Macro Comment Global

Rising r* revisited – Phoenix or Icarus?

Long-term interest rates have turned around and picked up, but why is there such uncertainty about whether or not the surge will last? After all, there is a well-established explanation to the previous decades-long slide in interest rates, and we decided to lift our estimates of neutral real interest rates already at the start of 2023. But since then, the "r*" debate has blossomed. Revisiting our estimates, we find that new research displays disagreement about the relative strength of drivers, uncertainty about the outlook for these drivers, and difficulty teasing out signal from noise in the current volatile economic climate. We remain of the view that r* has risen, but rather than rising like a Phoenix, the pickup is partly a short-run phenomenon, which is key to the economic outlook.

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This Macro Comment is a full version of the theme article featured in our May 2024 Global Macro Forecast, including additional graphs, an extra what-if section and a list of references.

The million dollar question...

What is r*?

• The real rate of interest that is neither expansionary nor contractionary

• The interest rate that balances saving and investment in capital markets

• It is equal to the marginal product of capital

Have interest rate trends turned around after a decades-long slide? That was the question we had asked ourselves at the start of 2023, concluding that the answer was likely "yes", and revising up the shorter- to medium-term years in our estimated neutral real interest rates paths.[1] Since then, the "r*" debate has blossomed, with a wide range of new research surfacing. Do the new findings change our assumptions for the neutral rate, and hence the entire outlook for market interest rates, short as well as long term?

To delve into this, let us first remind ourselves what r* – academic economists' shorthand for the neutral or natural real rate of interest – really is all about. R* is the risk-free real interest rate that would prevail in the hypothetical situation where all shocks have faded and the economy is in balance, i.e. operating with growth at its potential and inflation is at its target.[2]

The million dollar question: Where is this interest rate nirvana? Because it is a hypothetical state of the economy, we can never actually observe it with any certainty – instead we are condemned to estimation methods, but how?

...and how to answer it

Separating the r* signal from the noise requires more than just a simple trend estimate...

Conceptually, our everyday actual interest rates are underpinned by the neutral rate. But trying to estimate r* with purely statistical methods is a bad idea, because cyclical and temporary factors can put actual interest rates on very lengthy detours off the neutral rate path.[3] That results in the model not giving a clear r* signal, where the noise has not been entirely stripped out.

Instead researchers use models with a richer set of economic data, next to the real interest rate:

...like semi-structural or general equilibrium models

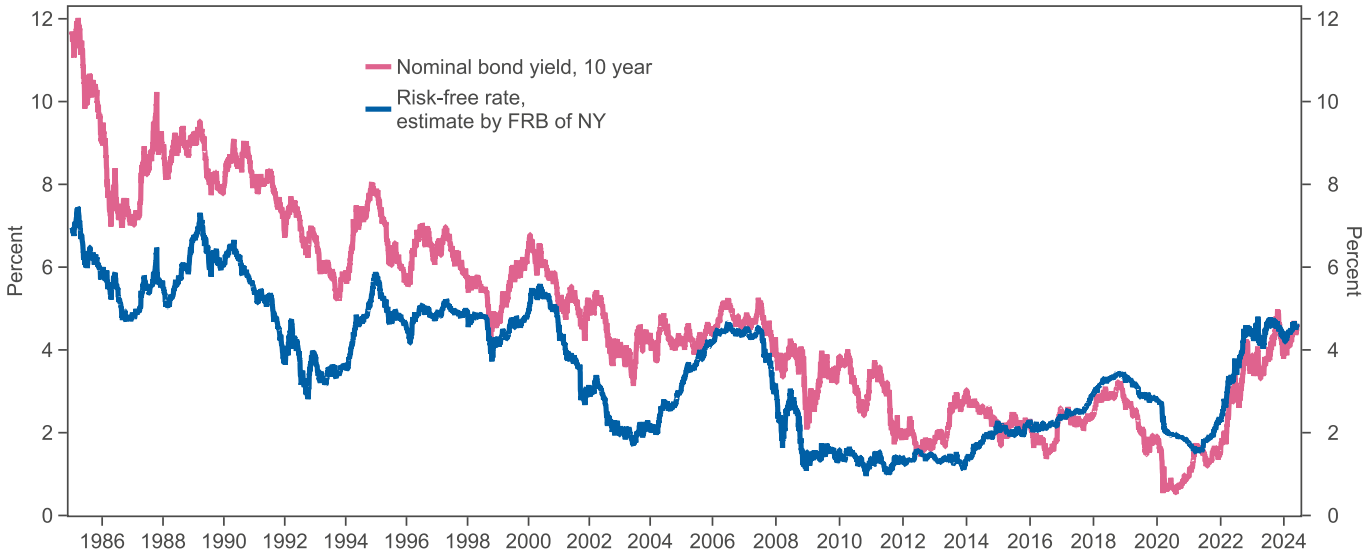
- So called semi-structural models estimate r* together with factors like GDP growth, to identify those interest rate nirvana-moments in time, and link them together through periods of unbalanced economy. These models are agnostic about the underlying drivers of the neutral rate, which can be a drawback.
- To gain a deeper understanding of the forces that cause trend shifts in the balance between saving and investment and hence r* – higher (lower) desire to save decreases (increases) r*, higher (lower) investment needs increases (decreases) r* – more elaborate structural models are used including general equilibrium models popular at central banks (DSGE models). One downside with these large models is that they tend to rely on many more assumptions, and therefore run the risk of being "exactly wrong, rather than roughly right", as the saying goes.[4]

