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SPECIAL REPORT

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Why R* May Have Risen

The neutral rate of interest, or R*, is defined as the interest rate that neither causes the economy to expand nor contract. It can also be thought of as a rate that equilibrates savings with desired investment. The neutral rate can be expressed in either nominal or real terms, and the only difference between the two is stable inflation.

In This Report

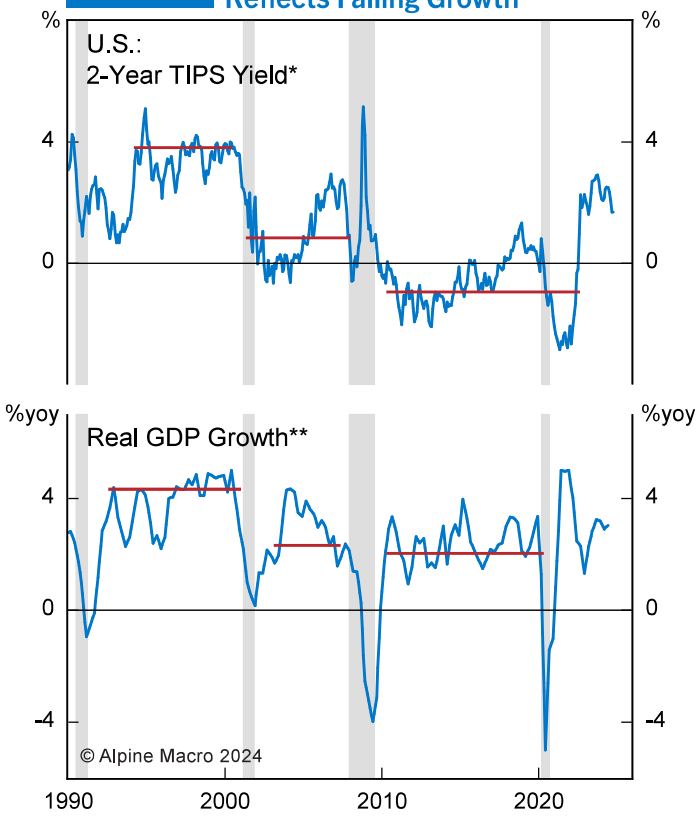
Determination Of The Neutral Rate

The neutral rate is neither directly measurable nor observable, but we all know that it exists. The only way we can approximate R* is by observing the so-called "revealed preference". For instance, when rates are too high and above the "choke point", the underlying economy starts to crack, the yield curve inverts, and stock prices fall apart. All of this often, but not always, signals a possible recession.

The neutral rate is also a dynamic concept, reflecting the constellation of various underlying economic forces. By and large, the higher the steady-state growth rate of an economy, the higher the R*. Since the 2000s, the neutral rate has clearly fallen, which is partially a reflection of the decline in the real economic growth rate (Chart 1).

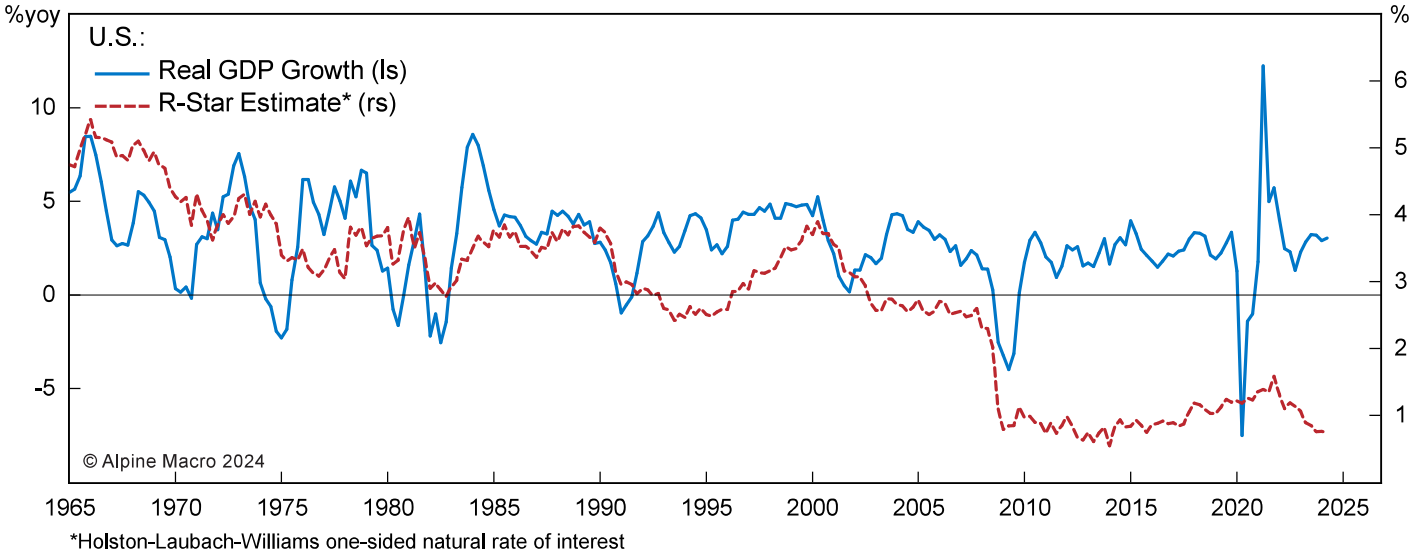
Nevertheless, we should not confuse R* with real economic growth: these two variables are intimately related but are different concepts. R* is the interest rate at which savings equal desired investment, while economic growth is the sum of labor force growth plus labor productivity. R* is impacted by

