

POLICY PERSPECTIVES



FED 2020 INTERVENTION AND MORTGAGE MARKET OUTCOMES

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TABLE OF CONTENTS



03	INTRODUCTION
04	FED INTERVENTION: INTEREST RATES, UST AND MBS PURCHASES
07	MBS PRICE, SPREAD, DURATION VOLATILITY
09	MORTGAGE BANKING, FINANCE DISRUPTION, PRIMARY MORTGAGE RATES
16	ECONOMIC OUTCOMES: WEALTH AND INEQUALITY
21	SUMMARY
22	APPENDIX

2020 QE Retrospective – As Fed tapering approaches, mortgage market stakeholders are well into the process of prophesizing the character, timing, and impacts of expected Fed tapering. In this article we show that much can be learned from looking back at the quantitative easing of 2020 and its impacts on primary and secondary mortgage markets and on wealth and inequality outcomes.

- As rates fell in early 2020, the sudden gapping out and instability of MBS spreads to Treasuries threatened the orderly execution, liquidity and functioning of the secondary mortgage market. Aggressive Fed action and purchases of MBS in March and April of 2020 reversed rapidly declining MBS prices, but volatile swings in rates and MBS prices resulted, facilitated by the lack of clear Fed messaging.
- This volatility led to losses, capital and finance risk, and operation dysfunction among primary market originators— with lasting effects. This at a time when mortgage originators were experiencing overwhelming volume and engaging up in credit tactics to avoid losses from loans in forbearance that curtailed credit to lower tier and alt-borrowers. We note that no TARP type facility was put in place support credit to non-conforming markets.
- Continued high levels of Fed MBS purchases following March and April did more than stabilize MBS markets and enabled ongoing windfall profits in the form of gain on sale for mortgage originators and sellers. Excessively high MBS prices (low MBS yields) can act against efforts to lower primary mortgage rates and the relative value of MBS can impact the allocation of MBS among investor types.
- With respect to the efficacy of lowering UST rates and MBS yields to lower primary rates and stimulate refinances and home purchases, we note that primary mortgage rates followed only gradually. The spread of primary mortgage rates to lower UST and MBS yields gapped out and remained wide following the initial drops in rates. These spreads took over six months to normalize. Lowering rates and MBS yields can have a limited influence on primary mortgage rates in the near term which are subject to primary market conditions.
- The persistence of lower interest rates ultimately prompted high levels of refinances and double-digit rates of HPA during 2020. This tends to benefit relatively wealthy homeowners as a class, and the wealthiest cohorts among them. Home price appreciation—albeit under falling mortgage rates—weighs against affordability, higher homeownership rates, and the interests and wealth accumulation causes of first-time homebuyers. Intervention has significant impacts on wealth and inequality impacts.

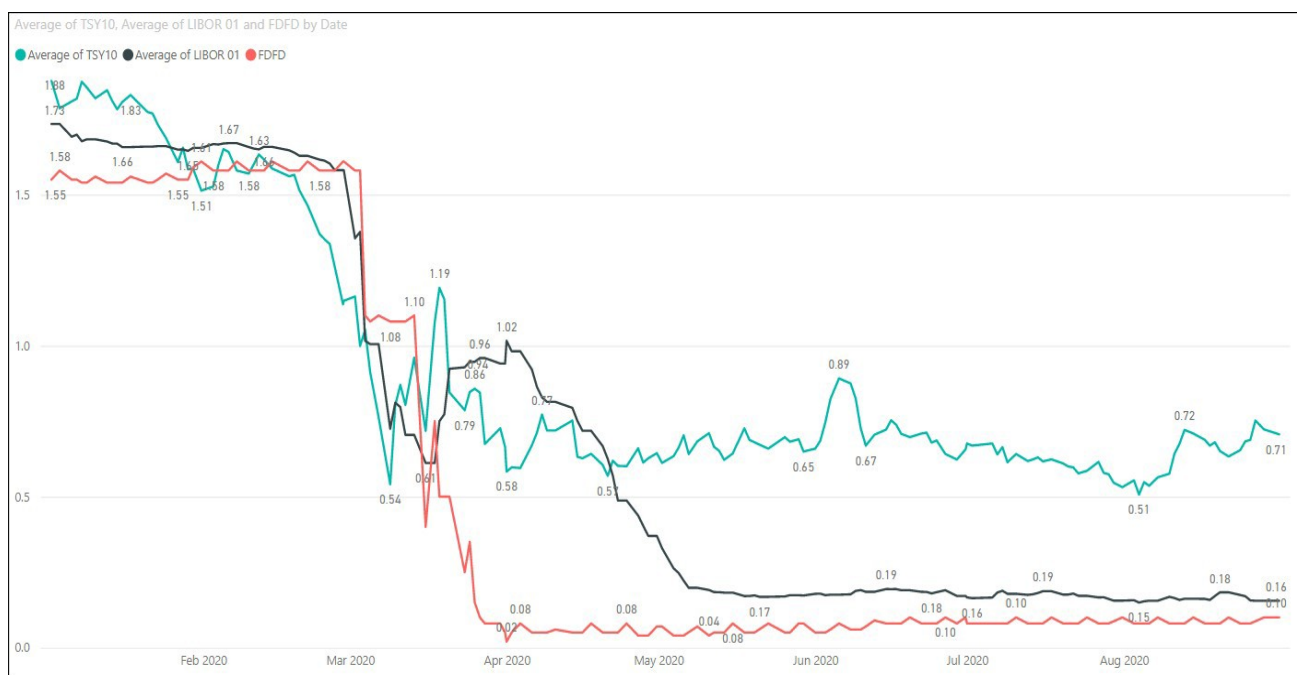
Maintaining orderly housing finance during economic dislocation requires balanced Federal attention to the primary and secondary markets and their derivative impacts. The differences in market structure make it easier to intervene in the latter. Stabilizing MBS markets and lowering capital market interest rates impacts primary mortgage financing and fairness in unintended and negative ways.

FED INTERVENTION: INTEREST RATES, UST AND MBS PURCHASES

Pandemic Intervention - One can hypothesize a Fed concerned with a wide array of risks in the housing and mortgage markets as the pandemic ensued and rates fell in early 2020. These range from high unemployment and surging mortgage defaults to home price depreciation and cascading non-bank servicer bankruptcies. Ultimately, Federal actions included increased unemployment benefits, wide-spread forbearance, and other fiscal stimulus and regulatory support for the mortgage market, beginning with the CARES Act at the end of March 2020. However, at the start of the crisis the primary tool available to the Fed was lowering interest rates secondary market MBS yields and hopefully stimulating the housing market through lower mortgage rates and refinances to improve house-hold income.

As shown below in **Figure 1**, UST rates fell across the board in early 2020. Intervention in the form of rate cuts and UST purchases beginning in early March led 10-Year UST yields to fall from 1.88% on January 1 to .58% at the end of March. Rates bottomed at .51% in early August. We note the whipsaw and volatility in 10-Year UST rates that occurred in March and April as the Fed increased UST purchases to provide liquidity and stability within critical UST markets.