The decades-long r* slide and its drivers

A research consensus has formed

Using a range of these different structural models, a research consensus has formed over the last decade, explaining the long slide in interest rates from the peaks in the 1970s and 80s, to the trough in the 2010s.[5] First, that it was caused by a decline in the global long-run neutral real interest rate, not cyclical conditions. And second, that some structural drivers behind this falling r* can be identified. So, which are the key factors and how did they cause interest rates to fall?

Falling interest rate trend is broken



Sources: Macrobond, Federal Reserve Bank of New York and Handelsbanken

Key driver I: Demographics

The global megatrend of an ageing population has driven the neutral real interest rate down.

Negative effects on r* since the 1970s/80s:

The three key categories of drivers behind the decline in r* from 1970s/80s to 2010s:

Demographic change, with ageing and slower population growth...

- Life expectancy, or longevity, trending higher has meant an increasing desire to save, to provide for one's future retirement.
- The declining dependency ratio, i.e. non-working age to working-age population, has implied a large share of the population – particularly baby-boomer generation of the 1940s – being in the stage of life when wealth is accumulated, driving up saving.
- A slowing population growth on the back of lower fertility rates imply decreasing investment needs (falling demand for capital), due to lower potential GDP growth and less need to complement additional labour with capital in the economy.

Key driver II: Productivity

Trend productivity growth has been slowing – a part of the phenomenon that has been labelled "Secular stagnation" – and driven down the neutral rate.

Negative effects on r* since the 1970s/80s:

...productivity growth slowing...

- Slowing productivity growth has dragged down the marginal product of capital, decreasing investment demand.
- Faltering productivity growth means that house-holds have to reckon with weaker future income growth, which increases the need to save.

Key driver III: Government debt and net safe asset supply

Public sector indebtedness has been on a steady rise, which has contributed to higher neutral rates. On the other hand, rising savings flows from emerging market economies in particular have resulted in a negative net supply of safe assets in total, and hence a lower neutral rate.

Positive effects on r* since the 1970s/80s:

...lower net safe asset supply as global saving glut trumps rising debt

- Rising debt issuance has been increasing the supply of "safe" assets, representing an increasing demand for capital in the economy. On top, higher indebtedness adds to bond premiums, which lifts interest rates.

Negative effects on r* since the 1970s/80s:

- Global saving glut, not least from emerging market economies on the back of current account surpluses, has given an increased demand for safe assets. And as an extra twist, this has implied capital inflows to advanced economies and hence an accentuated oversupply of saving there.