Chart 1 Falling Real Rate Partially Reflects Falling Growth



*Nominal 2-year Treasury yield deflated by CPI inflation prior to 1999
**Truncated at +/- 5
Note: Shading denotes U.S. recessions

Chart 2 R* And Economic Growth: Intimately Related, But Not The Same Concepts



*Holston-Laubach-Williams one-sided natural rate of interest

many factors other than economic growth and can be vastly different from the latter.

For example, R* was negative most of the time in the 2010s, but average GDP growth was 2.2%. Chart 2 shows how the New York Federal Reserve's estimate of R* has persistently deviated from GDP growth since the 1990s.

In an open economic system with full capital mobility, the volume of available savings around the world can affect R*. Simply put, a global saving glut depresses R* for all. Monetary policy is another major factor affecting the real rate – a central bank can move real interest rates, in either direction, aggressively to ensure full employment and price stability.

"Revealed Preference" Suggests A Rising R*

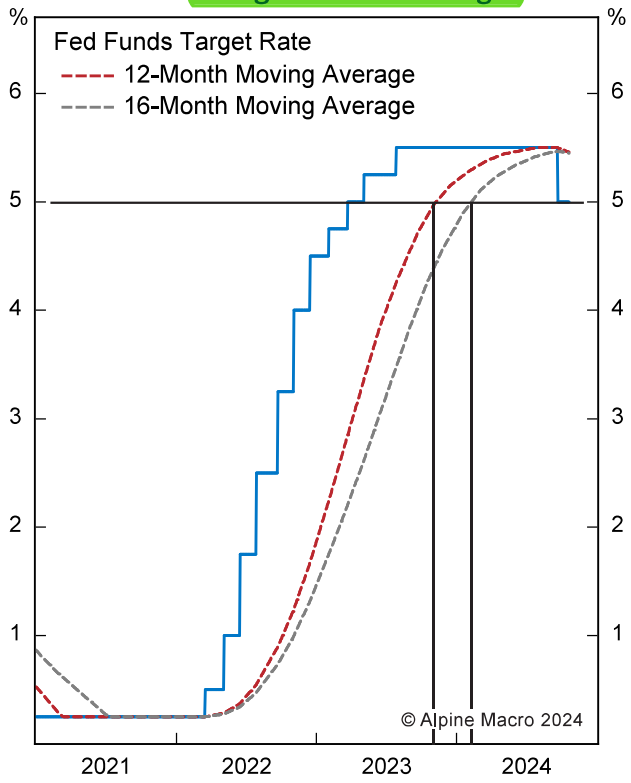
Our hunch is that the natural rate of interest in the U.S. has risen since the Covid-19 pandemic crisis and is meaningfully higher than it was in the 2010s. Why so? The answer is by observing the economy and financial market performance since 2022, when the Federal Reserve began to jack up rates aggressively.

A strengthening U.S. economy and a booming stock market suggest that the U.S. economy's ability to cope with rising rates is much stronger now than it was last decade. Some may argue that the economy is not yet out of the woods because monetary policy impacts the economy with "long and variable lags". The impact of higher rates can still bring the economy to its knees.