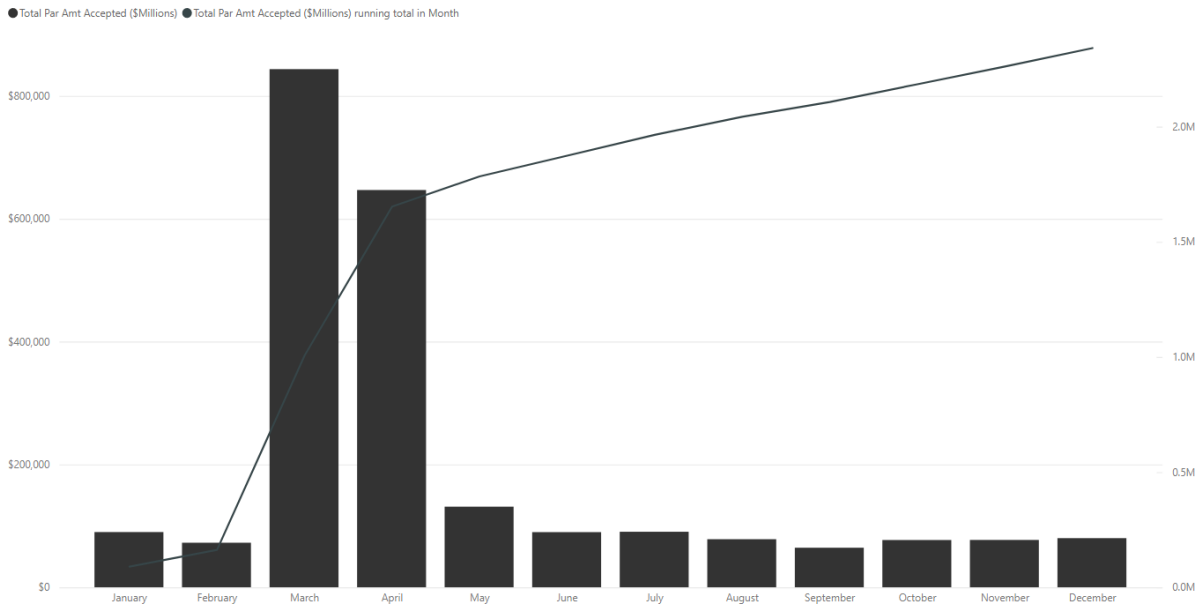
Figure 1 – U.S. Interest Rates



UST and MBS Purchases – The charts that follow document the amounts and timing of Fed UST and MBS purchases. As depicted in **Figure 2**, the Fed intervened in the U.S. Treasury market in 2020, buying vast amounts of UST across the curve¹. By the end of April, the Fed purchased approximately \$1.64 trillion dollars of UST (gross). For the year 2020, Fed UST purchases exceeded \$2.2T, or about half the \$4.3T increase in outstanding UST during 2020. The Fed continued to buy between \$65 billion and \$80 billion in gross UST per month.

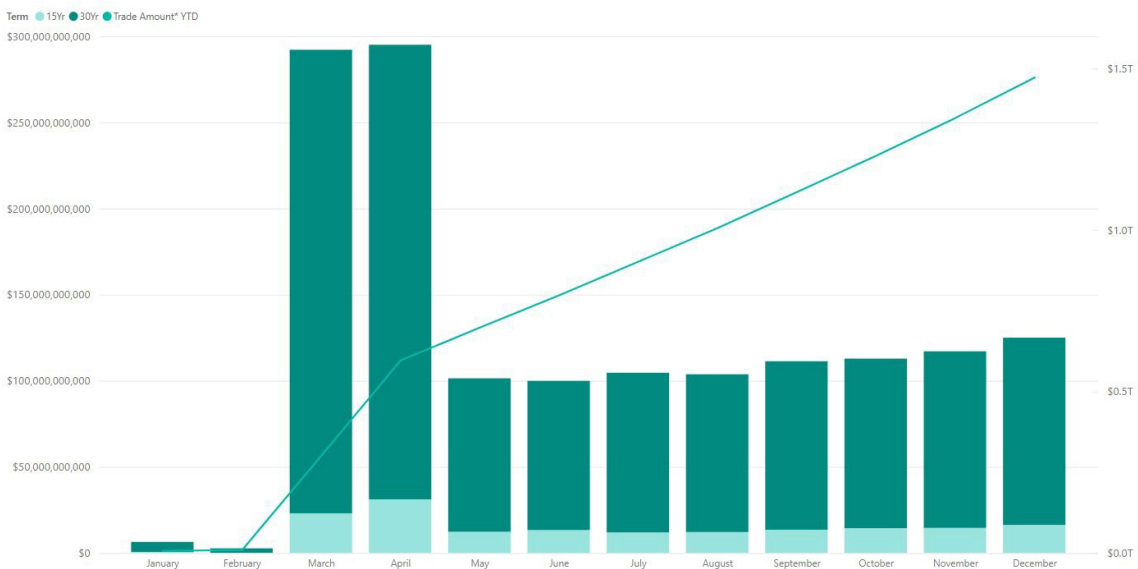
¹ https://www.newyorkfed.org/markets/ambs/ambs_schedule

Figure 2 – FED UST Purchases



MBS Purchases – As depicted in [Figure 3](#), the Fed intervened in the Agency MBS market in 2020, buying \$596 billion dollars of MBS in 60 days and \$1.47T of MBS for the year. Yearly purchases in 2020 were equal to 84% of the \$728 billion increase in Agency MBS outstanding at year end and 39% of gross Agency MBS issued during the year. Following March and April, the Fed continued to buy steady amounts—between \$100 billion and \$125 billion in gross MBS per month.

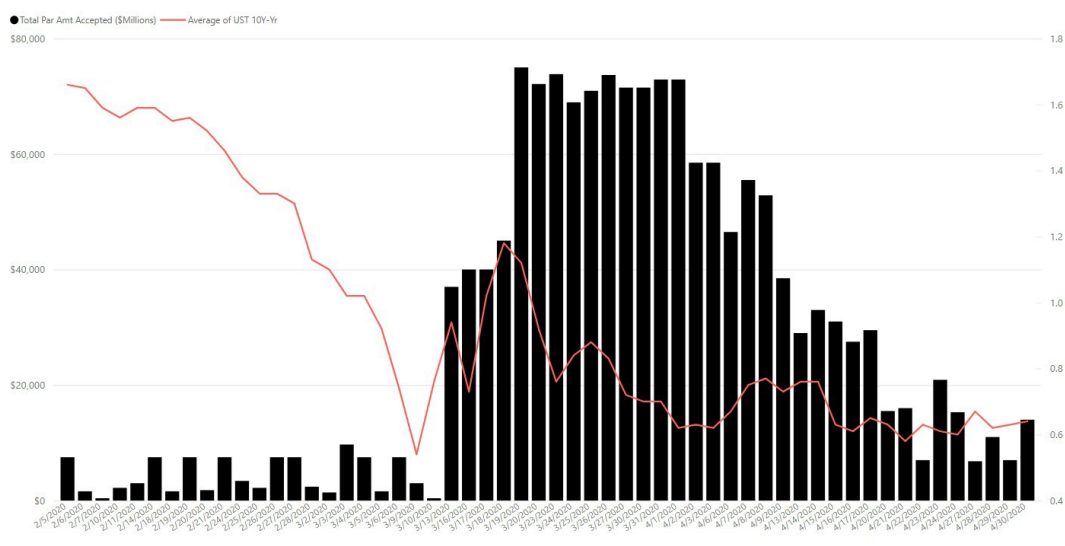
Figure 3 – FED MBS Purchases



FED INTERVENTION: INTEREST RATES, UST AND MBS PURCHASES

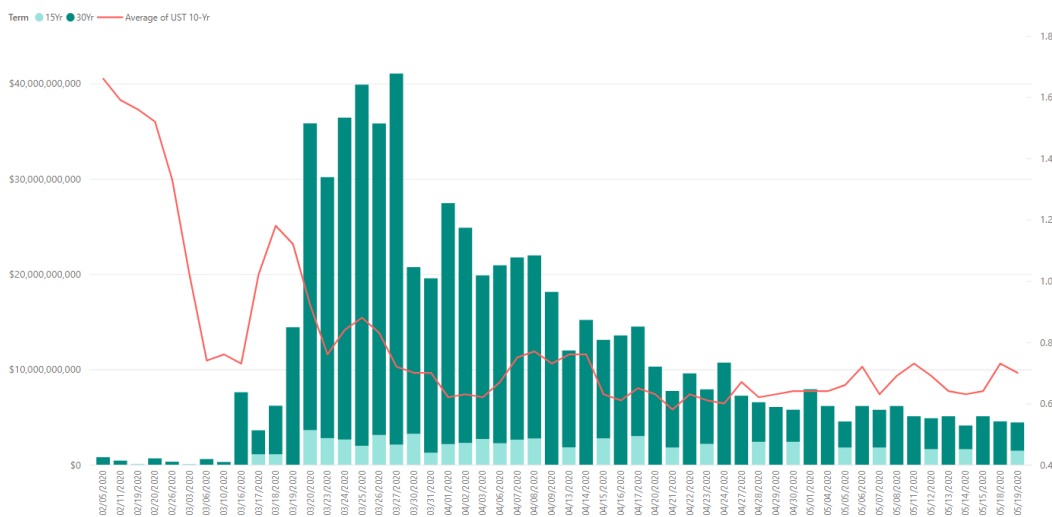
10-Year UST Rates, Timing of UST and MBS Purchases – Figures 4 and 5 show the timing of rate changes and Fed UST purchases. We note large and escalating UST purchases beginning March 13. This is roughly the same volatile period during which 10-Year UST rates whipsawed from .73% to 1.18% and back down to .78% (March 16 to March 23).