Our reading is that these three categories of drivers are the most important to help explain the decline in the neutral real interest rate, but the research literature does account for even more structural factors, such as the rising economic inequality.[6] Knowing the three main culprits behind the long r* slide should make it easy to draw conclusions about the future of interest rates, right? Maybe not.

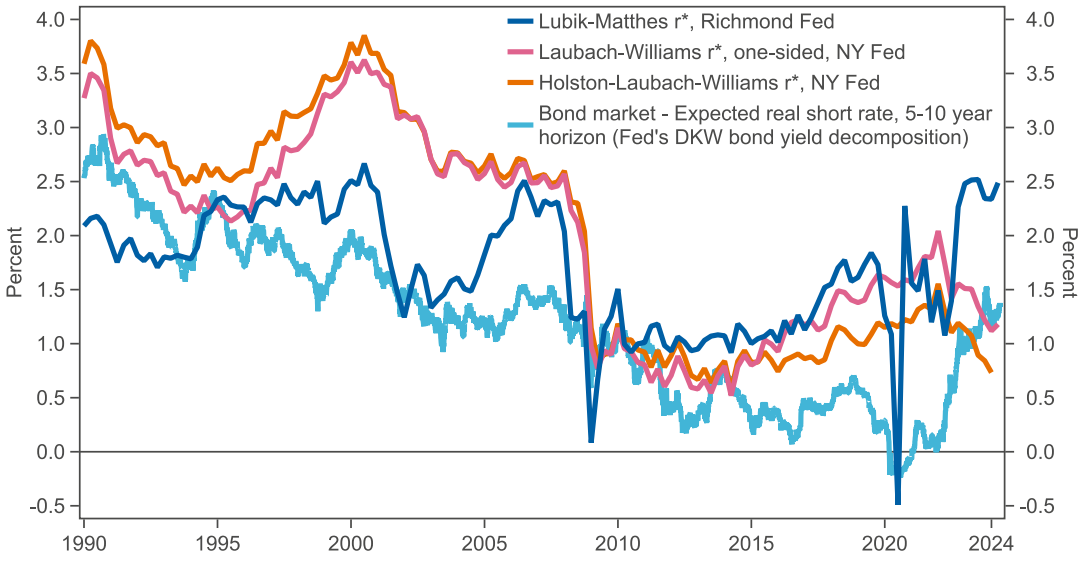
A trend break - the r* outlook

We look at a broad range of research to reach our conclusion of a trend break in r*

Since last we analysed the neutral interest rate, one and a half years ago, researchers have continued to mostly draw the conclusion that there has been a break in the downward trend, and r* has risen, albeit not clear how high (see graph).[7] And the research evidence also displays uncertainty about the future of key drivers, as well as disagreement about the relative strength of driver impact.[8] Let us address these issues each in turn.

Model estimates of the neutral interest rate

Models, market pricing and economists' views disagree about how high r* has risen, resulting in the so-called "r* wars"



Sources: Macrobond, Federal Reserve, FRBs of New York and Richmond, and Handelsbanken

The telescope: Where is r* today?

There are many r* estimates available, especially for the world's biggest economy, the US, but it is difficult to pick any one favourite. That is partly because of the above mentioned challenges in teasing out the signal from the noise when estimating an unobservable variable. But the aim of the various models and their comparative strengths and weaknesses also matters:

- Some do a better job at gauging the short-run r*, meant to show which level the current central bank policy rate needs to be above (below) in order for the policy stance to be contractionary (expansionary).
- Others zoom in on the long-run r*, aiming to answer the question where we should expect the terminal policy rate to be, beyond the cycle and other shocks affecting the economy now.

All told, our conclusion from available research is that the neutral real interest rate has risen, but that this is partly a temporary bolstering, i.e. higher short-run r* (see table). The effect is even more accentuated when we turn to nominal neutral interest rates by adding the short-run inflation expectations, which are slightly elevated in relation to both the levels consistent with central banks' 2-percent target and the well-anchored longer term inflation expectations. So, if the short run is temporarily bolstered, where is r* headed next?

