The end of the road – speech by Alan Taylor

Given at the London School of Economics and Political Science

04 July 2025

Speech

Thank you for the kind introduction and the invitation to come to LSE to deliver my second speech as a member of the Monetary Policy Committee since I joined the Bank of England last September.

LSE is a special place in terms of its history with the Bank, going back many decades. Since 1997 it has also been the academic home to many distinguished members of the MPC, to name a few: Mervyn King, Charles Goodhart, Stephen Nickell, Charlie Bean, Tim Besley, Silvana Tenreyro, and my current colleague on the Committee, Swati Dhingra.

Through their service they have all set a great example and provide inspiration for me as just the latest professor to serve on the committee.

Now on to the speech. Or at least I think it is a speech. On re-reading it I wonder if it is a bit more like an economics seminar—but given our location I hope I can be somewhat forgiven for that.

1. Introduction

The meta subject of practically any speech by any monetary policymaker is communication. However, paradoxically, in the ideal state of the world, this communication is almost unnecessary. If everyone knows the policy reaction function, through knowledge of the relevant data, history, and actions, then everyone can predict almost without fail the actions you will take now, and in most future states of the world.

Now the actual subject of my speech today, given the title, is the end of the road. But if you are now asking yourself the question, "the end of the road for what?" then I have fallen short of that communications benchmark.

But at least it leaves me with something to talk about tonight.

To cut to the point, the end of the road that I will be speaking about is *the end of the road for Bank Rate*, our main policy instrument. Also known as the end point, the neutral rate, the rate obtained after all shocks have washed out. That destination, and how we get there is of enormous interest and consequence to the economy, affecting financial markets, banks, firms, households, everyone.

This raises further questions: is it really that important? And if so, where is it? I believe that it is important, and that trying to avoid the question is hard, problematic, and in my view, counterproductive. I argued as much in some brief remarks I gave a couple of days ago in Sintra, and I hope to expand further on that theme today.

Whilst one could take a step by step, or meeting by meeting approach to guiding the interest rate, the question of the end point, the final resting place of interest rates, in a steady state can, in my view, never quite be fully sidestepped.

I will try to explain why that is, and then try to answer the question as directly as I can by providing my own view, which is of course not necessarily that of my MPC colleagues.

2. Recent history: elusive stability

To start with some useful historical context, we can look at the recent path of short-term rates, inflation, the output gap, that is, an estimate of the balance between aggregate supply and demand, as well as an estimate of the natural rate in the UK over the last 50 years. Remember, one of the hats I wear is that of the economic historian, so 50 years ago is very recent. We'll be going much further back in a moment.

Chart 1: Bank Rate, inflation, the output gap, and r*
Percent
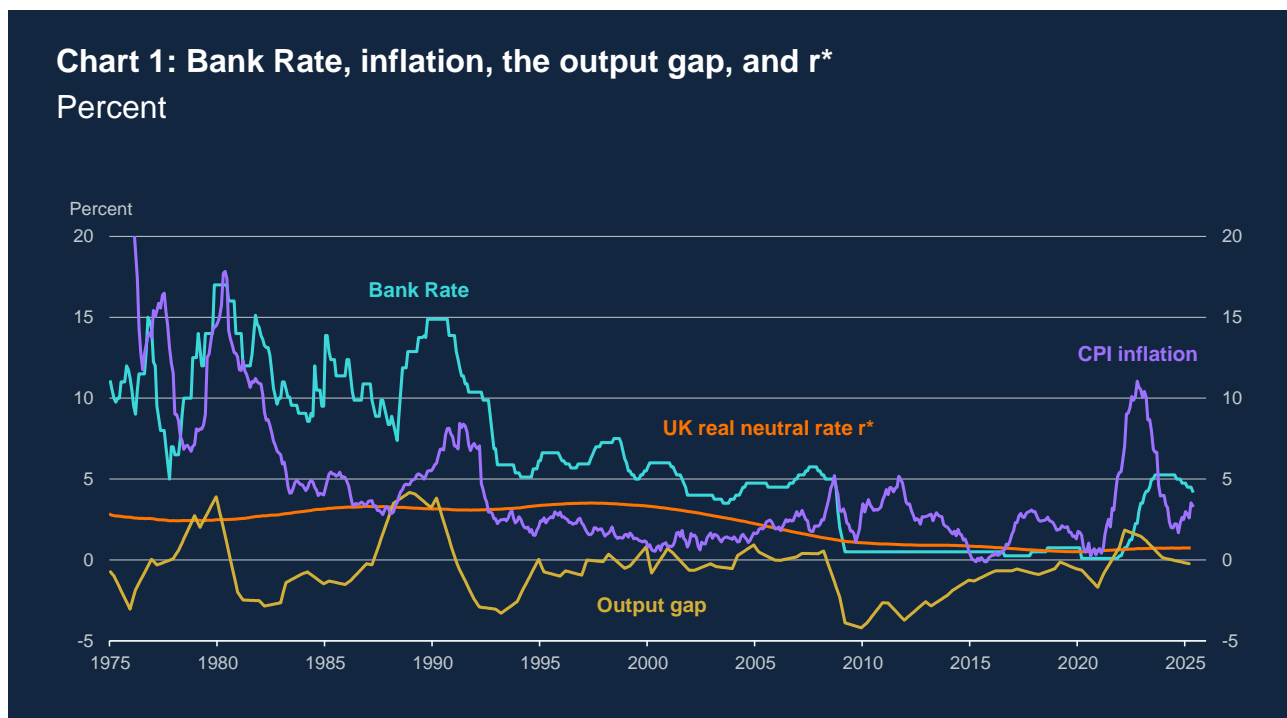
Source: Office for National Statistics, Bank of England, **Davis et al. (2024)**, and Bank calculations. Notes: UK r^* is an updated version of the measure in Davis et al.; the output gap until the 1990's is constructed using the HP-filter, then spliced with the output gap from the **May 2025 Monetary Policy Report**. Latest observation: May 2025.

