GENERALI INVESTMENTS

Focal Point

"R-star": less cherished, but still useful

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- Whether and when the Fed will have tightened too much is an issue that is gathering attention: One way to look at it is to compare the level of fed funds rates against the equilibrium short term interest rate (R-star), i.e. the rate consistent with balanced growth. In the past, policy rates rising above R-star preceded a recession by few quarters.
- R-star is not observable and must be estimated with models. The wide range of estimates raises questions on its value as a gauge of the monetary policy stance and the Fed is downplaying its role. However, we show that it can still provide useful insights, especially on yields and bond-equity correlations.
- The mild increase in potential growth and the wider fiscal deficit should raise R-star from its historically lows to levels consistent with a nominal rate of around 3%. However, adverse demographic trends will cap its upside potential.
- Its very gradual and limited increase will widen the gap with respect to the Fed funds rate, resulting in a mildly tight monetary policy.

The latest macro data and the higher confidence shown by the Fed in its mildly reflationary outlook have increased the conviction that rates will continue to increase at a quarterly pace well into next year. This has raised concern about the possibility that in the end the Fed may tighten too much. This could trigger a sharper slowdown than the one already expected after 2020.

A popular way to assess how much is too much is to compare the level of the fed funds against a benchmark, equilibrium value: The so called neutral interest rate (or "R-star") is one of the most widely used. While its role as guide for monetary policy has decreased, it can be still useful for investors. We wrap up with some considerations on how the macroeconomic outlook is likely to affect R-star over the next few quarters.

R-star: a gentle introduction

R-star can be defined as the inflation-adjusted short term interest rate which prevails when the economy grows in line with its potential. From another angle it is the real short term rate that balances savings and investment: When savings exceed investment the rate required to balance them drops.

Fluctuations in saving and investment are largely beyond the control of the Fed. They depend on slow moving variables like demographic and productivity. For example, an ageing workforce drives up saving as older workers cumulate wealth for retirement. On the investment side a drop in productivity may depress the return on capital, reducing the incentive to invest. At the same time the demand for

safe asset (which depends on risk aversion and regulatory requirements for financial intermediaries) influences the risk free and therefore the neutral, interest rate. Moreover, fiscal policies affect public and private saving, leading to shorter term fluctuations in R-star.
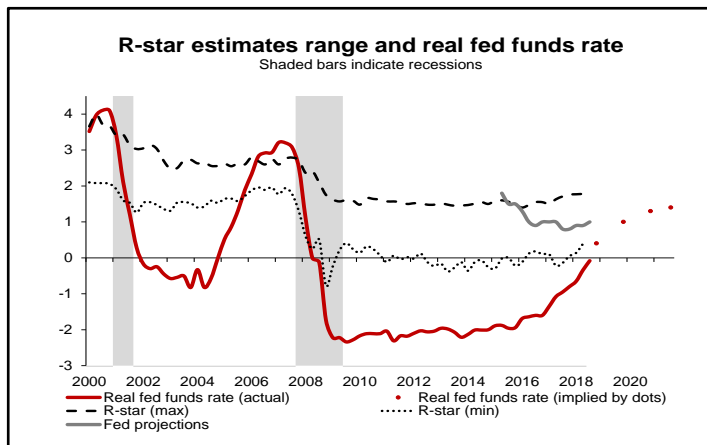
Therefore R-star provides the central bank with a threshold: when the policy rate is higher than the neutral rate, savings by more than what is needed to restore the balance with investment and the economy slows down.

R-star is not observable, however, and, just like other variables like the equilibrium unemployment rate, estimates must be derived from quantitative models. This leads to two main drawbacks. First, the variability around the point estimates can be very large; and, secondly, different models can lead to sharply different levels and dynamics for R-star.

The FOMC members are required to state their view on the long term value of the policy rate. This, minus the expected long term inflation provides a proxy for where the Fed thinks R-star lies. According its latest estimate of 1% (in real terms) and the dots of the September meeting, the monetary policy will turn restrictive by the end of next year.

Uncertainty on the level then translates into difficulties in benchmarking the level of Fed rates. Yet looking at the range of a dozen estimates of R-star, for which the Fed has published data since 2000, it becomes clear that the last two recessions were preceded by the Fed raising rates to beyond R-star. This does not translate into a direct one to one causal relationship (just like in the case of an inverted yield curve), but the strong determination of the

Fed to push up rates has raised concerns about too strong a tightening.

