A prolonged period of low real interest rates?[1]

Olivier J Blanchard, Davide Furceri and **Andrea Pescatori**
International Monetary Fund

From a peak of about 5% in 1986, the world real interest rate fell to about 2% before the Global Crisis, and to approximately 0% in 2012. This chapter discusses the major factors behind this decline both before and during the Crisis, and argues that most of them are still relevant. Indeed, the legacies of the Crisis may imply an even lower natural rate in future. This would be bad news for monetary policy, but good news for fiscal policy and debt overhang.

Figure 1 shows the evolution of the world real interest rate over the last 30 years. More specifically, it shows the evolution of the GDP-weighted average of ten-year real interest rates on sovereign bonds across 19 advanced economies since 1985. It has two striking features.

The first is the decline in the rate from a peak of about 5% in 1986 to 2% before the crisis and to approximately zero in 2012. This evolution has led to the worry that the rate needed to maintain output at potential may remain very low in the future, perhaps even negative. Given the combination of the zero lower bound on nominal rates and low inflation, such a negative real rate might be impossible to achieve, leading to insufficient demand – a worry known as the 'secular stagnation' hypothesis.

The second is the degree to which real interest rates have increasingly moved together, as shown by the tight – indeed, increasingly tighter – interquartile range for individual country real interest rates in the figure. This suggests that one can, and actually must, think of a global interest rate, determined in a global market. The factors behind movements in the global real rate are the focus of this chapter.

Figure 1   Short- and long-term global real interest rates (% per year)
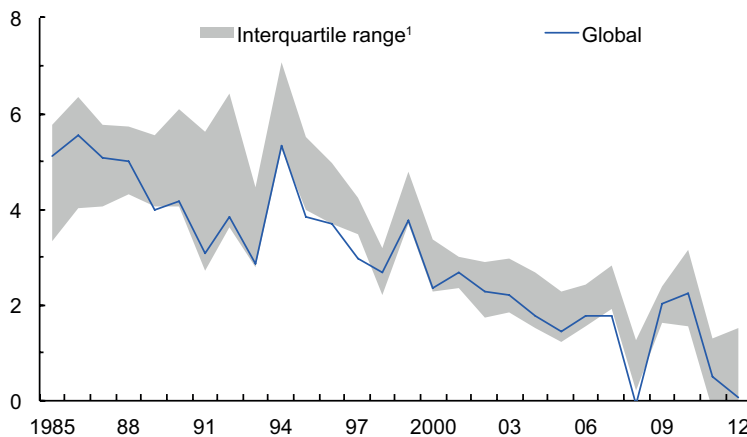
Note: 1 The sample consists of: United States, United Kingdom, Austria, Belgium, France, Germany, Italy, Netherlands, Norway, Sweden, Switzerland, Canada, Japan, Finland, Greece, Portugal, Spain, Australia, New Zealand. Global based on the GDP-weighted average.

Source: IMF (2014).

Determinants of real rates

To organise the discussion, a short (low-brow) theoretical detour may be useful. One can think of the global real rate as being determined by four factors. The first three determine the 'natural' or 'Wicksellian' rate, the real interest rate consistent with output at potential, and stable inflation. The fourth, monetary policy, results in temporary deviations from that rate.

The first factor is the supply schedule for loanable funds, namely global saving – assuming output at potential. Shifts in *saving* can be induced by many factors, including changes in current and expected income, changes in uncertainty that affect precautionary saving, demographic changes, financial innovations, and shifts in public saving.

The second factor is the demand schedule for loanable funds, namely global investment –again assuming output at potential. Shifts in investment can be induced by many factors as well, from changes in expected investment profitability, to changes in the relative price of investment goods, to changes in financial intermediation.

The third factor is the *relative demand for safe versus risky assets*. A shift in investors' preferences towards safe assets – be it due to increases in risk, to increases in market risk aversion, or to changes in financial regulation – will lead, other things equal, to a lower rate on safe assets and a higher rate on risky assets.

