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PERSPECTIVES: FRB MBS BALANCE SHEET REDUCTION

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Overview

On January 26, 2022, the Federal Reserve Board (FRB) released “principles” for reducing its balance sheet size, followed by the release of “plans” for the same on May 4, 2022. These actions set in motion on June 1, 2022, reductions in the reinvestment of principal paydowns into Treasury and mortgage-backed securities (MBS) which are subject to dollar-based caps that are due to increase on September 14. As this cap increase occurs, we take the opportunity in this article to detail the mechanics of the Federal Reserve’s efforts to reduce its balance sheet, and to provide perspectives on the early outcomes.

To date, the Federal Reserve balance sheet reduction plans seem to have mostly begun to stabilize the size of its MBS holdings, as its outright MBS purchases have fallen. At current prepayment rates, under the increased reinvestment limit, it appears that future MBS purchases may not be warranted solely as a function of paydown reinvestment, and the Federal Reserve MBS balance sheet seems likely to be reduced at a rate lower than the new cap would otherwise imply. We note that while it’s early in the process, the launch of balance sheet reduction efforts has begun—absent the types of quantitative easing (QE) dislocations to primary and secondary mortgage markets that unnerved stakeholders during the pandemic.

Principles, Plans, Mechanics

On January 26, 2022, the Federal Reserve Board (FRB) released its [“Principles for Reducing the Size of the Federal Reserve’s Balance Sheet.”](#) Therein, the FRB stated its maximum employment and price stability goals and that the commencement of balance sheet changes would follow changes in the target range for the Federal Funds Rate—its primary means of changing monetary policy. The release went on to state its intention of reducing its balance sheet in a predictable manner primarily by adjusting the amounts of reinvested principal repayments from securities held in its System Open Market Account (SOMA). Importantly, the FRB indicated that in the long run—in order to minimize the effect of its holdings on credit sectors—it intended to hold primarily Treasury securities.

On May 4, 2022, the FRB followed up with [“Plans for Reducing the Size of the Federal Reserve’s Balance Sheet,”](#) in which the Federal Open Market Committee (FOMC) stated that starting June 1, 2022, principal payments from securities held in the SOMA will be reinvested to the extent they exceed monthly caps. If the expected principal payments are less than the cap, then the Open Market Trading Desk (OMTD) will not reinvest those principal

payments. Agency CMBS principal payments will not be reinvested or considered in the calculations. The OMTD conducts dollar roll and coupon swap transactions via Tradeweb. In [“FAQs: Agency MBS Reinvestments,”](#) the FRB explained that “the reinvestment amount reflects the principal payments anticipated to be received that month; however, actual principal payments received may deviate slightly from the anticipated amount. In addition, the actual reinvestments may deviate slightly from the stated reinvestment amount due to operational reasons. The Desk will not make adjustments for these deviations in future months’ reinvestments.”

The OMTD may use dollar roll and coupon swap transactions, if needed, to facilitate settlement associated with its unsettled agency MBS. With respect to dollar rolls, we note the following FRB guidance:

Dollar rolls would typically be conducted only if implied financing rates on agency MBS are notably below or above the general level of short-term interest rates, as such conditions may signal a shortage or abundance of supply, respectively, available for settlement. The Desk may conduct dollar rolls throughout the month, but no later than the morning of two business days before TBA settlement dates—also known as ‘Notification Day’. The amount of dollar rolls conducted may vary throughout the month depending on movements in implied financing rates. . . . Dollar roll and coupon swap transactions are the simultaneous sale and purchase of the same face amount of agency MBS. Thus, they only affect the timing or composition of the settlement of the Federal Reserve's agency MBS holdings.

