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Portfolio Reduction Strategies through Redemptions or Outright Sales

Frank Keane¹

Brief Overview of Portfolio Reduction Issues

The sale of SOMA assets would tighten financial market conditions through two channels: its impact on the federal funds and related short-term financing rates by draining reserves, and its impact on private credit markets by adding to the supply of assets, which would put upward pressure on longer term market rates and spreads. Dollar for dollar, sales (and possibly even redemptions) might be viewed as potentially having a bigger impact on financial conditions compared to similar sized temporary reserve draining operations, because they would also operate through this second channel. However, for this same reason, sales and redemptions might pose particular challenges, including disruption to market function or even disruption to Treasury primary issuance depending on the timing of such portfolio reduction operations, as well as uncertainty over our ability to carefully calibrate their impacts on longer term yields.

Another factor to consider is whether there may be asymmetric effects on private credit markets on the way out as compared to the way in, especially for agency and agency-MBS markets. For instance, consider an over simplified example where SOMA owns a portfolio of 4 percent MBS in a world where the current coupon MBS is 6 percent. Selling discount MBS might have a differential impact on current market rates compared to the accumulation phase when we were able to focus most of our purchases on the current coupon (a more liquid sector than a deep discount sector). Sales of discount MBS might even have no impact on current coupon mortgage prices if buyers of discount securities are fully segmented from buyers of the current production. So while sales could provide a more responsive channel for the removal of accommodation, the impact might be less efficient and even less well calibrated than during the purchase program.

Expected efficiency loss embodied by sales follows from the recognition that SOMA holdings will generally consist of less liquid aged securities at the time of exit than assets accumulation phase which frequently operated in liquid specified markets. Since SOMA cannot sell what it does not own, SOMA sales will be an artifact of past purchases. Large sales of less liquid securities in the future could have stronger "flow" effects than purchase operations and potentially material negative implications for Federal Reserve annual income streams. Adopting a concept from MBS markets, the future SOMA portfolio might be said to have a form of "negative portfolio convexity" where portfolio sales could have progressively negative price responses. That is, each sale makes a subsequent sale less profitable.

Such negative portfolio convexity might arise because our holdings are in less liquid securities (that in some cases no one else owns or wants to own) or because of private sector reluctance to "relever." This is in contrast to the purchase phase when it was comparably easy to buy lots of securities without having prices move against us too much because many market participants are anxious to get things off their balance sheet.

¹ Helpful comments were received from Chris Burke, Jim Clouse, Spence Hilton, and Julie Remache.

Although purchases during the accommodation effort were pursued sequentially after the zero bound was reached, it is not clear that the process needs to proceed in exactly the reverse order during exit. That is, sales of the entire portfolio do not necessarily need to precede increases in the fed funds target rate.² Indeed, the ability to pay interest on reserves, and the added authority to issue fed bills if obtained, make it likely that the overnight interest rate could be managed independently of sales and the portfolio could run off to a more sustainable level mainly or exclusively through redemptions. At the same time, redemptions might be used to help change the composition to a more permanently appropriate composition and mix of assets, regardless of whether we drain reserves with other tools.

Communication issues related to portfolio reduction should be weighed carefully because properly communicating the portfolio reduction strategy well in advance of any activity seems advisable and may well be more nuanced relative to communication challenges associated with portfolio expansion. For example, the market will benefit from knowing whether portfolio reduction is undertaken to drain reserves and remain market neutral, or to quickly tighten private credit conditions by rapid unwind of asset purchases before a target rate change, or an effort to simultaneously drain reserves and tighten private credit market conditions simultaneously, or for some other purpose.

Portfolio Reduction by Redemption

Redemptions may be viewed as a passive or gradual form of sales, and given adequate tools to control the overnight rate without regard to the size of the portfolio, are viewed as the first choice to reduce the size of the portfolio. Redemptions are inflexible with respect to timing and are a consequence of past purchase decisions, but they are more market neutral than sales and they dampen income effects. Holding an asset to maturity spreads out income effects of capital gains and losses, whereas concentrated sales in a given calendar year may have an outsized effect on Federal Reserve income for that year, especially for long duration securities.

