US Rates Watch

Rates dynamic vs neutral rate expectations

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The neutral rate of interest has risen…

We estimate that the real neutral policy rate (r*) has risen, but only modestly so to 40bp presently. Our framework for estimating the neutral policy rate relates changes in r* to changes in potential growth. We find that potential growth in the US has risen to 2.2% currently, up from 1.7% prior to the pandemic. Altogether, these results suggest that the US has indeed entered a higher interest rate environment.

…but its rise may be temporary

That said, the entirety of the improvement in potential growth comes from hours worked while productivity (output per hour) has remained unchanged. Demographics will likely reassert itself in coming years, returning participation rates toward their longer run trend, though how quickly this happens remains an open question.

If the post-pandemic surge in participation proves relatively short lived and productivity does not accelerate, then potential growth could slow, meaning any rise in the neutral rate of interest in the US economy is likely to prove temporary. If so, then the terminal policy rate at the end of any upcoming easing cycle could very well be lower than the Fed is currently projecting (2.9% as of December 2023).

Rates dynamic and neutral expectations

The magnitude of the repricing of neutral rate expectations we see reflected in the recent dynamic of rates and curve (c.75-125bp in real terms) is higher than our economists' 40bp estimate for the move. This suggests: (1) scope for more significant policy easing vs current market expectation, even in the context of soft-landing scenarios where the Fed is only expected to normalize policy back to the neutral; and (2) a downside skew in the balance of risks for USTs broadly, and our 4.25% forecast for 10yT at end '24 in particular.

Positioning implications

The potential for a repricing of the neutral lower supports trading the recent range in yields with a bullish bias (i.e., buying on dips into levels c.4.25-4.5% for 10yT) and 3y1y receiver spreads atm/atm-50bp. On the curve, a repricing of the neutral as the Fed delivers cuts may limit the bull steepening potential that is generally a hallmark of policy easing.

For a complete list of our open trade recommendations, as well as our trade recommendations closed over the past 12 months, please see our latest Global Rates Weekly.

Refer to important disclosures on page 9 to 10. Analyst Certification on page 8. 12651672

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A higher US interest rate regime?

In a recently released research report, BofA's US Economics Research team investigated to what degree the US economy has moved into a new regime of higher interest rates (see Structurally higher US interest rates? Think again). We think a number of forces could justify a higher interest rate environment, including reopening forces following the pandemic, large and persistent fiscal deficits, and capital deepening related to reshoring which could boost productivity growth.

To address the question of whether the US is transitioning to a structurally higher neutral rate of interest, we form estimates of important – but unobservable – variables of interest including the neutral policy rate (r*)[1], potential GDP (Y*) and its components, the natural rate of unemployment (U*), and the output gap (Y-Y*). These so-called "star variables" are estimated using a multivariate approach that translates observable data on inflation, activity, labor markets, and interest rates into cycle and trend components. For those interested in the details of the framework, please see the appendix to our previously published report. In what follows we present the main conclusions of the exercise and what they mean for our outlook for monetary policy and interest rates.

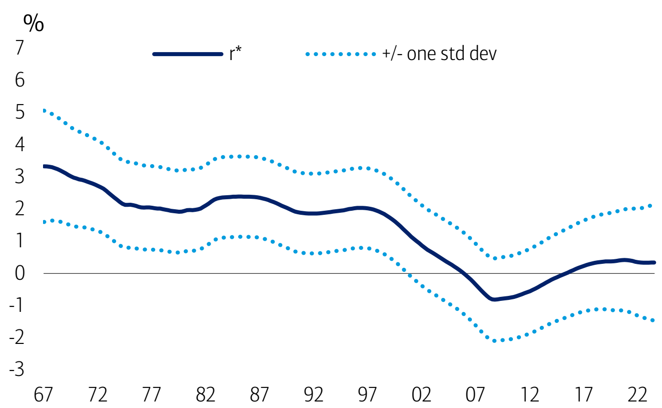
The neutral rate of interest has risen

We find that the neutral real rate of interest in the US economy has risen and estimate it at around 40bp currently. This is true for both our one-sided estimate, which uses only historical data to estimate the current neutral real policy rate, and the two-sided estimate, that uses past and future data to estimate the current neutral real policy rate.[2] We present both estimates in Exhibit 1 and Exhibit 2.

