

THE PUZZLING WORLD OF NEGATIVE INTEREST RATES

AVIVA INVESTORS
March 2016



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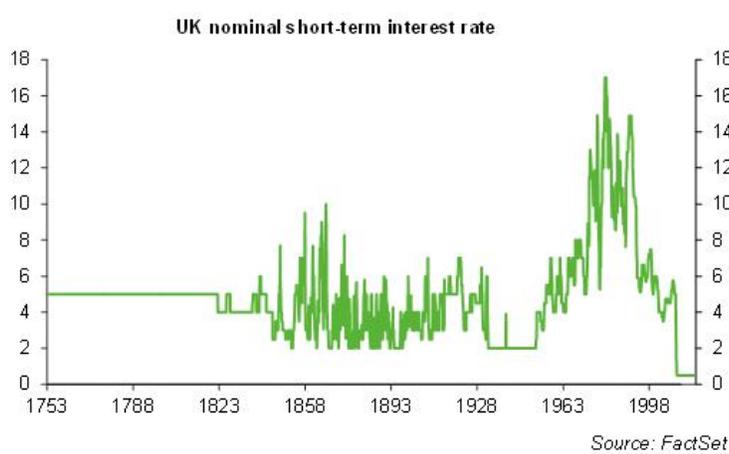
Stewart is responsible for our economic research and analysis of the UK and main European markets, working alongside the other economists in our Strategy Team. He joined the investment industry in 1993 and Aviva Investors in March 2005.

*Investment professionals listed are members of AIA's participating affiliate, Aviva Investors Global Services ("AIGSL").

The increasing number of central banks taking interest rates into negative territory has called conventional economic wisdom into question. And, as Stewart Robertson explains, predicting where rates go from here has become even more difficult.

The setting of interest rate policy is supposed to be simple. By changing interest rates, central banks worldwide can influence the direction of economic growth and the rate of inflation - a nudge on the brakes when the economy is seeing inflationary overheating; a tap on the accelerator when activity is too subdued. Lower rates make savings less attractive and borrowing more so, stimulating spending and boosting economic activity; while higher rates do the opposite, raising the cost of borrowing and encouraging saving.

Although there have been some notable ups and downs along the way, it seemed to work, more or less. The Bank of England's long history of UK base rates shows clearly periods of rigidity, relative stability, the effects of wars, and what happened when inflation took off in the 1960s, 1970s, and 1980s.



Past performance is no guarantee of future results.

More recently, we have seen extraordinarily low interest rates in response to the 2007-2008 global financial crisis (GFC) and its aftermath. But in several other countries, policymakers have been even more aggressive, taking interest rates into negative territory for the first time.

Latest Central Bank Base Rates (Source: Aviva Investors)

Euro zone	-0.30%
Sweden	-1.10%
Switzerland	-0.75%
Japan	-0.10%
Denmark	-0.65%

It is not quite like discovering that the world is, after all, flat, but it has come as a shock nevertheless. Financial textbooks had more or less told us it was impossible to have negative nominal interest rates. So what has changed and what does it say about the situation now and the outlook from here? To answer these questions, it is important

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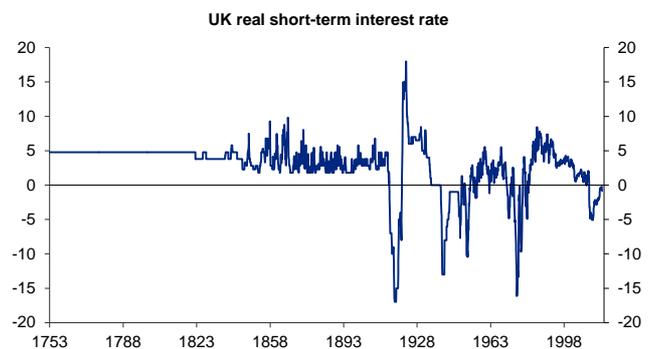


first to clear up one potential source of confusion. It is actually the real interest rate that matters – the nominal rate adjusted for inflation. To understand this, consider the following: if prices are expected to rise by two per cent a year, then holding cash has an implicit cost. Your \$100 will only buy \$98 worth of goods and services a year from now (in today's prices). If you earn two per cent on your money, your spending power is maintained. In this example, the nominal interest rate is two per cent but the real interest rate is zero.

