



Wealth Inequality and Yield Curve Inversion: Why We Need Faster Quantitative Tightening

By Tao Pan, Alberto Gallo, Aditya Aney

Abstract

Core inflation rates across developed market economies remain sticky despite steep rate hikes since last year. In our view, central banks so far have only focused on raising short-end base rates, while keeping long-end yields too low without reversing quantitative easing. In this paper we simulate the impact on net household wealth from shocks to short-end base rates vs long-end yields across US income groups. Our analysis shows that higher base rates with inverted yield curves hurt lower income groups more while leaving top income groups unscathed, hence exacerbating wealth inequality and softening the impact of monetary tightening. Our findings suggest that central banks need to combine higher base rates with steeper yield curves through faster quantitative tightening to more effectively and equitably bring inflation back down to target.



“Central banks are divided in four categories: the bad ones, like the Federal Reserve; the very bad ones, like the ones in Latin America; the horribly bad ones; and the Central Bank of Argentina.”

- Javier Milei, Argentine Presidential Candidate, August 2023

The Fed will host its annual policy symposium in [Jackson Hole](#) this week. Titled “Structural Shifts in the Global Economy”, this year’s symposium takes place after central bankers globally delivered some of the fastest rate hikes in history to fight inflation – a vast policy shift from the previous decade. Yet after over 500bp of hikes by the Fed and over 400bp of hikes by the ECB, the economy and labour markets remain solid, while inflation stays stubbornly above target.

Why haven’t rate hikes worked?

Central bankers’ answer to the question is that monetary policy affects economic activity with long and variable lags. In other words, it is a matter of time to see much of the tightening to come into effect. As Chair Powell put it at the [June FOMC meeting](#), the Fed has moved much closer to the destination of “sufficiently restrictive rate”, with the focus now being additional policy firming.

However, what central bankers are not recognising is that this is not just a matter of policy transmission time. It’s also about the transmission mechanism itself.

Despite fast and large hikes in base rates, balance sheets of major developed market central banks stand inflated at \$24tn – well above the pre-Covid level and likely to remain so for a long time at the current monthly reduction pace of \$95bn by the Fed and around €25bn by the ECB. As a result, yield curves stay inverted and risk assets remain at record highs. If long-term yields are only barely above long-term inflation expectations, investors are not encouraged to switch out of risky assets.

At the same time, large firms and wealthy mortgage borrowers can continue to borrow at lower long-term yields while investing their cash at higher short-end rates. As shown by Goldman Sachs research, most mortgages in the US are set below the Fed Funds rate.

In contrast, lower-earning and asset-poor households are bearing a disproportionate burden, as elevated inflation erodes their purchasing power and short-term consumer credit becomes increasingly expensive.

In our view, this is the missing piece for normalising financial conditions: an extremely inverted yield curve moderates the impact of higher base rates on asset valuations and leads to uneven tightening across income groups.

In this analysis, we simulate the distributional effects of yield curve changes induced by monetary policies and argue that central banks are doing only half of their job by focusing on raising short-end base rates. To rein in inflation effectively and equitably, they need to combine higher base rates with balance sheet reduction.

In other words, central bankers at Jackson Hole should shift their attention to the so far under-utilised policy tool – faster quantitative tightening.

Distributional Effects of Monetary Policy

The literature has identified various channels for distributional effects of monetary policy given household heterogeneities, with the most important ones being the income channel and the wealth channel (Bonifacio et al., 2021).

Income Channel: Households have different primary sources and levels of income. For example, wealthier households tend to receive a larger share of income from interest and dividends, which are generally more responsive to monetary policy than wages. In addition, variation in interest expenses would lead to different changes to disposable incomes.

Wealth Channel: Households differ in their levels of wealth, as well as the composition of their balance sheets. On the asset side, valuations of different assets (properties, bonds, equities) react differently to changes in short-end vs long-end rates. On the liability side, different debt mix means rate changes could lead to uneven changes in debt service costs and loan balances.