Several stylized facts emerge from the estimates:

- **The neutral rate has declined over time.** The neutral rate of interest has been in a structural downtrend until recently, which has been linked to the slowdown in potential growth in prior decades.

Exhibit 1: Two-sided estimate of the neutral real federal funds rate (%)
The neutral real rate of interest has risen back into positive territory, but remains below levels observed in prior decades



Source: BofA Global Research

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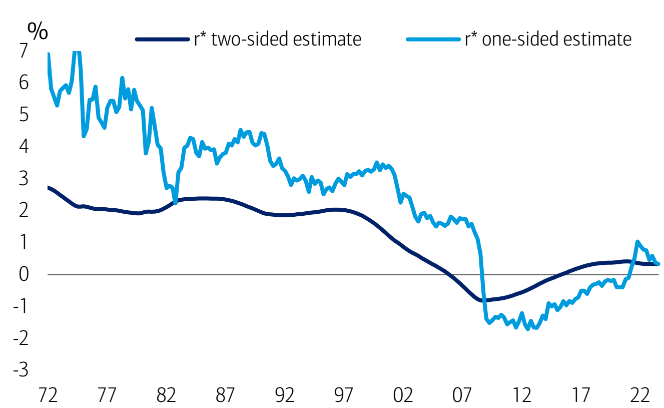
Exhibit 2: One- and two-sided estimates of the neutral real federal funds rate (%)
Both estimates of the neutral rate of interest have risen



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[1] The neutral rate policy rate is defined as the federal funds rate that would prevail when the economy is at full employment and is neutral with respect to economic activity. When the federal funds rate is at neutral, it would neither support nor restrain growth in economic activity.
[2] The advantage of the two-sided estimate is that using past and future date to estimate the current neutral real policy rate increases the amount of data used to form any one estimate and it results in a smoother estimate. The advantage of the one-sided estimation process is that it is more volatile (e.g., flexible) and can pick up regime shifts better, as indicated by the sharp drop in the real policy rate during the global financial crisis and the rapid rise in the real policy rate at the onset of the COVID-19 pandemic.

- **The neutral rate turned negative during the financial crisis.** The second stylized fact is the sharp decline in the neutral rate of interest following the 2008-09 financial crisis, when the two-sided estimate fell to around -1.0% and the one-sided estimate closer to -1.5%.
- **The neutral rate rose as the economy healed after the financial crisis.** As the US economy healed following the global financial crisis, both one- and two-sided estimates of the neutral rate of interest gradually rose, though neutral rates remained in negative territory for quite some time.
- **The COVID pandemic also boosted the natural rate of interest.** The one-sided estimate shows behavior consistent with short-term re-opening effects, with the estimate of the neutral rate rising to 1.0% in 4Q21 before falling back to about 40bp currently. The two-sided estimate displays less volatility since it can "see" into the future when estimating where the neutral rate of interest is today.

That said, we think the wide confidence intervals around any estimate of the neutral rate of interest suggest any point estimate should be taken with a grain of salt. As we show in Exhibit 1, the one-standard deviation confidence interval ranges from about -1.5% to 2.5%. The two-standard deviation band is even wider. Hence, while we report the point estimate of the model output at 40bp, we also note the wide confidence interval around this point estimate suggests the output should be interpreted with caution. Notwithstanding this caveat, it seems clear that the neutral rate of interest has risen. To what and whether the rise is permanent remain important questions.

Hours worked drive improvement in potential growth

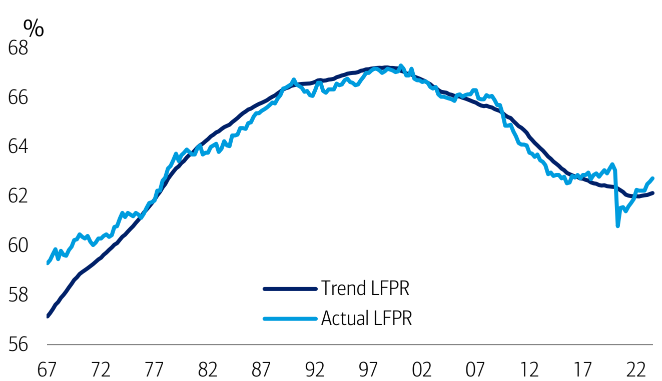
In our multivariate framework, changes in the neutral rate of interest are positively related to changes in potential growth. In addition, the gap between the policy rate and the neutral rate is related to the evolution of the output gap. Hence, if our framework suggests that the neutral policy rate has risen, the framework must also be suggesting that potential growth has risen.