Figure 4 - UST Purchases and the UST 10-Year



Large Fed MBS purchases began on March 16 and did so under very volatile interest rate conditions. From 1.66% on February 5th the 10-Year UST fell to .73% on March 16th, the day the larger Fed MBS purchases began. In the days that followed, as the Fed escalated its MBS purchases, the 10-Year UST whipsawed, rising from .73% on March 13 up to 1.18% on March 18, then falling back down to .76% on March 23.

Figure 5 - MBS Purchases and the MBS 10-Year



MBS PRICE, SPREAD, DURATION VOLATILITY

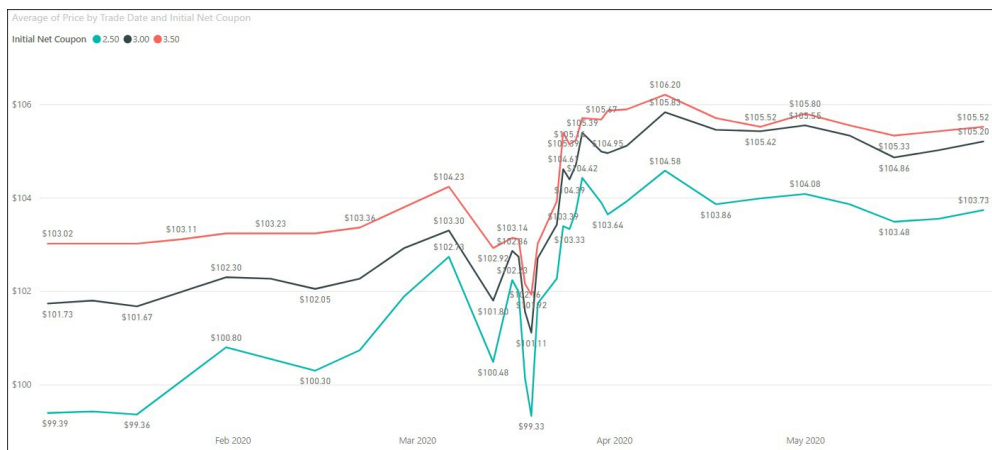
UST Rates and MBS Price Volatility – Large UST and MBS prices began on March 13th and 16th respectively. The charts that follow shows the volatility of rates and MBS prices that resulted in March 2020. Ultimately Fed action stabilized both markets stabilized but we note that for the 10-day period starting March 16, FNMA 2.5% traded in a \$5.09 range.² The combination of the pandemic and Fed actions resulted in extreme swings in MBS prices that were in excess of what their durations would imply.

- On both February 28th and March 19th, the 10 Year UST was at 1.15%. The FNMA 2.5% MBS price on the later date was \$2.56 points lower.
- On March 20th thru the 26th 10-Year UST rates were .85%. The FNMA 2.5% MBS price on the latter date was \$1.97 points higher than on the earlier date.

Figure 6 – 10-Year UST and FNMA 2.5% MBS Prices



Figure 7 – MBS Prices



MBS Spread, ProAS, Duration Volatility - The extreme volatility in MBS is also seen in the MBS yield spread to UST and in ProAS³. ProAS is an option-adjusted spread (OAS) measure that adjusts for market perceptions of prepayment model error built into MBS prices. Likewise, we show the volatile changes in durations that create

² Bloomberg MBS Price

³ Andrew Davidson & Co., Inc. Spreads, OAS, ProAS, Durations

MBS PRICE, SPREAD, DURATION VOLATILITY

hedging risks for originators. ProAS changes seem to indicate that in time MBS became rich relative to historical averages. This implies that the ongoing Fed MBS purchases did more than stabilize markets, enabling ongoing windfall profits in the form of gain on sale for mortgage originators and sellers. In the next section, we look at the combined impact of UST and MBS purchase on mortgage originators.

Figure 8 – MBS Spread to UST

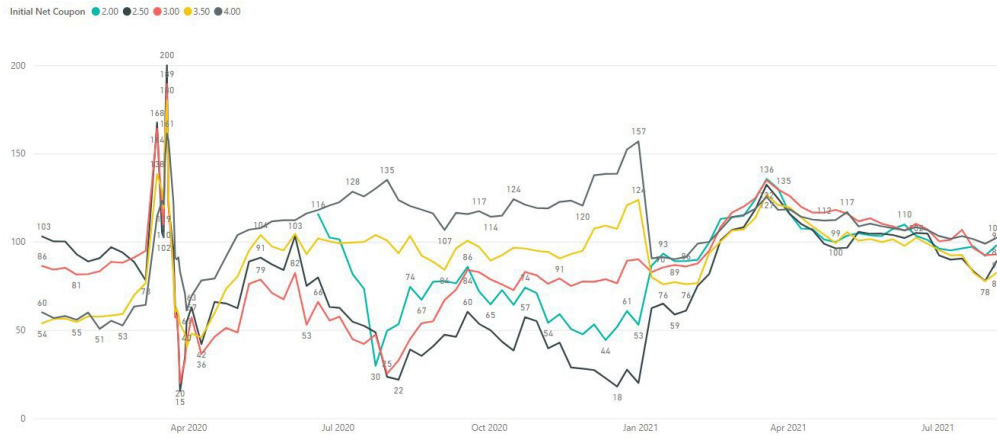


Figure 9 – FNMA Coupon Stack Risk Neutral PROAS

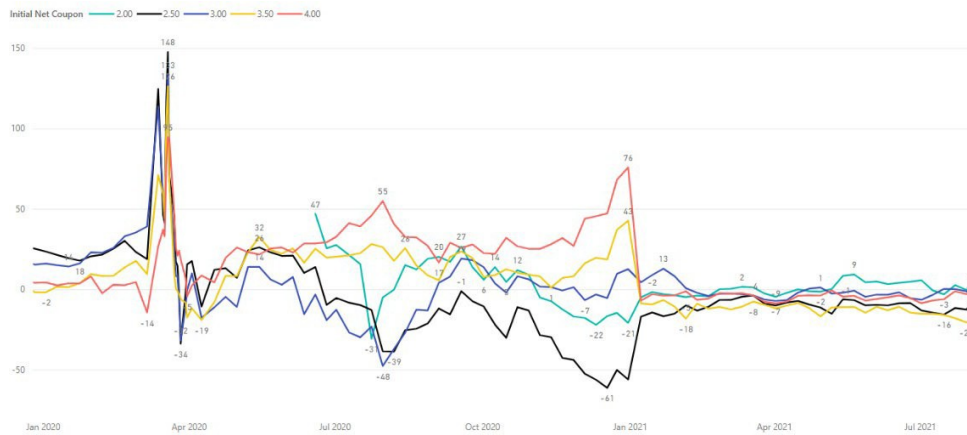
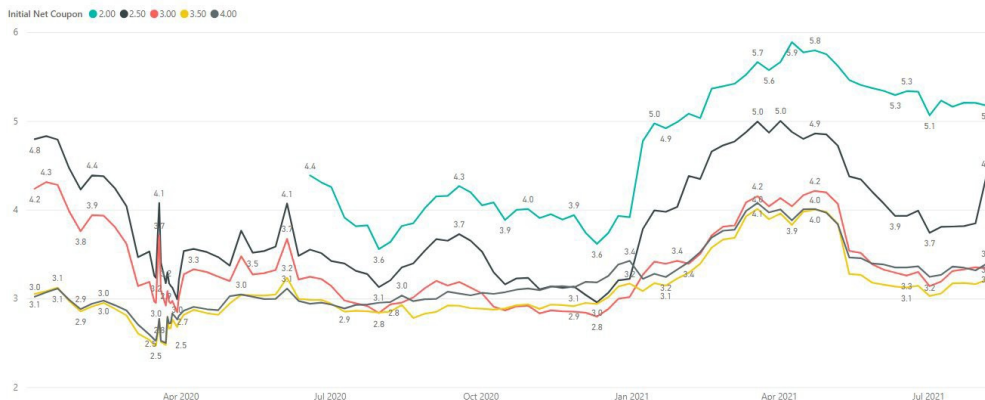