This is a fair argument, but we should take note that short rates reached the 5% threshold 19 months ago. Even assuming a 12-month time lag, the U.S. economy has been managing just fine with 5% short rates for about a year (Chart 3).

At present, GDP growth is still at 3% and the private sector has been producing jobs at a monthly rate of 220,000, which is slightly higher than the pre-pandemic average of 200,000. This is

Chart 3 Approximating "Long And Variable Lags"



not to mention that corporate profits are rising, consumer spending is robust, and stock prices are at record highs.

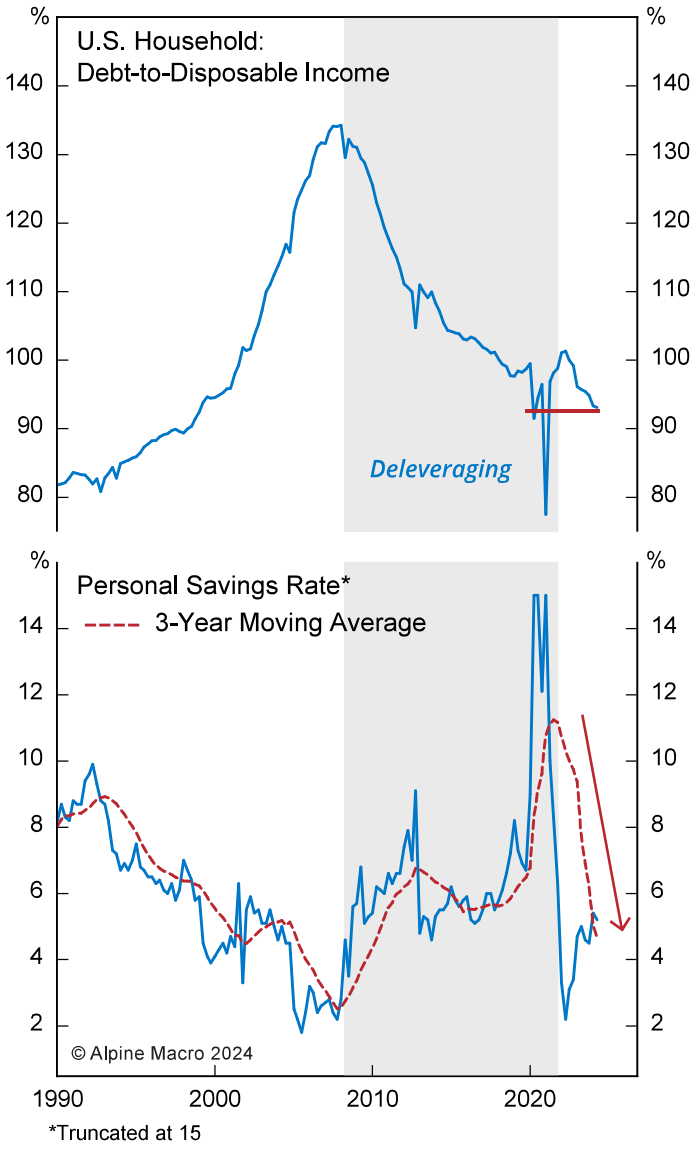
In short, nothing suggests that the current levels of short rates are choking off economic growth, and hence, a higher R* is possible.

What Has Changed?

The relevant question is, what has changed to move R* higher? We suspect the following developments have played a key role:

First, household deleveraging characterized the U.S. economy throughout the 2010s. This process prompted a sharp rise in the savings rate but a fall in desired investment. R* has collapsed as a result,

Chart 4 Deleveraging Is Done



*Truncated at 15

forcing the Fed to drive rates to zero to push the economy back to full employment.

However, this deleveraging process is done, with U.S. households' debt-to-disposable-income ratio having been cut down sharply (Chart 4). Importantly, U.S. household net worth has soared by $50 trillion since 2020, and U.S. consumers are more willing to spend than save at any other time since 2010. A lower savings rate means a higher R*, all else being equal.