We do find this to be the case. Our framework imposes the structural relationship that

*Potential output = Trend total hours worked * Trend productivity per hour*

where the trend in total hours worked is made up of trend employment and the work week. While our long-term view in the US is one of potential growth weighed down by population ageing – a trend that has been in place for several decades – the post-COVID period has proven an exception to this trend. After averaging 1.7% in the years prior to the pandemic, the model estimates that potential growth has risen to 2.2% presently, or 50bp above its pre-pandemic average.

Exhibit 3: Trend LFPR versus actual (%)
Actual participation has overshot its longer-run demographic trend



Source: BEA, Haver Analytics, BofA Global Research

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Exhibit 4: Output per hour (%, annual rate)
Productivity growth has remained fairly stable since the financial crisis

Source: BEA, Haver Analytics, BofA Global Research

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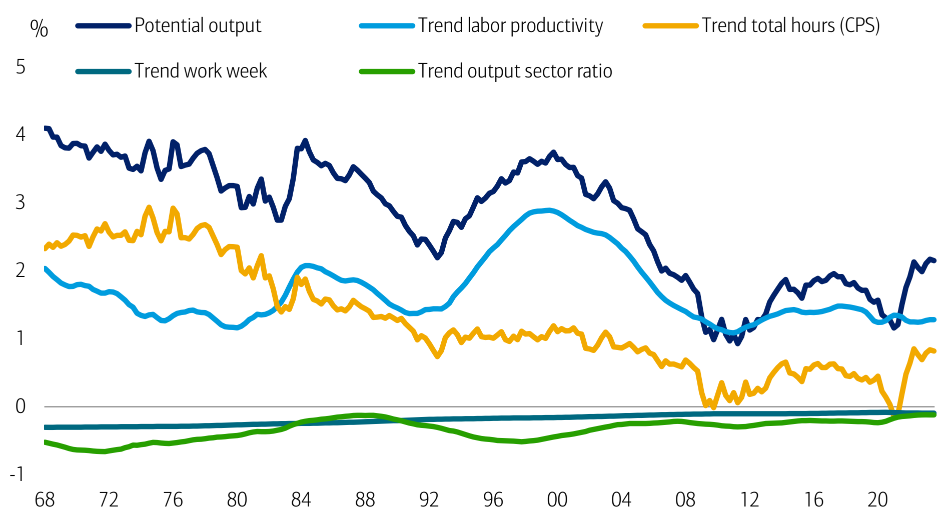
That said, the entirety of the improvement in potential growth comes from hours worked while productivity (output per hour) has remained unchanged. At 0.8% as of 3Q23, the growth rate of total hours is running at twice its average pace from 2010-19. Much of this comes from an estimated improvement in the trend participation rate (Exhibit 3), which subtracted 0.3pp and 0.4pp, respectively, from potential growth between 2000 and 2019. Participation is now estimated to add 0.1pp presently, a 0.5pp improvement.

The rebound in participation rates among prime aged workers (25-54y olds) – and participation among women in particular – is the main feature of this story. In addition, population growth has accelerated recently, which we see as related to the rebound in immigration flows following the pandemic.

In contrast, the trend rate of growth in labor productivity is currently running at 1.3%, in line with its average in the post-financial crisis period (Exhibit 4). In addition to the fading of the tech boom of the 1990s, the US has been in an ongoing transition from a goods-producing economy to a services-providing economy over many decades. With services-providing sectors associated with more part-time employment, a shorter average work week, and lower productivity, this would tend to reduce potential output. All told, productivity growth in the non-farm sector slowed from an average of about 2.0% per year in the two decades from 1990 to 2009 – with a peak of 3.0% in the mid-1990s – to about 1.3% since 2010.

Exhibit 5: Potential growth and its component parts (%, annual rate)
The recent pickup in potential growth has been driven solely by an improvement in trend hours worked



Source: BofA Global Research

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Higher neutral rates may be temporary

The source of the improvement in potential growth leaves us concerned about the sustainability of the acceleration in trend growth and, in turn, the sustainability of the rise in the real neutral rate of interest. Demographics will likely reassert itself in coming years, returning participation rates toward their longer run trend, though how quickly this happens remains an open question. We think participation can remain elevated in 2024, but the state of the business cycle will be an important driver of labor market outcomes. While the rebound in labor force participation is unquestionably good news on a number of fronts, we suspect the improvement is likely to be short-lived.