The Treasury securities reinvestment cap was set at \$30 billion per month for three months, with an increase to \$60 billion thereafter. For agency debt and mortgage-backed securities, the reinvestment cap was set at \$17.5 billion per month, with an increase to \$35 billion thereafter.¹

Table 1. Total Monthly Caps on SOMA Securities Reductions

	Treasury Securities	Agency Debt and Agency MBS
Jun-Aug 2022	\$30 billion	\$17.5 billion
From Sep 2022*	\$60 billion	\$35 billion

The OMTD communicates its reinvestment plan amounts on or about the 9th business day of each month and releases tentative schedules of operations twice a month on or around the 9th and the 19th business days of each month.² The tentative schedule includes information on the upcoming operation dates, times, security types, coupon, and reinvestment amount, all of which the FOMC reserves the right to change. Results of operations are available in Excel spreadsheet format.³

¹ Federal Reserve Bank of New York. “Statement Regarding Plans for Reducing SOMA Holdings of Treasury Securities, Agency Debt, and Agency Mortgage-Backed Securities.” May 4, 2022. https://www.newyorkfed.org/markets/opolicy/operating_policy_220504.

² Federal Reserve Bank of New York. “Tentative Schedule of FedTrade Agency Mortgage-Backed Securities (MBS) Operations for the period from August 26, 2022 to September 14, 2022.” August 26, 2022. <https://www.newyorkfed.org/medialibrary/media/markets/ambs/AMBS-Schedule-082622.pdf>.

³ Federal Reserve Bank of New York. “Agency MBS Historical Operational Results and Planned Purchase Amounts.” https://www.newyorkfed.org/markets/ambs/ambs_schedule.

OMTD MBS Purchases, SOMA Holdings

Figure 1 and 2 show Fed purchases of MBS over time and dollar roll activity. The data shows the large pandemic-related MBS purchases and the subsequent drop-off in buys during 2022. The Fed OMTD has bought a total of \$5.28 trillion of 30-year MBS over the years. The face amount of current SOMA holdings appears to be just less than half this amount, at \$2.72 trillion as of August 17, 2022 reporting.