Chart 5 Labor Productivity: A Post-Pandemic Surge

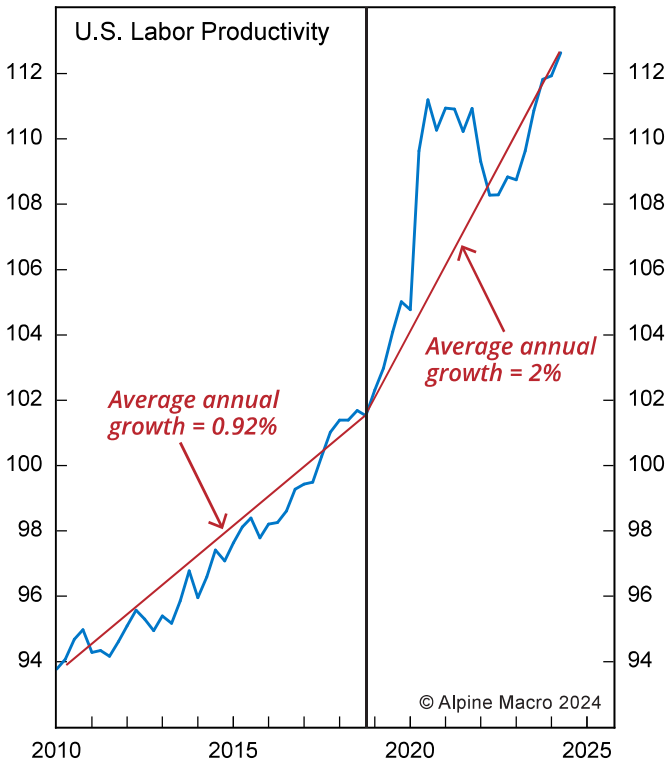
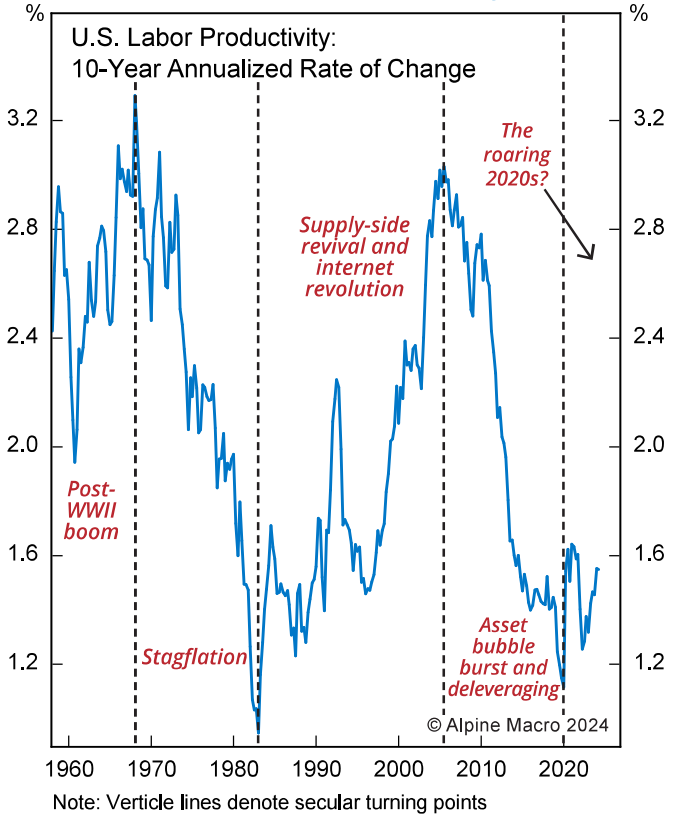


Chart 6 Secular Trend In U.S. Labor Productivity



Note: Verticle lines denote secular turning points

Second, labor productivity has more than doubled since the 2020 pandemic crisis, as evidenced in **Chart 5**. For example, labor productivity growth averaged 0.92% in the 2010s, while it has jumped to 2% since 2019.

Historically, it is not unusual to see a wave of rising labor productivity after major wars or pandemics. The end of the 1914-1918 influenza pandemic led to a roaring 1920s when new technologies like radio, telephone and penicillin were widely used, boosting labor productivity and generating enormous prosperity.