We remain fully open to the prospect of faster growth in productivity in coming years, but, for now, the behavior of total hours points more to temporary changes in potential output and neutral policy rates as opposed to permanent ones.

Warning: The terminal rate could be lower than expected

Our findings have important implications for monetary policy. Among these are:

- **A lower terminal rate in any easing cycle.** As of December, the Fed's estimate of the longer run neutral policy rate remained unchanged at 2.5%, while the median estimate of the 4Q26 policy rate was 2.9%. This suggests most policymakers think the real neutral policy rate will need to remain higher for longer to achieve the dual mandate. In other words, the Fed appears to be building in a prolonged period of higher neutral rates of interest that may be warranted.

- **A return of the zero lower bound.** The modest rise in the neutral rate of interest likely has not ruled out zero lower bound episodes going forward. If the neutral rate is drifting lower in coming years, then the probability of hitting the zero lower bound in any easing cycle will only increase.

- **The market may get the cuts it wants, but some of them may come later.** If the terminal rate is declining over time, some of the cuts the market has frontloaded in the forthcoming easing cycle could ultimately be delivered later in 2025 or early 2026. It will likely take time for the Fed to internalize what is happening to the neutral rate of interest and they will be reluctant to prejudge any outcome. Hence, the market may get what it wants, but later than it expects.

In addition to having important implications for monetary policy, we believe our findings have important implications for our outlook in rates markets, which we discuss in further detail below.

Rates dynamic and neutral expectations

The dynamic of risk-free rates offers some clues as to the evolution of market consensus around the neutral rate view. Broadly we believe the market may be overestimating the magnitude of the potential move in the neutral. Below we discuss some of the metrics that can be used to gauge the market consensus.

3y1y forward OIS rate as a proxy for the neutral

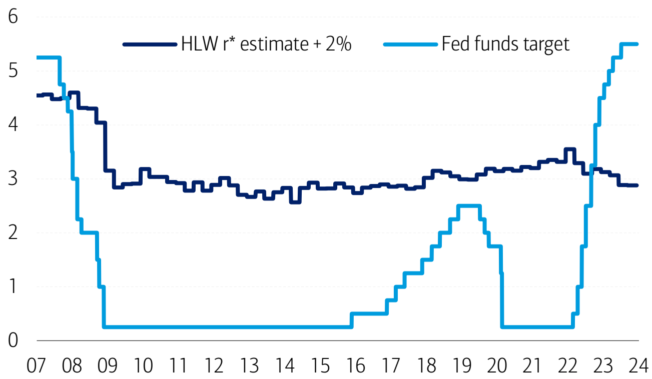
Market participants tend to use the dynamic of 3y1y forward rates as a gauge for the broader market consensus around neutral rate expectations. This bias is predicated on the view that at c.3-5y forward (beyond the scope for Fed economic projections) the market should be relatively agnostic around the outlook. With little to support expectations for the Fed to be in either easy or tight territory vs. the neutral at those horizons, the market is likely to price 3y1y OIS fwds closer to neutral rate view.

In support of this view, we compare in Exhibit 6 and Exhibit 7 nominal r* and 3y1y fwds to the Fed funds target. We note that: (1) at the end of the 2004-06 tightening cycle the Fed's view for nominal r* was c.4.5% while 3y1y fwds traded c.4.75%; (2) over most of the last cycle the Fed saw nominal r* c.2.5-3% while 3y1y rates peaked at c.2.75-3% (particularly in the second and third mini-cycles – see Mini-cycle vs. end-cycle); (3) post-covid, as the economy bounced back from the recession, 3y1y rates converged quickly to levels c.2.5-3% even as the Fed was only starting to lift off front-end rates (the average of the longer run Fed dots – a proxy for nominal r* – is at the lower end of this range, while current nominal r* estimates sit around the middle of the range – Exhibit 6).