Figure 1. OMTD Outright MBS Purchases by Year

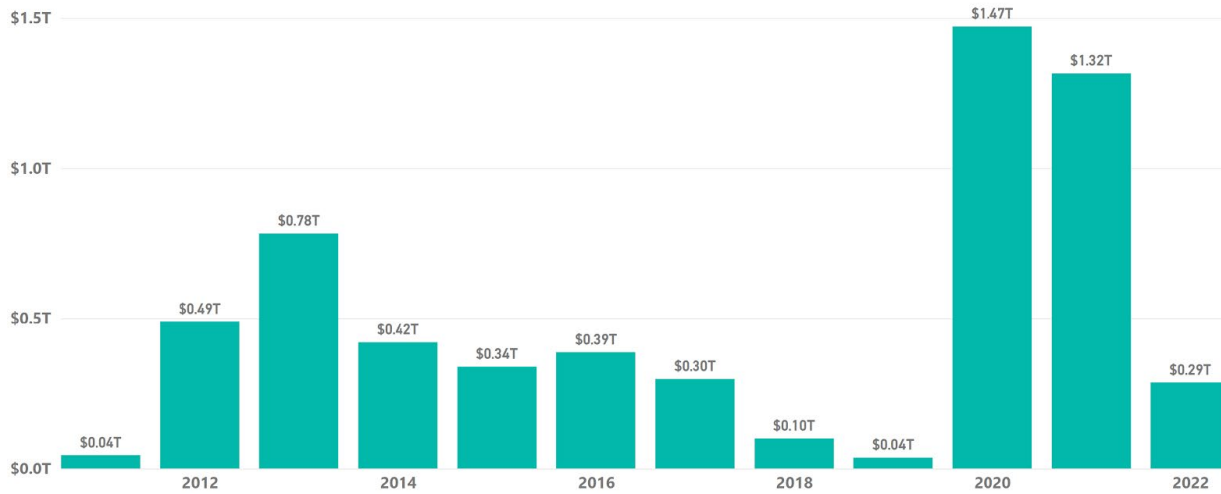
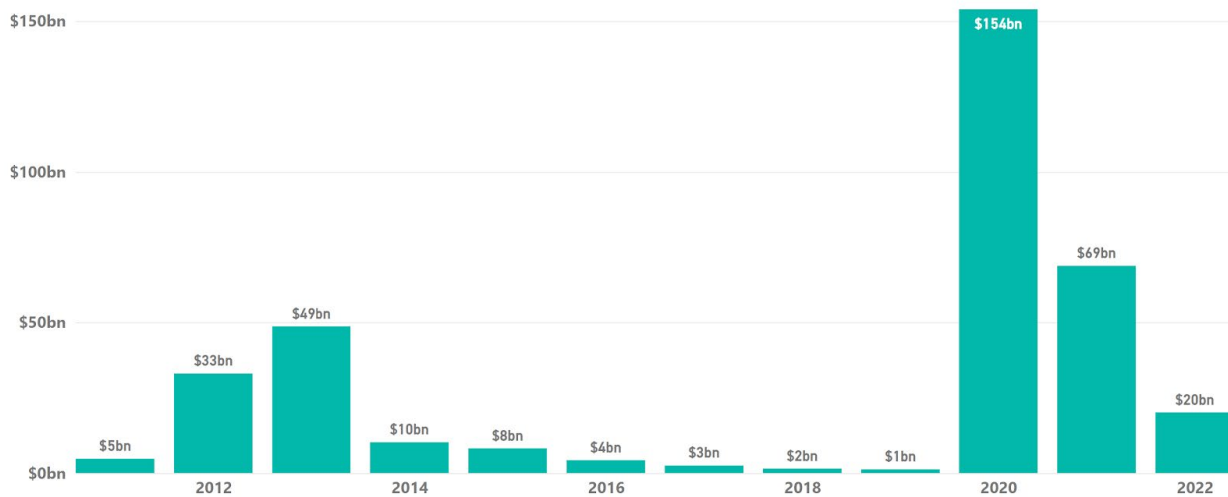
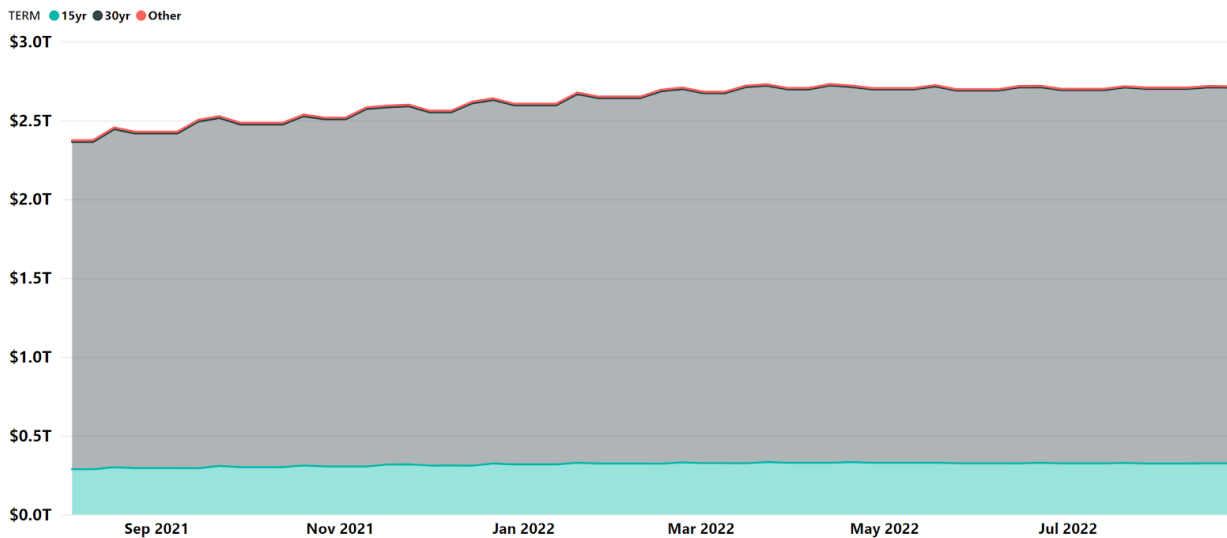


Figure 2. OMTD MBS Dollar Rolls by Year



The SOMA holdings data shows that as of August 17, 2022, the Fed held \$2.38 trillion of 30-year MBS and another \$350 billion or so of 15-year and other term MBS, bringing their MBS total to \$2.72 trillion. In Figure 3, we see leveling off of growth in the SOMA MBS book over time. Despite the early efforts at reduction, SOMA MBS balances remain near a high as of the August 17, 2022 data. The SOMA MBS book is \$110 billion larger than year end 2021, and is virtually the same size as it was on July 20, 2022. To date, the FRB appears to have been effective at stabilizing the size of its SOMA MBS holdings. As the principal reinvestment limit increases to \$35 billion per month, the pace at which the SOMA MBS balance prepays given reinvestment limits will be determinative with respect to the size of the MBS book and the levels of future OMTD intervention or purchases in MBS markets.

