERLY NEW INSURANCE WRITTEN, % MARKET SHARE BY PMI, 2018-2021



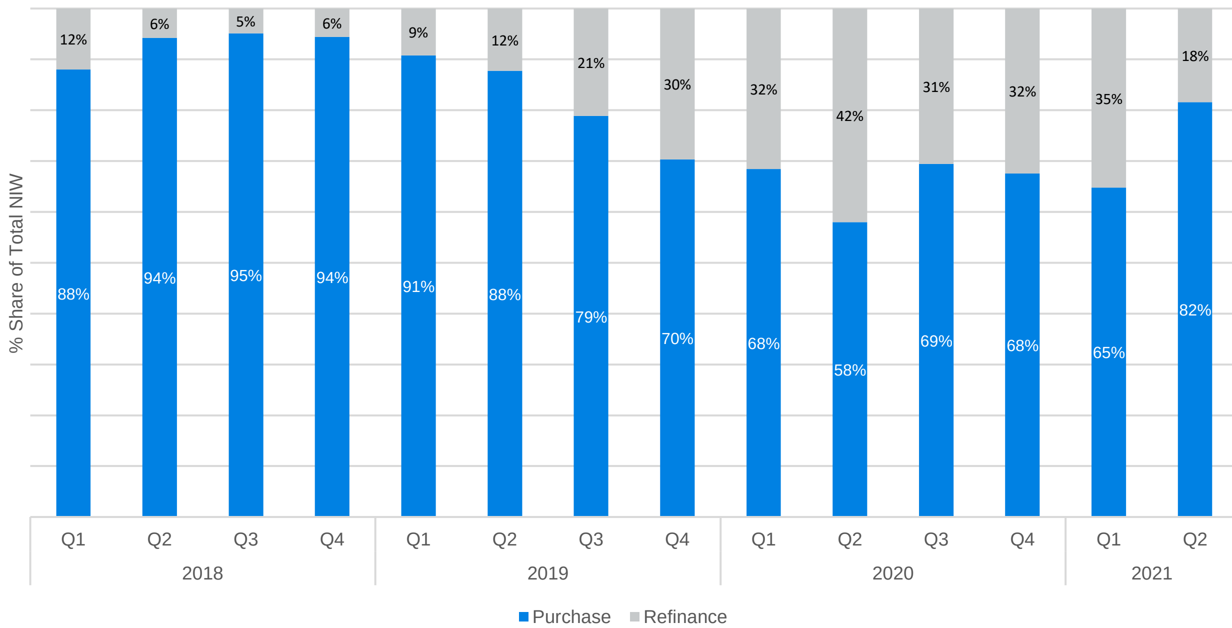
Source: PMI Earnings Releases, Financial Supplements, and 10-K/Qs.

Figure 3 shows the percentage make-up of purchase versus refinance originations. The 2Q 2021 period marks the smallest share of refinances (18%) since 2Q 2019 (12%). Refinances comprised 5% of NIW in 3Q 2018 and increased sequentially in share every quarter until 3Q 2020—reaching a high-water mark in 2Q 2020 at 42%. The period 3Q 2020 through 1Q 2021 continued to show high levels of refinancing, with shares between 31% and 35%.

This shift away from refinances—refinance share dropped from 42% to 18%, year-over-year—is notable as the industry still posted an increase in aggregate NIW, year-over-year. This was driven by the largest quarterly purchase market since at least 1Q 2018.[3] Figure 4 shows purchase originations' contribution to aggregate NIW—e.g., $128.9 billion of purchase NIW in 2Q 2021 versus $85.8 billion in 2Q 2020. Note that the drop in refinance share is attributed to both a decline in refinance NIW and an increase in purchase NIW.

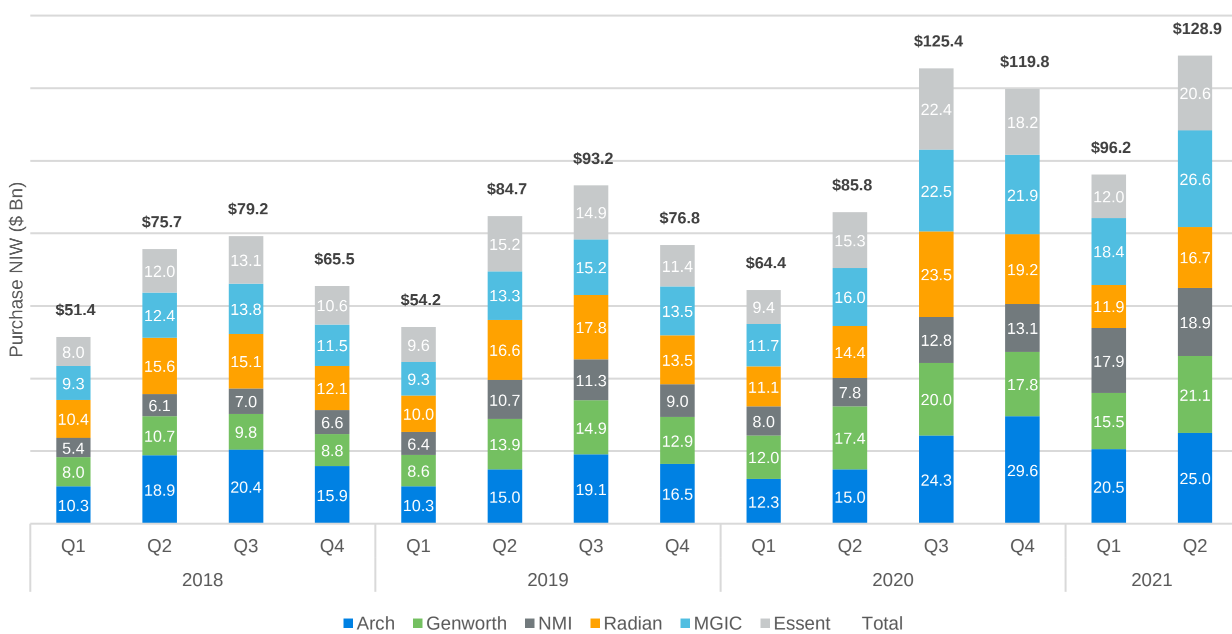
[3] Milliman began tracking PMI quarterly performance in 1Q 2018.

FIGURE 3: QUARTERLY PURCHASE VS. REFINANCE SHARE, NIW MARKET, 2018-2021



Source: PMI Earnings Releases, Financial Supplements, and 10-K/Qs.

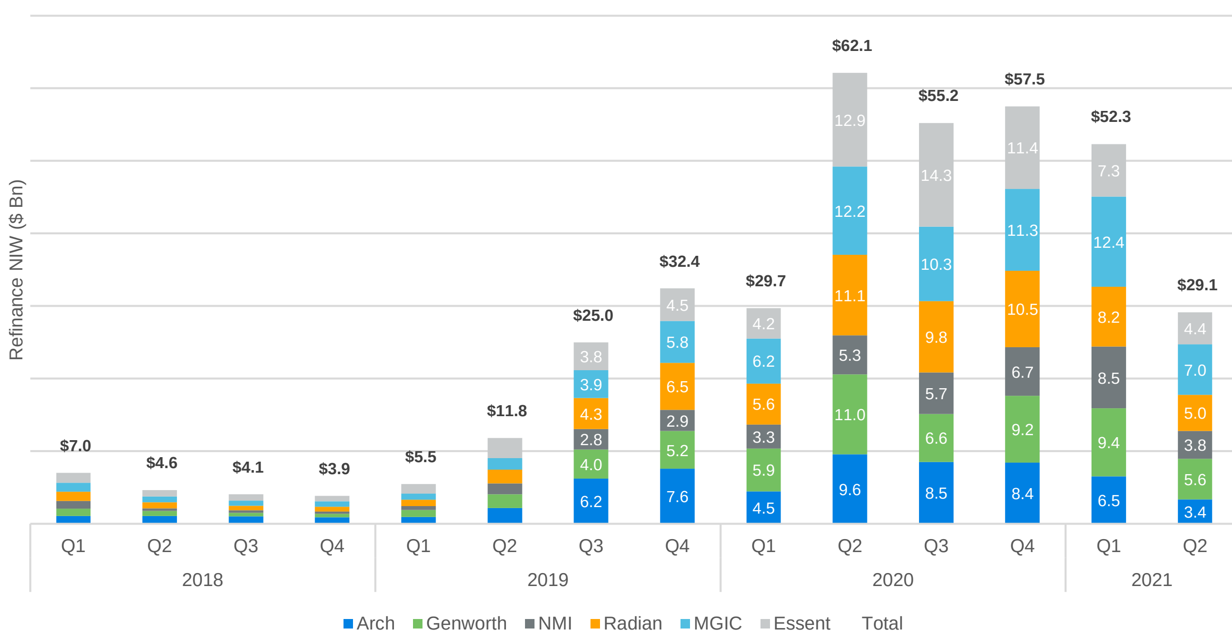
FIGURE 4: QUARTERLY NIW, PURCHASE ORIGINATIONS ONLY, $ BILLION BY PMI, 2018-2021



Source: PMI Earnings Releases, Financial Supplements, and 10-K/Qs.