Figure 10 – FNMA MBS OAS Duration

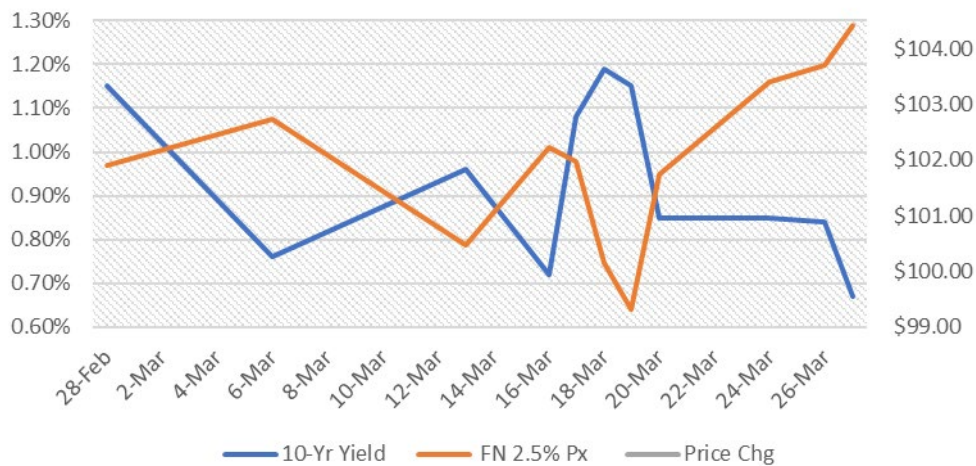


Finance Disruption – While the Fed may have been trying to stabilize and restore liquidity to critical UST and MBS markets perhaps independently, mortgage originators seeking to provide and price credit and hedge risk are subject to the interaction of both. The combined effects of changes in UST rates and MBS prices significantly destabilized and imperiled the functioning of the primary mortgage market.

Mortgage bankers fund new loans with warehouse lines. New loans are collateral for these warehouse lines that are capitalized with equity. The loan collateral is marked to market so that losses on hedges require capital to be posted or for finance lines to be curtailed. They hedge market value changes of loans warehoused using forward sales of TBA and set primary mortgage rates for new loans based on forward TBA MBS prices and yields. Unstable and unpredictable changes in MBS prices, UST rates, and MBS spreads, therefore, can have dire consequences for the ability of leveraged mortgage lenders to (1) finance and hedge loan originations, (2) set primary rates for new loans based on MBS yields in the secondary market and (3) distribute mortgage credit fairly and effectively.

As depicted in prior charts MBS prices reasonably followed UST rate changes (inversely) in early 2020 as rates fell until early to mid-March when volatility in UST rates and MBS prices decoupled and the Fed purchased bonds in both markets. The severe and simultaneous swings in MBS prices and UST rates caused mortgage bankers to experience hedge losses, margin calls, and ongoing finance concerns while refinance mortgage application volumes surged. Rate and MBS price volatility also imperiled the ability of lenders to set primary rates on new loans that are based on MBS prices and yields in the secondary market.

Figure 11 – 10-Year UST Yield, FNMA 2.5% MBS Prices

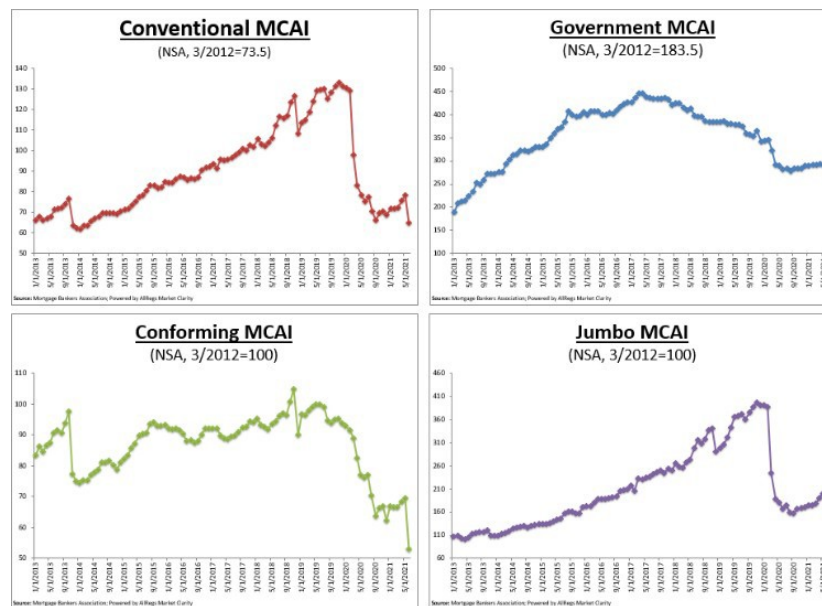


The Mortgage Bankers Association (MBA) penned a letter to regulators warning that the US housing market is “in danger of large-scale disruption” due to Federal efforts intended to help rescue the mortgage market.⁴ This at the same time the government instituted payment forbearance and the Federal Housing Finance Agency (FHFA) created uncertainty around the delivery of loans in forbearance.

⁴ https://www.mba.org/Documents/MBA_Mortgage_Market_Stabilization_3.29.2020.pdf

Credit Curtailment – The finance and loan pricing disruption as forbearance concerns ensured furthered lenders’ inclination to move up in credit to maintain liquidity and preserve the capital necessary to fund the record increases in loan applications. Avoiding loans that might have to be repurchased because of delinquency or forbearance became a priority, as did avoiding lower or alternative credits that were non-government eligible and had higher financing risks. Quoted mortgage rates for such loans became rare as originators stepped away from the market. As shown in the charts that follow, mortgage credit availability suffered long-term curtailment— triggered by the events of March and April 2020— particularly for non-government mortgages.⁵

Figure 12 – Mortgage Credit Availability



Broad Market Impacts - It should be noted that such finance-driven credit issues were not problematic for mortgage originators alone. A volatile and less liquid TBA market reverberated throughout broker-dealer desks, mortgage REITs and other providers of credit and holders of mortgage risk. This translated into a lack of price discovery and illiquidity, causing large mark-to-market losses, finance risk, and distressed liquidations. imperiling investment into the mortgage markets. Regarding finance driven liquidations last March, recent 2Q 2021 commentary from a large mortgage REIT highlights ongoing lower leverage and lower levels of investment and reductions in Agency MBS holdings. This demonstrates that Fed intervention impacts wide ranging mortgage finance terms as well as investor appetite and allocations to MBS and other more credit sensitive residential mortgage-backed securities (RMBS). With respect to RMBS we note that, unlike 2008, no Troubled Assets Relief Program (TARP)-type finance entity for RMBS was put in place to alleviate financing shocks and distressed sales.

The interaction of UST rates and MBS yields have complicated, interwoven short- and long-term impacts and uncertain externalities. As noted at the outset of this article, Federal objectives for mortgage finance

⁵ <https://www.nar.realtor/research-and-statistics/housing-statistics/housing-affordability-index>

should be fairness and orderly markets where companies can effectively manage and hedge their risks. The Fed effectively stabilized MBS spreads (eventually), but serious financing issues and policy uncertainty continued to plague the primary markets for months—and perhaps still do.

Primary Mortgage Rates, Mortgage Banking - It is likely that the Fed intended for drops in UST and MBS purchases to downstream to lower mortgage rates and stimulate the economy through refinance savings and increases in home equity. Later we discuss the wealth and fairness aspects of lower mortgage rates, but first we look at how primary market rates evolved as rate cuts and increased UST and MBS purchases took place.