As **Chart 1** shows, the Bank's policy rate, Bank Rate (aqua), has been on a downward trend for the last 50 years, notwithstanding some major fluctuations on either side of that trend. Part of it can be attributed to the fall in the real natural rate of interest (orange) which went from about 3% in the 1980s to near 1% now. Over that same time frame, also inflation has come down from its 1970s highs, settling around 2%, the MPC's target, but with a lot of noisy fluctuations along the way.

The question, of course, is why these trends happened and then, where they might go next. But that will take a few steps, and an attempt to get a handle on the underlying economics and the relevant historical evidence.

As we can see, in this period, Bank Rate reached its highest level in 1979 and then stayed high through the 1980s, a time when all major central banks sought to put an end to a long inflation surge that began slowly in the 1960s and accelerated with the oil shocks of the 1970s. Inflation had been allowed to get out of control and into double digits on an annual basis. The 10%+ inflation unleashed by too loose monetary conditions and unanchored expectations was painful and unpopular, as was the 10%+ unemployment rate that followed under the tight monetary conditions instituted to bring down inflation. In an already dismal science, those years bequeathed new terms of art such as `stagflation' and the `misery index'—the sum of inflation and unemployment rates, which at times rose to the 20%+ range.

Thankfully, we never saw that kind of misery index again, but the macroeconomic aftershocks did not fully subside until around 1990, and they left a big mark on economists and on economic policy. By the early 1990s, in a growing range of advanced economies, we saw the emergence of the current monetary framework of inflation targeting by an independent central bank, an idea that became the global norm and remains with us today. Yet the period of subsequent macroeconomic calm was fleeting and would last for barely 20 years, until 2008, a time that is wistfully referred to by macroeconomists as The Great Moderation.

In the case of the UK, those were the 'nice' decades—non-inflationary, consistently expansionary (**King, 2003**). In that window, inflation settled at low and stable levels, economic growth hummed along, and policy interest rates remained on a mostly steady course, and in a fairly stable channel. Bank Rate began this current century at a relatively high level of 5.75%, falling to 3.5% in mid-2003 and tightening before the financial crisis in 2008. Up to that point growth was strong and inflation stable. Immediately after, however, rates fell to near zero in early 2009. Subsequent economic growth was weak, and many parts of the world entered a long and deep recession. In this period after the financial crisis, UK inflation was volatile and often meaningfully above and even below target.

However, having interest rates on the floor at zero was certainly not seen as a normal level in the long run, and interest rates in some advanced economies began to lift off in the late 2010s as economies recovered. The pandemic then hit, the economy was at risk of collapse, rates went back to the floor, and more economic volatility followed. Central banks supported the economy, as did fiscal measures. At the exit from the pandemic, inflation began to rise as supply chains struggled to meet resurgent demand, and then took off after the food and energy supply shocks triggered by the Russian invasion of Ukraine. In that context, Bank Rate, like interest rates across the world, swung from very accommodative

to very restrictive, to push back against inflation dynamics and the risk of expectations unanchoring.

In that very brief summary of events, it is pretty clear that, at least since 2008, interest rates here in the UK as well as in other parts of the world, have hardly ever been near their neutral level. And for good reason: the emergence of one shock after another has required central banks to intervene resolutely first in one direction, and then in the other.

As a result, and unlike the period before 2008, it is very hard to simply look at the policy rate itself, take some kind of average or trend, and draw any firm conviction as to where the neutral level might be.

So, what can we do? Tonight, I will walk through the kind of analytical approach that most macroeconomists would typically use as of now, the current best practice as I see it, and try to explain how that guides my thinking.

3. Ancient history: four great epochs

However, I did promise a deeper dive into history, and now is a good time to do that. Not for the sake of it, but because I think it provides us with further insights and motivation to ponder the question of what drives interest rates today.

The history of interest rates is very long indeed[1] and should prompt us to ask what key economic mechanisms have mattered over the very long run and to think about how they have ebbed and flowed in terms of their influence in different times and places. With those perspectives in hand, we are in a better place to think about what might be the most operative forces that bind on interest rates today and in the near future.

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[1] See Homer and Sylla, 'A History of Interest Rates'.

Chart 2: Eight hundred years of interest rates
Percent

Percent

Schmelzing (2020):
Global real interest rate

50-year centred moving average
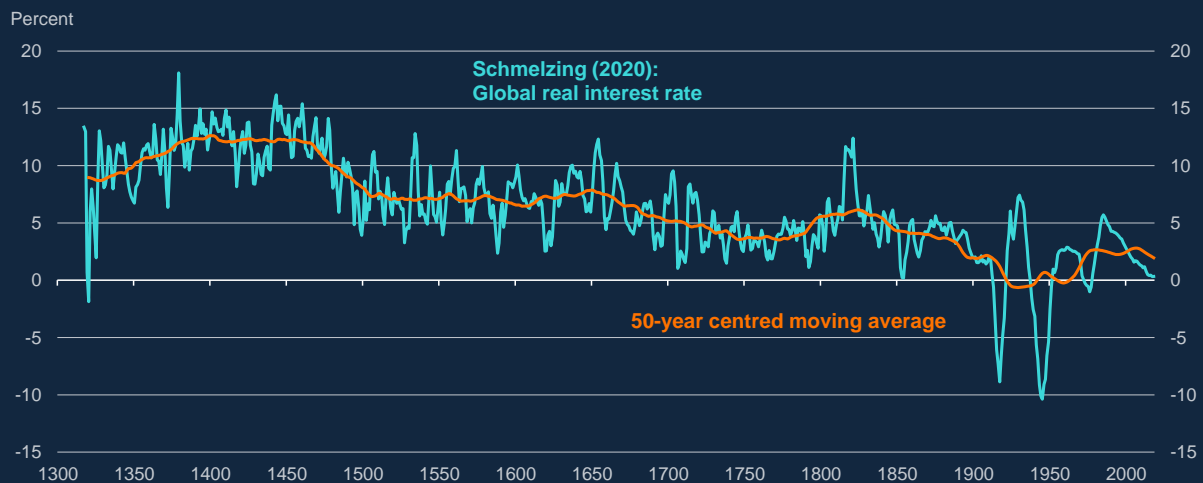
Source: **Schmelzing, 2020**. Notes: The chart shows 7-year average real safe rates, obtained from GDP-weighted nominal rates and inflation in Italy, United Kingdom, Netherlands, Germany, France, United States, Spain, and Japan since 1310. Latest observation: 2018.