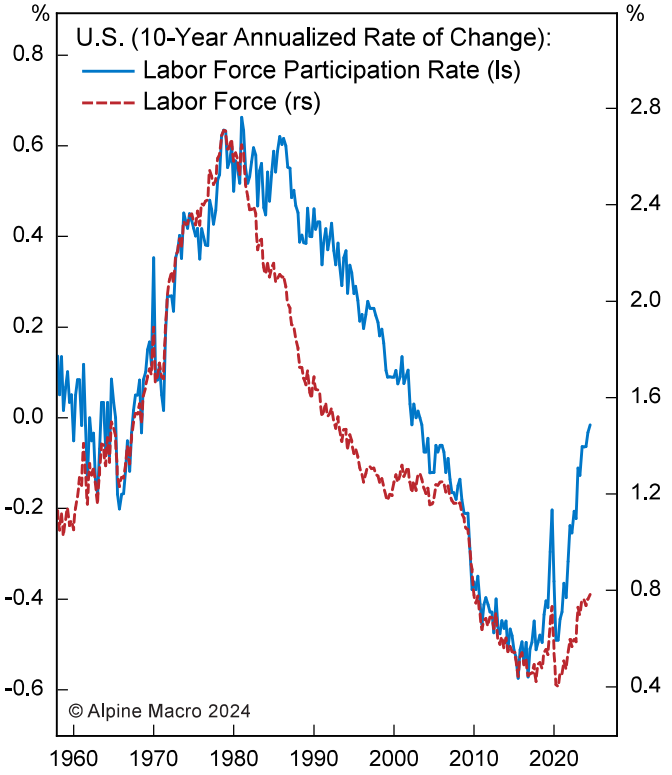
We are also seeing a wave of innovations and technologies like AI, robots, drones, and so on that are dramatically extending the reach of what the labor force can do. The bottom line here is that we see rising labor productivity growth as the beginning of a long-wave upswing rather than a short-term blip (**Chart 6**). If so, R* will likely stay higher for longer, reflecting higher growth potential.

Third, the decline in labor force growth started in the early 1980s but the 2008 GFC marked the climactic fall as the labor force participation rate collapsed and baby boomers rushed to retire *en masse*.

Nevertheless, civilian labor force growth seemed to reach some kind of cathartic trough during the 2020 pandemic crisis. From a long-run perspective, U.S. labor supply seems to be swinging upward (**Chart 7**).

It is worth noting that there has been a surge in undocumented workers since 2021, and this

Chart 7 U.S. Labor Supply: A Secular Perspective



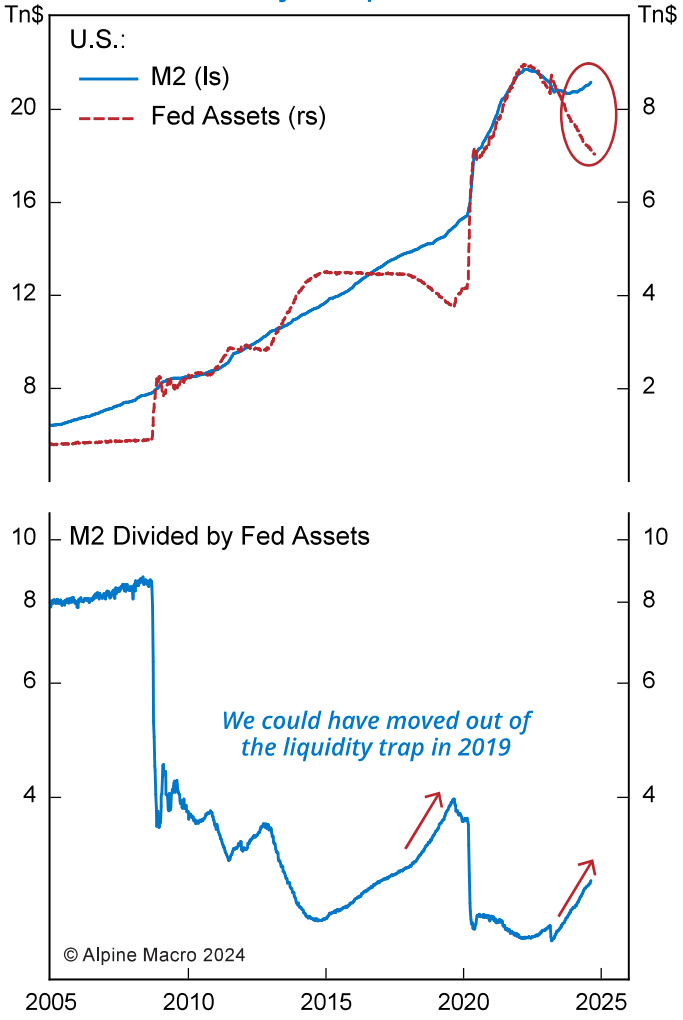
group is estimated to be anywhere between 12 and 20 million, or 7% and 12% of the labor force. Unfortunately, no one knows the exact number.