The recent dynamic in US rates that saw 3y1y OIS fwds reach a peak c.4.3-4.4% is interesting in the context of the assumption above. Indeed, we think this move reflected a decoupling of 3y1y fwds to neutral rate expectations as the market consensus moved away from soft landing scenarios early in the summer of 2023 towards no landing scenarios later in the summer and a higher for longer Fed stance (which we recommended fading in Nibble at 5% (see report)). The recoupling of market expectations to soft landing scenarios in recent months drove 3y1y OIS forwards back towards the neutral view, with current levels c.3.25%.

Exhibit 6: Fed funds target vs HLW estimate for real r* + 2%

Fed sets policy rates around the view for the nominal neutral, overshooting the neutral late in the cycle, and cutting through the neutral in recessions



Source: BofA Global Research; Bloomberg

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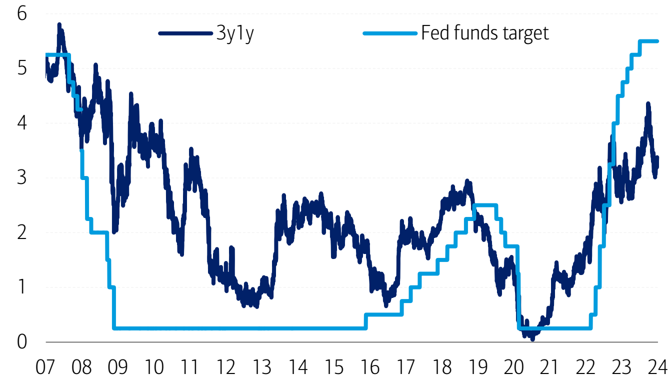
Exhibit 7: Fed funds target vs 3y1y OIS forwards

3y1y forwards overestimate neutral expectations when the market prices higher no-landing probabilities. 3y1y now c.3%



Source: BofA Global Research; Bloomberg

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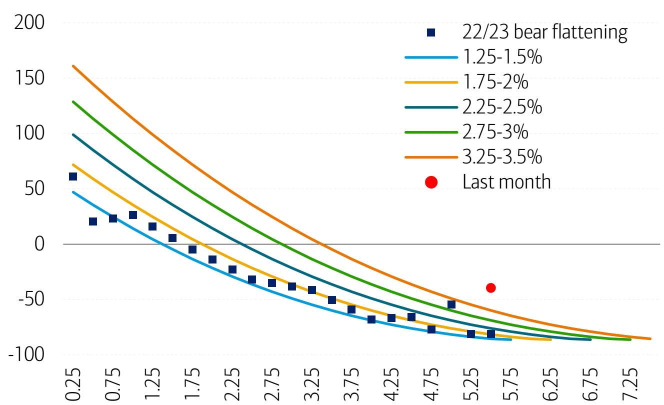
Inferring the neutral rate view from the curve dynamic

The curve dynamic also offers a view for the market consensus around the neutral rate, particularly over Fed easing and tightening periods. In tightening cycles, the 2s10s curve is expected to bear flatten to flat levels as the Fed is priced to overshoot the neutral. In easing cycles, the 2s10s curve is expected to bull steepen to positive levels as the Fed is priced to cut below the neutral. The bear flattening and bull steepening dynamics for the curve over Fed tightening and easing cycles, respectively, are therefore expected to show significant contingency on the market view for the neutral.

In [The curve dynamic & the neutral rate](#) (see report) we used historical data for the 2s10s curve dynamic to produce these expectations for the bear-flattening and bull-steepening trajectories contingent on the different views for the neutral rate (Exhibit 8 & Exhibit 9, respectively).

Exhibit 8: 2s10s bear flattening trajectories vs the neutral rate view

Bear flattening trajectory over the recent policy tightening consistent with a neutral rate view closer to 2%, with a recent re-set of expectations



Source: BofA Global Research

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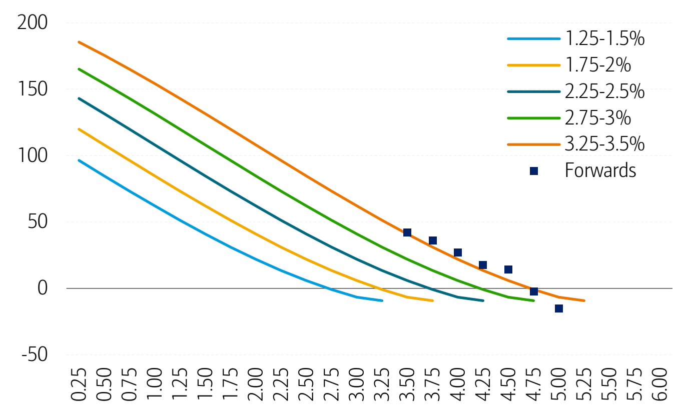
Exhibit 9: 2s10s bull steepening trajectories vs the neutral rate view