Again, it is useful to have an adept perspective on how the primary market functions. In the sections that follow we show that the efficacy of lower UST rates and MBS yields depends on conditions in the primary market. Mortgage originators experienced record volume and margins during 2020 and felt little competitive pressure to lower mortgage rates in the short run. The following chart shows that primary mortgage rates lagged the fall in UST yields brought on by rate cuts and Fed purchases of UST. Mortgage rates didn't fully reflect the drop in UST 10-Year yields until 7–8 months after the Fed's actions.⁶

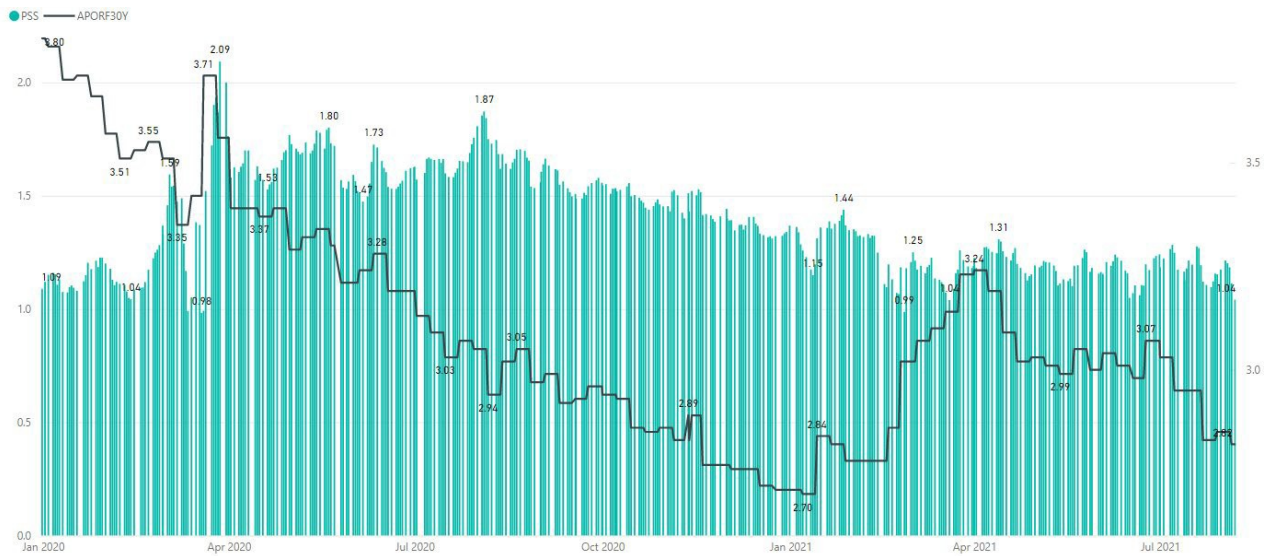
Figure 13 – 30-Year Mortgage Rate, 10-Year UST, and Mortgage Rate to 10-Year Spread



⁶Bloomberg

Primary Mortgage Rates Lagged MBS Yields - Similarly, primary mortgage rates lagged the fall in MBS yields in the secondary market. The chart that follows shows the rate spread—known as the primary to secondary spread (PSS)—between primary mortgage rates and secondary MBS yields.⁷ Given the large universe of loans in the money to refinance, and purchase demand brought on by lower rates, the record volume originators faced exceeded capacity. Lenders therefore felt little pressure to lower rates or to accommodate other-than-pristine credit. The PSS shows that lower MBS yields did little to bring down primary mortgage rates in the short run.

Figure 14 – Primary to Secondary Spread



⁷ Andrew Davidson & Co., Inc.

The fall in Treasury rates was not matched by the fall in primary mortgage rates until the fourth quarter of 2020. The chart that follows shows the cumulative change in UST 10-Year yields and primary mortgage rates during 2020. This illustrates the fact that intervention has a conditional impact on primary mortgage rates composed by originators actualizing their incentives to maximize profits from origination derived as the product of volume and margin from gain on sale.

Figure 15 – Cumulative Changes To 10-Year UST And Mortgage Rates



MBS Price Increases and the Current Coupon TBA - The current coupon agency MBS is that TBA (To- Be-Announced) coupon whose MBS price is under and closest to par.⁸ Looking at the hypothetical current coupon TBA shows a measure of the relative increases in secondary MBS prices (drops in MBS yield). Falling rates and Fed MBS purchases drove the hypothetical par coupon rate to the 1.5% range on March 9, 2020, for FNMA and FGLMC MBS and to 1.14% for GNMA MBS. Yet, on the same date, primary mortgage rates were 3.39%. As mentioned earlier, where origination capacity is constrained higher MBS prices and lower MBS yields only gradually lower primary mortgage rates. We note that excessively high and rich MBS prices would seem to act against lower primary mortgage rates. High MBS prices would seem to encourage mortgage bankers to deliver in volume the highest coupon- priced MBS possible to maximize gain on sale margin.

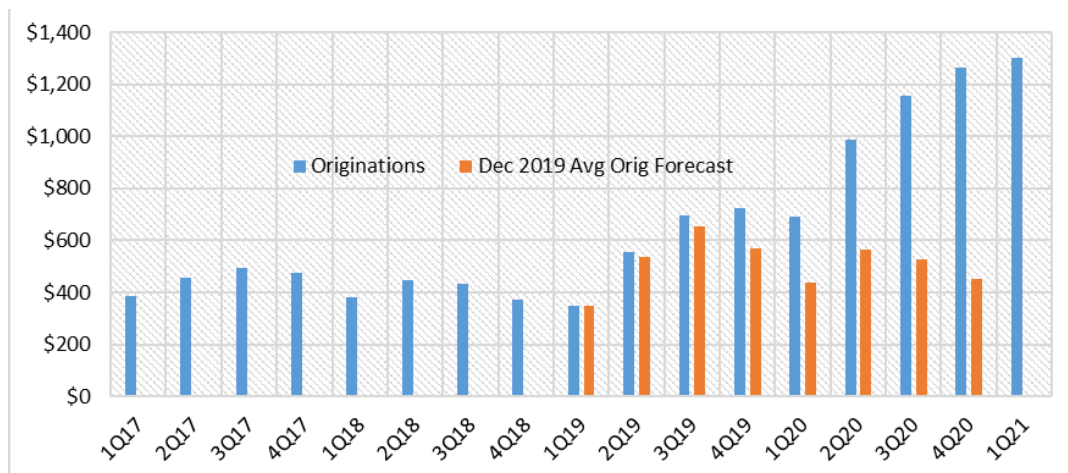
⁸ Bloomberg

Figure 16 – MBS Current Coupon Rate



The Economics of Mortgage Banking - Lower UST and MBS yields touched off a record boom in refinance and purchase applications in early to mid-2020. MBA forecasts made pre-pandemic in December 2019, show 2020 volume estimated at \$2.07T, with mortgage rates expected in the 3.70% area. Rates fell well below this, and actual refinance and purchase origination set records that nearly doubled the expected volume.⁹

Figure 17 – First Mortgage Originations vs. Dec 2019 Forecasted



⁹ <https://www.mba.org/news-research-and-resources/research-and-economics/forecasts-and-commentary>

Excess Originator Profits - Despite the finance disruption in early to mid-2020, mortgage banker profits soared in the “Goldilocks” scenario that followed. Mortgage bankers saw record volume and gain on sale margins while creating loans with pristine borrower credit. The excerpts that follow are from the “MBA IMB 2020 Production and Profits” report.¹⁰ *They show record volume, a three-fold yearly increase in production profits for originators, and losses for mortgage servicers:*

- **Production volume** - At \$3.83 trillion in 2020—the highest annual volume ever reported—up from \$2.25 trillion in 2019.
- **The refinancing share** - By dollar volume, increased to 55% in 2020 from 34% in 2019. For the mortgage industry as a whole MBA estimates the refinancing share increased to 63% from 46% in 2019.
- **The average production profit** - Net production income was 157 basis points in 2020, compared to 58 basis points in 2019. In the first half of 2020, net production income averaged 131 basis points, then rose to 174 basis points in the second half of 2020. Since the inception of the Annual Performance Report in 2008, net production income by year has averaged 58 bps (\$1,299 per loan).
- **The average loan balance** - For first mortgages the average loan balance reached a study-high of \$278,725 in 2020, up from \$266,533 in 2019. This is the eleventh consecutive year of rising loan balances on first mortgages.
- **Productivity** - 3.3 loans per production employee per month were originated in 2020, up from 2.3 in 2019. Production employees include sales, fulfillment, and production support functions.
- **Servicing financial income** - Which includes net servicing operational income, as well as mortgage servicing right (MSR) amortization and gains and losses on MSR valuations, was at a loss of \$176 per loan in 2020, down from a loss of \$116 per loan in 2019.

Excess mortgage banker profits will tend to persist until (1) volume subsides, (2) capacity increases, or (3) gain on sale margins decline. *While competitive capacity is the binding constraint, excessively high MBS prices would seem to work against an originator's incentive to lower mortgage rates. Said another way, relatively lower priced MBS would seem, at the margins, to chip away at excess gain on sale and encourage increases in capacity that might tend toward lower primary mortgage rates.*

Consideration of such mortgage banking dynamics and economics should be an important factor for informing intervention objectives and activities. Rate cuts and UST and MBS purchases should be evaluated in this context since it is the primary mortgage rate and access to credit that most directly affect the homebuyer, and hence the economy.

