Comment

Taylor-made monetary policy

- *A standard Taylor rule framework would imply official rates well above prevailing rates*
- *But various factors have reduced 'neutral' rates significantly in a number of countries*
- *Allowing for this, rates seem about right in the US; but high in Europe and Japan*
- *The stand-out economy is Sweden, with rates about 4ppts lower than warranted*

Monetary policy: systematic, not automatic

Monetary policy in advanced economies is ultra-loose

Monetary policy stimulus in advanced economies has been unprecedented since the Global Financial Crisis (GFC), and yet economic growth has remained stubbornly anaemic. Not surprisingly, charged debate about the effectiveness of monetary policy, central bank mandates, and international policy coordination has become an almost daily occurrence.

One way to assess the stance of monetary policy is to apply a Taylor rule analysis across countries. Devised by Stanford economist John Taylor,[1] the rule offers a simple framework for calibrating monetary policy setting, based on the real economy and price developments. In its original formulation, the rule implied that the central bank policy rate responds basically to the equilibrium nominal interest rate, deviations of inflation from the target rate, and the output gap.[2]

The Taylor rule offers a useful yardstick for assessing policy …

While it was initially intended to describe the interest rate decisions of the FOMC, it subsequently became a popular yardstick for assessing monetary policy, in advanced and emerging market economies alike. Using that framework, the BIS has shown that policy rates have on average been below the Taylor-rule-implied rates for much of the past decade.[3] Only during the recession of 2009 were policy rates in the suggested Taylor-rule range; and soon the gap opened up again.

The Taylor rule is, of course, only a mechanical exercise, with at least two important limitations:

**… despite its well-known limitations**

1. **(Over) simplification.** Various factors other than the dynamics of inflation and output also matter in policy rate setting, including concerns about financial stability and vulnerabilities from destabilising capital flows and exchange rate volatility.

2. **Measurement uncertainty.** Taylor-rule calculations involve assumptions about intrinsically unobservable concepts, i.e. neutral real interest rates and output gaps.

The Taylor rule in practice

In seeking to account for some of the above-mentioned limitations, we calculate a *range* of possible Taylor-rule-implied rates, by considering:

- **Two different specifications** of the rule: one using the output gap (as in the standard formulation), the other using the unemployment rate;[4] and
- **Two different measures** of inflation: headline and core.

Figure 1: Taylor-rule-implied policy rates
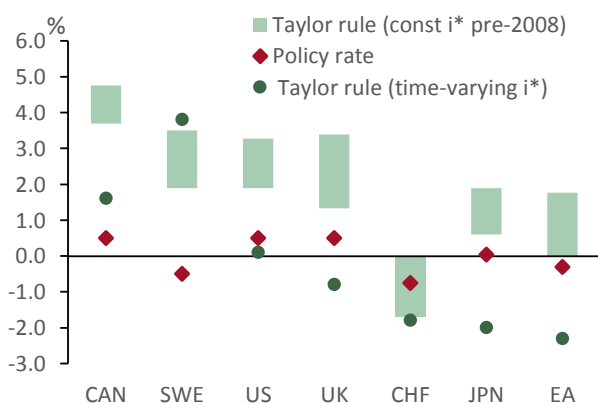
Source: Llewellyn Consulting, OECD, and Macrobond
Note: Data as of Q1 2016

Figure 2: Potential growth estimates

Source: OECD

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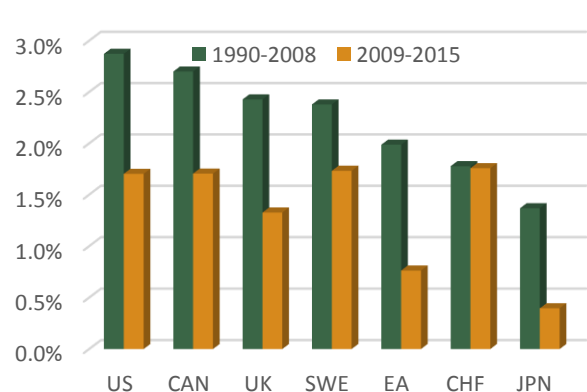
The choice of the value for the neutral real interest rate (NRIR), an intrinsically theoretical concept, is both important and challenging. The original Taylor rule took the real equilibrium rate to be 2%, which was reckoned at the time to be the steady-state growth rate for the US.

Our first calculation allows the NRIR to be different, country by country, reflecting OECD-estimated differences in countries' potential growth rates prior to the 2008 crisis. The assumed growth rates range from 1.5% for Japan to 2.5% for Canada.[5] Our second set of calculations allows the NRIR to vary not only across countries but also over time − again, using OECD estimates.[6]

Figure 1 shows a range of Taylor rule-implied policy rates

The results on this basis (Figure 1) suggest two broad conclusions:

- **Current monetary policy settings generally appear highly accommodative**, on the basis of pre-crisis parameters. This is shown, broadly, by the gaps between the red dots and the green bars. Switzerland being the one − striking − exception; and
- **Neutral real interest rates have fallen significantly** in most of the economies considered. This is shown, broadly, by the gaps between the green dots and the green bars.