Regardless, the key point is that the actual labor supply is much bigger than the documented labor force, and this has greatly mitigated the negative impact of an aging population and falling labor supply growth.

In other words, faster growth in labor supply boosts real economic growth. This argues for a higher R*.

Finally, there is increasing evidence that the U.S. economy is moving out of a "liquidity trap", either because of rising productivity, aggressive fiscal expansion, or both. The **Appendix** on page 8 explains why increasing fiscal expansion is the most effective policy tool to push the economy out of the liquidity trap and why, by definition, a rising R* is the natural result of an economy exiting from such a trap.

Chart 8 Liquidity Trap Versus Money Multiplier



Do we have definitive signs that the U.S. economy is out of this trap? The answer is yes:

When an economy is stuck in a liquidity trap, the money multiplier collapses and becomes minuscule because there is no endogenous credit creation, and liquidity preference becomes infinite. By the same token, a rising money multiplier indicates that

endogenous money creation has begun to work again. It also implies that R* has moved out of its trapped levels.

Chart 8 shows how the U.S. money multiplier collapsed during the 2008 GFC, stayed depressed most of the time in the 2010s and has started to rise since 2023. It is worth mentioning that the money multiplier began to rise in 2015, suggesting the economy might have begun to move out of the liquidity trap, but the process was torpedoed by the 2020 pandemic crisis.

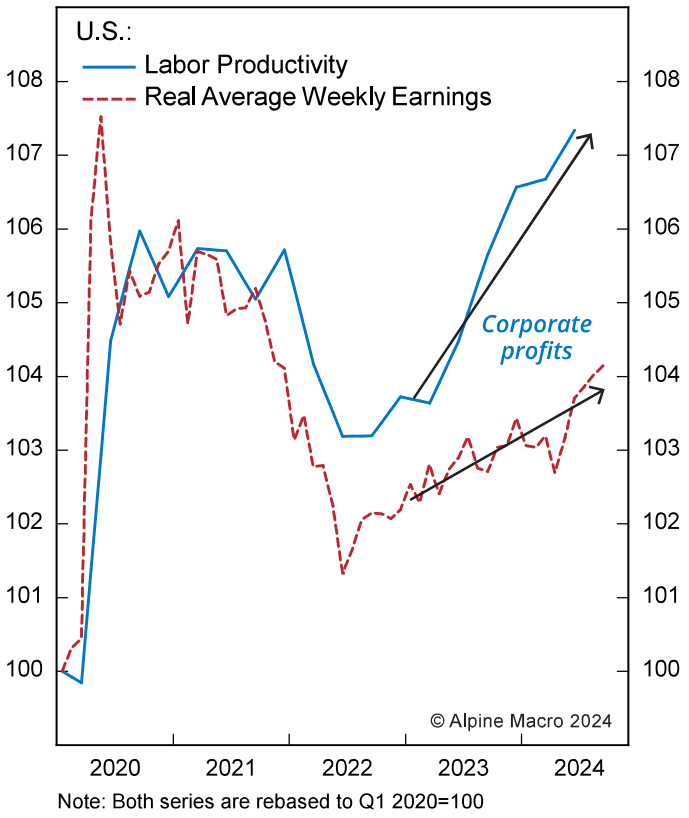
Since 2023, however, the money multiplier has begun to rise again, with broad money creation speeding up against the background of a shrinking Fed balance sheet. Barring another major deflationary shock, all of this means that not only is the U.S. economy largely normalized from the 2020 pandemic crisis and distortions, but its financial system is also largely normalized from the 2008 GFC.

Financial Market Implications

If our observations on R* turn out to be correct, then a higher R* will be very bullish for stocks and the dollar, but ambiguous for bonds. A higher neutral rate usually reflects higher real economic growth, stronger corporate profitability, and a higher "choke point" for the policy rate. All these factors are bullish for equities.

It is worth noting that in recent decades, the corporate sector has usually received a higher share of accelerating productivity growth, and as Chart 9 shows, this pattern seems to have repeated since 2023. This explains why corporate earnings have surged lately even though rates are higher.