Handelsbanken neutral rate of interest assumptions

	Current		Medium term (2028)		Long term (2054)
	Real	Nominal	Real	Nominal	
US	1.25	3.5	0.75	2.75 (2.5)	Real 1.0 Nominal 3.0
EZ	0.25	2.5	0.0	2.0 (1.75)	
NO	0.5	2.75	0.25	2.25 (1.75)	
SE	0.5	2.75	0.25	2.25 (2.0)	
GB	0.75	3.0	0.5	2.5 (2.5)	

Source: Handelsbanken
Note: Assumptions from January 2023 in parenthesis

In the long run, r* is decided by global conditions

The crystal ball: Where is r* heading next?

To assess how the neutral rate will develop ahead, beyond the trend break in recent years, we analyse the outlook for its most important drivers from the 2010s to the 2050s.

Demographic developments are set to change. Contrary to earlier beliefs, there are now many indications that demographics will not raise r*, overall, merely stop contributing to an even lower r*.

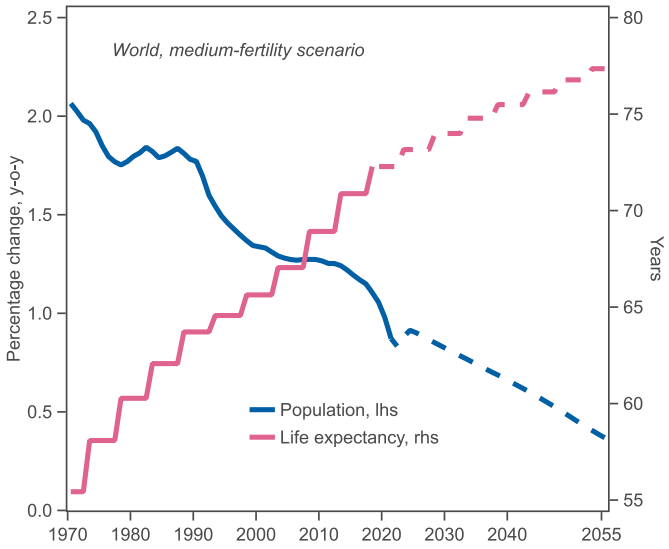
Demographics net effect neither positive nor negative ahead as...

...dissaving due to a higher dependency ratio....

...is offset by the ongoing longevity rise and population growth slowdown

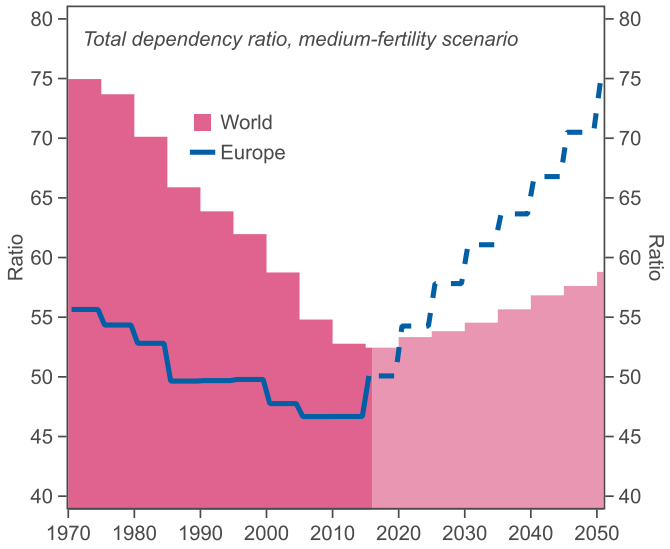
- The on-going turnaround to rising dependency ratios started a decade ago in advanced economies and will gain global momentum ahead. Basic life-cycle hypothesis says retirees will stop saving and instead spend accumulated wealth to smooth consumption, and in isolation this would contribute to higher r* ahead. But more recent research reveals that dissaving is much smaller in reality than predicted by the basic rule of thumb, partly for precautionary reasons in face of the risk that savings are depleted too early, in the middle of retirement. That makes for a weaker r* driver than earlier beliefs.[9]
- The continued rise in longevity will firstly increase the population share being middle-aged or older and is thus at a stage in their lives where one tends to have accumulated wealth – a compositional effect that all else equal increases the stock of wealth, counteracting the effect from retirement dissaving. Secondly, the rising life expectancy stretches the retirement period, further driving up the need to save during ones working-age years. However, longevity is not forecast to rise as fast as in recent decades. In addition, countries may choose to raise the retirement age.
- Finally, population growth will keep slowing, even going into reverse in not least many European countries. That implies the drag on investment needs and hence r* continues.
- All in all, we assume that the demographics net effect will be approximately ±0 for our full long-term forecast spanning 30 years. That means positive and negative effects above cancel out ahead – a break with the overwhelmingly negative recent decades.