Figure 5 shows refinance originations' contribution to aggregate NIW. Given borrowers only have an incentive to refinance when prevailing mortgage rates drop below the note rate on their loans, there have, historically, been periods where few borrowers have a refinance incentive—in other words, most borrowers already have note rates beneath the prevailing mortgage rate (e.g., 2018). Conversely, when mortgage rates fall precipitously and many borrowers have refinance incentives, there have been periods where many borrowers have a refinance incentive (e.g., 2Q 2020 to 1Q 2021).

FIGURE 5: QUARTERLY NIW, REFINANCE ORIGINATIONS ONLY, $ BILLION BY PMI, 2018-2021



Source: PMI Earnings Releases, Financial Supplements, and 10-K/Qs.

For mortgage originators, the shift from a refinance to a purchase market typically results in lower origination volume, revenue, and potential profitability. In addition, with lower volumes, primarily comprised of purchases, competition among lenders can be stiffer and profit margins potentially lower. Mortgage insurers, on the other hand, typically do not feel the same pressure during a purchase market as mortgage originators; instead, strong purchase markets may have some benefits to PMIs.

While low-interest rates and a strong refinance market drive incremental NIW for the PMIs—i.e., capturing a refinance of a loan with an existing PMI policy—they also decrease persistency. Borrowers refinancing out of PMI—which, aside from a lower monthly mortgage payment, can be a major benefit of refinances—counts toward the attrition of the in-force book. Thus, refinances generally decrease IIF at a faster pace than general housing market turnover, all else equal, as a disproportionately high number of the refinances are doing so to cancel PMI payments, versus the general housing market where turnover impacts high loan-to-value (LTV) and low LTV loans relatively similarly. Calendar years 2020 and 2021 were associated with both low interest rates and high home price appreciation. In combination, both factors contribute to borrower refinance activity, and many mortgage originators used rapid home price appreciation to incentivize borrowers to refinance and cancel their PMI policies.[4,5,6] Relatedly, the percentage of refinance originations with an LTV of greater than

[4] Ostrowski, J. (January 8, 2021). How to get rid of PMI, or private mortgage insurance. Bankrate. Retrieved September 12, 2021, from https://www.bankrate.com/mortgages/removing-private-mortgage-insurance/.
[5] Martin, E.J. (November 6, 2020). Get rid of PMI and lower your mortgage payment. Mortgage Report. Retrieved September 12, 2021, from https://themortgagereports.com/55984/get-rid-of-pmi-or-mip-mortgage-insurance-with-a-refinance.
[6] Rocket Mortgage (April 8, 2021). How to get rid of PMI. Retrieved September 12, 2021, from https://www.rocketmortgage.com/learn/how-to-get-rid-of-pmi.

80% (the cutoff for needing MI) is significantly lower than the percentage of purchase originations with an LTV of greater than 80% (see Figure 6). Thus, a strong refinance market can (1) erode the existing IIF at a relatively fast pace, and (2) have a muted benefit, as the MI penetration rate is lower for refinances than purchases.

FIGURE 6: PERCENTAGE OF TOTAL GSE ACQUISITIONS WITH PMI, BY LOAN PURPOSE, 2014-2021

	Purchase	Refinance	Ratio
2014	38.7%	16.1%	2.40
2015	40.5%	11.9%	3.39
2016	43.8%	10.4%	4.22
2017	44.9%	9.1%	4.91
2018	48.6%	8.0%	6.06
2019	51.3%	13.9%	3.70
2020	50.6%	11.4%	4.43
2021	49.6%	8.1%	6.08
Total	**46.8%**	**10.8%**	**4.32**

Source: Milliman M-PIRe, Fannie Mae, Freddie Mac.

Milliman M-PIRe aggregates and reports on all GSE acquisitions from 2014 onward. Figure 6 shows the percentage of total GSE acquisitions[7] with PMI, broken out by loan purpose. In aggregate, over the 2014-2021 period, purchase acquisitions were over four times more likely to have PMI than refinance acquisitions. Thus, when the broader mortgage market shifts from a refinance wave back to a purchase market, the PMIs generally do not have as much to lose (i.e., the incremental volume lost was less likely to have PMI). Furthermore, as mentioned above, lower refinance incentives increase the persistency of the IIF portfolio.

Aggregating industry management earnings call comments, most individuals pointed to the shift to a purchase market as a generally positive industry trend—driving increased persistency as well as still strong loan volumes via high PMI purchase market penetration. Direct quotations from earnings calls related to these topics are in the Appendix.

MARKET-LEVEL IIF TRENDS

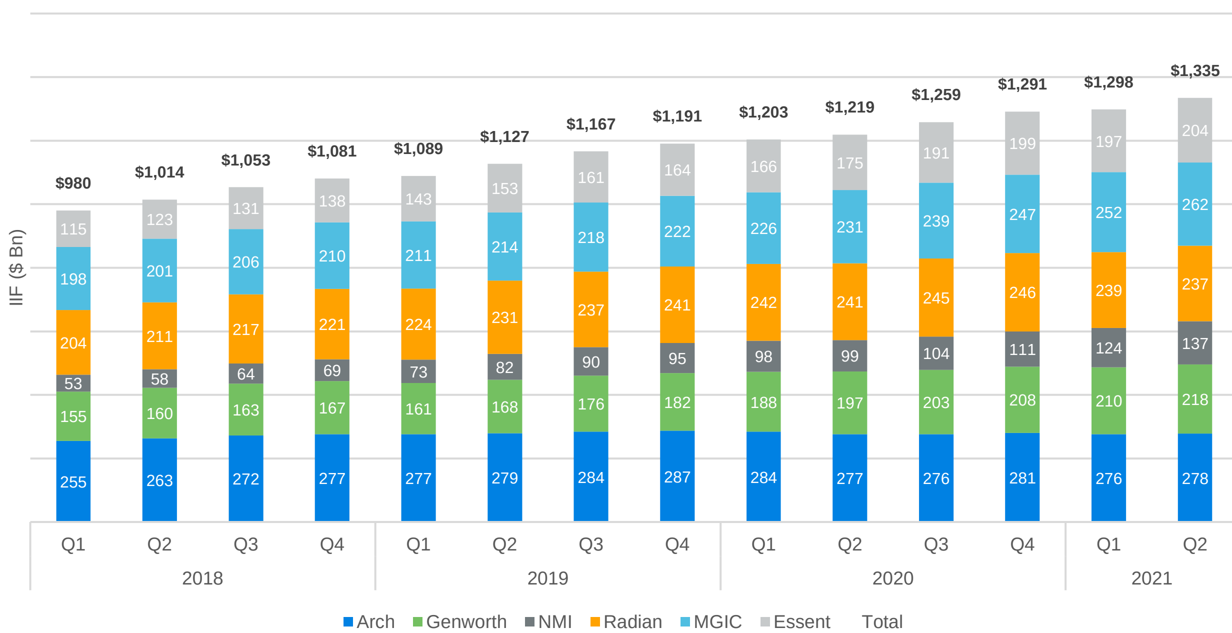
Despite the industry writing $158.1 billion NIW in 2Q 2021—historically high for 2Q NIW—insurance in force (IIF) grew only $37.0 billion, or 2.8%, over 1Q 2021. Five PMIs posted IIF gains, while Radian posted a modest IIF decline.

Regarding IIF market share over time, Milliman notes higher sustained growth by the newer market entrants (e.g., NMI and Essent) as they replace smaller vintage book years with larger newer book years as they continue to scale their businesses. However, legacy PMIs show some shift in IIF share over time as well. For instance, looking at the quarters 2Q 2019 and 2Q 2021, Radian IIF was approximately identical at $237 billion, while MGIC grew IIF from $218 billion to $262 billion (over 20%). Such differences in IIF growth are generally driven by sustained, quarter-over-quarter increases or decreases in NIW share. Gross premiums written, the key driver of monoline PMI revenue, is a direct function of IIF, so the quarterly NIW share shifts, if sustained, can ultimately impact the relative financial performance (in this case, gross revenue) between PMIs.

IIF growth as an industry was muted compared to NIW volume due to the low persistency rate on existing policies over the trailing year. Persistency is generally defined as the percentage of IIF that remained in force after the trailing 12-month period. For the most recent quarter, persistency rates remain low at 57.5%. However, this rate is up slightly from the prior quarter rate of 55.5%. The slight increase in persistency rates is consistent with the broader shift from a refinance to purchase market, as discussed above.