The first three factors, plus the conditions that the demand and supply of safe assets be equal and output be at potential, determine the *natural rate of interest*. Most of the time, one can think of the goal of monetary policy as to validate this natural rate so as to maintain output at potential. But if, for example, a central bank wants to return output to potential, or to achieve lower inflation, monetary policy will lead to deviations from the natural rate for some time.

Which of the factors discussed above can explain the observed decline in real interest rates?

Looking back, pre-crisis

We believe three of the factors discussed above played a major role: monetary policy in the 1980s and early 1990s, the large increase in emerging market saving rates in the 2000s, and the higher demand for safe assets in the 2000s.

Monetary policy

It is clear that the evolution of real interest rates in the early part of the sample was dominated by the disinflation policies engineered first in the US and the UK, and a bit later in many other advanced countries. While inflation indeed decreased, the result was also a long period of high real rates, in excess of the underlying natural rates. By

the early 1990s, however, the effects of disinflation on the rates were largely gone. Empirical estimates suggest that from 1980 to 1992, about 90% of the variance in US short-term real rates could be explained by monetary policy shocks alone; since then, the percentage of the variance has been much lower. Hence, if monetary policy can explain much of the movement in real interest rates until the 1990s, afterwards, the monetary policy stance of most advanced economies was on average neutral, contributing little to the determination of long-term real interest rates.

Saving

The saving-to-GDP ratio in emerging market economies increased by more than 10 percentage points after 2000. As a result, the global saving rate increased by 1.7 percentage points between 2000 and 2007. Within the emerging market economies, China's saving accounted for an ever-increasing share – approaching half of total emerging market economies' saving in 2013.

What accounted for this increase? Surely many factors played a role, but our empirical work has pointed us to the role of growth. Theory is ambiguous about the effects of growth on saving: higher individual income growth leads people to save less as they expect their income to be higher in the future, thus leading to a negative effect of growth on saving; but higher growth leads to a relatively larger pool of saving by the young (who have relatively more income than the old), leading to a positive effect. Habit persistence implies that consumption lags income, and generates a positive relation between growth and saving. In our econometric work, we have indeed found a strong positive medium-term relation between growth and saving. To the extent that the relation can be interpreted as causal from growth to saving, and using our estimated coefficients, the steady increase in emerging market economy growth in the past decade can explain a shift in saving rates of about 10 percentage points over that period (IMF 2014).

Demand for safe assets

Whether they just reflected the surge in private saving, or were the result of policies aimed at increasing reserves, foreign exchange reserves increased considerably in the 2000s, and were invested mainly in government or government-guaranteed fixed-income liabilities. As a result, foreign holdings of US Treasury securities increased considerably after 2000, and foreign official holdings in China and other emerging market economies accounted for the largest part of this increase (IMF 2014). Empirical evidence suggests that these foreign official purchases of US Treasuries contributed significantly to the decline in real interest rates in the first decade of the 21st century (Bernanke et al. 2004, Warnock and Warnock 2009, Beltran et al. 2013).

Investment

Some observers have focused on the role of the decrease in the relative price of investment goods. We do not believe that this actually played a major role. On theoretical grounds, there are again two effects of such a decrease. The first is that a given volume of investment implies a smaller demand for loanable funds, decreasing the interest rate. But the second is that, as capital is cheaper, the rate of return on investment goes up, leading to a higher volume. Which of the two effects dominates is ambiguous. On empirical grounds, the relative price of investment has not declined meaningfully since the early 2000s.

Looking back. The crisis.

Many factors combined to sharply decrease the natural interest rate during the crisis, from the collapse of financial intermediation to the increase in uncertainty and its effects on precautionary saving and on investment. Increasing risk, together with increasing market risk aversion, decreased the safe rate relative to the rate on risky assets. Monetary policy played a role, although involuntarily: by most estimates, the

zero lower bound on nominal rates and low inflation prevented the actual rate from declining as much as the natural rate.

