



MARKET PULSE

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R*, Rock Star or Dark Star?

Successful central banking requires balance. Monetary policies that are too tight can lead to recessions and high unemployment; those that are too loose can help trigger high inflation. By law, the US Federal Reserve (Fed) is required to pursue monetary policies that support stable prices and maximum employment; that is, they are required to fulfill two objectives that can appear to be, in certain circumstances, contradictory. Hence, balance.

So, how can the Fed find the proper equilibrium to manage its dual mandates? Part of the answer is to find the interest rate that perfectly balances jobs and inflation. The trouble is, no one knows for sure what that interest rate is. Modern economies are dynamic and complex. Actions taken today might have influences on product and financial markets that can take months to occur. The right rate today might be the wrong rate next month, especially when economic conditions are changing rapidly. Identifying the right rate, which economists call R* (pronounced R star) is hard, but to paraphrase Joni Mitchel, it's the work the Fed has taken on, finding the R* maker machinery behind the economy.¹

Until recently, models that seek to identify R* were some of the hottest areas of economic research. Competing models were the basis for vigorous discussion. The Fed board and staff debated the possible level of R* and the appropriate way to estimate it.

In the past few months, however, R* has come under attack as a policy tool. Former Fed governor Kevin Warsh argued in an op-ed in *The Wall Street Journal*² that R* was too theoretical and its estimates too imprecise to form the basis of effective central bank policy. Fed Chairman Jerome Powell made a similar point³ in a recent speech, arguing against all the stars (R*, U*, π^*). Even John Williams, current president of the New York Fed and the dean of R*, based on his extensive research and modelling, has backed off a bit on its importance in setting policy.⁴

R* can be considered a destination — where the normal interest rate will be — or a *journey*. That is, the Fed has set an intended path for rates over the next couple of years. At the same time, it is committed to being data-dependent, planning to adjust policy based on changes in inflation, unemployment and other key variables. R* might, therefore, be higher than some now estimate, if, for example, productivity growth continues near the strong 2.9% pace of Q2. Or, as some Fed officials have suggested, rates might already be high enough. Indeed, Minneapolis Fed President Neel Kashkari has cited current inflation in line with the Fed's target as reason to pause now rather than hike again in December. In either case, it is a decidedly less assertive, more relativistic brand of R* than the original.

So if policy makers are no longer diehard fans of R*, should investors also abandon it? Has the great early success of R* led it to burnout too soon, becoming a Dark Star?⁵ Or should investors tell the Fed: don't stop believing?⁶

¹ Actually, the lyric from the 1974 single "Free Man in Paris" is ... *I felt unfettered and alive. There was nobody calling me up for favors, and no one's future to decide. You know I'd go back there tomorrow. But for the work I've taken on, stoking the star maker machinery behind the popular song.*

² "The Fault Lies in R-Star and in Ourselves," Kevin Warsh, *The Wall Street Journal*, 9/25/2017.

³ "Monetary Policy in a Changing Economy," Jerome Powell, speech to the Changing Market Structure and Implications for Monetary Policy symposium sponsored by the Federal Reserve Bank of Kansas City, Jackson Hole Wyoming, 8/24/2018.

⁴ "The Future Fortunes of R-star: Are They Really Rising?," John C. Williams, remarks to the Economic Club of Minnesota, 5/15/2018.

⁵ "Dark Star," Grateful Dead, from the album "Live/Dead," 1969.

⁶ See: earlier reference to Journey; "Don't Stop Believin'," from the album "Escape," 1981.