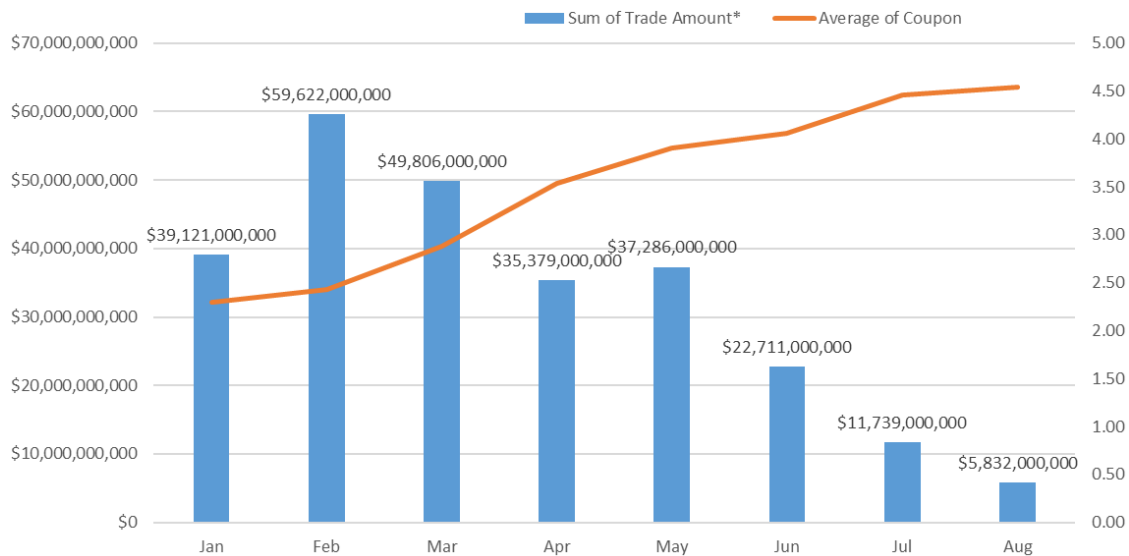
Figure 3. SOMA Monthly MBS Balance



Monthly OMTD Purchase Activity

Figure 4 shows the declining monthly amounts of OMTD total MBS purchases and the increase in the recently purchased MBS coupons. While the OMTD is still a relatively large buyer, its volume has fallen substantially in recent months. For comparison purposes, we note that recent agency MBS issuance data from the Securities Industry and Financial Markets Association (SIFMA) shows \$138 billion issued in August 2022, down substantially from \$291 billion a year earlier.