R-star estimates range and real fed funds rate
Shaded bars indicate recessions

Legend: Real fed funds rate (actual); Real fed funds rate (implied by dots); R-star (max); R-star (min); Fed projections

The Fed is losing interest in R-star…

Theoretically, R-star and the inflation target constitute the long term anchor for the policy rate, which adjusts to compensate fluctuations of the unemployment rate around its equilibrium value and the actual inflation from its target. Under Chair Yellen, R-star took a key role in the Fed communication. On the contrary, since the beginning of its mandate as head of the Fed, Chair Powell has tended to downplay the importance of R-star for actual policymaking. In a recent speech he underlined the difficulty of measuring unobservable variables, and therefore of using them to set rates. The Fed, then, should rather focus on the behavior of observable variables and decide based on their evolution over time rather than their distance from some estimated (and inherently uncertain) equilibrium values.

The point was strengthened by the new president of the New York Fed (previously head of the San Francisco Fed), John Williams, who as an economist developed one of the most popular models to estimate R-star. He argued that, when the fed funds rate, adjusted for inflation, was much below R-star, the latter proved useful as a reference point. Now that the policy rate has moved siziably away from zero and toward the range of R-star measures, the variability of the estimates becomes a critical issue. It makes therefore more sense to focus on variables less plagued by measurement errors.

Therefore, it is very likely that the communication by the Fed will refrain from mentioning the neutral rate, at least until the final part of the hiking cycle (late next year, according to the dots and to our expectations), when worries about overtightening will likely get stronger.

…should markets too?

If R-star disappears for a while from the conversation about monetary policy, should it be discarded by investors too?

To assess and predict the evolution of short term rates it is clearly critical to look at what the Fed now considers as relevant. In this sense, it is important to notice that the shift away from R-star in the Fed communication was accompanied by a stronger focus on the level and volatility of inflation expectations. Still, we think that an estimate of the

neutral short term rate can still be useful for investment decisions.

To make our point, in what follows we use our preferred estimate of R-star, the average of four measures developed by the regional Feds, for which long time series are available.
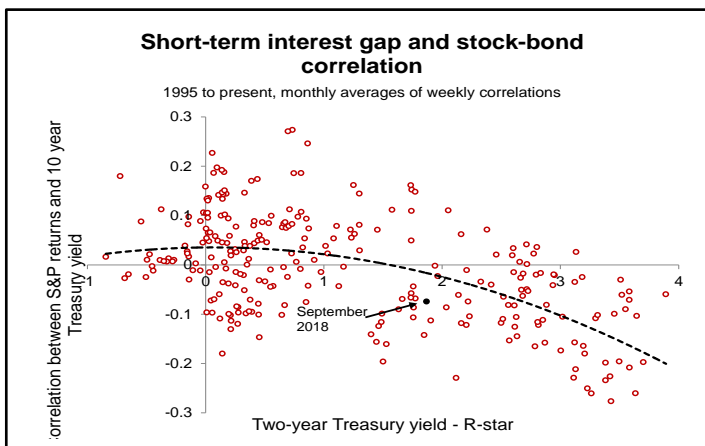
First of all, the sum of this average of R-star and a measure of long term expected inflation tracks relatively well the trend of the ten-year Treasury yield (see chart below). Recent research by the San Francisco Fed shows that interest rates and bond risk premiums are to a large extent driven by the evolution of the trend in inflation and the equilibrium real rate of interest. Consequently, a view on the evolution of R-star can provide some ballpark estimates of the expected level of long term rates in the medium term.