Chart 2 is a remarkable figure, built from a remarkable dataset, one that was constructed by a financial historian, Paul Schmelzing, who, a few years ago, worked at the Bank of England and contributed this work to the Bank's data archive (**Schmelzing, 2020**).

Now of course, even going from 50 to 800 years leaves us with still something of a subsample. There are interest rates from even earlier periods going back several thousand years (see **Haldane, 2015**). A large body of inscriptions on clay tablets and papyri that have been dug up by archaeologists actually deal with economic records, including oftentimes debt contracts. So debt, and therefore interest rates, and many of the foundations of modern finance, actually go back millennia to ancient civilisations.

But in terms of a cleaned, codified, and somewhat standardised time series of interest rates over several centuries, the work of Schmelzing stands out as being useful to us, and not least because it is a continuous study that goes all the way up to the present day. It records interest on debt issued by sovereigns, princes, churches and other debtors which might be the closest analogues to today's benchmark safe asset issuers. And what stands out, to me, first and foremost as the central message of this chart is this: interest rates have been declining for not just 50 years but for 800 years.

Now we have to ask: why? The data that we see here are just one part of the story. The other parts of the story rely on history and theory, completing the three legs on which any good work of economic history must rest.

So let me jump to theory, and then circle back to these historical data. Hopefully, after I have tried to convince you that there are some useful analytical threads that run through the last eight centuries, we will turn back to the present—the recent decades, the here and now, and what comes next.

For this purpose, and in an act of gross simplification, let me divide the 800-year history of interest rates into four broad epochs, and then try to bring a bit of economic history to bear on the interest rates in each period.

1. The pre-Modern period, which I will take to mean the Malthusian era before the onset of the full-steam Industrial Revolution and the broad development of modern financial markets after 1800.
2. The 'long' 19th century growth acceleration up to 1914 via industrial development, financial deepening, and the first era of globalisation, amid the first demographic shift.
3. The 'short' 20th century, beginning with war, depression, war, and followed by the slow and reconstruction of economic and financial structures in the midst of a second demographic shift up to the 1990s.
4. The 21st century so far, of accelerated globalisation, and financialisation, of a third demographic shift of pronounced ageing, with continued wealth accumulation, and slower growth (so far).

What I plan to do is to come back to each of these four periods in turn and try to interpret them through some economic lenses.

Before I can do that, I will first need a basic theoretical framing, a toolkit to explain what I am doing.

4. Theoretical drivers in the very long run

What is our theoretical setup going to be? It is shown in **Chart 3** and is a very simple and stylised view of the determinants of interest rates as well as savings and investment in an economy populated by savers and borrowers.

Chart 3: A simple model of savings and investment
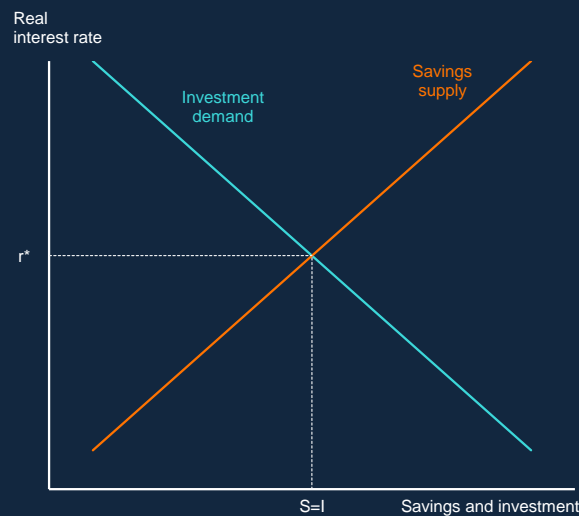
Savers, think of households, on net, or those acting on their behalf, supply funds to the loan market. Borrowers, think of firms, on net, borrow funds in these markets to invest in productive assets that will be the basis of economic growth in the future. And this is a single economy, a closed economy, for the time being. This exposition resembles one of the earliest, or perhaps the first, discussion about the neutral rate of interest put forward by Knut Wicksell in the late 1800s.[2]

Of course, it is a big simplification. In reality, some households borrow, some firms lend, and government may also be in the picture. But here we will just think of the net flows to focus on the main forces. Gross flows will be much bigger than these net flows, for these reasons, and that is one explanation as to why the financial system is so large.

The diagram shows the interaction between households' supply of funds via savings and firms' demand for funds to use for investment. The horizontal axis is the quantity of savings and investment, and on the vertical axis is the price, the real interest rate, nominal minus inflation, the real cost of borrowing and the real return on lending. As real rates increase, savers are incentivized to save more by higher rates of return, but borrowers are similarly incentivized to invest less given the high cost of borrowed funds. So the savings supply curve slopes up and the investment demand curve slopes down.

We will think of the intersection point in this picture as describing a steady state equilibrium, one with full employment and stable inflation, and where savings equal investment so that the simple financial market has demand equal to supply. In that case,

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[2] Wicksell, K. (1898). *Interest and Prices.*

the equilibrium real rate is what is usually called the natural rate, famously known by the symbol r^*. This is the real interest rate that results when all shocks to the economy, both real and nominal have fully dissipated.

If you think those conditions are never obtained, you are right: shocks never fully dissipate, and there are always new ones coming along. This picture, the equilibrium, will never be seen. And thus r^* as shown is not actually an observable concept. But despite all that, r^* is a very real economic object and one of great importance, as it is the central tendency of the real interest rate, the mean toward which we are always reverting.