Population growth slowing, longevity rising...



Sources: Macrobond, UN DESA and Handelsbanken

...but turnaround to higher dependency ratio



Sources: Macrobond, UN DESA and Handelsbanken

Productivity growth to leave the doldrums by slowly picking up, we judge, and toward our long-run horizon, in 30 years, reach something resembling normal – a boost to r*.

Productivity growth to pick up and boost future r*, partly due to economies catch up to the productivity frontier

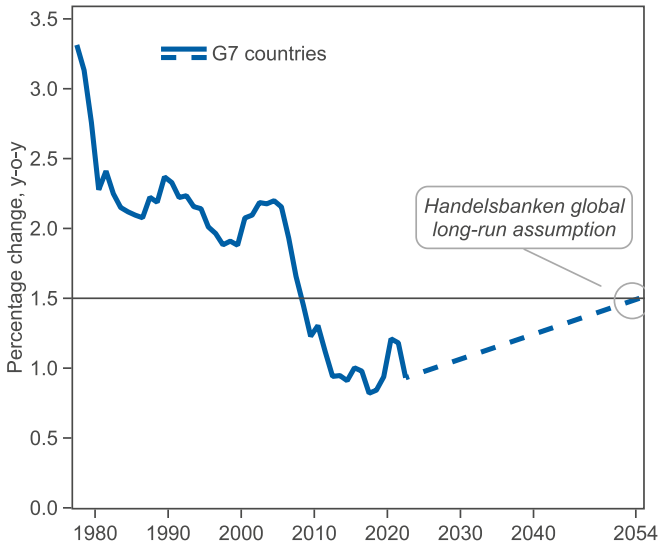
- We have been assuming a return to 1.5 percent productivity growth toward our long run horizon. Admittedly, some research suggests that it will be difficult to durably rejuvenate trend productivity ahead.[10] On the other hand, there is still much untapped potential if economies succeed in aligning better with the global productivity frontier, by using existing ideas, knowledge and technology.
- On top, the development of artificial intelligence (AI) adds to productivity growth in the coming decades, see the theme article *AI: Impact on growth and equality could be huge*, in Global Macro Forecast, 22 May 2024.
- Government initiatives to drive the green transition and fight climate change generates frontloaded investment growth, also lifting r*. In the shorter term, however, some productive but climate-hostile capital is likely to become underutilised or even labelled as entirely obsolete, a transition temporarily dampening productivity growth as such. But notably the alternative, a severe climate change scenario, is much worse also in a narrow economic perspective, as the number of stranded asset would surge, productivity would suffer and r* would sink.

Government debt and net safe asset supply are expected to be more or less counteracting forces ahead, not an overall boost to r*.

Net safe asset supply effect neither positive nor negative ahead as debt stops rising and "global saving glut" wanes