The opportunity to redeem some SOMA holdings is expected to be fairly continuous, so a plausible outlook for redemptions is that the FOMC can choose to let some portion of its asset purchase program roll off ahead of any attempt to increase short-term interest rates. Such redemptions may prove valuable as an early test of the market's responsiveness to subsequent redemptions or sale activity. Once policy makers decide to increase short-term rates we would likely be redeeming most securities, subject to permanent portfolio objectives or if the FOMC still had objectives for private credit markets.

The redemption of principal is endemic to mortgage-backed securities, as these monthly cash flow securities contain some principal return each month despite an underlying final maturity of up to 30-years. Such returns of principal over the life of the security are due to loan amortization and the option to prepay without penalty. Amortization produces scheduled returns of principal, while prepayments result in unscheduled returns of principal. If the Federal Reserve pursues a portfolio

² Another potential departure from historical patterns might be market dynamics around a cessation of portfolio purchases. An announcement that purchases will cease may tighten conditions in private credit markets immediately, which contrasts to the historical experience as there is usually a fairly notable lag between the cessation of accommodation actions and the onset of tightening actions. That is, there could be a cliff effect at the end of portfolio expansion.

reduction strategy through redemptions mortgage assets have potential upside surprise with respect to redemptions as unscheduled return of principal (prepayments) are likely. Such upside redemption surprise will be welcome in a period of reserve drains, more of a challenge during the accommodative phase. Of course, duration extension would also serve to reduce unscheduled principal return. Nonetheless a passive roll-off strategy would be expected to expose the Federal Reserve income statement to less volatility here as well, especially if expected durations of MBS lengthen as expected when Fed purchases cease selling of MBS holdings could generate sizable losses.

The table below provides an estimate of redemption flows from 2009 to 2016, and assumes that purchases of Treasury and Agency securities reach \$300 billion and \$200 billion before year-end.³ Furthermore the maturity distribution of the holdings was based on a straight line extension of purchases to date. So these redemption estimates are not very precise. The agency MBS redemption estimates are based on similar assumptions but must be viewed as even less precise because of the idiosyncratic nature of prepayment and the future path of long-term interest rates. They are based on a number of assumptions and use of some forward modeling results of a single investment manager.

Rough Estimates of Potential Redemption Flows
(billions of dollars)

	Agency	Treasury	MBS⁴	Annual Total	Cum Total
2009			0	0	0
2010	36	14	133	183	183
2011	40	8	58	106	289
2012	21	77	59	157	446
2013	30	40	56	126	572
2014	22	47	55	124	696
2015	7	6	53	66	762
2016	20	50	51	121	883
>2016	24	58	785	867	1750
Total	200	300	1250		

Note: In the period beyond 2016 redemptions may slow depending on the stance of policy or as we reach a lower bound on what is viewed as the right-sized permanent SOMA portfolio.

Some special factors for Treasury redemptions

Redemptions of Agency and Agency-MBS securities do not seem to present any special considerations; however redemption of Treasury securities might need to consider Treasury primary issuance considerations. At the same time, SOMA holdings of Treasury securities are larger than the

³ Legacy holdings of Treasury securities may also be a source of redemptions, and are considered separately.

⁴ The base case shown in this table is for aggregate MBS paydowns through 2016 to total \$465 billion, but under a fast prepayment scenario they might rise to \$579 billion and under a slow prepayment scenario they might fall to \$317 billion.

\$300 billion considered here and might allow for some added redemption opportunities. A final consideration here is question of what constitutes the appropriate size of the permanent SOMA portfolio in equilibrium and whether that portfolio should be constituted of Treasury securities only. If so, this might also limit or even eliminate Treasury redemptions as a policy choice at some point. That said, below is a table of redemption flows from \$470 billion in “legacy” Treasury holdings of SOMA.