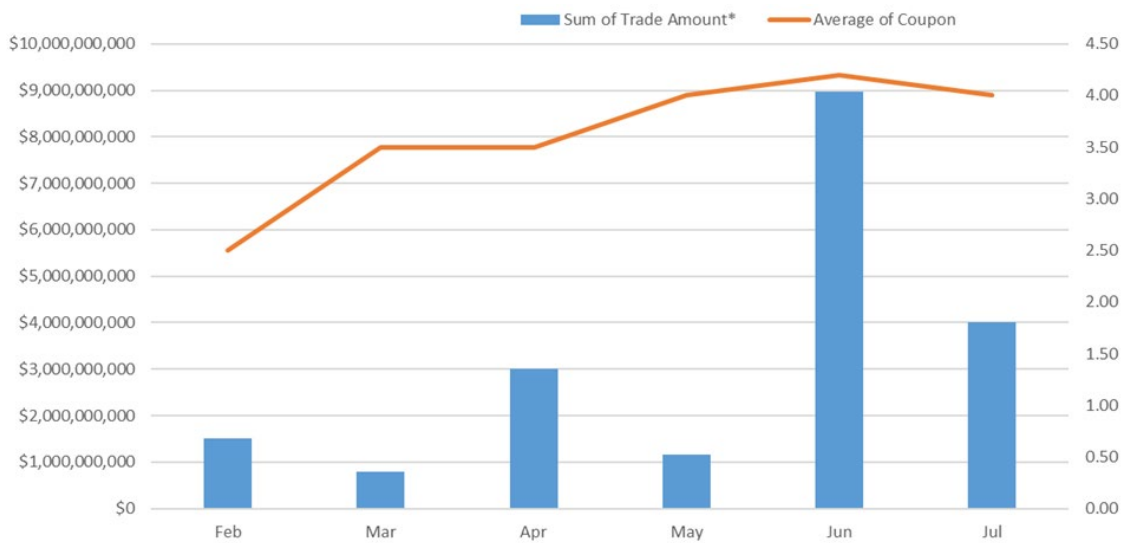
Figure 4. OMTD 2022 Outright MBS Purchases Monthly



Monthly OMTD Dollar Roll Activity

Figure 5 pertains to the OMTD dollar roll activity and shows that recent roll volumes remain significant and have risen in both volume and coupon since the balance sheet reductions were implemented.

Figure 5. OMTD 2022 Dollar Rolls Monthly



SOMA MBS Balance Sheet Composition, Migration

Figure 6 is a deeper drill down into the SOMA 30-year MBS holdings data shows the resulting changes in the composition of SOMA holdings by coupon over time. More than 85% of total MBS held have coupons of 3% and below. Changes in interest rates and the slowdown in prepayments during 2022 imply a lengthening in the duration of lower coupon SOMA MBS holdings, mark-to-market market losses, and lower amounts of principal paydowns on SOMA MBS that might otherwise be available to reinvest in MBS subject to the cap.

Figure 6. SOMA Balance Sheet Composition by Coupon

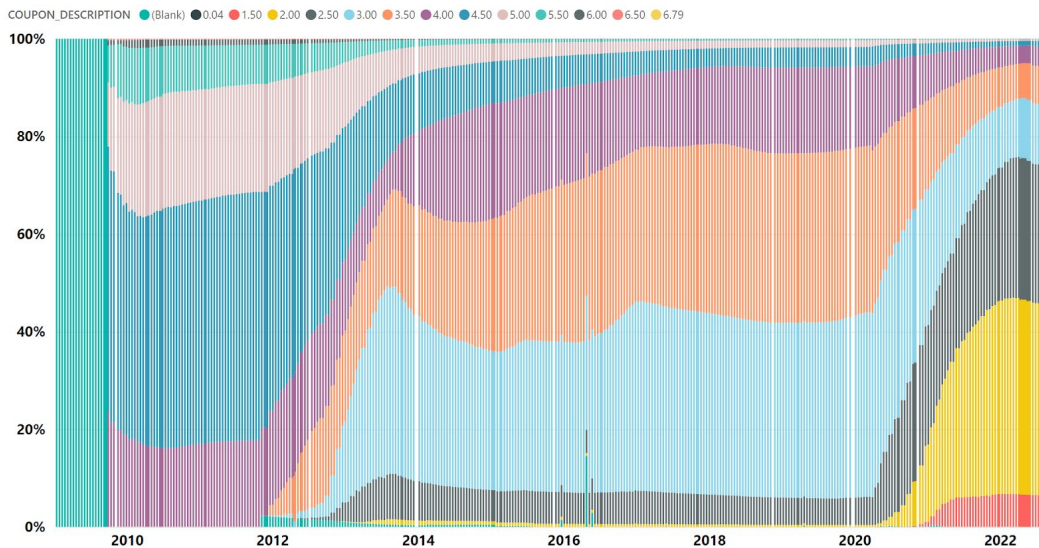
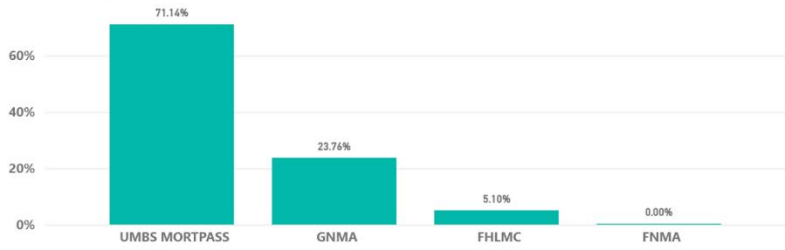