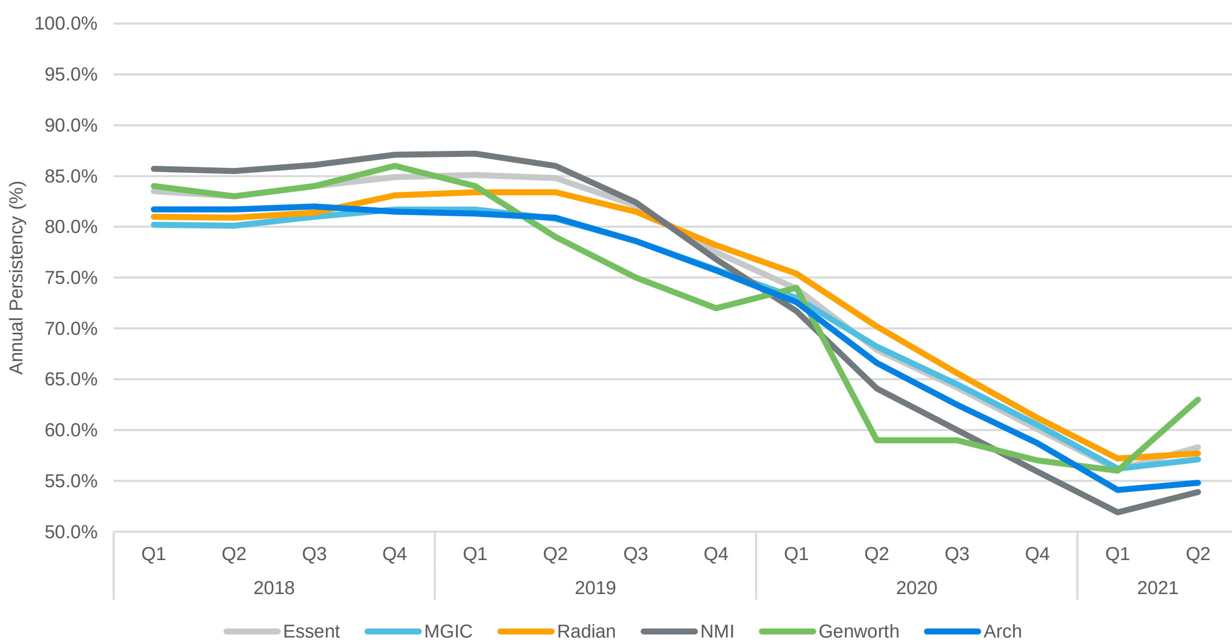
[7] The vast majority (e.g., 98%+) of PMI policies are GSE acquisitions.

FIGURE 7: REPORTED INSURANCE IN FORCE, BY QUARTER, 2018-2021



Source: PMI Earnings Releases, Financial Supplements, and 10-K/Qs.

FIGURE 8: ANNUAL PERSISTENCY RATES, % OF IIF REMAINING IN FORCE AFTER THE TRAILING 12-MONTH PERIOD, BY QUARTER, 2018-2021



Source: PMI Earnings Releases, Financial Supplements, and 10-K/Qs.

Delinquent loan performance

The PMIs reported a high level of incurred losses in 2Q 2020 due to the wave of initial COVID-19-related delinquencies. Although all six PMIs' delinquent inventories have decreased every quarter since, the inventories (i.e., the cumulative number of delinquent loans) as of 2Q 2021 are still elevated compared to pre-COVID-19 levels. This section provides an update on signals from the PMIs' delinquent inventories (e.g., new notices, cures, claims paid).

Overall, cures have outpaced new notices of default, resulting in an aggregate decline in the delinquent inventory. The sustained improvement in the economy, particularly the housing market, has also contributed to the new notice rate of delinquencies falling beneath pre-COVID-19 levels in 2Q 2021, 68 basis points (bps) versus 82bps in 1Q 2020). This indicates that there is relatively little stress left in the economy to impact borrowers (aside from normal individual financial hardships that impact borrowers during benign economic times). Finally, because foreclosure moratoriums and principal forbearance were extended through 2Q 2021 by the Federal Housing Finance Agency (FHFA),[8] claims paid have been historically low since 3Q 2020.

DELINQUENT INVENTORY TRENDS

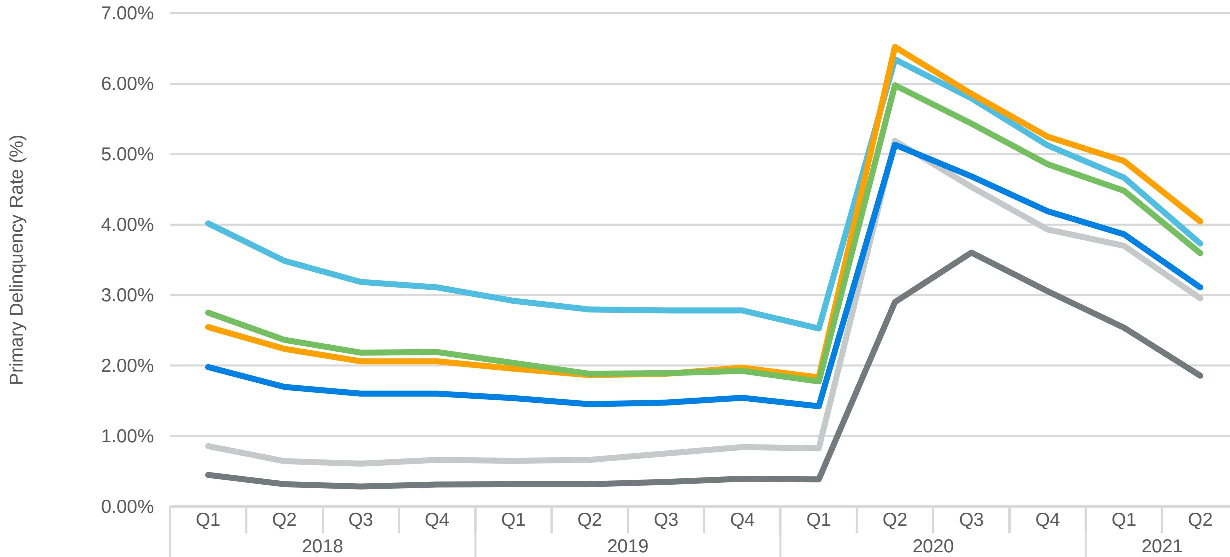
Given that loans in forbearance are still treated as delinquent when mortgage servicers report performance, the PMIs received large increases in new notices of default (new notices) in 2Q 2020, resulting in a sudden jump in the primary delinquent inventory of the PMIs. Since the peak in 2Q 2020, delinquencies have declined sequentially, but remain elevated versus pre-COVID-19 levels.

The charts in Figures 9 through 13 display rates that influence the primary delinquency rate, e.g., new notice rate, cure rate, and paid claim rate. These rates provide information on the inflow of new delinquencies, the outflow of cured delinquencies, and the outflow of paid claims on delinquencies, respectively. Decomposition of the changes in the primary delinquency rate into these other rates can provide information on the drivers of the headline change (e.g., a decrease in the primary delinquency rate due to cures outpacing delinquencies or, if it could be driven by little changes in the delinquent inventory and thus simply a rise in policies in force, due to decreasing the rate relative to the population).[9]

[8] The moratoriums on single-family foreclosures recently expired on July 31, 2021. See https://www.fhfa.gov/Media/PublicAffairs/Pages/FHFA-Extends-COVID-19-Foreclosure-and-REO-Eviction-Moratoriums.aspx.

[9] Note that, for more current data, most of the PMIs release monthly operating statistics that provide monthly updates to the delinquency trends discussed in this section.

FIGURE 9: QUARTERLY PERCENTAGE OF IIF IN DELINQUENCY, % OF ENDING POLICIES IN FORCE, COUNT-WEIGHTED, BY PMI, 2018-2021



	2018 Q1	2018 Q2	2018 Q3	2018 Q4	2019 Q1	2019 Q2	2019 Q3	2019 Q4	2020 Q1	2020 Q2	2020 Q3	2020 Q4	2021 Q1	2021 Q2
Essent	0.86%	0.64%	0.61%	0.66%	0.65%	0.66%	0.75%	0.85%	0.83%	5.19%	4.54%	3.93%	3.70%	2.96%
MGIC	4.02%	3.49%	3.19%	3.11%	2.92%	2.80%	2.78%	2.78%	2.53%	6.35%	5.79%	5.12%	4.67%	3.73%
Radian	2.55%	2.24%	2.06%	2.06%	1.95%	1.87%	1.88%	1.97%	1.83%	6.52%	5.86%	5.25%	4.91%	4.04%
NMI	0.45%	0.32%	0.28%	0.31%	0.32%	0.32%	0.35%	0.40%	0.38%	2.90%	3.60%	3.06%	2.54%	1.86%
Genworth	2.75%	2.37%	2.18%	2.19%	2.04%	1.88%	1.89%	1.93%	1.78%	5.98%	5.44%	4.86%	4.48%	3.60%
Arch	1.98%	1.70%	1.60%	1.60%	1.54%	1.45%	1.48%	1.54%	1.42%	5.14%	4.69%	4.19%	3.86%	3.11%