So in the very long run, even if shocks move the real rate around in the short run, we should see real rates, on average, tending to steer close to r^*.

And then, going back to our historical problem, we can ask how the model can be useful. And that means asking what are the relevant shifts in the patterns of saving and investment that determine r^* and what might have made them change in the course of history?

Let me list a few prime candidates, the historical movers that economic research has identified as relevant for our problem.

1. Property rights: Savers feel less certain that they will actually receive the amount they have been promised when they lend. A contractual mechanism. See **Chart 3a**.
2. Financial frictions: Banks or other market participants become less efficient or competitive. An intermediation mechanism. See **Chart 3a**.
3. People want to save more, and firms invest less out of caution. They are more afraid in a more risky economic environment. A risk or uncertainty mechanism. See **Chart 3b**.
4. People want to save more, and firms invest less because growth prospects are weaker. A growth mechanism. See **Chart 3b**.
5. People want to or can afford to save more for future needs, due to a propensity to save out of higher incomes, fewer children, and/or a longer expected life/retirement. A demographic mechanism. See **Chart 3c**.
6. There appear some external forms of capital inflow which increase available funds in the home economy. A global spillovers mechanism. See **Chart 3c**.

There may be other forces to consider but these are some of the main ones, and although the quantity implications can be ambiguous, as for example in **Chart 3b**, in each case the directional impact on r^* is clear and intuitive.

**Chart 3: Drivers of r* in the simple model of savings and investment**

a) A friction in the market due to poor property rights or costly intermediation

Real interest rate

Investment demand

Savings supply

r*

Cost of friction

Savings and investment
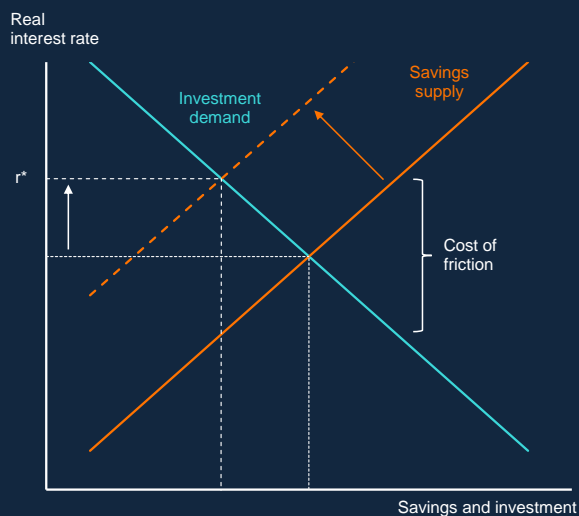
b) Higher savings and lower investment due to elevated uncertainty or weaker growth

Real interest rate

Investment demand

Savings supply

r*

Savings and investment
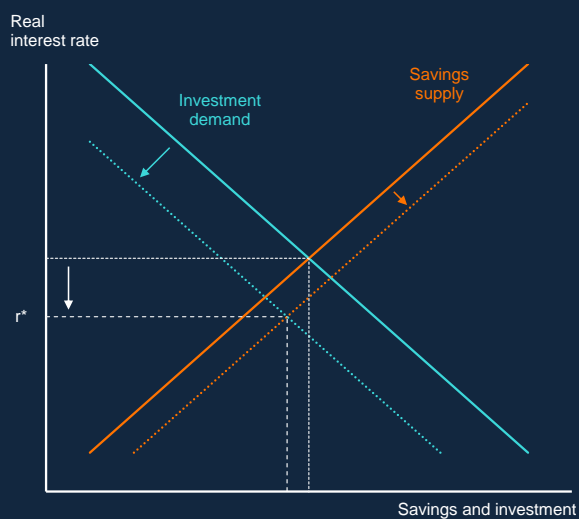
c) Savings glut due to higher propensity to save, demographic change, or capital inflows

Real interest rate

Investment demand

Savings supply

r*

Savings and investment
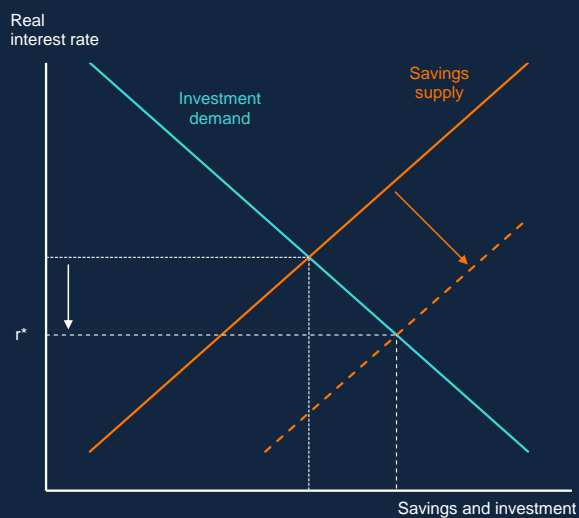
5. History seen through the lens of theory

Let me now dive back into history and try to give an account of the last 800 years of interest rates. Obviously, such an account will be multicausal not monocausal, a sensible way to go despite the standard temptation in economics to shoehorn everything into one theory. Here our theoretical toolkit is well suited without being too specific, allowing for multiple factors to change the equilibrium and the resulting natural rate in different epochs.

Let me turn to the first epoch, the years from the Middle Ages to the 1800s in Europe, and with special attention to Britain. In this pre-industrial era, growth was slow as rates of productivity advancement were minimal, and the population was, at least early on, often in a Malthusian stasis. Incomes and wealth were low and few people had much beyond subsistence. Financial intermediation was poor until at least the 1700s, and somewhat embryonic even after that. With both investment opportunities and sources of savings very repressed, the question then remains, what kept the interest rate so high?

I think the answer lies in the first and second examples we considered – property rights and financial frictions. Financial frictions were indeed high, given the primitive state of banking and capital markets. But perhaps even more of a binding constraint was the often unreliable nature of financial contracts. In a world of often arbitrary property rights and weak rule of law, returns were never sure, and confiscation or default risks were high. The investor in a project might not see the payoff; and any payoff might not translate into repayment of the lender. That meant a risk premium that would end up in the price, in the equilibrium real interest rate r^*.