Source: Bloomberg, Goldman Sachs Global Investment Research. *PMMS: Freddie Mac Primary Mortgage Market Survey US 30-Year Fixed Mortgage Rate.

Simulation of Impact of Rate Shocks on Household Wealth Distribution

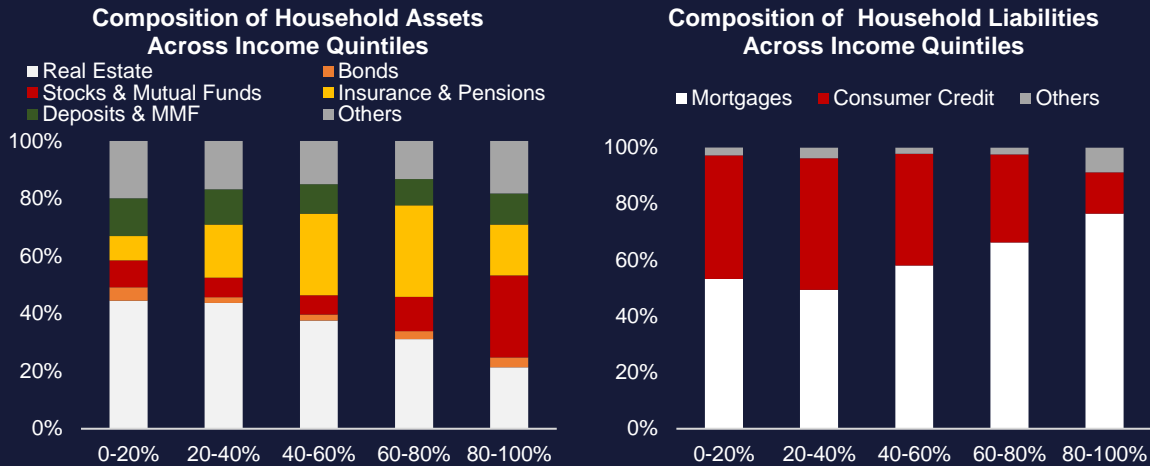
Economic models used by central banks often assume high substitutability between policy rate hikes and balance sheet reductions in driving economic activities. However, in reality the shape of the yield curve matters in monetary policy transmission.

To illustrate the distributional effects of yield curve changes, we simulate the impact of different shocks to short-end vs long-end rates on net household wealth across US income groups through the income and wealth channels.

We use household balance sheet data from the US Distributional Financial Accounts (DFA), which contains the level and composition of household wealth held by five percentile groups of income.

As shown below, the top 20% income group have a significantly higher share of their assets in financial assets like stocks and mutual funds. In contrast, the bottom income groups have a larger share of assets in real estate.

On the liability side, the top income group's debt is concentrated in mortgages, while the bottom income groups have a much higher percentage of debt in consumer credit, which generally has much shorter duration.