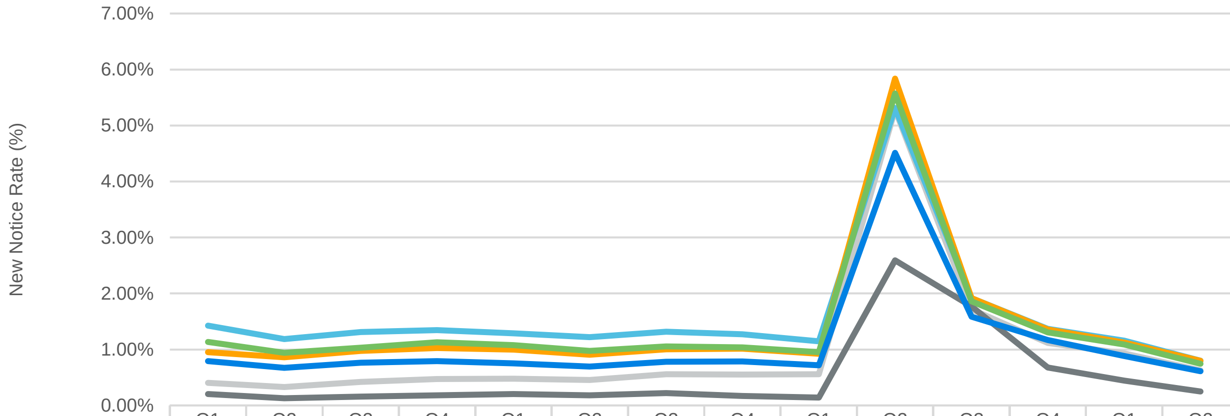
Source: PMI Earnings Releases, Financial Supplements, and 10-K/Qs.

The weighted average primary delinquency rate decreased from 5.65% in 2Q 2020 to 3.36% in 2Q 2021 (Figure 9).

During this time, the new notice of default rate decreased from 5.07% to 0.68% (Figure 10). As mentioned above, as of 2Q 2021, the new notice rate of 0.68% now sits below the weighted average quarterly rate, reported from 1Q 2018 through 1Q 2020, of 0.88%. This is a positive development and should contribute to further declines in the primary delinquency rate, all else equal.

However, note, there is potential for an increase in the new notice rate reported next quarter following Hurricane Ida. Historically natural disasters have resulted in spikes in delinquency rates followed by high cure rates. It is not clear at this time how the combination of the COVID-19 pandemic and Hurricane Ida disaster areas will impact new notice rates or the extent of the impact on mortgage borrowers.

FIGURE 10: QUARTERLY NEW NOTICE OF DEFAULT RATE, % OF STARTING POLICIES IN FORCE, COUNT-WEIGHTED, BY PMI, 2018-2021

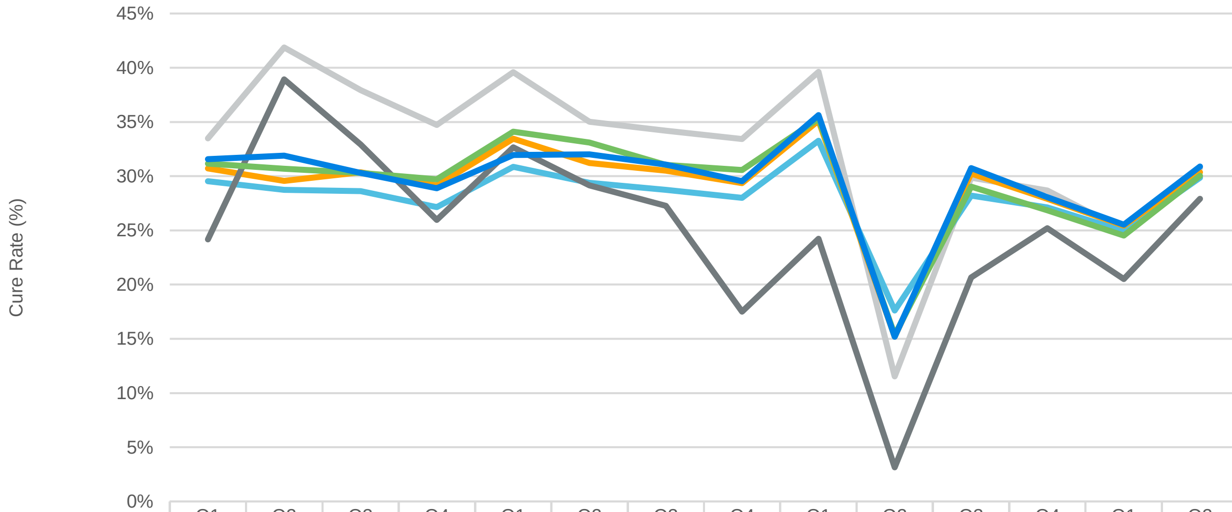


	2018 Q1	2018 Q2	2018 Q3	2018 Q4	2019 Q1	2019 Q2	2019 Q3	2019 Q4	2020 Q1	2020 Q2	2020 Q3	2020 Q4	2021 Q1	2021 Q2
Essent	0.40%	0.33%	0.42%	0.47%	0.48%	0.45%	0.56%	0.55%	0.56%	5.29%	1.72%	1.12%	0.93%	0.63%
MGIC	1.43%	1.18%	1.31%	1.35%	1.29%	1.22%	1.32%	1.27%	1.15%	5.31%	1.92%	1.37%	1.16%	0.80%
Radian	0.95%	0.86%	0.98%	1.02%	1.00%	0.91%	1.00%	1.01%	0.92%	5.84%	1.92%	1.36%	1.12%	0.80%
NMI	0.20%	0.13%	0.16%	0.18%	0.20%	0.18%	0.22%	0.17%	0.14%	2.59%	1.77%	0.68%	0.44%	0.25%
Genworth	1.13%	0.94%	1.03%	1.13%	1.08%	0.97%	1.06%	1.04%	0.95%	5.57%	1.86%	1.30%	1.09%	0.74%
Arch	0.79%	0.67%	0.76%	0.79%	0.75%	0.69%	0.78%	0.79%	0.72%	4.51%	1.59%	1.17%	0.88%	0.61%

Source: PMI Earnings Releases, Financial Supplements, and 10-K/Qs.

The weighted average cure rate was 15% in 2Q 2020 as the initial stress of the pandemic led to many borrowers entering into, and remaining in, a state of delinquency during the quarter (Figure 11). Since that low, the cure rate improved to just below 30% in later 2020 and early 2021. This is generally in line with the weighted average cure rate, reported from 1Q 2018 through 1Q 2020, of 31%. Given that most active delinquencies are subject to COVID-19-related forbearance plans, it is possible that this uptick in cure rate is indicative of more borrowers exiting forbearance than in quarters prior.

FIGURE 11: QUARTERLY CURE RATE, % OF STARTING DELINQUENCIES PLUS NEW NOTICES, COUNT-WEIGHTED, BY PMI, 2018-2021



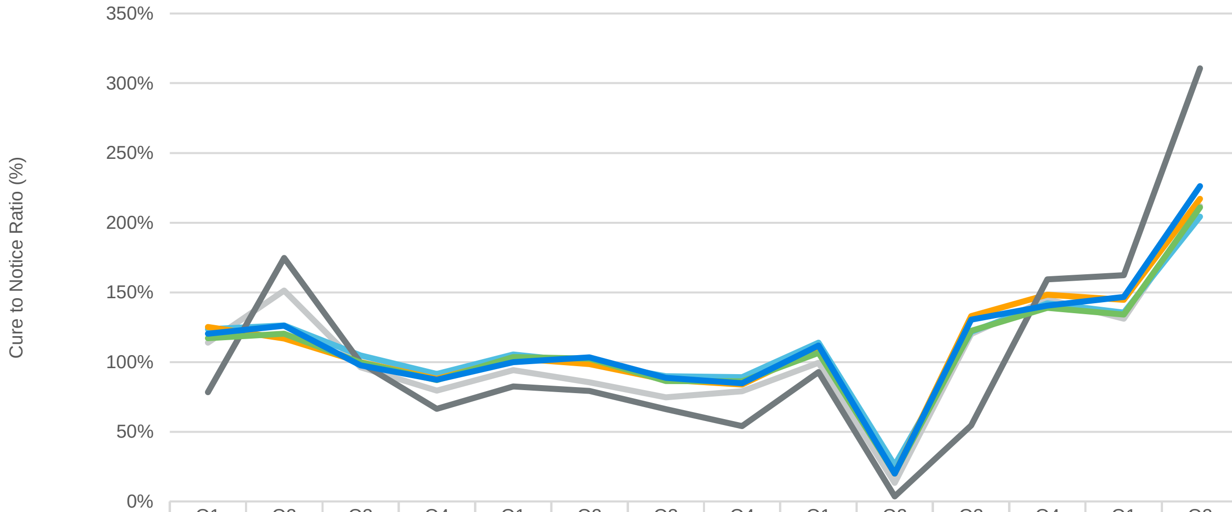
	2018 Q1	2018 Q2	2018 Q3	2018 Q4	2019 Q1	2019 Q2	2019 Q3	2019 Q4	2020 Q1	2020 Q2	2020 Q3	2020 Q4	2021 Q1	2021 Q2
Essent	33%	42%	38%	35%	40%	35%	34%	33%	40%	12%	30%	29%	25%	31%
MGIC	30%	29%	29%	27%	31%	29%	29%	28%	33%	18%	28%	27%	25%	30%
Radian	31%	30%	30%	29%	33%	31%	31%	29%	35%	15%	30%	28%	25%	30%
NMI	24%	39%	33%	26%	33%	29%	27%	18%	24%	3%	21%	25%	21%	28%
Genworth	31%	31%	30%	30%	34%	33%	31%	31%	35%	15%	29%	27%	25%	30%
Arch	32%	32%	30%	29%	32%	32%	31%	30%	36%	15%	31%	28%	26%	31%

Source: PMI Earnings Releases, Financial Supplements, and 10-K/Qs.