Only over many centuries would that environment change, and only slowly through changing property rights, rule of law, and contract enforcement. In British history we think of 1215, 1688, and many other points along the road. For even just the most basic financial channels to function reasonable smoothly, institutions needed to change. In the words of the economic historian Eric Jones, these centuries saw not a slew of technological advances, but a removal of impediments setting the stage for things to come:

> What was important instead was the slow planing away of roughness and risk, so that entrepreneurs might not merely maximise profits but retain them too. And as interest rates were brought down so choices among investments became technical exercises in deciding what the market demanded, rather than matters of guessing merely where it was least risky to hazard resources. The economy became regulated by economic rather than political decisions.[3]

[3] Eric Jones, *The European Miracle: Environments, economies and geopolitics in the history of Europe and Asia*, 3rd edition (Cambridge: Cambridge University Press), pp. 234-235. In the lead up to this passage,

Let me now turn to the second epoch, from around 1800 to 1914, marking the onset of modern economic growth and global economic integration. In Britain, after the war's end in 1815, the Industrial Revolution gathered steam in the first half of the 19th century, and the first era of globalisation took shape in the second half of the 19th century. The first demographic transition unleashed for a time a population boom. The financial sector grew to a hitherto unprecedented size, and Britain led the way as the financial capital of the world in this era, the first true full-scale era of finance-capitalism which channelled savings into enterprise at home and then increasingly overseas.

Both savings supply and investment demand were up, relative to their moribund levels in centuries past. But which was pushing harder? How did rates move? Interest rates had briefly suffered their biggest upward spike in centuries during the Napoleonic war; hardly a surprise as it was a very expensive war: British government debt peaked at 213% of GDP (**Hills, Thomas & Dimsdale, 2010**). But after Waterloo, as time wore on, interest rates returned to their inexorable downward path. The great wave of savings was in full flow, its pace running well ahead of the surging investment demands of even the heavy industrial age.

Through the lens of our models, I think we can interpret this as a combination of a growth shock (potentially raising r^*) and rising global capital demand after 1870 (also potentially raising r^*), but also a 19th century savings glut at home and a continued diminution of risks and frictions in the finance sector (acting to lower r^*) with the latter dominating.

It was a world now made safer for savers, and unsurprisingly, many more savers there would be. But that was also because at the same time incomes rose and the economy had decisively broken out of the Malthusian trap. Initially, saving may have been the domain of only the very wealthy in previous centuries, but saving was now spreading to the middle classes, whose incomes were advancing far away from subsistence, and whose financial concerns end up grist for many a Victorian novel. The sources of saving grew rapidly at home. Interest rates fell further, and the downforces on r^* were quite strong, even absorbing an increasing demand from the rest of the world after 1870 as financial integration brought a new source of demand for abundant British funds from abroad. Integration meant further downforce as home savings were freer to roam when the pace of economic growth decelerated in the Edwardian era and home investment needs abated.

Jones quotes the famous line of Smith that 'Little else is requisite to carry a state to the highest degree of opulence from the lowest barbarism, but peace, easy taxes, and a tolerable administration of justice; all the rest being brought about by the natural course of things.'

Let me now turn to the third epoch, the 20th century. Perhaps this ought to be broken up further into two halves.

If we are asking the question of what could stop the downforce on interest rates, the first decades of war and depression and another war did not cause a decisive break. Economic growth was subdued and a shift to greater risk and economic (and policy) uncertainty compounded the urge to save more and invest less due to precautionary motives. Those sentiments would be lodged for some time, and shape savers' financial behaviour even after 1945 (**Malmendier & Nagel, 2011** and **Malmendier & Shen, 2024**).

Governments borrowed on a large scale again, but often used new techniques of financial repression to keep interest rates low, so we are not entirely sure of the market equilibrium in these times of war and its aftermath, in financial markets just as in other markets. Add to this the arrival of inflations and hyperinflations after the 1914 break from gold, and observed real interest rates became very volatile, as we saw in **Chart 2**.

All that said, we emerged in the post-war period of the 1950s with real rates at about the same level we had last seen them before the dislocations of 1914-1945. A pause perhaps but no decisive break from the 800-year trend. That would very briefly change, chiefly for an unusual and time-specific demographic reason: the Baby Boom. This event, through its subsequent echo in the 1970s and 1980s, would momentarily boost investment and economic growth, against an already rapid growth backdrop, and those expanding investment needs would, for a generation, just nose ahead of savings supply that was being held back by the same growth and demographic mechanism. Older children entered the workforce which grew at a faster pace, while younger children put downward pressure on household savings. In that moment, the trend of 800 years was held in check.

But that countertrend didn't last long. One reason was a downshift in growth rates again from the 1970s onwards. An even bigger and more persistent force derives from another demographic pattern, which this time wasn't a one-off blip, like the Baby Boom, but a permanent shift in our population patterns that endures today and into the infinite future as far as we can see: Ageing. The old person. And, increasingly, as time has gone by, the old person with savings. And those savings were increasingly needed to finance the increasingly lengthy period of retirement in old age, that had simply never been much of a possibility in previous epochs, and which, beyond a baseline level, could not be provided for out of state pension provision alone.[4]

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[4] This may explain why it is hard, if not impossible, to find a statistically significant relationship between demographics and interest rates in sample periods prior to the late 20th century. The motive to save for retirement was weak to non-existent given prevailing life expectancies (see for example **Rogoff, Rossi & Schmelzing, 2024**).

The continuation of those trends well describes the times we have been living in since, the fourth epoch.