Bull steepening potential priced in forwards (2s10s UST forwards vs 3m OIS fwds) consistent with a neutral rate view c. 3%



Source: BofA Global research

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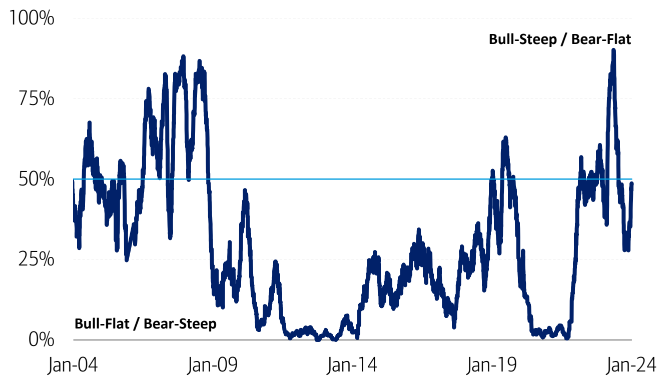
We note that the 2s10s bear flattening trajectory over most of the recent Fed tightening cycle (1Q22-3Q23) seems to reflect neutral rate expectations around 2% (Exhibit 8), although it is also clear that there was a re-set of expectations over the summer (red circle). More significantly, as the market shifts expectations towards cuts near term, current UST and OIS forwards seem to be pricing a bull steepening trajectory consistent with neutral rate expectations c.3.25% (Exhibit 9).

Neutral rate vs front-end degrees of freedom and volatility

Higher neutral rate expectations also imply higher degrees of freedom for the front end of the curve. A metric for the frequency of moves for the 2s10s curve that is driven by the front-end indeed suggests a higher degree of freedom for the front-end of the curve post-covid (Exhibit 10), likely reflecting these higher neutral rate expectations.

Exhibit 10: 2s10s curve directionality suggests higher degrees of freedom for the front-end post covid

Higher frequency of bull-steepening / bear-flattening moves likely reflects higher neutral rate expectations



Source: BofA Global Research

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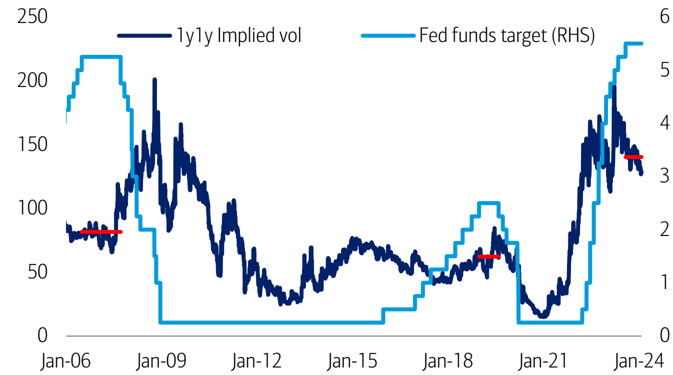
Exhibit 11: Implied 1y1y vol (currently c.130bp) vs Fed funds

Implied vol levels at the left side of the grid (tied to uncertainty around Fed policy) have sustained relatively high levels vs sub-100bp over recent periods with a Fed on-hold at the peak of tightening (in '06-07 and '18-19 – red)



Source: BofA Global Research, Bloomberg

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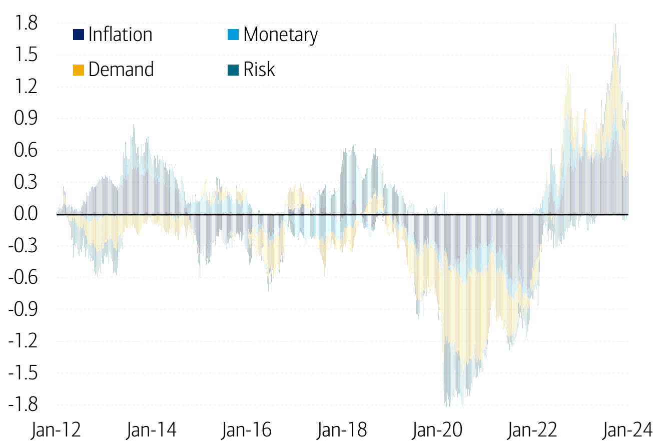
Higher degrees of freedom at the frontend of the curve are likely one of the drivers of the support for left side volatility (tied to uncertainty around Fed policy) which has sustained relatively high levels recently versus recent periods of on-hold Fed policy at the peak of tightening (which generally sees 1y1y vol sub-100bp – Exhibit 11).