Comparing the number of loans curing to the number of new notices in the quarter, we can obtain a ratio that generally expresses whether the delinquent inventory is growing or shrinking in the quarter. Ignoring paid claims, rescissions, and denials, a ratio over 100% indicates a net decrease in the delinquent inventory over the quarter. In 3Q 2020 through 1Q 2021, despite previously showing new notice rates and cure rates that still underperformed versus pre-COVID-19 levels, cures still outpaced new notices, leading to a decrease in the default inventory. The weighted average cure to notice ratio in 1Q 2021 was 140%—indicating that, during the quarter, almost three loans cured from the delinquent inventory for every two that entered.

In 2Q 2021, with the decline in new notices and the increase in cures, the ratio of cures to defaults was 217%—the highest ratio since at least 1Q 2018. This indicates that, during the quarter, over two loans cured from the delinquent inventory for every one that entered.

FIGURE 12: QUARTERLY CURE TO NEW NOTICE RATIO, CURE COUNT DIVIDED BY NEW NOTICE COUNT, BY PMI, 2018-2021



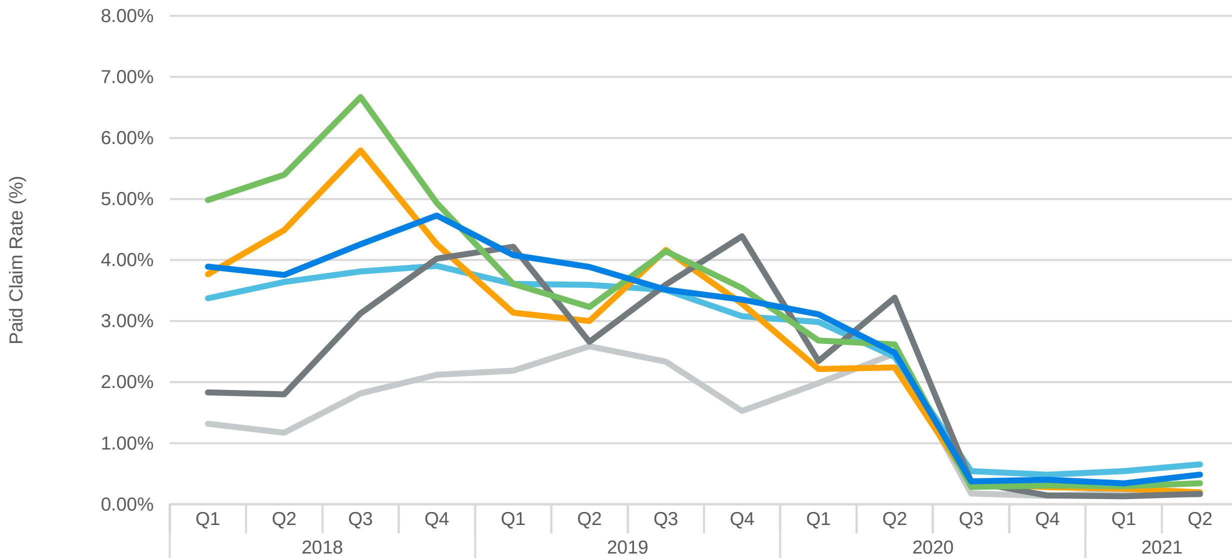
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
	2018				2019				2020				2021	
Essent	114%	151%	96%	79%	94%	85%	75%	79%	100%	13%	120%	145%	131%	212%
MGIC	124%	126%	105%	91%	105%	100%	90%	89%	114%	26%	122%	142%	135%	204%
Radian	125%	117%	100%	88%	103%	98%	87%	84%	110%	20%	133%	148%	145%	217%
NMI	78%	175%	99%	66%	83%	79%	66%	54%	93%	4%	55%	159%	162%	311%
Genworth	117%	120%	100%	87%	104%	102%	86%	86%	107%	20%	122%	139%	134%	211%
Arch	120%	126%	98%	87%	100%	103%	89%	85%	112%	20%	130%	140%	147%	226%

Source: PMI Earnings Releases, Financial Supplements, and 10-K/Qs.

Lastly, foreclosure moratoriums continue to reduce the number of paid claims as compared to pre-COVID-19 levels (Figure 13). Given that PMI claims are generally not submitted until a property title is transferred from the borrower to the lender via foreclosure, the foreclosure moratoriums have directly reduced claims paid since the introduction of the foreclosure moratorium. It is possible there might be a backlog of claims that may occur following the expiration of the existing foreclosure moratoriums.

However, home prices have experienced robust growth throughout the pandemic, resulting in increases in homeowner equity for many homeowners. Historical data indicates that increases in home equity result in higher cure rates and lower claim rates as borrowers can sell their homes given financial hardship and avoid foreclosure or claim. Therefore, the amount and size of the potential backlog of claims remain uncertain.

FIGURE 13: QUARTERLY PAID CLAIM RATE, % OF STARTING DELINQUENCIES, COUNT-WEIGHTED, BY PMI, 2018-2021



	2018 Q1	2018 Q2	2018 Q3	2018 Q4	2019 Q1	2019 Q2	2019 Q3	2019 Q4	2020 Q1	2020 Q2	2020 Q3	2020 Q4	2021 Q1	2021 Q2
Essent	1.32%	1.17%	1.82%	2.12%	2.19%	2.59%	2.34%	1.53%	1.98%	2.47%	0.18%	0.14%	0.19%	0.16%
MGIC	3.37%	3.64%	3.81%	3.90%	3.61%	3.60%	3.51%	3.08%	2.99%	2.41%	0.54%	0.48%	0.54%	0.66%
Radian	3.77%	4.49%	5.80%	4.26%	3.14%	3.00%	4.16%	3.28%	2.21%	2.24%	0.34%	0.28%	0.26%	0.20%
NMI	1.83%	1.80%	3.13%	4.02%	4.22%	2.66%	3.60%	4.39%	2.35%	3.38%	0.37%	0.15%	0.13%	0.17%
Genworth	4.98%	5.40%	6.67%	4.94%	3.61%	3.23%	4.14%	3.54%	2.68%	2.62%	0.28%	0.31%	0.30%	0.35%
Arch	3.89%	3.76%	4.26%	4.73%	4.08%	3.89%	3.51%	3.35%	3.11%	2.48%	0.38%	0.40%	0.34%	0.48%

Source: PMI Earnings Releases, Financial Supplements, and 10-K/Qs.

LOSS RESERVES

Following up on the 4Q 2020 and 1Q 2021 editions of this report—which featured an extended discussion of the PMIs' loss reserving methodologies—below we provide an updated summary of the PMIs' claim rate assumption on new notices.

Under GAAP, the loss reserves of the PMIs are established for policies only after the loan becomes delinquent. Generally, the PMIs are notified upon a 60-day delinquency, and the reserves are reflective of the current delinquency episode. The PMIs estimate the liability for losses related to the outstanding delinquent inventory and establish that amount as loss reserves. This estimation is typically done by projecting the percentage of loans in the delinquent inventory that will result in a claim payment (i.e., claim rate), and multiplying the claim rate by the estimated dollar amount per claim (i.e., claim severity). The underlying claim rate and claim severity estimates are based on historical experience but can fluctuate based on current economic circumstances (e.g., the COVID-19-caused economic disruption).

Figure 14 displays the claim rate assumptions used for new notices over the past three quarters. These values were populated via managements' statements during the PMIs' earnings calls.

FIGURE 14: CLAIM RATE ASSUMPTION ON NEW NOTICES, BY PMI, 3Q 2020-1Q 2021

	Arch	Genworth	NMI	Radian	MGIC	Essent
3Q 2020	8-9%	<7%	7%	8.5%	8%	7%
4Q 2020	9.4%	7%	7%	8.5%	7.5%	9%
1Q 2021	9.1%	8%	9%	8%	7.5%	9%
2Q 2021	-	8%	13%	8%	7.5%	9%

Source: PMI Earnings Call Transcripts and Releases.

The reported claim rates stated by the six PMIs ranged from 7.5% (MGIC) to 13% (NMI). Listening to earnings calls, Milliman did not note disclosure of this metric from Arch. The passage below from the NMI call provides further detail on its reserving process for existing loans in default.