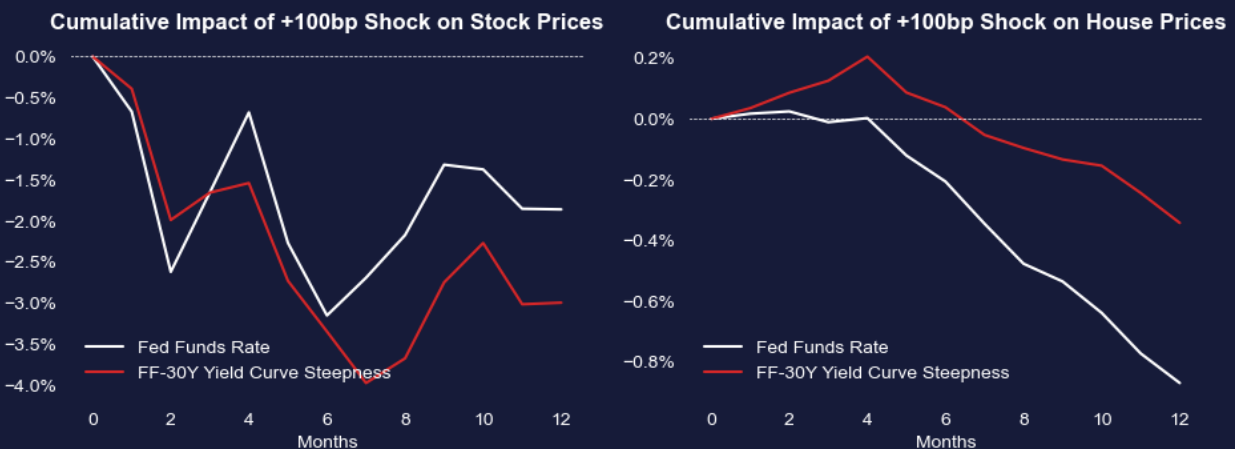


Source: The Distributional Financial Accounts of the United States (DFA) Q1 2023

In our simulations, we assume that policymakers have control over the shape of the yield curve with specific targets for the short-end and long-end rates in each policy setting.

For the income channel, we assume that interest rates on consumer credit are influenced by short-end base rates with immediate resets. We assume that mortgage rates are influenced by long-end rates, with resets on 10% of outstanding mortgages every year. In addition, we assume households earn interest income on their money market fund holdings at the short-end rates.

For the wealth channel, we use a vector auto-regression (VAR) model to estimate the cumulative impulse response of stock prices and house prices to shocks to short-end base rates and yield curve steepness. We assume a duration of 7.5 years for households' bond holdings, and a 60:40 equity-to-bond mix for their mutual fund holdings.



Source: FRED, Bloomberg

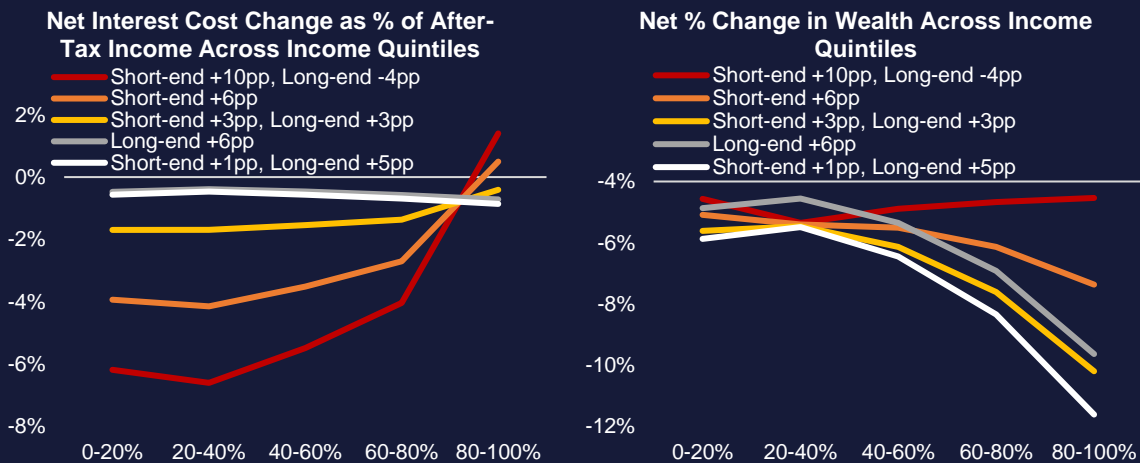
Our simulation results show that in general higher base rates would disproportionately hurt lower income groups more, while higher long-end rates would hurt the top income group more. In other words, increasing yield curve inversion exacerbates wealth inequality, with the lowest income group bearing most of the pain from policy tightening and the middle-class also being squeezed.