Analysing the role of each factor would go far beyond what we can do in this chapter. And many of these effects, which dominated the early part of the crisis, have either disappeared or at least receded. What matters for our purposes is what legacies the crisis will leave, and for how long. With this, we turn to the future.

Looking forward

Given the complexity of the issues, the global nature of the determination of the rate, and the number of potential factors in play, any attempt to forecast the future global rate must be taken with more than a grain of salt. This being said, we believe that the world real interest rate is likely to remain low, perhaps even lower than before the crisis. Most of the factors that led to low rates pre-crisis are still present. And the legacies of the crisis imply, if anything, a lower natural rate than before the crisis.

Investment

We argued that shifts in investment did not play a major role before the crisis. However, they are likely to be more relevant looking forward. The evidence from previous financial crises suggests that the investment-to-GDP ratio typically takes a long time to recover to pre-crisis levels, if it ever does so. Our econometric estimates, shown in Figure 2, imply that financial crises lead to a significant and long-lasting decline in the investment-to-GDP ratio. Financial crises have typically reduced this ratio by about 1 percentage point in the short term (one year after the occurrence of the crisis), with a peak effect of 3 to 3.5 percentage points three years after the crisis. So far, the actual evolution of investment in advanced economies points in the same direction: the estimated effect matches the 2.5 percentage point decline in the investment-to-GDP ratio between 2008 and 2013 remarkably well.

Figure 2   The effect of financial crises on investment-to-GDP ratios (% of GDP)
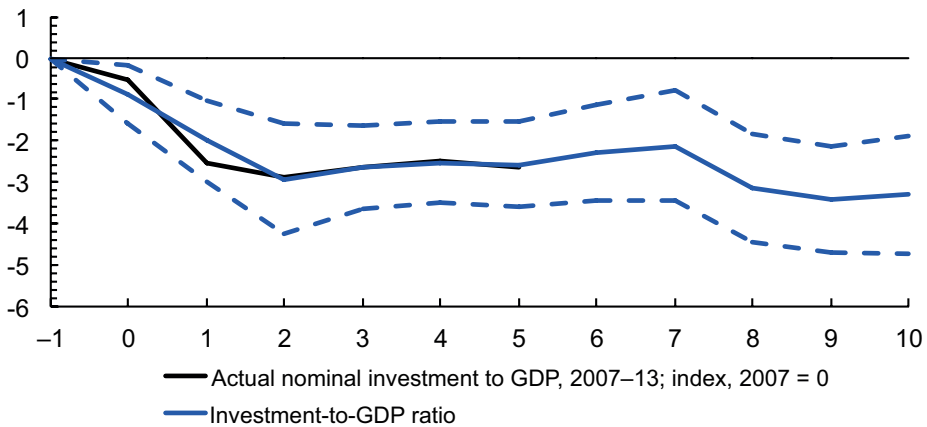
Note: X-axis denotes years, t=0 year of the financial crisis.
Source: IMF (2014).

Demand for safe assets

A reversal of the portfolio shifts favouring safe assets observed in the 2000s is unlikely. Indeed, one of the legacies of the crisis is tighter financial regulation, ranging from higher capital ratios to liquidity ratios. The Basel Committee estimates that the effect may be an additional demand for safe assets by financial institutions of about $3 trillion (for comparison's sake, China's reserves stand at about $4 trillion). Will this be compensated by a slower pace of reserve accumulation by central banks than in the early 2000s? This depends partly on developments in the provision of international liquidity, an issue we discuss below.

Saving

Another legacy of the crisis is higher levels of debt, both public and private, especially in advanced economies. Other things equal, higher debt requires higher saving in order to either stabilise the debt or return it to a lower level. This is clearly the case for public saving where, in most advanced economies and many emerging markets, fiscal

consolidation will remain a priority. But this is also the case for corporate and household saving. Higher debt leads firms to invest less, and consumers to consume less. Given low growth in advanced economies, such deleveraging may go on for a long time.