¹⁰ Mortgage Bankers Association, “[IMB Production Volumes and Profits Reach Record Highs in 2020](#),” April 13, 2021

ECONOMIC OUTCOMES: WEALTH AND INEQUALITY

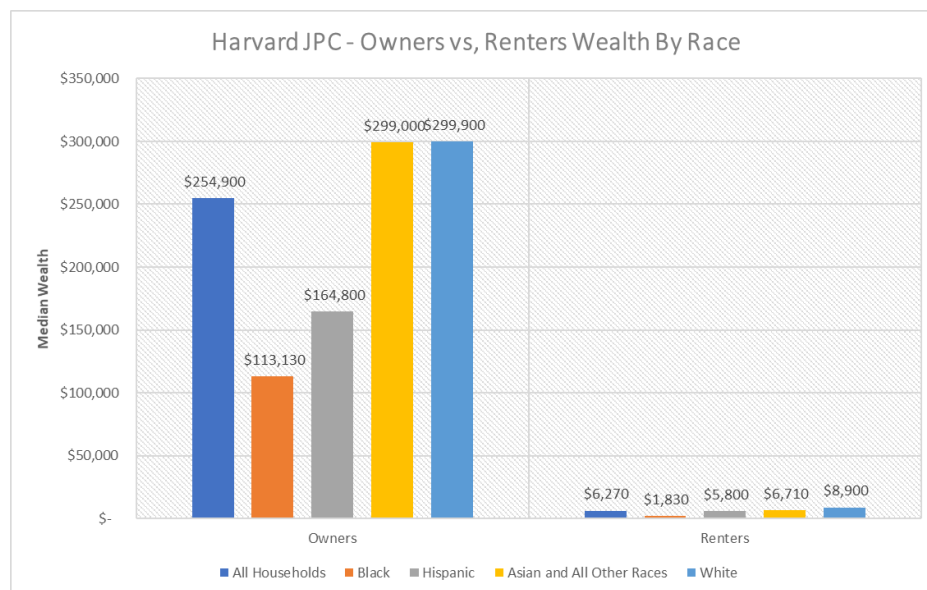
Wealth and Inequality - In addition to the overall effect of the Fed’s actions, there were differential effects on based on wealth and race. Here, we comment on the outcomes of efforts to drive mortgage rates down in terms of their effects on the economics of homeowners and prospective buyers.

2020 Homeowner Refinance - The resultant 2020 gains in home prices, coupled with mortgage rates falling by more than 1%, allowed homeowners to refinance. For homeowners who qualified, the refinance savings on a \$300K loan from a 1% drop in rates amounts to about \$2,000 annually. Cash-out refinances also provided a source of funds for homeowners that increased with home prices. While an improved incentive to refinance and higher home prices provide a measure of savings, stimulus, and wealth, the benefit seems likely to accrue to relatively better-off homeowners, versus low-income and non-white homeowners and renters.

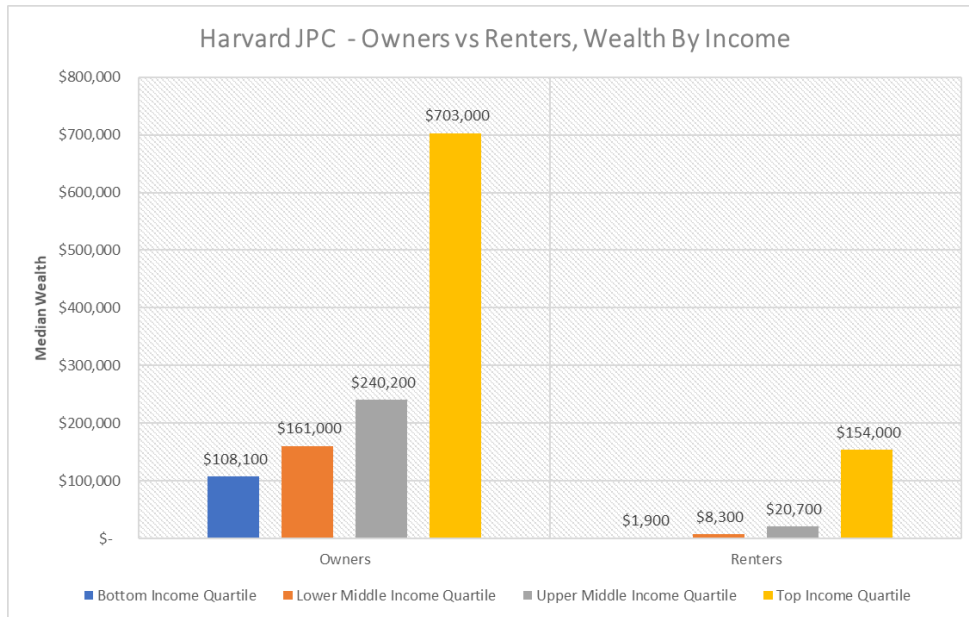
A recent Harvard Joint Policy Center study¹¹ shows that homeowners already benefiting from home price appreciation, as a group, are far wealthier than renters, have more savings and a better ability to avoid economic shocks. The study shows that homeowners in 2019 had an average wealth of \$255,000—with black homeowners having \$113,000 and white homeowners having \$299,000—compared to renters, who had an average of \$6,270.

The upper middle-income and high-income tiers of homeowners were shown to have median savings of between \$20,700 and \$154,000. The study shows that the bottom-income quartile of homeowners, who we would characterize as having less propensity and ability to refinance in tight credit markets, had \$108,000 in wealth and a median cash amount of savings of only \$1,500 dollars. One in three of these homeowners had less than \$500 in cash.

Figure 18 – Median Household Wealth by Race and Income (\$)

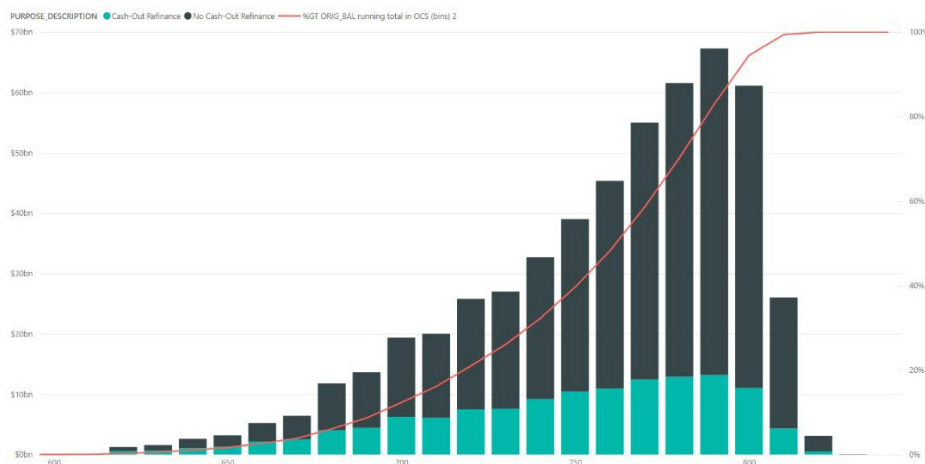


¹¹ Joint Center for Housing Studies of Harvard University, [“The State of the Nation’s Housing 2021,”](#) June 16, 2021



Skewed Refinance Benefits - A look at refinance data for GNMA, FNMA, and FHLMC shows \$1.92T in loans refinanced in 2020 by the three agencies. FNMA shows refinances of \$984 billion, FHLMC \$529 billion, and GNMA \$404 billion. For borrowers 680 FICO and below, FNMA and FHLMC refinances share was under 7%. For GNMA the share of 680 and below refinances we estimate is in the 50% range. Together, we estimate that the share of 680-and-below borrowers that refinanced with the three agencies is between 13% and 17% of their total refinances in 2020.¹² The inference we draw is that the benefits of the 2020 option to refinance, as well as home price appreciation, are skewed toward more affluent, wealthy, and less-stressed homeowners and underweighted among lower-wealth and lower-income and non-white homeowners, who are generally more likely to face economic stress in normal environments and faced even greater stress during this time period.