Estimate of Redemption Flows for “Legacy” Treasury Holdings
(billions of dollars)

	Legacy Treasury	Cum Total
2009	62	62
2010	65	127
2011	40	167
2012	54	221
2013	32	253
2014	19	272
2015	11	283
2016	19	302
>2016	168	470
Total	470	

Portfolio Reduction by Outright Sales

Legal and Operational Issues

Sales authority exists under the Federal Reserve Act and would not require new legislation. However, use of investment managers as agents to sell mortgage-backed securities to implement a tighter monetary policy directive (if this strategy is chosen) may raise confidentiality concerns for policy makers to consider. This confidentiality concern is largely unchanged from what we face currently and we have established robust conflict of interest requirements for our investment managers, but nonetheless, at the initial stages of a shift to a restrictive policy stance it may merit especially close consideration due to the scale of the MBS portfolio and the knock-on implications of this inflection point.⁵

Sales of Agency and Treasury securities would be managed directly by the Desk, largely a reversal of the accumulation phase. However, sales would likely be done at a slower pace than the accumulation phase to guard against introducing market distortions and damaging secondary market liquidity. Treasury redemptions and sales might also have to consider the context of Treasury primary issuance patterns. Moreover, a strategy that involves sales of Treasury securities would require that these sales sizes and specific issues involved be coordinated with long-run portfolio objectives. In practice, this likely means not all Treasury securities will be redeemed even if we are selling.

⁵ It may also be the case that we will have brought the front-end trading operation in house by the time sales of MBS are directed, in which case such confidentiality concerns would be mitigated.

Complexity of MBS forward settlement and good delivery requirements in the TBA market seem to dictate a need for continued involvement of outside middle and back-office managers to settle sales of MBS portfolio, especially in the TBA market. The pace of MBS sales might be slowed if the SOMA portfolio is concentrated in a discount coupon sector, as expected. Large concentration in discount securities can be expected to limit demand relative to the supply available for purchase in the new issue market throughout the accumulation phase, and the Desk may even have to transact in the “specified pool” market instead of the more liquid TBA market during exit. On the other hand the Desk may find that transacting in the TBA market offers greater value than “specified pools” depending on market conditions at the time of exit.

Federal Reserve Income Issues⁶

The impact of sales on annual Federal Reserve income must be weighed for all asset categories, but seems particularly important for the MBS portfolio, as the price risk of this portfolio is high given the size of the portfolio and the expected longer average duration in the exit phase. A preliminary estimate of expected duration and rate effects could cause MBS holdings to trade at a discount of 20 percent or more relative to purchase price.

Impact on long rates and market function

Although operational impediments appear limited, the pace of sales might be constrained by other factors such as competition with Treasury primary issuance, secondary market functioning concerns, or negative income effects (especially in the case of MBS portfolio). An expanded set of counterparties seems more relevant for temporary operations, as the pace of asset sales is constrained more by considerations of limiting the impact on market function, market liquidity, and negative income effects more than counterparty constraints.

In practice a strategy that combines redemptions and sales is certainly feasible, and maybe even likely that at certain pints in time one will be less disruptive than the other. However, the expectation is that redemptions overall present fewer issues than sales, especially if other tools such as fed bills are available.

⁶ A transfer of non-Treasury SOMA assets to the GSEs or some other government sponsored enterprise or to a special purpose vehicle could remove the income effects from the Federal Reserve balance sheet (if they were transferred at cost), and potentially provide another rapid way to reduce the Federal Reserve balance sheet size and drain reserves. However, such a transfer and drain would need to be funded by Treasury or GSE issuance, so some speed limit likely would still apply so in practice it might precede in large discrete steps. This approach would require legislation with all the risks and uncertainties that the legislative process entails. It might also raise unwanted appearance issues.