NMI[10]

Geoffrey Dunn – Dowling & Partners – Analyst

Thank you. Good evening. I've got a few questions. First Adam, can you share the claim rate assumption on new notices this quarter? I think it compares to 9% last quarter and also if there were any IBNR adjustments plus, or minus.

Adam Pollitzer – Chief Financial Officer

Yes. So the claim rate assumption again, I'll give the one caveat, Geoff, that I think we've given consistently which is we don't apply a blanket homogeneous default to claim rate assumption on new defaults. Every loan has its own characteristics, and we individually evaluated all 8,764 defaults as of June 30, including the roughly 1100 new defaults that came through. That said, I know it's something that's in focus. The average default to claim rate on those new notices, the 1100 new notices roughly in the period was 13%. And as you noted, it stands in contrast to the 11%, excuse me, the 9% assumption that came through in the first quarter,

Geoffrey Dunn – Dowling & Partners – Analyst

What that average change? Was that any credit mix issue or is that the company adopting any more conservatism? What drove such a material change?

Adam Pollitzer – Chief Financial Officer

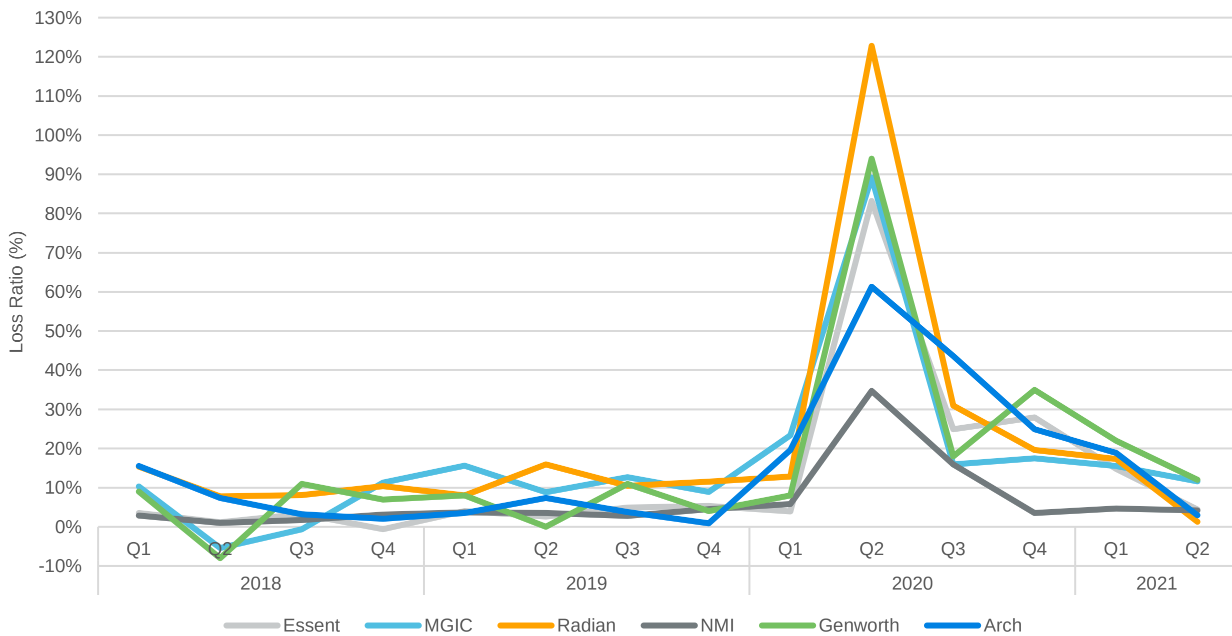
Yes. it's really, there's the underlying risk profile of the loans that came through as new defaults in the quarter is basically the same as what's coming through -- what has come through in prior periods. We talked about on the call or on our prepared remarks that roughly 90% of the loans that are in default are also reported to us as being in forbearance. And there was no difference in the population in the second quarter. But we've decided to adopt a slightly more conservative posture for new defaults coming through now, really, because we think there's the potential for different outcomes for borrowers who are facing stress today, later in the COVID cycle and borrowers who face stress early on when the enormous fiscal and monetary stimulus and other borrower assistance programs were first introduced, that's really what's driving it.

[10] See https://www.fool.com/earnings/call-transcripts/2021/08/04/nmi-holdings-inc-class-a-nmih-q2-2021-earnings-cal/.

Figure 15 displays loss ratios for the industry from 1Q 2018 to 1Q 2021. Loss ratios are generally defined as losses incurred in the quarter (which are a function of the number of loans that went delinquent in the quarter, the assumed claim rate, and assumed loss severity) divided by the premium earned in the quarter. When one PMI is using a higher claim rate assumption, as shown in Figure 14, its reported loss ratio will be higher, all else equal (i.e., same number of defaulted loans and assumed severity in the quarter).

Loss ratios largely returned to pre-COVID-19 levels; this pattern is largely driven by new notices of default counts, as paid claims have been muted (see Figure 10 and Figure 13 above). Furthermore, several of the PMIs reported modest favorable reserve development—which impacts the current period loss ratio. However, generally, the PMIs have not made large changes to their COVID-19 reserving methodologies. In other words, there have not been sizable reserve releases from the COVID-19-related delinquencies of 2Q 2020 and 3Q 2020.

FIGURE 15: QUARTERLY REPORTED LOSS RATIO, BY PMI, 2018-2021



Source: PMI Earnings Releases, Financial Supplements, and 10-K/Qs.

Risk transfer: Capital markets ILN issuances

As of September 2, 10 PMI insurance-linked notes (ILNs) transactions have been issued in 2021 (12 transactions were issued in 2020).

Figure 16 provides a summary of recent PMI capital markets ILN issuances in 2020 and 2021.[11] Row 2 indicates whether a vertical slice of the structure was executed via the reinsurance market in tandem with the bond offering.[12]

FIGURE 16: RECENT PMI CAPITAL MARKETS ILN TRANSACTIONS

	Genworth TMIR 20-1	Radian EMIR 20-2	MGIC HMIR 20-1	NMI OMIR 20-2	Arch BMIR 20-3	MGIC HMIR 21-1	Arch BMIR 21-1	Genworth TMIR 21-2	Radian EMIR 21-1	NMI OMIR 21-1	Arch BMIR 21-2	Essent RMIR 21-1	MGIC HMIR 21-2	Genworth TMIR 21-3
Settle Date	10/22	10/23	10/29	10/29	11/3	2/2	3/30	4/16	4/22	4/27	6/17	6/23	8/3	9/2
ILN Reinsurance Co-Participation?	No	No	No	No	**Yes**	No	**Yes**	No	No	No	**Yes**	No	No	No
Total Bonds Issued ($M)	350	390	413	242	418	399	580	303	498	367	523	558	398	372
Coverage Attachment Point %	3.50	3.25	3.00	2.00	2.50	2.25	2.00	2.25	2.00	1.85	1.90	2.00	2.10	2.50
Coverage Detachment Point %	7.00	6.25	7.50	6.00	9.00	6.50	9.50	7.00	6.50	6.00	9.50	6.00	6.50	6.75
Min CE %	8.00	7.25	8.50	6.25	10.00	7.50	10.50	8.25	7.50	6.75	10.50	7.50	7.25	7.75
WA Spread (bps)	476	482	419	466	406	235	341	452	361	312	222	262	272	317
Term (yrs)	10	10	10	10	10	12.5	10	12.5	12.5	12.5	10.0	12.5	12.5	12.5
Optional Call (yrs)	7	7	7	7	7	7	7	7	7	5	7	7	7	7

Source: Milliman M-PIRe, Bloomberg, DBRSMorningstar, Moodys.

Since last publication, Arch BMIR 21-2, Essent RMIR 21-1, MGIC HMIR 21-2, and Genworth TMIR 21-3 have been issued.[13]

Transactions in 2021 primarily have 12.5-year maturities and 7.0-year call options. This differs from earlier ILNs where 10.0-year maturities were standard. Two exceptions to the 12.5-year maturity and 7.0-year call option norm are 2021 Arch BMIR transactions, where the maturity remains at 10.0 years (call option at 7.0 years), and 2021 NMI OMIR transactions where the call option is at 5.0 years (maturity at 12.5 years).