The savings glut of the old has rolled on and on, and the average wealth of ageing individuals seems to rise with age not fall, as was pointed out by former MPC member Jan Vlieghe in **his speech here at LSE almost exactly four years ago**. Moreover, the savings glut of the old seems to be particularly strongly felt in the space of safe assets (like fixed income) as opposed to risky assets (like equity), which may be a reflection of the variation in risk preferences across different age groups (**Kopecky & Taylor, 2022**). For that reason, this new ageing pressure on returns to capital may be more powerfully and differentially felt on debt yields, and thus on r^*, than in any other asset returns.

We have also seen other savings glut pressures. Capital flows to poor countries were common in the 19th century and even in the 1960s and 1970s. In recent decades, capital tends to flow more uphill, especially public savings in the form of foreign currency reserves and sovereign wealth funds which have pushed savings into the advanced economies. So, global forces have been acting to push the r^* in advanced economies down, not up (**Bernanke, 2005** and **Rachel and Summers, 2019**). A further savings glut may be driven by inequality, if the rich have higher propensities to save, and this force has also been in play (**Mian, Straub & Sufi, 2020** and **Mian, Straub & Sufi, 2021**).

Summing up this history of how we got here and what it means for where we go next, I would make two points.

First, for most of our peacetime history one or more of the following five conditions was met:

1. a poor financial contracting environment;
2. an inefficient, backward financial sector;
3. very few people able to save or incentivized to do so by ageing;
4. a high pace of economic growth at home requiring investment;
5. strong demand for borrowing from abroad.

Each of these forces acted during one or more phases of history to prop up the natural rate, r^*. They came and went, but one by one they have gradually fallen away, and for the first time in history all five forces are absent. This is why we are where we are.

Second, and looking forward, the absence of these five factors seems to me likely to continue at least in the near term. Those who believe that r^* may rise in the near future, which is not my view, presumably have strong reasons to think that some kind of reversal on at least some of these dimensions is likely. Let me speculate on where, if at all, that seems likely.

I will not speak to items 1, 2, or 3; if we are to have a collapse of rule of law then we will have bigger things to worry about than r^*; a return to inefficient financial markets, a going backwards, also seems unlikely to me; and the desire to save for retirement seems to be destined only to get stronger, as ageing progresses further all over the world.[5]

That leaves items 4 and 5: some reason for more investment to support growth, or a reversal of the global savings glut in poorer countries. Whilst many people propose the first, and we may have some updraft from the climate transition or AI, based on the numbers I have seen, the investment needs may not be of such a magnitude as to match what we saw in the peak investment age from the 1800s to the mid-1900s when heavy industrial and infrastructure needs were at their apex.

If anything, I wonder about the last item, the possible reversal of capital flows from poor to rich countries; it will depend on how well each country can finance its own investments through home savings (their demographic shift to ageing is even faster), and it will matter just as much how the institutional environment adapts to boost growth and attract foreign investment. But at best, they would have a large capital accumulation gap to fill, and if that kicks into gear even with partial force it would be felt in global capital flow pressures.

I doubt it, but I would be happy to be proved wrong, as it would mean rapid economic development in many poorer countries would be getting underway. Rather I think the 21st century r^* will be defined most of all by yet more ageing: an even greater savings glut of the old, but now accelerating to become a global phenomenon, in more emerging developing countries, and it will be an important shift and likely a big challenge for us all.

6. Where now? Trend and cycle in advanced economies

Now, given what has been presented so far, you might be asking: If r^* is not directly observable, how can we measure it?

For that, we need a model. And preferably one that captures the time dimension, unlike the simple, static demand-and-supply model I showed above. I said before that r^* is something like the mean that real rates will revert to when shocks wash out. However, since at any point in time what we observe is not the steady state, and departures from steady state can be very persistent, inference about r^* requires more than a statistical trend-cycle decomposition—although all models of this class tend to be, in the end, some sort of fancy moving average.

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[5] I should mention here that, as Charles Goodhart has pointed out, there might be a countervailing force in ageing societies which again puts upward pressure on r^* (**Goodhart and Pradhan, 2020**). That is, when the dis-saving of the retired outweighs the saving of the still-in-work, then our supply curve can again shift inwards.

The models that we have of r^* typically embody restrictions that are consistent with some economic theory of what that steady state might look like. For example, if we posit that the steady state is one where demand and supply in the goods market are in balance (i.e. the output gap is closed), and that inflation is at its target or some long-run trend rate, and we have estimates of the structural equations governing the world, then we can design a filter which, at any point in time, yields that real rate which is consistent with those conditions being true.

What I have described is a version of probably the most well-known and widely used r^* model, that is, the New York Fed's. It was first estimated by **Thomas Laubach and John Williams for the United States in 2003** and later extended to other countries in **Holston-Laubach-Williams (2017)**. Their model is a semi-structural version of the New Keynesian model with a Phillips curve and an IS curve. And, crucially, it has time-varying trends which they back out using the Kalman filter.

Many other r^* models have subsequently built on this tradition.[6] My own preference is for a macro-financial state-space model, which joins up the macroeconomic block of the Laubach-Williams model with the financial block of a standard affine term structure model of the government bond yield curve, as described in my recent work with coauthors (**Davis et al., 2024**). There we estimated r^* across a group of advanced economies. To briefly explain a bit of the methodology, the macro block models the lower-frequency long-run stochastic trends in inflation and r^*, and the finance block allows higher-frequency cyclical bond market fluctuations around these trends (where $\bar{y}_t$ is the average yield on government bonds, and ϵ_t^{cyc} is a cyclical disturbance which includes risk factors):[7]

$$\bar{y}_t = a_y + b_\pi \pi_t^* + b_r r_t^* + \epsilon_t^{cyc}$$

For this speech, I have updated the estimation of this model and taken it up to the latest quarter (2025Q1). **Chart 4** shows point estimates of the real neutral rate for five advanced economies (US, UK, Japan, France, and Germany) since the 1990s, using the non-recursive variant of the model with a two-sided Kalman filter to capture the smooth long-run trends using the full sample of data. The estimates are reasonably precise, with 95% confidence intervals of about 50 to 150 basis points.