Figure 19 – FHLMC Refinances

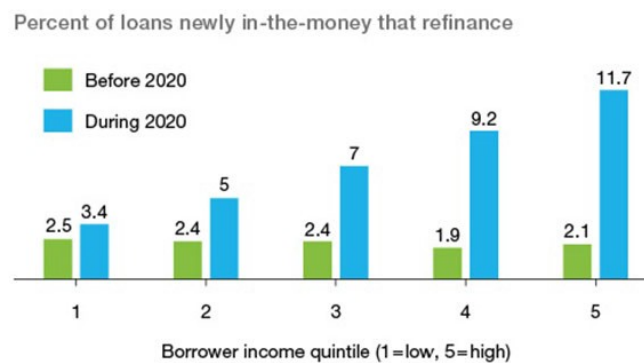


¹² GSE Loan Performance Data

We note that while credit score does not necessarily predict income, excerpts from a recent FHLMC study entitled “Refinance Trends in 2020” of refinancing support our inferences with respect to higher income homeowners benefiting relatively more.

“If we compare refinance activity in 2020 to prior recent waves of refinance activity, we see an increase in the refinancing income gap, the difference in refinance activity between low- and high-income borrowers. The research paper “[Inequality During the COVID-19 Pandemic: The Case of Savings from Mortgage Refinancing](#)” shows that in the first half of 2020, the difference in savings from refinancing between high- and low-income borrowers was ten times higher than in prior refinance waves. The paper documents that the refinancing income gap was largest in the months hit hardest by the pandemic. Geographically, the counties hit hardest by the pandemic also saw some of the largest refinancing income gaps.”

Figure 20 – Refinancing Activity by Income Quintile¹¹



Homebuyers - In 2020 the Case-Schiller Index turned in a gain of 10.4%, the best HPA performance since 2013.¹⁴ Well-known structural supply shortages and increased demographic demand were the main drivers. We note that the state of housing supply and demand preceding the Fed intervention in 2020 differed markedly from that preceding the Fed intervention from the 2007 financial crisis, characterized by an over-supply of homes, a lack of demand and home price deflation. Coming into 2020, supply was tight and unmet demand was significant, as were the levels of prior home price appreciation. Such conditions would imply a favoring of intervention activities that prompt supply side increases versus those that might further inflate home prices and aggravate unsated buyer demand.

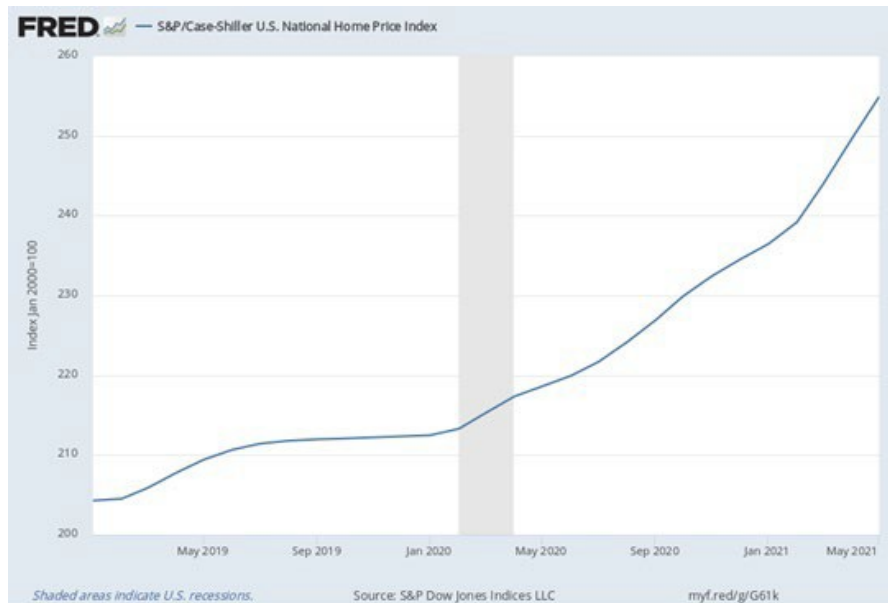
New home sales in 2020 did rise to over 1MM units, the most since 2006.¹⁵ Existing sales fell off at the onset of the pandemic but were 22% stronger, at 6.6MM units, than in December of 2019. While new and existing home sales grew, the market remained well under supplied. The supply of homes for sale metric fell from 5 months to 3.6 months during the year, while headwinds from the resulting credit curtailment, home price appreciation and affordability pinches generally weighed against meaningful increases in fair home ownership. With respect to home ownership and intervention, the state of market conditions influences the outcomes and congruence of activities with broader policy objectives.

¹³ http://www.freddiemac.com/research/insight/20210305_refinance_trends.page#ResearchChart10

¹⁴ <https://fred.stlouisfed.org/series/CSUSHPINSA>

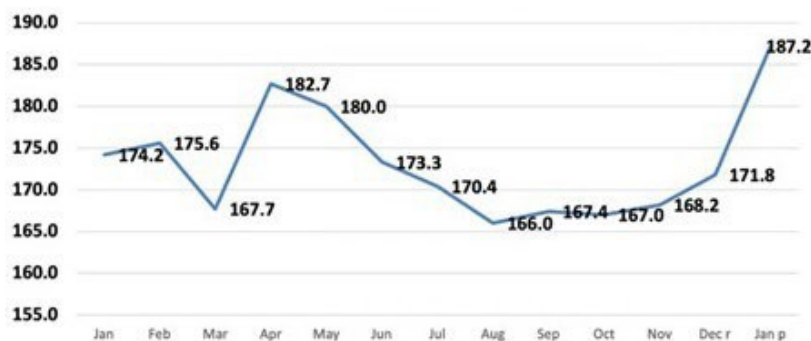
¹⁵ <https://fred.stlouisfed.org/series/HSN1F>

Figure 21: S&P/Case-Shiller U.S. National Home Price Index Price Index



We note that the 2020 increase in home prices generally accrues to relatively wealthy and less-stressed, existing homeowners. For first-time homebuyers, lower rates need to offset higher prices to improve affordability. From the National Association of Realtors chart that follows, we see that by late in 2020 rates did offset higher prices marginally, leading to a robust purchase market in 2020.¹⁶ Data from the Urban Institute shows gains in the first-time homebuyer share of purchases at the government-sponsored enterprises (GSEs) and Federal Housing Administration (FHA)/Veterans Affairs (VA). However, this required an increase in the down payment required, a hurdle many renters must cross to access homeownership. In as much, higher home prices weigh against affordability for first-time homebuyers already struggling to own housing. Overall, the homeownership rate ticked up by about .7% in 2020. However, first-time homebuyers continued to face increasing challenges relating to structural supply, rising prices, increasing down payments required, and tight credit.

Figure 22: Housing Affordability Index



¹⁶ <https://www.nar.realtor/research-and-statistics/housing-statistics/housing-affordability-index>

ECONOMIC OUTCOMES: WEALTH AND INEQUALITY

Data from the US census data from 4Q 2020 shows that while homeownership rates ticked up across the board in 2020, the gap between black and white homeownership remained high at over 30 percentage points, while that between white and Asian-Pacific Islanders was 17 points, and white to Hispanic was 25 points.¹⁷ Buyers with greater than the median family income increased their homeownership rate by 0.6% during 2020 while those with less than the median income increased their rate by .9%. The gap between the two remained high, at 25 points, in 4Q 2020, with those having greater than the median income holding a 79.4% share, and those with less than median at 52.3%. Much work remains to be done in order to close these gaps, but results ticked up slightly in the right direction in 2020.