$$\text{Real interest rate} = \text{nominal interest rate} - \text{inflation}$$

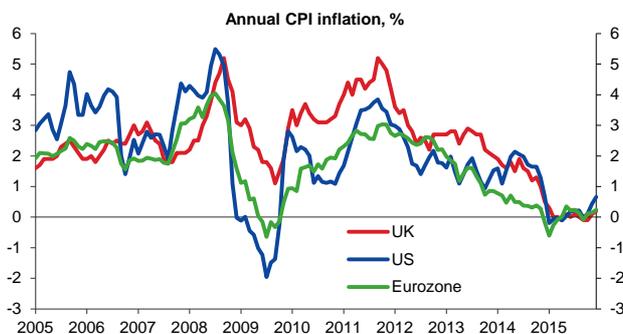
The inflation component means that even if the nominal rate is always positive, real rates can be negative if inflation — strictly speaking, expected inflation — is high enough. And this has been the case on several occasions in the past as the chart below shows, again using the UK's history.

Before the GFC, we had come to believe that the business cycle was tamed and that so too was inflation. Those illusions were shattered by the experiences of the GFC. Three aspects of that time are relevant for discussion. First, the banking system nearly collapsed, severely compromising the credit transmission mechanism. Second, the GFC led to one of the worst global recession since the Great Depression, and easily the deepest in the post-war period. This combination led to bold actions from central banks around the world. For example, the UK base rate was five per cent at the start of October 2008. By March 2009, the quantitative easing experiment (unconventional monetary policy) had begun.



Source: FactSet

The third factor to consider is that inflation plummeted. In fact it saw some gyrations, rising sharply in 2010 and 2011 after the initial slump, and then falling steadily from 2011 to the present. It might possibly have found some sort of base now, but that is not yet certain.



Past performance is no guarantee of future results. Source: FactSet

The key point, especially in that post-2011 period, is that the slide in inflation pushed real interest rates higher. With nominal rates supposedly restrained by the zero bound, the effective monetary policy stance got tighter while worldwide economies were fundamentally weak, adding to the economic pain.

To give a specific example, inflation in the UK was close to zero throughout 2015, while the Bank of England's (nominal) base rate was 0.5 per cent. The real interest rate for this period, therefore, was also 0.5 per cent. In 2013, the UK base rate was also 0.5 per cent, but inflation averaged 2.3 per cent, meaning the real rate then was minus 1.8 per cent. So even though the nominal rate

has not changed, the monetary policy environment was more stimulatory in 2013 than it was last year. To repeat, lower inflation raises real interest rates. It is partly for this reason that central banks are so keen to get inflation back to target (typically around two per cent). This would loosen policy and help sustain or improve growth.

However, what if the zero bound were not a barrier, and rates could be cut without limit, or certainly well into negative territory? This must bypass the real interest rate conundrum illustrated above. In his evidence to the Treasury Select Committee in 2013, the then chief economist at the Bank of England, Charlie Bean, discussed the issue:

"In principle, the Monetary Policy Committee has always been able to set Bank Rate at any level, including a rate below zero. In that case, the commercial banks would pay the bank for holding reserves, rather than the other way round. There are no significant technical or operational obstacles that would prevent the (central) bank from implementing a negative level of Bank Rate. But any attempt by banks to substitute out of reserves into other assets, including loans, would lead to downward pressure on the interest rates on those assets. Eventually, the whole constellation of interest rates would shift down, such that banks were content to hold the existing quantity of reserves. This is exactly the mechanism that operates when Bank Rate is reduced in normal times; there is nothing special about going into negative territory."

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At the simplest level, banks take in deposits and pay interest to the savers who supply them. They lend out a multiple of those deposits (the traditional banking multiplier) and charge a higher rate of interest on such loans. The difference – or net interest margin – is what makes a bank profitable. It had been thought that deposit rates could not possibly be negative as depositors always had the option of holding cash instead – if you are effectively being taxed for keeping your money in the bank, why not simply hold (zero-interest) notes and coins instead?

The reality is not so straightforward because hard currency can come under threat from theft or physical destruction, is inconvenient to store in large quantities, and is difficult to use for big or remote transactions. Nearly thirty years ago, banks in the UK charged an annual fee for what amounted to little more than looking after your deposit. Indeed, some “premium” services do so today. But the basic idea is clear: given the alternative of cash – even if it is simply kept in a safety-deposit box at a bank – there has to be a limit to how low (negative) interest rates can go.

Global central banks are understandably nervous about creating a set of incentives that might result in a catastrophic bank run as depositors remove their funds. In theory, negative interest rates should reduce borrowing costs. But there are fears negative interest rates could easily backfire if people chose instead to hold cash: lower deposits would reduce the supply of loanable funds for banks, leading to a squeeze on credit growth. Even if banks absorb some of the cost themselves, reduced profit margins could make them less willing to lend.