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[6] Other models of this type, placing more or less restrictions on the structural parameters, include the Richmond Fed's **Lubik & Matthes (2023)** and **Ferreira & Shousha (2023)**. Another class of models includes certain structural Overlapping Generations (OLG) models. These are valuable not necessarily for estimating today's r^* at business cycle frequency, but allow for forward-looking inferences based on expected demographic changes, productivity growth, and the impact of factors such as climate change and climate change policies as well as emerging technologies like AI (for example, **Kopecky & Taylor, 2022** and **Cesa-Bianchi, Harrison & Sajedi, 2023**).
[7] See also **Cieslak & Povala (2015)** and **Bauer & Rudebusch (2020)**.

Chart 4: Neutral rate estimates for G5 economies
Percent
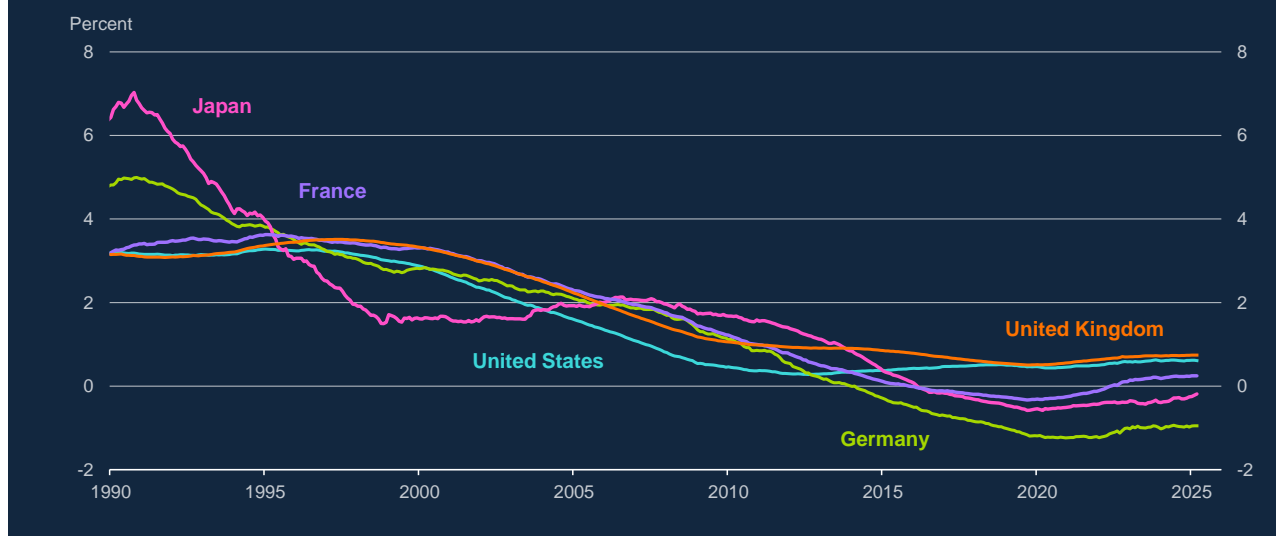
Source: Davis et al. (2024) and Bank calculations. Latest observation: March 2025.

Several features of the chart stand out. First, r^* has been on a strong downward trend in all the countries. Second, real rates began in positive territory between 3% and 7%. Third, in the recent period after the financial crisis of 2008, these trends have approached and, in some cases, passed through zero and into negative territory. Fourth, the overall ranking of rates today bears some intuitive relationship to fundamentals like growth rates and demography. In Japan and the euro area growth is slow and ageing is further advanced. In the UK and US these downforces are not yet as pronounced.[8]

Finally, note the levels and their relatively smooth profile in recent years. Neutral rates have ticked up a little bit from the lows seen during the years of the pandemic period, but they have not moved massively.

What might this imply for the neutral nominal rate? The point estimate of r^* for the UK is about 0.75% per annum for Q1 2025, similar to the levels that were seen in the UK in 2015-2016. Adding 2% for our inflation target, we reach a nominal neutral rate of 2.75%, and around that we might place a suitable confidence band to keep in mind possible measurement error to arrive at a range of 2.25% to 3.25%, which I don't think is a particularly controversial or unusual range for such an estimate.[9]

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[8] Without financial frictions and with free flow of capital, one would expect neutral rates to converge across countries. However, these frictions exist, and they cause persistent cross-country gaps between neutral rates. See, for example, Cesa-Bianchi, A., Lloyd, S., Sajedi, R., Sampaolesi, M. A. (forthcoming). "The Natural Rate of Interest in Small-Open Economies: Asymmetries and Fragmentation", mimeo.
[9] This is applying the 95% posterior interval at the end of the UK r^* series in Davis et. al. (2024), which is a range of roughly 100 basis points.

7. Where next? My near-term outlook

Now to conclude, on two happy notes. Our model provides us with an end point for the interest rate. That, in turn, allows me to provide you with an end point for this lecture.

Should we close in to a state of the world where all shocks have mostly dissipated, I would expect Bank Rate to normalise at close to the central estimate of 2.75%. That means with Bank Rate currently at 4.25% we still have a long way to go to get to neutral, and our current policy is still quite restrictive, as we can see from **Chart 5**, which plots the path of UK r^* against the ex-post real short term rate both in the past an as implied by our **May 2025 MPR forecast**. Here, the aqua line measures the inflation-adjusted return that an investor would have made over each four-quarter period by investing their money at Bank Rate.