Chart 9 Real Wage Is Lagging Labor Productivity



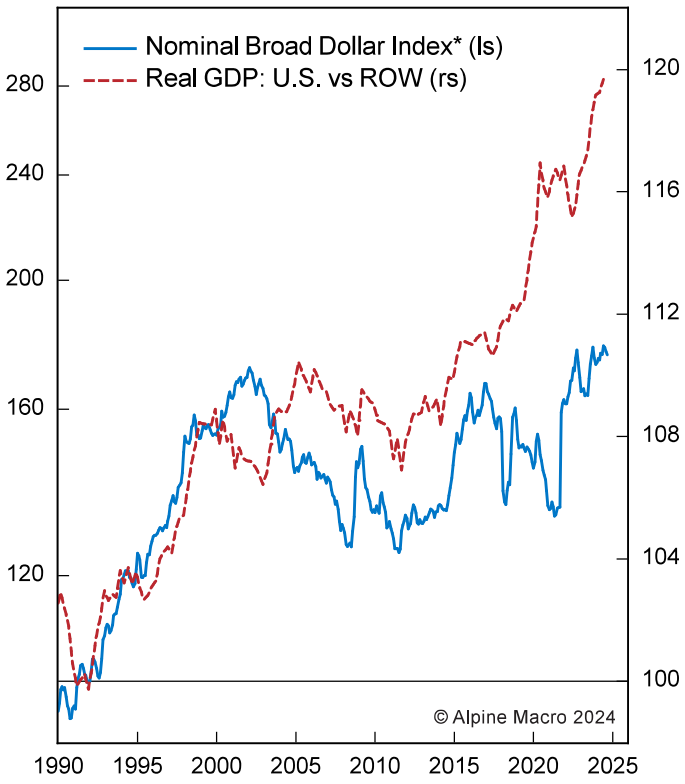
Note: Both series are rebased to Q1 2020=100

Similarly, a stronger economy and a higher R* are bullish for the dollar. From a secular viewpoint, the positive correlation between the trade-weighted dollar and America's economic growth relative to the rest of the world (ROW) is clear (Chart 10).

For this policy easing cycle, we do not see the dollar facing major downward pressure, even though the Fed will likely continue to ease policy. The U.S. has the strongest economy in the world, and its steady-state interest rates will be significantly higher than the rest of the developed world.

If R* has indeed risen, then the Fed is unlikely to drop rates to 2.5% as previously discounted by markets. Our hunch is that the central bank will probably manage to drop rates to the 3.5-4% range.

Chart 10 Relative Economic Growth And Trade-Weighted Dollar



*Source: Federal Reserve
Note: Both series are rebased to Q1 1992=100

Assuming both outcomes have a roughly equal probability, the expected terminal fed funds rate should be around 3.75%.

If so, the policy rate may still be lower than nominal GDP growth, which should be around 4.5% in a steady state, consisting of 2.5% real growth plus 2% inflation. The difference between nominal GDP growth and the nominal policy rate can be explained by the global savings surplus, which is still large and growing.

As a reference point, nominal GDP growth averaged about 4% last decade, with real growth at 2.2% and inflation at 1.8%. This was a time of enormous deleveraging and deflationary pressure. This nominal growth was achieved with a negative real policy rate, relentless QE, and aggressive fiscal expansion. Going forward, both real growth and stable inflation should be higher than those in the last decade.

With 10-year Treasury yields standing at 4.1%, there is limited upside potential for bonds. Given the expected terminal fed funds rate of 3.75% and adding 30-50 basis points of term premium, the steady-state yields for 10-year Treasury bonds should be 4.0-4.3%. In other words, the long end of the curve could already be sitting right at its long-term equilibrium.

Can the policy rate fall much lower than 3.75%? Of course it can. An unexpected economic slump or a recession could force the Fed to slash rates to 2% or even lower. In this case, bonds would rally sharply but stocks would fall hard.

Accelerating productivity growth could also drive down inflation to less than 2%. In this case, the Fed would also need to chop rates in order to keep price inflation up.

A combination of lower rates, lower inflation and higher growth would be hugely bullish for stocks, but bond implications could be ambiguous as lower inflation breakevens would be offset by higher real bond yields.

The U.S. economy went through this type of disinflationary boom in the second half of the 1990s, and the net result was a huge surge in stocks, a strong dollar but a gyrating bond market.

We are betting against a recession and projecting a replay of the second half of the 1990s' story.

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Appendix

The IS-LM model, which stands for "investment-saving" (IS) and "liquidity preference-money supply" (LM), is a Keynesian macroeconomic model that shows how aggregate demand interacts with the loanable funds market, and/or monetary policy.