			Share of Wealth by Income Quintiles					
	Short-end rate rise	Long-end rate rise	Change to Yield Curve Steepness	0-20%	20-40%	40-60%	60-80%	80-100%
Only raising short-end rates	1%	0%	-1%	2.64%	3.66%	7.26%	14.95%	71.50%
	2%	0%	-2%	2.64%	3.67%	7.28%	14.97%	71.44%
	3%	0%	-3%	2.65%	3.68%	7.29%	14.99%	71.38%
	4%	0%	-4%	2.66%	3.69%	7.31%	15.02%	71.33%
	5%	0%	-5%	2.66%	3.70%	7.33%	15.04%	71.27%
	6%	0%	-6%	2.67%	3.70%	7.35%	15.07%	71.21%
Only raising long-end rates	0%	1%	1%	2.65%	3.68%	7.29%	14.98%	71.40%
	0%	2%	2%	2.67%	3.71%	7.34%	15.04%	71.25%
	0%	3%	3%	2.69%	3.74%	7.39%	15.09%	71.09%
	0%	4%	4%	2.71%	3.77%	7.44%	15.15%	70.92%
	0%	5%	5%	2.72%	3.81%	7.50%	15.22%	70.75%
	0%	6%	6%	2.75%	3.84%	7.56%	15.28%	70.57%
Yield curve shape targeting	1%	5%	4%	2.73%	3.82%	7.52%	15.24%	70.68%
	2%	4%	2%	2.72%	3.79%	7.49%	15.21%	70.79%
	3%	3%	0%	2.71%	3.77%	7.45%	15.17%	70.90%
	4%	2%	-2%	2.69%	3.75%	7.42%	15.14%	71.00%
	5%	1%	-4%	2.68%	3.73%	7.39%	15.10%	71.10%
	6%	0%	-6%	2.67%	3.70%	7.35%	15.07%	71.21%
	7%	-1%	-8%	2.66%	3.68%	7.32%	15.03%	71.31%
	8%	-2%	-10%	2.65%	3.66%	7.29%	15.00%	71.41%
	9%	-3%	-12%	2.63%	3.64%	7.26%	14.97%	71.50%
	10%	-4%	-14%	2.62%	3.62%	7.23%	14.93%	71.60%
Current Wealth Share				2.95%	3.82%	7.23%	14.74%	71.25%

Source: BLS Consumer Expenditure Surveys 2021, DFA Q1 2023, FRED, Bloomberg

Looking at the specific drivers, it can be seen below that higher short-end base rates would disproportionately increase interest expenses for lower income groups given their higher exposure to short-term borrowing. In contrast, higher income groups are relatively shielded from short-end rate hikes as mortgage rates take much longer to reset and they have more idle cash in money market funds, making it a perfect carry trade when the yield curve is inverted.

Most importantly, financial asset valuations are more sensitive to changes in long-end rates. When short-end rates are high while long-end yields are low, the top income groups remain largely unscathed. Only with higher long-end yields and steeper curves do they start to feel the pinch of monetary tightening on their large financial asset holdings.



Source: BLS Consumer Expenditure Surveys 2021, DFA Q1 2023, FRED, Bloomberg



Conclusions

At last year's Jackson Hole symposium, Chair Powell said the Fed will "keep at it until the job is done". One year on, the central bank has stuck to the promise and delivered more rate hikes than markets had expected, yet core inflation is still well above target and at the risk of reacceleration.

What have central bankers missed in their fight against inflation?

In a recent paper, the NY Fed argues r^* has shifted higher, and that despite over 500bp of hikes, "the drag on the economy from recent monetary policy tightening may have been limited". What the Fed researchers did not consider, however, is what the Fed has not done: balance sheet reduction. Compared to other developed market central banks, the Fed has cut its balance sheet less from its peak by -9% vs -19% by the ECB (inc. TLTRO repayments) and -14% by the BoE.

We show that quantitative tightening and higher rates in the long part of the yield curve are as important, if not more important, than higher short-end base rates, for policy normalisation.

We also show that increasing short-end rates alone can lead to wealth distortions, widening the gap between the wealthiest and the middle class, in turn making the economy more unequal, and eroding central bank credibility.

Put differently, to reduce inflation and normalise policy, the US economy needs not only higher policy rates for longer, but a less inverted yield curve too.

This means the central bankers' job is far from done.

Eventually, the choice might be between price stability and financial stability. Quantitative tightening and higher long-term yields will likely lead to a rise in financial volatility and a repricing of public as well as private risk assets.

But some financial volatility might be the necessary price to pay, to prevent entrenched inflation.



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