Figure 17 visually displays coverage attachment and detachment points along with the weighted average (WA) spread for the transactions.[14]

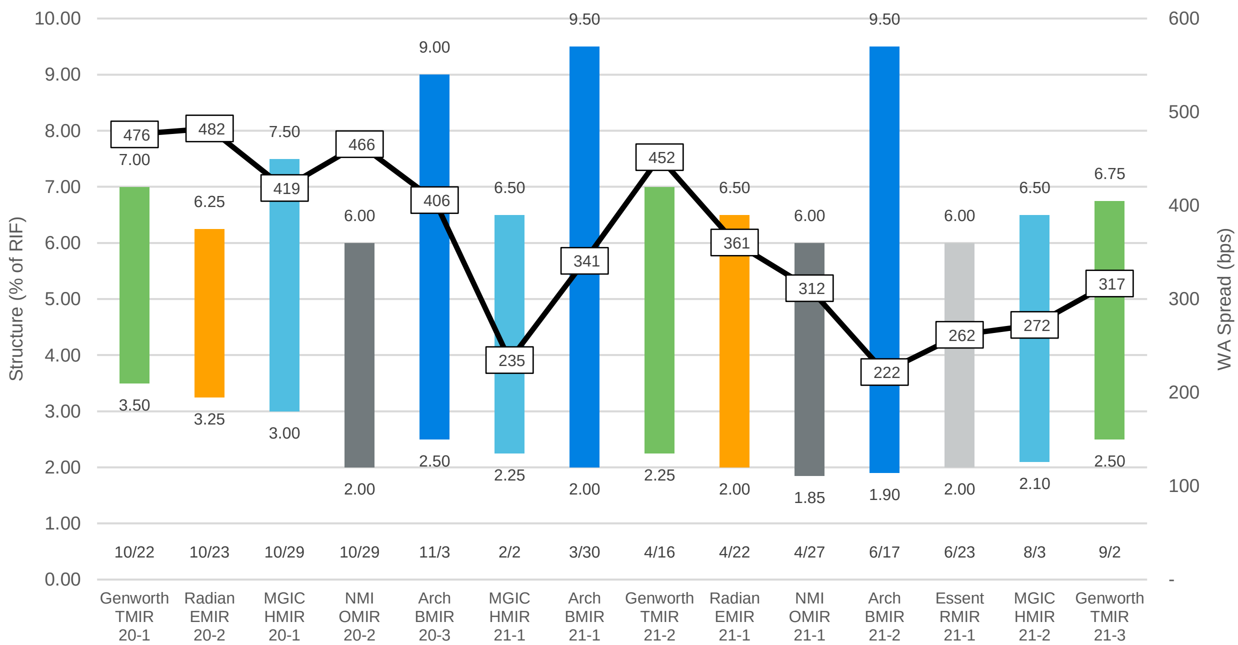
[11] Note that, for consistency, BMIR 20-4 and TMIR 21-1 are not shown in the exhibits. BMIR 20-4 was linked to the same reference pool as BMIR 20-1. TMIR 21-1 was based on an "off-the-run" seasoned reference pool.

[12] Several PMIs have reinsurance programs that cover a portion of the risk in their ILNs. The co-participation field refers specifically to transactions where reinsurers are offered a portion of the reference pool risk in a structure consistent with the capital markets (i.e., similar to the Freddie Mac STACR/ACIS-linked transactions).

[13] Arch BMIR 21-3 was being marketed as this report was being finalized.

[14] Weighted average spread calculated as = SUMPRODUCT(Size, WAL, Spread) / SUMPRODUCT(Size, WAL) across all issued tranches. Weighted average lives (WALs) not displayed for EMIR 20-1, OMIR 20-1, EMIR 20-2, EMIR 21-1, and OMIR 21-1 on Bloomberg—WALs for same-named tranches on RMIR 20-1, BMIR 20-2, TMIR 20-1, HMIR 21-1, and HMIR 21-1, respectively, were used as proxies.

FIGURE 17: RECENT PMI CAPITAL MARKETS ILN TRANSACTIONS (BARS – CEDED RISK, LINE – WA SPREAD)



Source: Milliman M-PIRe, Bloomberg, DBRSMorningstar, Moodys.

The reference pools for these transactions ranged from approximately 100,000 to 250,000 loans with risk in force (RIF) of $6 billion to $15 billion. Summary statistics of the reference pools are provided in Figure 18.

FIGURE 18: RECENT PMI CAPITAL MARKETS ILN TRANSACTIONS, REFERENCE POOL CHARACTERISTICS

	Genworth TMIR 20-1	Radian EMIR 20-2	MGIC HMIR 20-1	NMI OMIR 20-2	Arch BMIR 20-3	MGIC HMIR 21-1	Arch BMIR 21-1	Genworth TMIR 21-2	Radian EMIR 21-1	NMI OMIR 21-1	Arch BMIR 21-2	Essent RMIR 21-1	MGIC HMIR 21-2	Genworth TMIR 21-3
Number of Loans (K)	221	196	191	88	112	195	132	124	167	142	123	227	182	167
UPB ($B)	59.9	54.5	52.4	30.8	31.2	55.0	37.8	34.0	49.6	46.0	36.1	68.0	52.0	49.0
RIF ($B)	14.9	13.0	9.2	6.1	7.0	9.4	8.6	8.4	11.1	8.8	8.1	13.9	9.1	12.1
WA Coupon (%)	3.46	3.55	3.48	3.21	3.17	3.00	2.91	3.00	2.97	2.90	2.84	3.00	3.00	3.00
WA FICO	746	753	752	763	751	751	753	743	752	757	753	748	749	745
WA LTV (%)	91.5	90.9	90.7	90.7	91.0	90.6	91.2	91.3	90.5	91.0	91.1	90.8	90.7	91.0
WA DTI (%)	36.5	35.4	35.1	33.0	35.3	35.0	35.4	36.4	35.5	33.5	35.6	36.0	35.1	36.1

Source: Milliman M-PIRe, Bloomberg, DBRSMorningstar, Moodys.

Appendix: Additional excerpts from earnings calls

The below call highlights focus on the shift to a purchase market:

Radian[15]

Richard G. Thornberry – Chief Executive Officer & Director, Radian Group Inc.

In terms of overall housing market, we saw positive momentum continuing in the second quarter. Overall, the whole purchase market remains strong, illustrated by the composition of our new mortgage insurance business, which represented 77% purchase volume, in the second quarter, versus only 56%, a year ago. Based on the latest data, from our, own Radian Home Price Index, over the second quarter of 2021, continued strong housing demand, and relatively limited supply in the market, led to an annualized 12% increase, in home prices, across the country.

We continue to expect the rate of home price appreciation to moderate this year. And we believe the combination of an improving economy, strong housing dynamics, in terms of demand, supply, home values, and mortgage underwriting, relatively low mortgage interest rates, and income growth, are well-aligned for a healthy sustainable housing market.

Recent market projections for 2021 now estimate total mortgage originations to be approximately $3.9 trillion. While the overall origination market was expected to be less than 2020 due to lower refinance volume, the purchase market continues to grow, which is positive for the mortgage insurance industry, given the higher likelihood that purchase loans will utilize private mortgage insurance, as compared to refinance loans. Based on these most recent industry origination projections, we continue to expect the private mortgage insurance market to be approximately $550 billion to $600 billion, which would be slightly lower than the record volume in 2020, but would still represent the second highest MI volume year in history. Overall, we believe the improving macroeconomic conditions and strong home purchase market, fueled by first-time homebuyers, provide strong tailwinds for long-term growth, in the economic value, and projected future earnings, of our mortgage insurance portfolio.

[15] See https://www.radian.com/-/media/Files/Enterprise/Investor-Relations/Radian-Transcripts/2021/RDN-2Q21-Transcript_FINAL.pdf (PDF download).

Essent[16]

Rick Shane – JPMorgan – Analyst

Thanks, guys, for taking my question. Mark, you pointed out that the persistency is trending higher quarter-over-quarter. And that's obviously a favorable inflection. The reality is that CPRs are still elevated and burn-out seems to be taking a little bit longer than folks anticipated. When we think about PMI, it actually increases the incentive for borrowers to refinance versus a borrower who doesn't have PMI. On one hand, that would suggest that burn-out would take longer, but I'm actually wondering if that PMI refi incentive actually has pulled forward refinance in your book and we should see burn-out emerge more quickly than the overall market.

Mark A. Casale – Chairman President and Chief Executive Officer

I hope you're right, Rick. I'm not sure about that. I think it's a good thesis, but I would be cautious on that. Again, given where the 10-year -- I mean, it bounced back a little bit this morning, but given how low it is, I do think the refinancings will remain elevated. But take a step back, right, and look at it in context, Rick, from our standpoint, the purchase market remains strong. And we think the underpinnings of the purchase market will remain strong, right.

I mean, when you think about the demand around millennials, the peak -- I think, the highest age group is still, cohort is like really around 28 or 29. The first time homebuyer average is like 31, 32. So we're kind of getting into that sweet spot. And I think it's something like 5 -- close to 5 million new potential homeowners come into the market over the next few years. Rates will impact some of that, but rates remain low. Even if they go up, I know there's talks about affordability and that's important.

I think the demand is going to really be there. So over time, and as rates go up, refinancings will start to dissipate and I think the book will stick longer. It's -- I wouldn't expect it to happen quarter-over-quarter. So we think it's dropped, maybe it gets into the mid-60s by the end of the year. But I think, longer-term, and that's what we said the positive underpinnings of housing are relatively strong. And I do think that will help continue to allow us to grow the insurance in force.

Did that make sense?

Rick Shane – JPMorgan – Analyst

Yeah. Look, it totally does. And it's interesting because when I originally framed the question, I thought of it the opposite way in terms of it might extend burn-out for you. So it's interesting to get your perspective. Look, the reality is that the fundamentals that are driving high prepayments are favorable for credit. And when you think about the three outcomes for a policy go into maturity, refinancing or a credit issue, the middle outcome is certainly a better outcome than credit problems.