Figure 23 – Homeownership Rates by Race & Ethnicity of Householder: 2017-2021

Year/Quarter	Homeownership Rates (percent)												
	United States		Non-Hispanic White Alone		Black Alone		All Other Races				Hispanic (of any race)		
	Rate	MOE ^b	Rate	MOE ^b	Rate	MOE ^b	Total ^a		Asian, Native, Hawaiian and Pacific Islander Alone		Rate	MOE ^b	
2021													
Second Quarter	65.4	0.5	74.2	0.4	44.6	0.9	56.2	1.1	58.7	1.3	47.5	0.9	
First Quarter	65.6	0.5	73.8	0.4	45.1	0.9	57.1	1.1	59.6	1.3	49.3	0.9	
2020													
Fourth Quarter	65.8	0.5	74.5	0.4	44.1	0.9	56.3	1.1	59.5	1.3	49.1	0.9	
Third Quarter	67.4	0.5	75.8	0.4	46.4	0.9	58.0	1.1	61.0	1.3	50.9	0.9	
Second Quarter	67.9	0.5	76.0	0.4	47.0	0.9	59.3	1.1	61.4	1.3	51.4	0.9	
First Quarter	65.3	0.5	73.7	0.4	44.0	0.9	55.9	1.1	59.1	1.3	48.9	0.9	
2019													
Fourth Quarter	65.1	0.5	73.7	0.4	44.0	0.9	55.7	1.1	57.6	1.3	48.1	0.9	
Third Quarter	64.8	0.5	73.4	0.4	42.7	0.9	56.0	1.1	58.5	1.3	47.8	0.9	
Second Quarter	64.1	0.5	73.1	0.4	40.6	0.9	55.0	1.1	57.7	1.3	46.6	0.9	
First Quarter	64.2	0.5	73.2	0.4	41.1	0.9	53.9	1.1	56.9	1.3	47.4	0.9	

Figure 24 – Homeownership Rates by Family Income: 2016-2021

Year/Quarter	Homeownership Rates (percent)						
	United States		Households with family income greater than or equal to the median family income ^a		Households with family income less than the median family income ^a		
	Rate	MOE ^b	Rate	MOE ^b	Rate	MOE ^b	
2021							
Second Quarter	65.4	0.5	78.9	0.5	51.9	0.6	
First Quarter	65.6	0.5	79.4	0.5	51.7	0.6	
2020							
Fourth Quarter	65.8	0.5	79.4	0.5	52.3	0.6	
Third Quarter	67.4	0.5	80.2	0.4	54.7	0.6	
Second Quarter	67.9	0.5	80.5	0.4	55.2	0.6	
First Quarter	65.3	0.5	78.8	0.5	51.8	0.6	
2019							
Fourth Quarter	65.1	0.5	78.8	0.5	51.4	0.6	
Third Quarter	64.8	0.5	78.7	0.5	50.9	0.6	
Second Quarter	64.1	0.5	78.2	0.5	50.0	0.6	
First Quarter	64.2	0.5	78.0	0.5	50.5	0.6	

¹⁷ US Census Bureau, "[Quarterly Residential Vacancies and Homeownership, Second Quarter 2021](#)," July 27, 2021

SUMMARY

The upcoming Fed taper will be undertaken in the context of rates, primary and secondary market conditions, and housing market conditions that differ from those in early 2020 pandemic conditions. Heraclitus said, “No man ever steps in the same river twice, for it's not the same river and he's not the same man.” This quip, applied to the 2020 intervention experience, emphasizes that the states and functioning of key markets beyond UST and MBS bond markets factor importantly into tactical considerations and outcomes.

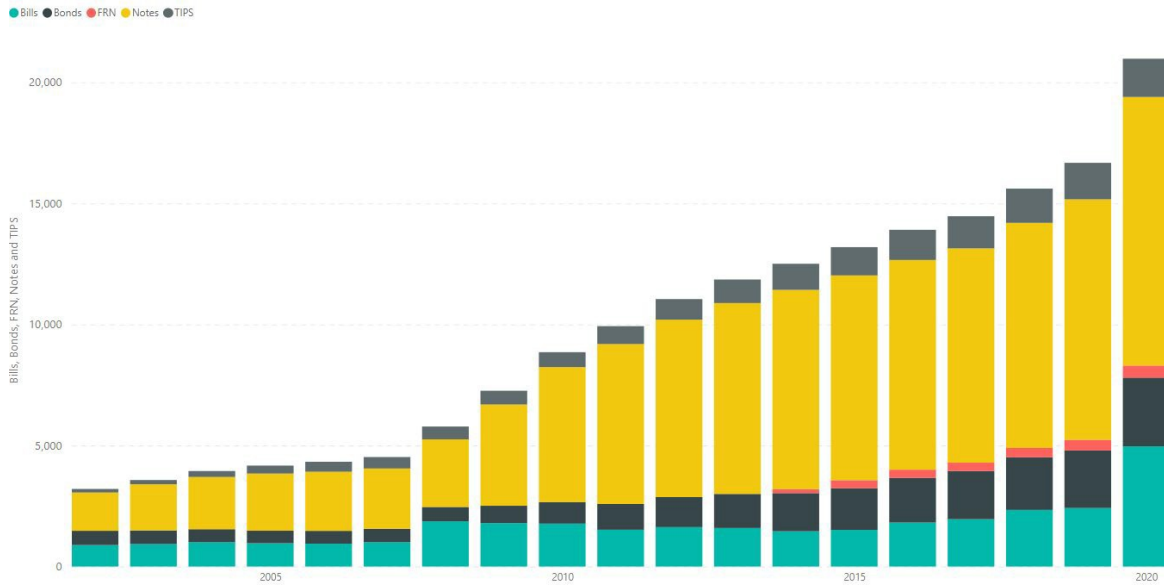
In 2020, in response to the pandemic, the Federal government dramatically intervened in the economy in a variety of ways including enhanced federal unemployment payments, widespread forbearance, bond purchases, liquidity facilities, etc. The interaction of these activities must be considered even as we focus on how the Fed contemplates reducing its \$8 trillion balance sheet. Moreover, it is now more apparent that while the Fed's tools are well suited for affecting the prices of federal, and federally connected, securities markets, such intervention may not have the intended effects on the origination and servicing markets that also need systemic financial support. In fact, the Fed's bond market intervention in the spring of 2020 temporarily added to the market volatility begun by the pandemic, and the efficacy of its continued bond purchases for the next year is unclear.

Financial regulators and the Fed should recognize that financing facilities such as TARP or lines of credit to banks and non-banks may be required during a financial crisis. Such emergency capabilities take longer to put in place and the need for these facilities should be anticipated and incorporated into the planning for future disruptions.

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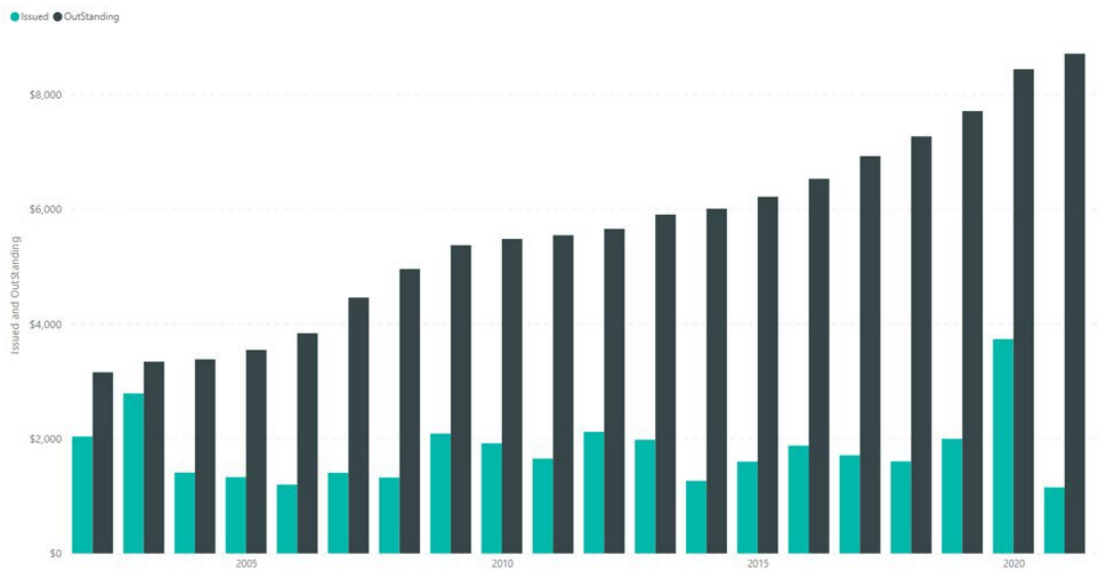
UST and Agency MBS Outstanding - For context, we start by looking at UST and Agency MBS outstanding. By the end of 2020 there was \$20.97 trillion in UST outstanding. This was up \$4.3 trillion or 26% from the end of 2019.

Figure 25: UST Outstanding



By the end of 2020 there was \$8.43 trillion in Agency MBS outstanding, a \$728 billion increase from the end of 2019. Fueled by the drop in interest rates, 2020 was a record year for issuance, with \$3.74 trillion MBS issued. This was a full trillion higher than the next highest year, 2003 (\$2.79T).

Figure 26: Agency MBS Outstanding and Issued



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