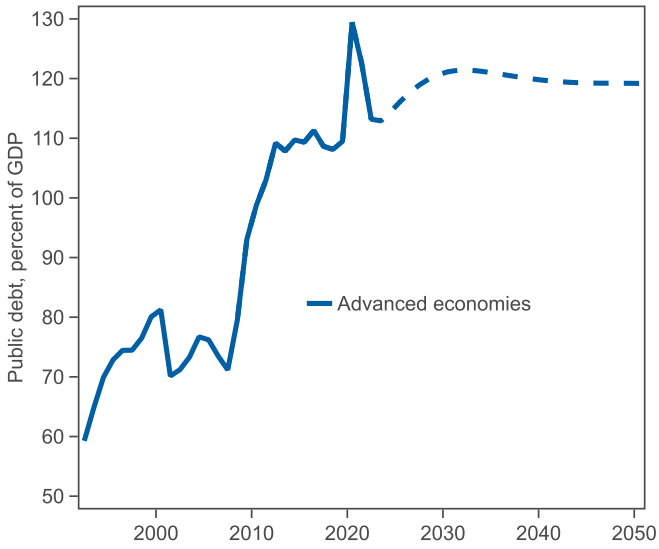
- Government debt has started to decline from recent peaks in many economies, but far from everywhere with the US one glaring exception. The sustainability of public finances is lacking, so even though many economies are expected to continue to show deficits in the shorter term, we assume that politicians will sooner or later shift to consolidation. Declining debt ahead will dampen r* in the long run, compared to today's high debt situation.
- Slowing globalisation, as well as emerging market economies' smaller current account surpluses and more mature domestic financial markets, are reasons why the demand for safe assets appears to have turned around and is assumed to ease somewhat ahead, in isolation driving r* up.

Productivity growth assumed to leave the doldrums



Sources: Macrobond, OECD and Handelsbanken

Public debt still rising, but should level off



Sources: Macrobond, IMF, OECD and Handelsbanken

Neither rising Phoenix, nor falling Icarus

All told, after revisiting our r* assumptions from January 2023, we remain of the view the neutral rates have risen, compared to the trough during the 2010s. Not least our assumptions for the current period, but there are reasons to believe that part of the surge is short-lived and our medium-run assumptions are only slightly higher than our previous assessment.

To conclude, r* will remain higher than in the 2010s...

Improved cyclical conditions and high inflation expectations in recent years imply a transitory lift to the short-term real as well as nominal neutral rate, compared to both the structurally founded medium-term r* assumptions we make, and the research literature's long-term r* estimates for the years just before the current volatile economic environment. Our long-term view for the advanced economies under our coverage is one of converging neutral interest rates. In a 30 year perspective, we view productivity growth as the main driver of r*, absent new shocks to demography, debt and other drivers. Our assumed productivity growth of 1.5 percent annually leads us to assume that r* will gravitate toward 1 percent, i.e. 3 percent in nominal terms given credible inflation targets of 2 percent.

Market implications: High for longer

...leading to high-for-longer market interest rates

The higher r* is key to both the policy rate outlook and the long bond yield forecast. For central banks, the higher short-term r* means less actual rate cuts are needed 2024–26 to stop restricting the economy – something we have already incorporated in past policy rate forecasts, but formalise further with the short-term r* assumptions in this analysis. Beyond that, the higher medium-term r* means the terminal policy rate after this cycle will be higher than what was normal in the low interest environment in the 2010s.

Upgraded short- and medium-run r*, together with our unchanged long-run r* assumption, resulted in upward revision of our market interest rate forecasts, i.e. swap rates and bond yields, see Global Macro Forecast, 22 May 2024.

What if!? – Could central banks' policy rate moves drive r*?

And lastly...

...a thought-provoking what-if theory...

Standard economic theory rules out that a long-run (steady-state) variable like r* could be affected by monetary policy. However, a couple of years ago, researchers proposed a theory that we may be viewing r* through a "hall of mirrors", whereby central banks cutting policy rates influences other economic agents to lower their r* beliefs. That, in turn, creates a self-fulfilling interest rate decline as agents' new downbeat expectations for the economy prompts them to curb spending and investment, causing central banks to cut the policy rates again due to a perception of r* decline in the economy – when actually central banks are merely seeing their own mirror image.

...that reminds us to be humble in our r* conclusions

And when it was later shown that much of the market interest rate decline in recent decades actually took place within a narrow three-day window around the Federal Reserve's policy meetings, the "hall of mirrors" discussion ramped up. However, this theory has not been proven by the Fed window phenomenon, which instead may simply indicate that economic agents tend to coordinate the updating of their interest rate expectations and beliefs about the complex r* issue in line with the release of new analysis and guidance from the Fed. As such, it does not invalidate the research documenting fundamental drivers behind r*. More recently, it has also been documented that the current upward trend break in interest rates has not happened during Fed windows.[11] All told, the "hall of mirrors" theory and similar alternative research underscores our earlier point that there is great uncertainty about the level of r*. Hence, conclusions should rest on a wide range of research and model classes, and be served with a larger portion of humility.