Mark A. Casale – Chairman President and Chief Executive Officer

Agree. And remember, we've talked about this before. As we are -- when NIW is elevated, you have to expect that persistency is going to be low. There's no free lunch. So we're talking about industry volumes at historic levels in the last two years. It's not surprising that persistency is at such low level. So, I think we're always a little bit more levered to higher rates, Rick. I'd rather see the book -- I'd rather see lower NIW in the book grow persistency a little bit higher. That's just better from a cost basis for us. Slow and steady kind of wins the race, but this is the environment we're in and I think we're adapting well.

[16] See https://www.fool.com/earnings/call-transcripts/2021/08/06/essent-group-ltd-esnt-q2-2021-earnings-call-transc/.

Essent[17]

Ryan Gilbert – BTIG – Analyst

Hi, thanks. Good morning. First question, Mark, just going back to your comments around overall industry market share, looking through that NIW data and comparing it to some of the estimates out there around 2Q '21 total originations, it looks like there was maybe a pickup in share for the overall industry in 2Q. So, PMIERs taking a bigger piece of the overall pie, on the one hand, it's within the realm of normal quarterly fluctuations. But on the other hand, given really strong home price appreciation may be more first-time homebuyers, you might expect the PMI percentage of total originations to increase in the quarters and years ahead. So, just love your thoughts on what you're seeing on the market and if you think that 15% of the total pie can increase going forward?

Mark A. Casale – Chairman President and Chief Executive Officer

It's a good question, Ryan. I think you have to break it out between purchase and refi. So, the penetration on refinance is always much lower on MI versus purchase. And our purchase share went from 62% in the first quarter to 82% in the second. And it's been 90 -- I think last month was 90% purchase, so -- yeah, which obviously has a higher penetration. So, from that standpoint, you can see the overall -- you certainly can see the overall penetration go up. When it gets back to our earlier -- one of my earlier comments in response to one of the questions, that does -- that just has to help persistency, right. So, it gets to be more purchase and less refinance. Our overall volume actually could be lower per se, but the book would end up growing a little bit because the book is a little bit stickier. So it ends up growing a little bit more than in kind of a heavy refi environment.

NMI[18]

Claudia Merkle – Chief Executive Officer

…

During the second quarter, we generated $22.8 billion of NIW up 73% compared to the second quarter of 2020. Our volume included a record $18.9 billion of purchase NIW up 6% from the first quarter and up 143% compared to the second quarter of 2020. The purchase market remains strong with the key themes that have driven the housing demand through the pandemic carrying forward and rising house prices and the recent movement in rates contributing to incremental origination volume and activity. First time home buyer demand is at a high and private mortgage insurance penetration of the purchase market is increasing as a growing numbers of bars turn to our industry for down payment support.

[17] See https://www.fool.com/earnings/call-transcripts/2021/08/06/essent-group-ltd-esnt-q2-2021-earnings-call-transc/.
[18] See https://www.fool.com/earnings/call-transcripts/2021/08/04/nmi-holdings-inc-class-a-nmih-q2-2021-earnings-cal/.

NMI[19]

Rick Shane – JPMorgan – Analyst

Hey, everybody. And thanks for taking my questions. Look, Doug touched upon really the first part of my question, but when we think about the factors in the industry, there's intense competition among the originators. We are in the midst of an extended and pretty significant period of home price appreciation. And there's also an ongoing shift that you guys pointed out toward purchase activity. I am curious when you think about those three factors, how you calibrate for credit and your credit underwriting decisions because I think in some ways you've got a lot of different moving parts there.

Adam Pollitzer – Chief Financial Officer

Yes, Rick, it's a good question. What I would say maybe we'll tick through them is that first notwithstanding what you've identified as competition on the lender side, we haven't seen a broad deterioration in underwriting standards. Remember the market that we serve is the GSE market, nearly 98% plus of the loans that we insure are sold or guaranteed by the GSEs. And so it's really how the GSEs define their credit box and how lenders then define a box that's either as expansive or more restrictive than what the GSE has put out. We just, haven't seen a deterioration of underwriting standards either on the lender side or from the GSEs and that's really encouraging at this point is one. You touched on the HPA environment and some of the decisioning that we're making there as well. Broadly speaking, we see real strength on a sustained basis to the HPA environment and the general housing environment. The housing market, it's a market like all others driven by supply demand dynamics and what we see today is real and sustainable demand that's driven by record low rates, drawing buyers in, largest generation in American history is aging into the point where they're looking for starter homes and the experience of the pandemic has really fueled an emotional and practical pull toward home ownership. And that's contrasted against a severe supply side shortage in the US.

We've been significantly under-built and underdeveloped for an extended period of time. And that can't be solved overnight. So overall, as we see the opportunity in the market we see continued credit strength and rigor around underwriting guidelines. We're encouraged by the direction of the housing market overall, the need for support from the MI industry and sustainability of perhaps not 15% per annum HPA, but general uptrend in HPA and that's, that's a terrific position for us to be in on the MI side.

Rick Shane – JPMorgan – Analyst

Great, Adam, thank you for all of that. And then the last part of that question, and I realize it was, there were many parts. Is there anything in your underwriting or in your experience that on an apples to apples basis leads you to think credit is different between purchase and refi? Is there any sort of psychological advantage to having a borrower, even if the terms are the same, have been in the home for a longer period of time? Is there anything we should think about there as well?

Adam Pollitzer – Chief Financial Officer

It's interesting, we've looked at it extensively and what tends to emerge from the data is that there is a little bit of outperformance on the purchase side as opposed to the refi side. It's difficult for us to isolate why that's the case because, all else equal, similar headline or even layered risk characteristics we tend to see in the aggregate slightly better performance on the purchase side than the refi side. Perhaps there's something around the affirmative statement that a borrower is making at the time of purchase around their expectations for their future employment profile and the competence that they have in their financial position. It's a significant obviously investment they're making and obligation they're taking on. And we find that most borrowers only take that on when they're at a high point from a competence level. Once you're already into the loan, it may not be the same affirmative statement when you are pursuing a refinancing. That's just some ideas that we have kicking around. Difficult to isolate why, but we do see on the margin, not enough to drive, I'll call them significantly differentiated outcomes from a price return standpoint, but, on the margin, better performance from the purchase borrower.

[19] See https://www.fool.com/earnings/call-transcripts/2021/08/04/nmi-holdings-inc-class-a-nmih-q2-2021-earnings-cal/.

MGIC[20]

Tim Mattke – Chief Executive Officer

…

An increasing percentage of our new insurance written is from purchase transactions, accounting for 79% of our NIW in the second quarter compared to 60% last quarter. Our application pipeline, a leading indicator of NIW indicates this trend has continued with purchase transactions continuing to account for more than 85% of the applications received in recent months. While NIW in the first half of the year was strong, we expect that NIW will slow in the second half of the year, primarily due to the reduction of refinance activity. While the current supply of housing inventory available for purchase remains low, we still expect robust purchase market condition to persist. Consumer demand for many reasons remains strong and interest rates are attractive especially by historical standards. Home prices have been increasing rapidly given the low housing inventory and the strong demand. We believe that home prices may be increasing for more sound reasons than in 2005-2007 cycle. So while we do not expect broad declines in home prices we do expect that the rate of increase will slow.

Genworth[21]

Dan Sheehan – Chief Financial Officer and Chief Investment Officer

…

The U.S. mortgage and housing market continues to demonstrate positive momentum characterized by a large origination market, increasing home prices and the continuation of decreasing new delinquencies from their pandemic-driven peak. Despite the challenges of low housing inventory and rising home prices, affordability remains favorable, supported by prevailing low interest rates. During the quarter, we estimate the originations market accelerated its transition to purchase originations, which is a positive trend for the private mortgage insurance industry as we experienced approximately four times higher penetration in purchase originations versus refinances.

For the second quarter, Enact reported adjusted operating income of 135 million and a loss ratio of 12% compared to adjusted operating income of 126 million and a loss ratio of 22% in the prior quarter. The improvement in results was primarily driven by lower new delinquencies compared to the prior quarter. In addition, insurance in force grew approximately 10% versus the prior year, primarily driven by over 100 billion in new insurance written over the last four quarters. New insurance written in Enact was 26.7 billion in the quarter, up 7% versus the prior quarter, driven primarily by a larger purchase origination market and down 6% versus the prior year, primarily driven by lower estimated market share.

[20] See https://www.fool.com/earnings/call-transcripts/2021/08/05/mgic-investment-corporation-mtg-q2-2021-earnings-c/.
[21] See https://www.fool.com/earnings/call-transcripts/2021/08/04/genworth-financial-gnw-q2-2021-earnings-call-trans/.

Milliman

Milliman is among the world's largest providers of actuarial and related products and services. The firm has consulting practices in life insurance and financial services, property & casualty insurance, healthcare, and employee benefits. Founded in 1947, Milliman is an independent firm with offices in major cities around the globe.

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