Fed & Treasury Interest – Just the Facts

I'm hearing a lot about Fed profits and losses (a subject that we've covered numerous times).

I'm hearing a lot about debt service costs for the Treasury.

Some of this is becoming political/mainstream which is making the chatter skew to the realm of fiction and hyperbole over reality.

We are facing a debt ceiling debate that could (and I think will) become far more politicized than anything we've seen in the past decade or two (and that is saying a lot).

So, let's start with the facts on debt holdings and interest payments.

TIPS and Floaters

Floaters are only $0.56 trillion (will reset with current rates) and the Fed seems to have limited ownership. We will add in these payments later (for more robust calculations), but it won't materially impact the overall points being made here.

TIPS are a little riskier to ignore (as they are $1.87 trillion), but the complexity of adding this to my simple spreadsheet is more than I can handle today. There will be some impact, but it shouldn't change the main message that comes out here.

T-Bills

T-Bills are $4.06 trillion with an average yield of 4.5%. Assuming that amount stays outstanding (and the yield continues to increase to the "terminal" rate), we can see the impact of servicing Treasury debt.

In 2021, say at $4 trillion and a 0.5% yield, the interest payment on T-Bills would have been $20 billion (yes, they are issued at a discount and don't pay a coupon, but that is close enough to being the correct cost for our purposes).

In 2023, let's assume a current average yield of 4.5%, which would result in $180 billion of interest expense.

Basically, servicing T-bills will have gone from somewhere close to 0 in 2021 to close to $200 billion in 2023 (with 2022 somewhere in between).

The Fed "only" owns $280 billion of T-bills (7% of the total). Given that the Fed funds at roughly that rate, it is kind of a "net" wash – the Fed gets 4.5% on T-Bills and pays about the same on excess reserves. This becomes "interesting" if any games are played in terms of how the T-bills held by the Fed count towards the debt ceiling (but the coupon market is where the bigger notional amounts are at play).

The Coupons

The focus of today's report is getting you (the reader) some useful facts and figures on the Treasuries that have been issued and what the Fed owns. They aren't quite interlinked, but they aren't completely disassociated either.

There are $17.8 billion of Treasury bonds that pay coupons outstanding. The cost to refund these will expand debt service costs gradually over time.

The Federal Reserve owns $4.6 trillion of these bonds. Since the Fed relies on accrual accounting, this is what will generate the P&L from the Fed. They have "effectively" swapped longer-term/locked in

financing rates from Treasury issuance for floating rate debt. The Fed could buy or sell bonds to generate accounting gains or losses to offset some of their accrual income (or losses as it will be).

This sort of weird accounting where two closely related entities (one effectively capitalizes the other) can identify the debt differently seems hard to believe. But this is D.C after all, so there might be significant games that the Fed and Treasury can play with these holdings if the debt ceiling does turn into a problem.

Maturity	Total	Non Fed	Fed	Avg Coupon	Fed VS Total
<1	2,455,249,000,000	1,692,456,295,233	762,792,704,767	1.2%	31.1%
1-3	4,677,530,000,000	3,620,195,749,272	1,057,334,250,728	1.9%	22.6%
3-5	3,035,351,000,000	2,384,507,939,816	650,843,060,184	1.8%	21.4%
5-7	2,155,848,000,000	1,728,769,021,021	427,078,978,979	2.1%	19.8%
7-10	1,539,254,000,000	1,177,287,597,935	361,966,402,065	1.7%	23.5%
10-15	154,242,000,000	112,330,228,541	41,911,771,459	4.3%	27.2%
15-20	1,443,482,000,000	792,863,233,152	650,618,766,848	3.0%	45.1%
>20	2,294,669,000,000	1,634,219,727,337	660,449,272,663	2.6%	28.8%
Total	17,755,625,000,000	13,142,629,792,308	4,612,995,207,692	2.0%	26.0%

Increasing Debt Service Costs

The Treasury has $2.5 trillion of debt maturing this year. It has an average coupon of 1.2%. I'll assume 3.7% is the average coupon on this debt when it rolls (roughly blended across the yield curve).

That would be an increase of 2.5% on $2.5 trillion. While some of the impact would be felt this year, all of it would be felt in 2024. That means there will be an extra $60 billion of interest expense in 2024 compared to 2022 for those bonds (a lot of assumptions). **Not great, but honestly, not alarming!** The average coupon the Fed is currently paying is 2% (presumably higher than at the same time last year, but probably not by as much as you would think given the pace of rate hikes).