Equilibrium real interest rates: lower for longer

Neutral real rates, however, have fallen notably …

The issue of the falling neutral real rate of interest has been considered by various researchers.

Laubach and Williams (2015) document a sharp fall in the NRIR in the US since the 2008 crisis, with no sign yet of recovery.[7] A recent BoE working paper suggests that long-term real interest rates across the world have declined, and by some 450bp or so over the past three decades.[8]

The OECD has estimated time-varying neutral interest rates for a range of economies, the biggest decline being in Japan, the US, the UK, and the euro area, by over 400bp since 1990, and even turning negative. In contrast, estimated equilibrium interest rates in Switzerland and Sweden, where potential growth estimates have fallen the least (Figure 2), are reckoned to have remained broadly stable.

… driven by myriad factors, which seem to be here to stay

Equilibrium interest rates may change over time due to structural shifts both in aggregate supply and demand. A number of drivers, including, but not limited to, productivity growth, demographics, global forces, and the restrictiveness of fiscal policy are likely to have played a role in the most recent decline. Estimates of long-term potential growth in advanced countries have come down by about 1 percentage point since 2008. No doubt, some of that decline is due to ageing, some to lower productivity growth.

Given that neither the crisis legacy effects nor the more structural drivers of lower equilibrium rates seem likely to abate any time soon, this may well constitute the 'new normal' to which central bankers and others will need to get accustomed. The implications for policy could be significant.

That estimated neutral interest rates are negative for a number of countries implies that current policy rates are providing little stimulus. Yet central bankers are running out of room to cut policy rates below the critical near-2% level,[9] and are having to rely ever more on unconventional policy measures, the returns of which appear to be diminishing. Persistently-low neutral rates are likely to limit the effectiveness of monetary policy to deal with adverse shocks, implying that fiscal policy may need to play a bigger part in supporting aggregate demand or smoothing business cycles.

Taylor-rule-implied policy rates

Monetary policy in the US is close to the Taylor rule estimate

Finally, the implications for monetary policy today from the Taylor rule analysis are striking.[10]

- Only in the US is monetary policy close to the Taylor-rule-implied rate.
- In the euro area and Japan, the rule-based analysis suggests that policy rates would be about 2ppts lower than they are, and in the UK and Switzerland about 1ppt lower. (Part of this 'requirement' is presumably being met through the effects of unconventional monetary policy measures.)[11]

But should be looser in the euro area and tighter in Sweden

- In contrast, for Canada and Sweden, the rule implies policy rates higher than those currently prevailing, by about 1ppt and 4ppt respectively.

Watch fors

- More flexibility, or even the abandonment, of some central banks' 2% inflation targets;
- Increasing calls for greater cooperation between monetary and fiscal authorities;
- Concrete steps for international policy coordination to lift global demand.∎

#Comment: The standard Taylor rule framework suggests notably looser policy in Europe and Japan, and tighter in Sweden.

[1] Taylor, J. (1993), "Discretion versus policy rules in practice", Stanford University, https://web.stanford.edu/~johntayl/Papers/Discretion.PDF

[2] Defined by Taylor, J. (1993) as $i_t = \pi_t + r_t^* + \alpha_\pi(\pi_t - \pi_t^*) + \alpha_y(y_t - \overline{y_t})$, where i_t is the target short-term nominal interest rate, π_t is the rate of inflation, π_t^* is the desired rate of inflation, r_t^* is the assumed equilibrium real interest rate, y_t is the logarithm of real GDP, and $\overline{y_t}$ is the logarithm of potential output, as determined by a linear trend. Taylor's 1993 paper proposed setting $\alpha_\pi = \alpha_y = 0.5$

[3] BIS (2012), "Taylor rules and monetary policy: a global "Great Deviation"", http://www.bis.org/publ/qtrpdf/r_qt1209f.htm

[4] The standard Taylor rule formula (as presented above) and an alternative specification based on the unemployment gap (as presented in Nechio, F. (2001): "Monetary policy when one size does not fit all") have been used in the calculation

[5] OECD (2013), "The Effectiveness of Monetary Policy Since the Onset of the Financial Crisis", Economics Department Working paper No. 1081

[6] OECD (2014), "Secular Stagnation: Evidence and Implications for Economic Policy", Economics Department working paper No. 1169; The NRIR post Q3 2013 (the latest available estimation from the OECD) was kept constant.

[7] Laubach, T. (2015), "Measuring the Natural Rate of Interest Redux", Federal Reserve Bank of San Francisco, www.frbsf.org/economic-research/files/wp2015-16.pdf

[8] BoE (2015), Staff Working Paper No. 571 "Secular Drivers of the global real interest rate", http://www.bankofengland.co.uk/research/Pages/workingpapers/2015/swp571.aspx

[9] BoE (2015), ibid.

[10] Using the standard specification of the Taylor rule with time-varying equilibrium interest rates

[11] For example, in the case of the UK, the BoE estimates that the effect of the QE was equivalent to a 150-300bp cut in Bank Rate. "The United Kingdom's quantitative easing policy: design, operation and impact", Quarterly Bulletin 2011 Q3, http://www.bankofengland.co.uk/publications/Documents/quarterlybulletin/qb110301.pdf