10-year Treasury yield and equilibrium short term rate

Legend: 10 year rate; Equilibrium short rate (R* +Expected inflation)
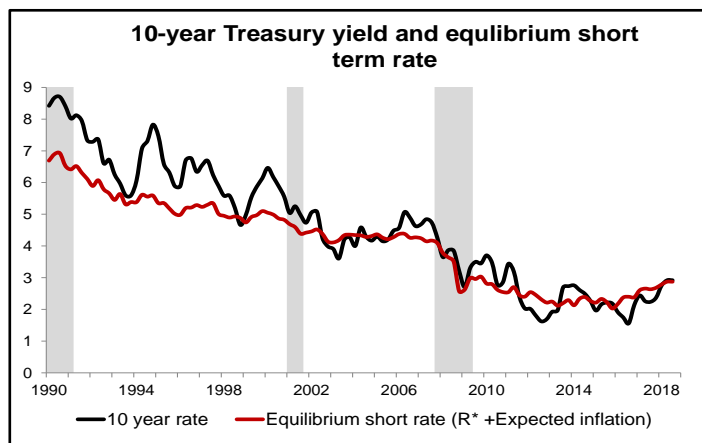
Moreover, a measure of the tightness of monetary policy (the 2-year treasury yield less our estimate of R-star) has predictive power on the evolution of the yield curve. It has a 70% correlation with the contemporaneous value of the 10 year-2 year differential and a 65% correlation with that spread one quarter ahead.

Fed stance and yield curve

Legend: 2 yr Treasury - R-star; Yield curve slope (rhs)
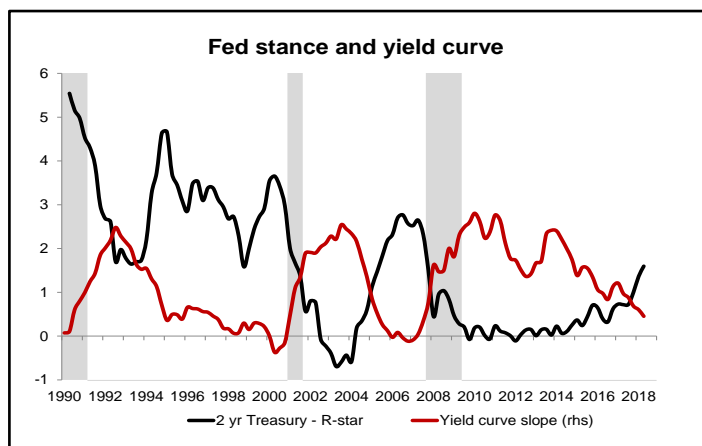
Finally our measure of monetary policy tightness can shed some light on the bond stock correlation. We can use it identify a threshold after which bond yields become a drag on equity returns. As the chart on the next page shows, equity returns and 10 year yields show no clear pattern of correlation as long as 2 year yields are less than 150 basis points higher than R-star. However, the correlation turns clearly negative beyond that level.

Short-term interest gap and stock-bond correlation

1995 to present, monthly averages of weekly correlations

The outlook for R-star

While we can get a reasonably reliable prediction for the two-year yields from the expected evolution of the Fed funds rate, a forecast for R-star requires considering both cyclical and structural factors. Historically, most estimates of R-star share a mild downward trend until the Great Financial crisis, explained by adverse demographics and overall sluggish productivity growth. The Great Recession exacerbated these medium-term trends, for several possible reasons: households stepping up precautionary saving to respond to higher uncertainty, which also pushed companies to hold more liquid assets and to postpone/delay investment plans.

Additionally, the sharp public and private deleveraging generated excess savings, causing a persistent drop in the natural rate.

Going forward the likely evolution of structural and cyclical factors point to a further small pick-up of R-star from the historical low to which it plunged. It should rise to around 1% by the end of next year: with expected inflation anchored at 2% this means that, according to our projections the Fed policy would turn slightly restrictive by 2020.

Consider the cyclical factors first. Over the next couple of years a larger budget deficit caused by the fiscal stimulus will not find an offset in household savings, which should remain broadly flat. Moreover, the pick-up in investment should continue, spurred by solid profitability and easy financing. Therefore, a widening saving-investment gap will provide a cyclical uplift to R-star.

Moreover, the gradual end of QE and higher Treasuries issuance would reduce the net demand for safe assets, but without triggering a shift big enough to permanently lift R-star.

On the structural side, another small increase will result from a few contrasting drivers. Potential GDP growth should edge up back to around 2%, thanks to a faster productivity increase, limited by the adverse demographic trend, though. In the end we expect a relatively sharp increase over the next year or so, but that will be capped by structural constraints. However, in the process the negative gap with respect with short term yields may widen, making equity returns more vulnerable.

Household savings and goverment budget

% of GDP. dotted line= forecasts

Imprint

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