In one sense, the proof is in the pudding. Whatever the weird financial incentives generated by negative interest rates, the fact remains that a number of global central banks have introduced them and their national economies have not imploded. From this, we can surmise that global central banks consider negative interest rates to be a necessary evil. They would like nothing more than for economic circumstances to permit them to move back into positive territory. That does not seem to be the case today, although we must be closer to that time than we were during the depths of the GFC in 2008.

Nevertheless, there are justified concerns that the longer extreme or unconventional monetary policy remains in place - which could apply to QE as well as negative rates - the greater the risk of damaging distortions or excesses emerging. A return to positive inflation would help, but only once global economies and financial systems are on a much more stable footing can we start to believe in a return to conditions that might be characterized as normal.

The concept of the equilibrium real interest rate is a slippery one. It is unobservable and can only really be estimated with the benefit of hindsight. If it is negative, then low inflation means entertaining the idea of negative nominal interest rates if we are to avoid long-term stagnation. The Bank of England estimated that the UK's equilibrium real rate collapsed from a pre-GFC range of between two and three per cent to as low as minus six per cent. It has since recovered, but is still only around zero today (see chart on the next page).

WHY DO NEGATIVE RATES MATTER TO INVESTORS?

At a simple level, negative interest rates lower the benchmark against which potential investment returns are judged. In “normal” times, investors will compare a bond yield, an equity earnings (or dividend) yield, or a property rental yield against some concept of a “risk-free” rate. This might be a government bond yield, but it is also common for investors to compare returns against what can be earned when cash is held in a bank deposit.

Theoretically, when the risk-free rate falls, it should raise the relative attractiveness of competing assets. But the behavioral consequences of a negative return on cash are uncertain – this is new territory. The euro zone has had negative rates since June 2014 and Switzerland since December 2014; yet equity markets in both regions are down between ten and 15 per cent since.

So, does this mean negative rates are not working, not working yet, or have resulted in a better situation than would have otherwise been the case? The truth is that no one knows for sure, but it is reasonable to assert that negative interest rates are not instilling confidence in investors, who are interpreting them as a sign that conditions are far from normal.

There is also no guarantee that a persistently low risk-free rate will lead investors towards riskier assets. Japanese interest rates have been closer to zero than one per cent for much of the past twenty years, and yet the country's key equity index, the Nikkei 225, has not once come close to returning to its peak of 38,900 in December 1989, despite the recent tailwinds provided by “Abenomics,” the economic policies advocated by Shinzo Abe, Prime Minister of Japan. The euro zone is not caught in quite the same grip of fear and paralysis that struck Japan during these “lost decades.” Nevertheless, given the uncertain economic backdrop, it is not hard to foresee a scenario where savers and investors continue to seek comfort in risk-free assets for a prolonged period, despite the paltry returns on offer.

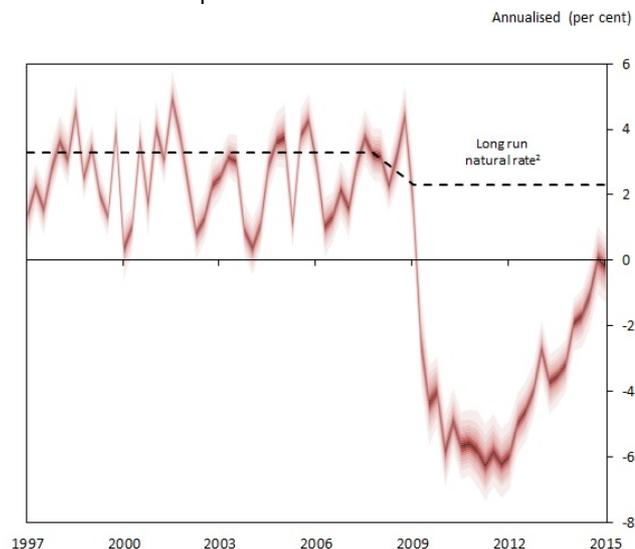
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UK equilibrium real interest rate



Predicting when we will return to more historical norms is difficult, particularly given the fragile nature of the recovery in many developed economies. It is even more difficult to call, however, whether negative interest rates will ultimately prove beneficial by buying those countries sufficient time to transition back to normality, or if fears over perverse incentives prove well-founded.

Source: Bank Underground. Past performance is no guarantee of future results.

² The long run natural rate is lower following 2008, due to a judgment that long-run potential growth is lower than the average of the pre-crisis sample (1993Q1-2007Q4)

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