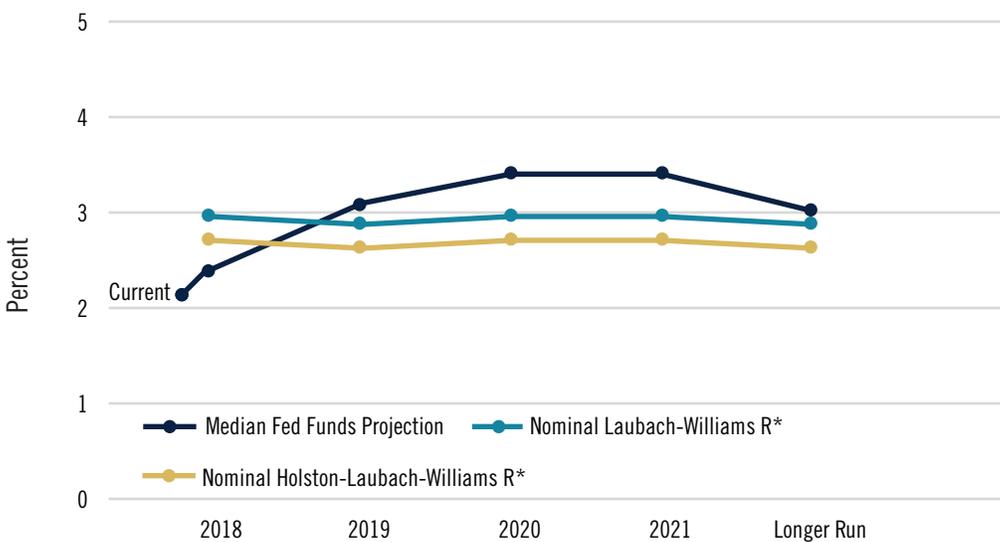
The Fed’s own forecasts suggest that it will engineer a soft landing, with growth slowing but staying at a solid rate between 2-3% and with inflation remaining near the Fed’s 2% target. From an investment perspective, the question is, will the Fed achieve its balanced scenario, or will it go too far, causing a recession, or move too slowly, allowing inflation to spike? We think that consideration of R^* might help us make an assessment.

First, let’s look at some specific R^* models. The **Laubach-Williams model**⁷ is a workhorse academic framework for measuring R^* . Fed economist Thomas Laubach and John Williams assume that R^* is consistent with output growing at potential with stable inflation. Trend growth in GDP is a significant determinant of R^* in their model as faster trend population and productivity growth are associated with a greater demand for loans and higher interest rates. When the real interest rate is above R^* , demand for loans tends to contract, bringing GDP down with it, whereas a real interest rate below R^* can stimulate growth by making capital cheaper. The model then extracts R^* and trend GDP growth using a Kalman Filter. The New York Fed has taken over publishing the model⁸ now that John Williams is in charge. The most recent release in August estimated R^* at 0.86% for Q2, up modestly from 0.78% at the end of 2017 and 0.8% at the end of 2016. Adding 2% expected inflation to the R^* estimate gives a nominal neutral interest rate of 2.86%.

With the current fed funds target at 2–2.25%, and one more quarter-point hike expected this year, that means only two additional hikes would leave the Fed overshooting the neutral rate under the most recent Laubach-Williams readings. Yet, the Fed’s own “dot plot” projections are evenly split between whether the Fed governors expect to deliver two, three or four hikes in 2019. Another concern is that R^* estimates under Laubach-Williams have extremely wide confidence intervals (with standard error of around 2.5%) and are frequently subject to significant revisions. The real-time estimates at the end of 2016 and 2017 were near 0%! If the margin for error now extends in the other direction, and the true value of R^* is higher than the model estimates, then the Fed might have more room to maneuver than currently appears. But if the true R^* is below the model’s estimate again, then Kashkari is right — we may already be in the red zone.

Overshooting the Mark?

R^* vs. Fed Median Projected Fed Funds Rate



Source: QMA, Federal Reserve, Federal Reserve Bank of New York

⁷ “Measuring the Natural Rate of Interest,” Thomas Laubach and John C. Williams, Board of Governors of the Federal Reserve System, 11/2001.

⁸ <https://www.newyorkfed.org/research/policy/rstar/overview>.