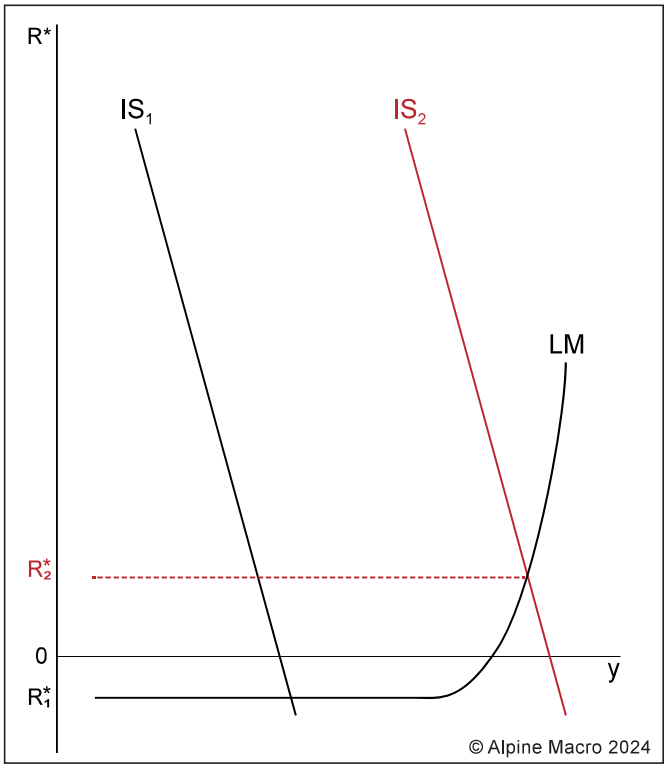
Along the LM curve, money demand always equals money supply, and the IS curve is where savings always equal desired investment. Both R* and GDP growth are determined by where LM intercepts the IS curve.

In a "liquidity trap", demand for money becomes infinite, leading to a flat bottom of the LM curve. Once an economy is stuck in such a trap, interest rates stop reacting to changing money supply. Only the IS curve, or shifting saving-investment balance, can change output growth (y) and possibly, but not necessarily, R*.

Diagram 1 is a stylized description of the U.S. economy in the 2010s when R* was stuck in negative territory. Under this situation, fiscal expansion can push the IS curve outward, driving up economic growth and possibly, R*.

Aggressive fiscal expansion during the 2008 GFC and the 2020 pandemic crisis allowed the U.S. economy to operate at or close to its full capacity, though monetary expansion might have played a marginal role too. We suspect that aggressive fiscal stimulus is one of the key reasons that have pushed the IS curve far enough out to move the neutral rate from R^*_1 to R^*_2.

Diagram 1 Fiscal Expansion, "Liquidity Trap" & R*



Investment Recommendations

Tactical Investment Positions (3 - 6 months)

Recommendations	Open Date	Open Levels	Stop	Closing Date	Closing Levels	P&L Since Inception
Long U.S. Regional Banks (ETF: KRE)	12/04/2023	48.12	53	-	-	27.9%
Long Gold (ETF: GLD)	04/01/2024	207.82	Rolling -5%	-	-	20.9%
Long U.S. Financials (ETF: IYF)	08/19/2024	101.30	-	-	-	8.7%
Long Russell 2000 (ETF: IWM)	08/19/2024	215.20	-	-	-	5.2%
Short Brent Oil[1]	08/26/2024	80.00	79	10/07/2024	79.00	1.3%
Long Copper	09/30/2024	4.55	-	-	-	-3.5%
Long 10-Year German Bunds/ Short 10-Year JGBs	10/07/2024	2.3%/0.93%	-	-	-	1.0%
Long Emerging Market Equities (ETF: EEM)	10/07/2024	47.36	-	-	-	-3.0%
Long China A-Shares (ETF: ASHR)[2]	10/09/2024	30.00	-	-	-	-7.4%
Stop-Sell Brent Oil[3]	-	-	76	-	-	-

Note: P&L is calculated using daily closing prices.
[1] Our Short Brent Oil was stopped out on 10/07/2024 with a profit of 1.3%.
[2] Our stop-buy for China A-Shares (ETF: ASHR) was triggered on 10/09/2024.
[3] We are reinstating a stop sell for Brent Oil at $76.