Table 1 imparts a more detailed breakdown of SOMA 30-year MBS holdings by issuer and coupon, and shows that more than 70% of the 30-year MBS holdings are UMBS (uniform MBS), while 23% are issued by GNMA, and around 5% by FHLMC.

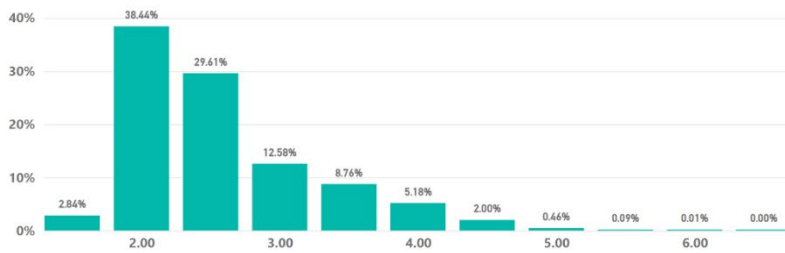
Table 1. SOMA 30-Year MBS Balance Sheet Detail

TYPE	Count of CUSIP	CURRENT FACE	% TOT FACE
FHLMC	1213	\$121,594,500,674	5.10%
2.50	3	\$208,916,066	0.01%
3.00	260	\$48,485,584,720	2.03%
3.50	333	\$40,614,542,723	1.70%
4.00	236	\$21,363,197,825	0.90%
4.50	155	\$7,011,703,975	0.29%
5.00	87	\$3,582,500,375	0.15%
5.50	62	\$299,417,020	0.01%
6.00	49	\$13,911,141	0.00%
6.50	28	\$14,726,829	0.00%
FNMA	2	\$6,842,854	0.00%
		\$6,842,854	0.00%
GNMA	3022	\$566,604,158,993	23.76%
2.00	34	\$179,270,020,008	7.52%
2.50	64	\$200,919,041,332	8.42%
3.00	533	\$87,139,829,842	3.65%
3.50	656	\$63,611,190,375	2.67%
4.00	618	\$25,486,759,158	1.07%
4.50	725	\$8,763,677,066	0.37%
5.00	884	\$1,356,234,949	0.06%
5.50	190	\$43,072,035	0.00%
6.00	118	\$14,344,128	0.00%
UMBS MORTPASS	12893	\$1,696,822,109,717	71.14%
	25	\$924,371,663	0.04%
1.50	356	\$67,632,238,626	2.84%
2.00	2235	\$737,417,589,146	30.92%
2.50	3291	\$504,973,712,352	21.17%
3.00	2078	\$164,385,434,340	6.89%
3.50	1996	\$104,676,067,811	4.39%
4.00	1594	\$76,807,515,589	3.22%
4.50	830	\$31,901,256,617	1.34%
5.00	217	\$6,070,408,548	0.25%
5.50	103	\$1,738,706,649	0.07%
6.00	77	\$267,800,963	0.01%
6.50	91	\$27,007,412	0.00%
Total	17930	\$2,385,027,612,138	100.00%

% 30-Year MBS by issuer



% 30-Year MBS BY COUPON (bins)



SOMA MBS Holdings Prepayment Rate Implications

Prepayment rates on the SOMA MBS book that would generate paydowns that exceed the \$35 billion monthly cap on reinvestment would otherwise imply MBS purchases to not reduce the SOMA MBS holdings at a rate faster than the cap implies. Similarly, prepayment rates that generate paydowns less than the \$35 billion monthly cap would imply the SOMA MBS balance sheet is shrinking by less than the cap amount per month. To meet the \$35 billion monthly reduction in balance in this case, MBS sales would be implied to make the simple math work. We use \$2.72 trillion as the SOMA MBS balance and show in the Figure 7 that under the expired \$17.5 billion cap, a 7% CPR (conditional prepayment rate) shrinks the balance sheet at the pace the cap implies. Under the \$35 billion cap, a 15% CPR meets the balance reduction target.