We can play out all sorts of scenarios, but I just cannot get into panic mode about debt service costs in the near-term.

Yes, in 30 years, if nothing changes (and we can certainly bet on change) we'd be paying 2% or more on $18 trillion of debt (presumably a lot more) and that would add up, but the Treasury has locked in a lot of funding and the inverted yield curve helps keep their costs down!

The story, even with higher rates, is still more about controlling future deficit spending than expecting debt service costs to blow us up (at least not anytime soon, despite some alarmist stories that I hear).

Maturity	Total Coupon	Non Fed	Fed	Fed VS Total
<1	29,944,708,750	18,492,869,622	11,451,839,128	38.2%
1-3	87,040,603,750	68,188,540,555	18,852,063,195	21.7%
3-5	53,206,378,750	41,381,853,967	11,824,524,783	22.2%
5-7	44,901,303,750	35,912,179,135	8,989,124,615	20.0%
7-10	26,106,585,000	19,860,534,765	6,246,050,235	23.9%
10-15	6,565,152,500	4,696,118,725	1,869,033,775	28.5%
15-20	43,119,750,000	20,862,180,532	22,257,569,468	51.6%
>20	59,726,050,000	41,846,315,049	17,879,734,951	29.9%
Total	350,610,532,500	251,240,592,350	99,369,940,150	28.3%

Fed Profits

This gets a little more interesting, a little more quickly.

The Fed buys bonds at a certain price and yield. They lock that price/yield in and then use accrual accounting. So, if they paid 101 for a bond with a 1.5% coupon that matures in a year (call it a 0.5% yield), they would accrue coupon income at 1.5% (while depreciating the bond by 1%) to get a net gain of 0.5%. This occurs on a daily basis.

So, to know the Fed profits and losses we would need to know their purchase dates, prices, and yields. I haven't gone that far, but we can make a few simple assumptions that will get us some of the way.

The Fed built up their portfolio when bond yields were much lower (the 10-year Treasury yielded <1% for all of 2020 once they started buying in March). In 2022, the average yield was more like 1.5%.

The Fed is sitting on low coupon bonds at big losses (if they were marked-to-market).

	Total	Non Fed	Fed
Coupon	2.0%	1.9%	2.2%
Price	92.60	92.23	93.66
Yield	4.0%	3.9%	4.0%
Years to Maturity	7.61	7.31	8.48

I would be shocked if the average purchase price paid by the Fed wasn't above par (given the 2.2% average coupon they hold – though some would have been bought at higher yields under previous implementations of QE and Operation Twist).

Let's say their average yield was 2.2%. This is the "book yield" that they are accruing, which I think we will be able to debunk once I dig into their purchase history in more detail (but that is a job for another day).

They will be funding themselves at 4.65% after today.

They are bleeding 2.45% (4.65% - 2.2%) on $4.6 trillion of debt, which is an annual loss of $112 billion. However, it will actually be less because $800 billion of bonds with the lowest coupon and presumably lowest average yield will be gone by the end of the year if they keep up with QT.

That is a loss that will get fed into the annual budget deficit because Congress will have to "pay" to make it whole. However, it might not be the full amount this year given all the profits that the Fed has contributed and there may be some reserves or other things. These losses will be funneled to the taxpayer (just like the profits were). However, while no one in D.C. went out of their way to point out how much we benefited from QE, I suspect some politicians will latch onto this now and (unfortunately) we have a mainstream media that might salivate at the headlines (as one-sided as they would be).

If I'm correct and their average price was above par (seems easy, but will do more work on it), then the Fed is sitting on around $300 billion of mark-to-market losses (these will bleed in over time, as their book unwinds via accrual accounting).

Does that give them and the Treasury the opportunity to do some bond trading (Operation Reverse Twist or something) to help push the debt ceiling deadline down the road?

Bottom Line

The cost of debt service will gradually rise. The Fed's balance sheet has losses baked in, but that may create some optionality when dealing with the debt ceiling (though it seems likely to become a political hot potato in this environment).

Anyways, we will build out the details in the coming days and weeks because there is a lot to be concerned about, including listening to fact-less fearmongering 😊 (which, at least in this case, I'm not a part of).

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