Footnotes

1 See the box on page 7 of our Global Macro Forecast, 25 January 2023. reonapi.researchonline.se ↩

2 The real interest rate is determined by the real return of purchasing a unit of capital, investing it, reaping the returns and finally selling the capital, see Macroeconomics fifth edition, Charles I. Jones, 2021. ↩

3 When framing one's thoughts, r* can be seen as having a slow-moving long-run component and a more cyclical component (Schnabel, 2024), or similarly a trend component and a short-run component (Flodberg, 2024), or an entire term structure of measures (Baker et al, 2023). R(ising) star?, speech by Isabel Schnabel, ECB, 20 March 2024. Structural factors determine interest rates in the longer run, Caroline Flodberg, Riksbank, 27 March 2024. The Post-Pandemic r*, Katie Baker, Logan Casey, Marco Del Negro, Aidan Gleich, and Ramya Nallamotu, FRB of New York, 9 August 2023. ↩

4 Several recent analyses run a suit of models of different classes, see for example: Estimates of the natural interest rate for the euro area: an update, Claus Brand, Noëmie Lisack and Falk Mazelis, ECB Economic Bulletin issue 1/2024, 8 February 2024, and Quo vadis, r*? The natural rate of interest after the pandemic, Gianluca Benigno, Boris Hofmann, Galo Nuño Barrau and Damiano Sandri, BIS Quarterly Review, 4 March 2024. ↩

5 One often-cited early reference that analyses the drivers behind the fall in interest rates is Secular drivers of the global real interest rate, Lukasz Rachel and Thomas D Smith, Bank of England Working Papers 571, 11 December 2015. ↩

6 Two recent studies that decompose r* developments using a larger set of explanatory variables are Drivers of the Natural Long-Term Rate of Interest (and Why the Economy Hasn't Tanked), Martin Ademmer and Jamie Rush, Bloomberg Economics, 22 December 2023, and the two research briefings by Oxford Economics (Daniel Harenberg): The neutral rate has risen, but by less than most think, 31 October 2023, and Long-term forces cap the bloc's neutral interest rate, 10 January 2024. ↩

7 See for example results and references in Brand et al (2024), Benigno et al (2024), Ademmer and Rush (2023) and Oxford Economics (2023, 2024). ↩

8 The model by Thomas Lubik at the Richmond Fed and Christian Matthes at Indiana University shows an upward trend break (see also Benigno et al (2024)) and in a recent podcast the researchers discuss why r* might be higher now and in the future, compared with the last decade, see https://www.richmondfed.org/research/national_economy/natural_rate_interest. Schnabel (2024) discuss the outlook for the secular drivers of r* and Oxford Economics (2023, 2024) even formally forecast the future r* given for example demographic projections and productivity assumptions. ↩

9 See discussion and references in Natural and Neutral Real Interest Rates: Past and Future, Maurice Obstfeld, NBER Working Paper No. 31949, December 2023, and Are higher interest rates here to stay?, Jeff Horwich and Andrea Raffo, FRB of Minneapolis, 24 February 2024. ↩

10 See for example the panel on structural constraints on growth, at the Kansas City Fed's 2023 Jackson Hole symposium. ideas.repec.org ↩

11 See Benigno et al (2024), The Natural Rate of Interest Through a Hall of Mirrors, Phurichai Rungcharoenkitkul and Fabian Winkler, 20 October 2021, The Fed and the Secular Decline in Interest Rates, Sebastian Hillenbrand, March 2023, Schnabel (2024), and A surprising pattern is hidden behind the trend in long-term interest rates, Hanna Armelius, Stefan Laséen and Stefania Mammos, Sveriges Riksbank, 23 April 2024. ↩

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