Figure 7. Dollar Prepayment Estimates by CPR and SMM

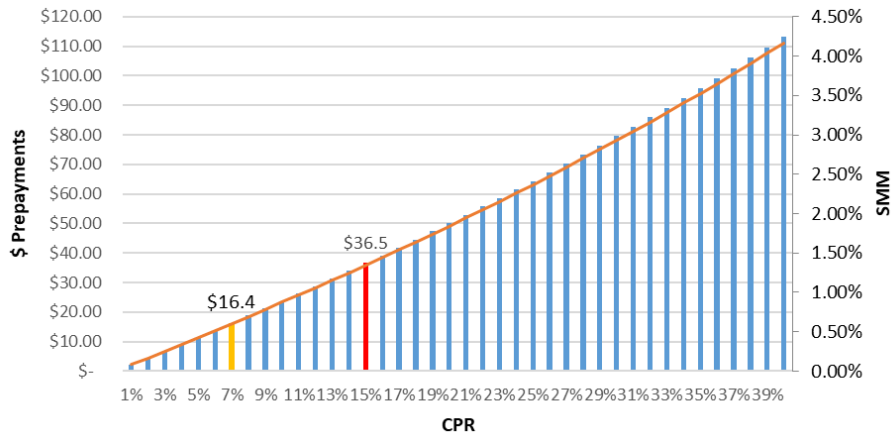
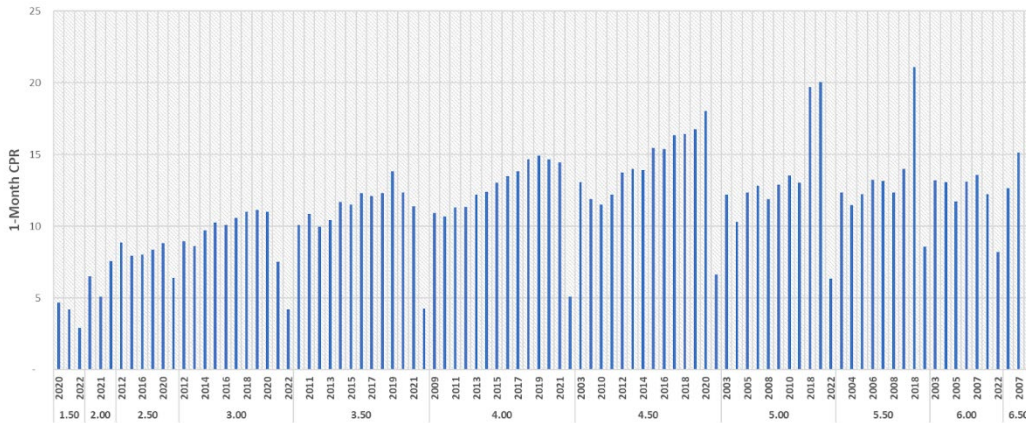


Figure 8 shows the August 2022, 1-month CPRs for all FNMA UMBS conventional loans across vintages and coupons. Very few of the coupon-vintage cohorts show 1-month speeds more than 15% CPR. This is particularly true for coupons less than 3.5%, which constitutes the vast majority of the current SOMA MBS book. The

implication is that at current interest rates, SOMA MBS paydown amounts would seem unlikely to exceed the \$35 billion threshold that necessitates any MBS purchases on account of principal reinvestment. It seems likely that the SOMA MBS balance sheet will shrink by less than the \$35 billion monthly cap amount. We note that the FRB can intervene and opt to buy MBS for other reasons related to market liquidity and reserves management, for example.