The steady state for 10yT vs neutral expectations

Finally, a reset of neutral rate expectations is likely also reflected in the recent increase of the steady state for 10yT. We measure this steady state in the context of our decomposition for the 10yT dynamic as a function of inflation, monetary policy, demand, and risk shocks (see [A hitchhikers guide to RV on the UST curve] and Exhibit 12). We see an increase of the 10yT steady state from c.2% for calibrations over 10y windows in the pre-covid period, to c.2.75-3% currently as calibrations reflect the post-covid dynamic.

Exhibit 12: Decomposition of the 10yT dynamic

Monetary policy c.0bp, Risk c.10bp; Inflation c.40bp & Demand c.60bp



Source: BofA Global Research

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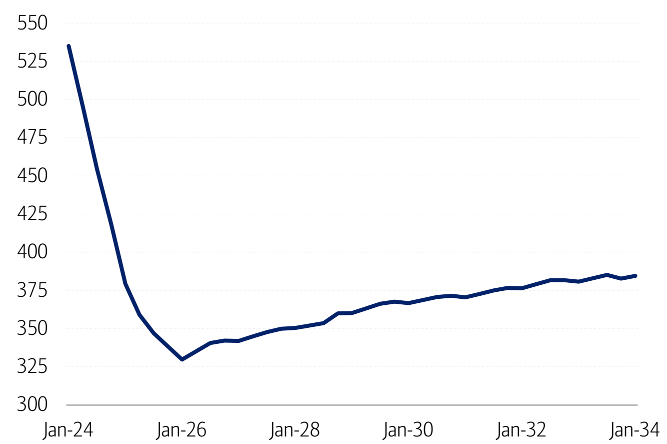
Exhibit 13: Fed policy trajectory currently priced in

Market pricing policy through c.3.25% in late '25/early '26



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Market implications

On the net, the view that comes out of these different approaches is that the recent dynamic of rates and curve is reflecting a moderate repricing of neutral rate expectations from the last cycle to c2.75-3.25% currently (or c.75-125bp in real terms), with the bias likely skewed towards the top half of the range. This view is supported by: (1) the recent dynamic of OIS forwards in the belly of the curve; (2) the bear-flattening dynamic of the 2s10s curve over the recent Fed tightening, (3) the bull- steepening dynamic priced in 2s10s UST curve forwards and 3m OIS forwards; (4) a re-set of the degrees of freedom at the frontend of the curve post-covid; (5) higher levels of volatility on the left side of the grid relative to recent periods of an on-hold Fed at the end of a tightening cycle; and (6) a higher steady state for the dynamic of 10yT yields.

The magnitude of the repricing of neutral rate expectations we see reflected in the recent dynamic of rates and curve (c.75-125bp in real terms) is therefore higher than our economists 40bp estimate for the move. This suggests:

- Scope for more significant policy easing vs current market expectation (i.e., a potential repricing of the policy trough to levels c.2.5% from c.3.25% currently– Exhibit 13), even in the context of soft-landing scenarios where the Fed is only expected to normalize policy back to the neutral.
- A downside skew in the balance of risks for USTs broadly, and our 4.25% forecast for 10yT at end '24 in particular.

Positioning-wise, a potential repricing of the neutral lower supports trading the recent range in yields with a bullish bias (i.e., buying on dips into levels c.4.25-4.5% for 10yT) and 3y1y receiver spreads atm/atm-50bp (currently +4bp, with risks capped to the upfront premium – see Global Rates Vol in '24). The scope noted above for the recent upgrade of potential output to be temporary allows the expression of this bullish bias also in real rates curve. On the curve, a repricing of the neutral lower as the Fed delivers cuts may limit the bull steepening potential that is generally a hallmark of policy easing, as the markets resets the curve dynamic to a lower trajectory in Exhibit 9.

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