Chart 5: UK ex-post real short-term rate and r*
Percent
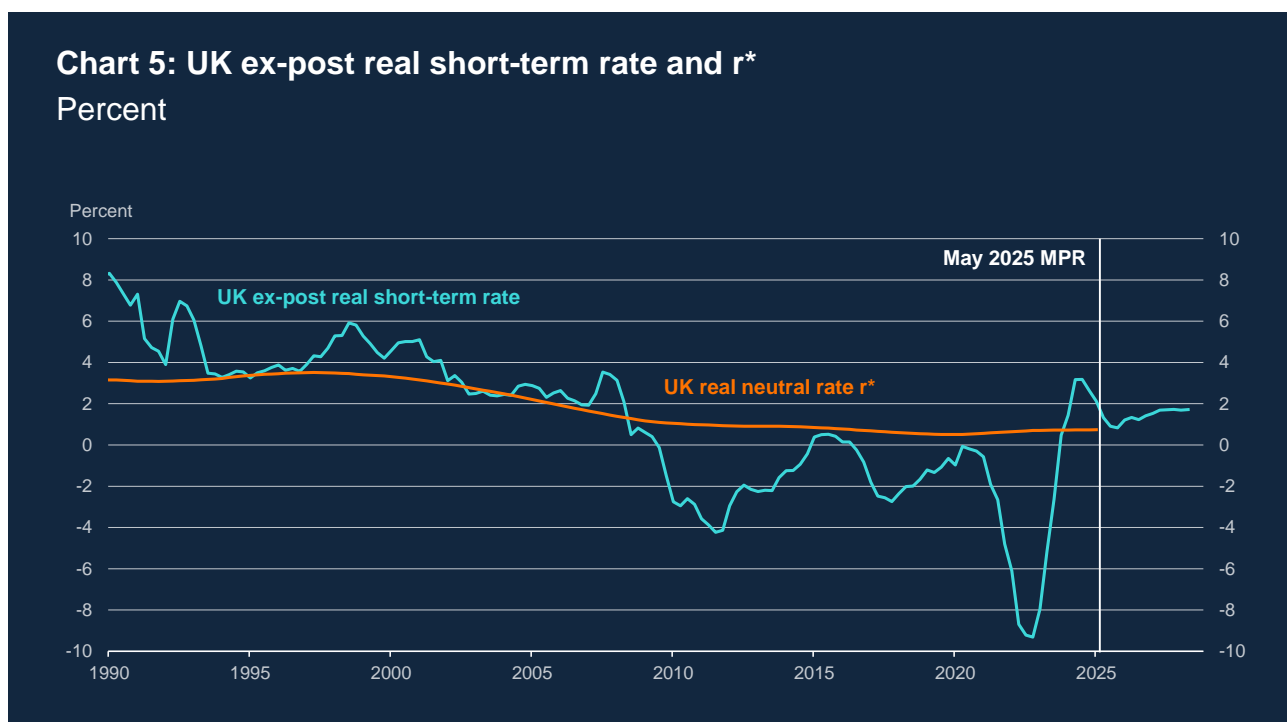
Source: Office for National Statistics, **Davis et al. (2024)**, Bank of England, and Bank calculations. Notes: The ex-post real short-term rate is calculated as the four-quarter rolling average of Bank Rate less annual CPI inflation over the same four quarters. It is projected forward using the **May 2025 MPR forecast**. Latest observation: 2025 Q1 (realised), 2028 Q2 (forecast).

To say a little more about that May 2025 MPR forecast: There is a bump in inflation in 2025, due to one-off factors like taxes and administered prices (which is also why there is a dip in the real rate forecast at the start of the horizon). There may be a small excess of inflation over target in 2026, but by late 2026 we are again very close to 2%, and the forecast sees a degree of slack opening up in the economy, with unemployment rising to 5%. I would expect Bank Rate, should those projections be close to what we actually see,

to be near neutral, say around 3% by the end of 2026, if inflation still sits a bit above target.

However, our forecast is based on a market curve that anticipates a much higher level of rates in 2026 and 2027, levelling off between 3½ and 4%. In my view, given my estimate of r^*, that would imply continued, and even increasing restrictiveness in our monetary policy stance in 2026 and into 2027, as shown in this chart. This, to my mind, risks pushing inflation below target and opening up an unduly large degree of slack.

These considerations were behind my votes in May and June, in the last two MPC meetings. In February and March, I had voted with the majority to make one 0.25% cut in February and no cut in March.

That quarterly pace of cuts has been often associated, by some financial market analysts, with a 'gradual' pace of loosening. I was happy at that time to wait and let more data materialize to be sure that we understood the bump, we had more insight into wage and services inflation dynamics, and hopefully more clarity of the uncertain and shifting global economic environment.

Recently, I have felt more assurance on these three factors. The 2025 bump remains but is expected to subside as the causal factors peel away with a 12-month lag. The incoming data suggest wage settlements of about 3.7% in 2025, a big step down from last year, and close to a target-consistent level, and labour market slack has opened up and is expanding. Globally, trade war tensions remain, despite the many pauses, and both the uncertainty effect and the mechanics of trade diversion imply downside risks to our inflation forecast.

So in the near term I see stronger disinflationary forces building up over the rest of this year, and then in the medium term I see a need to reach for a lower neutral level over the course of 2026 and 2027 should we be able to normalize smoothly. For those two reasons, I was persuaded to not only vote for a lower level of Bank Rate now but also to signal the need to be on a lower path over the year to come.

I also think that, for the reasons given, we remain restrictive such that for me a better risk management approach at this point is to cut and hold for longer later, rather than hold too much, and have to cut in a hurry later. I think of this as a form of insurance.

I am now near the end of my first year on the MPC and over that time much has changed. I think the balance of risks has shifted. We are having to look through a lot more noise and focus on the direction of the underlying trends at home and the mounting risks around the world. The constellation of these deeper forces continues, in my view, to push in a direction that is weakening demand faster than supply and generating a lot of downside risk for our economy. Optimism has faded and geoeconomic storms have blown in.

Many could imagine a soft landing a year ago, but I think that soft landing is at risk. I think right now some insurance against deteriorating demand is advisable, and I think macroeconomic history shows that insurance is best taken out sooner rather than later.

For sure there will be future shocks, and our policy interest rate must react to them as they materialise, to get the degree of restriction or accommodation right. But, as I have argued tonight, that is something to be judged relative to neutral.

So I will leave you with what is, if you like, the paradox of monetary policy making:

We know we will never see the end of the road, but we must always be looking for it.