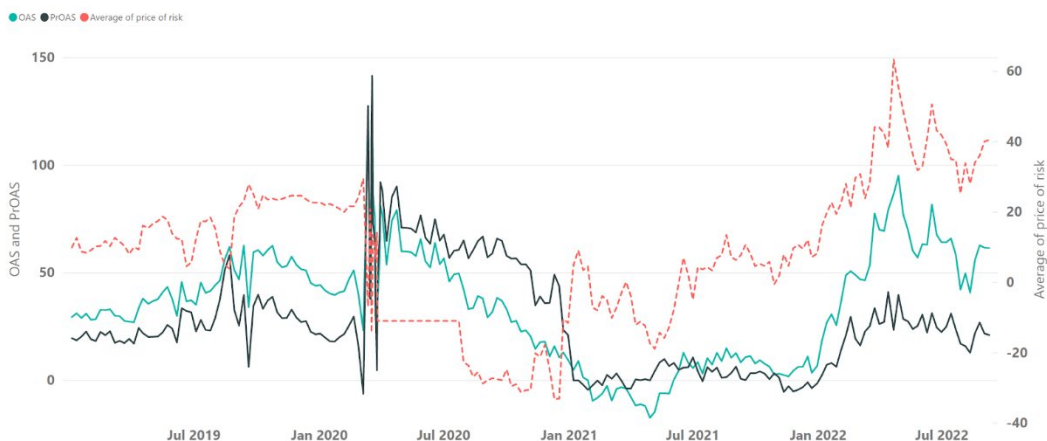
Figure 8. FNMA Data Dynamics 1-Month CPRs



MBS Secondary Market Reaction

Figure 9 shows that rising, volatile interest rates in 2022 and the onset of reductions in the SOMA balance sheet have coincided with elevated levels of option-adjusted spread (OAS) and prepayment risk-adjusted OAS levels (PrOAS). The difference between these two types of OAS is generally considered the market implied cost of prepayment modeling error but may also represent liquidity concerns or concerns over SOMA reductions or ultimately FRB selling of MBS. Nonetheless, wider OAS imply that MBS investors are requiring increased compensation for holding MBS risks. It's worth noting that pandemic size blowouts in OAS levels, indicating secondary market disruptions, remain absent to date despite the initiation of FRB and OMTD balance sheet reductions.

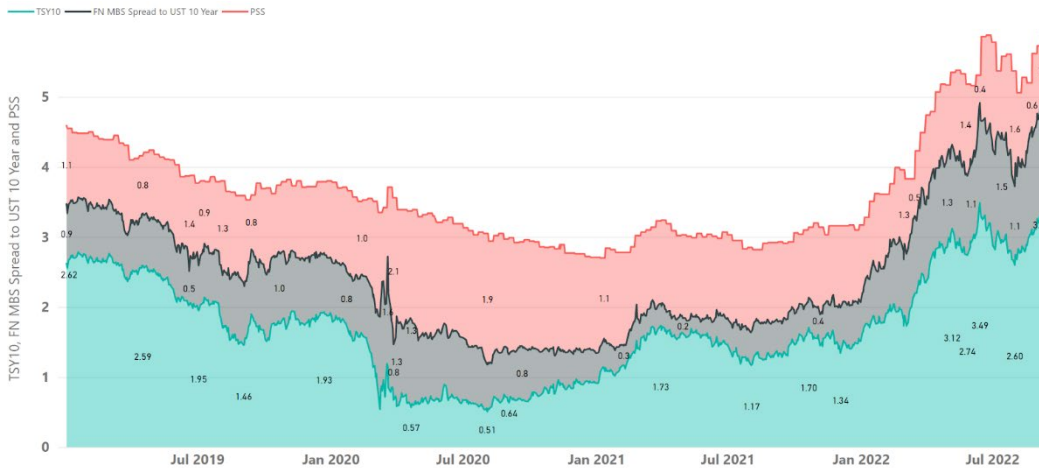
Figure 9. OAS, prOAS and the Cost of Prepayment Modeling Error



Primary Mortgage Market Reaction

Lastly in Figure 10, we note that functioning of primary and secondary markets since the FRB began its SOMA MBS reductions has generally been orderly. Both Treasury and mortgage rates have been increasing and volatile as the FRB has begun undertaking SOMA balance sheet reductions while also combatting inflation, but the primary-secondary market spread (PSS) has remained within a range of normal operability by historical standards.

Figure 10. Mortgage Rate Decomposition



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