But maybe you want to try a different tune? The New York Fed also estimates a modified Laubach-Williams model, called the **Holston-Laubach-Williams**⁹ model (reflecting additional contributions from Harvard PhD candidate and former Fed intern Kathryn Holston). The key wrinkle with this model is that it incorporates data from Canada, the eurozone and UK as well as the US. Its estimate of the natural rate is even a little lower than Laubach-Williams', at 0.61% in Q2, though that has climbed by nearly half from 0.45% at the end of 2017. Interestingly, by estimating the natural rate using data from multiple developed economies, Holston-Laubach-Williams has determined that global factors, more than regional ones, have been the main driver of low R*. This would suggest, again, that the Fed is at the risk of outracing R* if it is basing its neutral rate estimates on US growth and inflation instead of the (lower) global trends.

And there are other models to choose from, as well. One, featured in a **2016 Fed paper**,¹⁰ innovates on the earlier efforts by incorporating the zero-lower bound of interest rates. This model suggests that the lack of negative interest rates in the US has artificially inflated the R* estimates in Laubach-Williams. So, chalk at least one up for the more hawkish view that the Fed has ample room to hike further. However, another contender, described in a 2015 piece published by the **Richmond Fed**,¹¹ undertakes an extensive statistical analysis of Laubach-Williams and concludes that its readings of R* are pretty much spot on.

The Takeaway

The Fed has laid out a path taking the fed funds rate to 3.25–3.5% over the next couple of years, and recent comments by Chair Powell seem to have convinced the market that the Fed is serious, driving interest rates higher.

Yet, most estimates of R* seem to suggest that a fed funds much over the current level of 2-2.25% target range might be too high. If so, the Fed might be more likely to go too far, hurting growth, rather than not far enough, igniting inflation. There might be some hints of this in October market movements. Treasury yields have risen, suggesting that the Fed might indeed follow its forecasted rates path. Breakeven yields on TIPS have not changed much, hovering around 2% in recent months, suggesting that investors are not yet afraid of inflation. Stock prices have tumbled from their peaks; perhaps that is merely a reflection of higher discount rates, but might it also reflect some early signs of recession fears down the long and winding road?¹²

R* is now “resting.” Will a new gig as an investment tool rather than a policy tool resurrect R*'s career? Might there be a second act in R*'s life?

Investors are not economic-data-driven, they are price- and perception-driven. Financial markets sometimes move for reasons much more amorphous than R*. The tell will be if stock prices continue to fall even if the 10-year yield stabilizes. That will imply that it's not just higher discount rates pushing stocks down, but recession fears. If so, that might put R* back on the road again.¹³

⁹ “Measuring the Natural Rate of Interest: International Trends and Determinants,” Kathryn Holston, Thomas Laubach and John C. Williams, Federal Reserve Bank of San Francisco, Working Paper 2016-11, 12/2016.

¹⁰ “A Time Series Model of Interest Rates with the Effective Lower Bound,” Benjamin K. Johannsen and Elmar Mertens, Board of Governors of the Federal Reserve System, Finance and Economics Discussion Series 2016-033, 4/4/2016.

¹¹ “Calculating the Natural Rate of Interest: A Comparison of Two Alternatives,” Thomas A. Lubik and Christian Matthes, Federal Reserve Bank of Richmond, Economic Brief 15-10, 10/2015.

¹² “The Long & Winding Road,” The Beatles, from the album “Let It Be,” 1970.

¹³ “On the Road Again,” Willie Nelson and Johnny Cash, from the movie “Honeysuckle Rose,” 1980.

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*As of 9/30/2018.

NOTES TO DISCLOSURE

Sources: QMA, The Wall Street Journal, Board of Governors of the Federal Reserve System, Federal Reserve Bank of Kansas City, Federal Reserve Bank of New York, Federal Reserve Bank of San Francisco, Federal Reserve Bank of Richmond.

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