Much of what happens to saving, however, will depend on what happens to saving in emerging markets. If the relation between saving and growth we have estimated remains stable, the projected reduction in GDP growth in emerging market economies would lead to a large medium-term negative shift in emerging market economy saving rates. Based on our projections and our estimated coefficients, the decrease could reach 3.5% of emerging markets' GDP.

Other factors, from ageing to financial liberalisation, are obviously important. One strikes us as particularly relevant, and introduces a major source of uncertainty for our predictions – namely, the evolution of precautionary saving, which plays a central role in emerging market saving. This is shown for example in Figure 3, which plots the age profile of saving in China as of 2005. What is striking is that the profile is the mirror image of what would be predicted by the life-cycle hypothesis, with high saving very early in life, and then very late in life. The explanation for the second peak is poor social insurance against medical and other age-related expenses. Provision of better social insurance would likely have a large effect on the Chinese saving rate. Precautionary saving is also highly relevant at the country level. Much of the motivation for the accumulation of reserves by emerging markets in the past has been self-insurance against capital flow withdrawals. Better provision of international liquidity, be it through swap lines or IMF programmes, could also lead emerging markets to decrease their reliance on self insurance. Again, this could have a major effect on emerging markets saving.

Figure 3   The age profile of saving in China

Average saving rates by age of head household (2005)
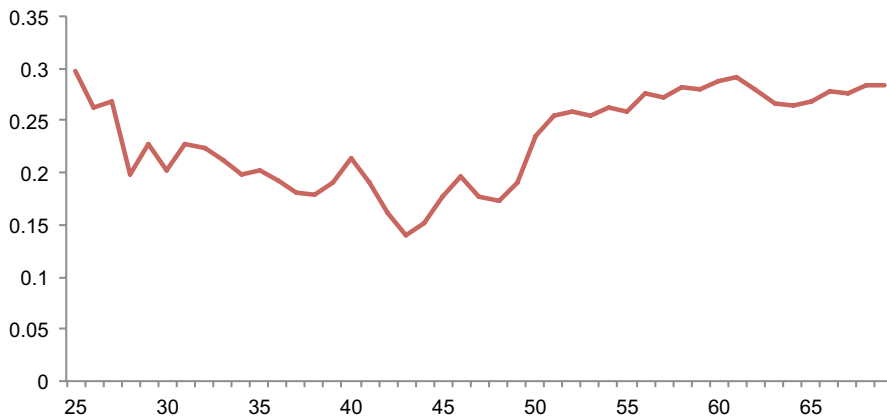
Source: Chamon and Prasad (2010).

Conclusions and implications

The factors that led to low real interest rates pre-crisis are unlikely to be reversed. Indeed, they may be reinforced by some of the legacies of the crisis. Our best guess, with all the proper caveats, is that the natural rate may remain as low as or lower than before the crisis.

If rates indeed turn out to be low, this has important implications for both monetary and fiscal policy. Low rates are bad news for monetary policy, as they make it more likely that countries will hit the zero lower bound. We have learned that even if unconventional monetary policy can help, the effectiveness of monetary policy is dramatically reduced when the zero lower bound is reached. Low rates are good news for fiscal policy and for debt overhang in general. Other things equal, lower interest rates make it easier to sustain or decrease debt, and require a more limited fiscal consolidation. Indeed, in this case, increases in debt-financed government spending, especially public investment, may not lead to increases in public debt in the medium term (DeLong and Summers 2012).

References

Beltran, D O, M Kretchmer, J Marquez and C P Thomas (2013), "Foreign Holdings of U.S. Treasuries and U.S. Treasury Yields", *Journal of International Money and Finance* 32(1): 1120–43.

Bernanke, B S, V R Reinhart and B P Sack (2004), "Monetary Policy Alternatives at the Zero Bound: An Empirical Assessment", Finance and Economics Discussion Series Working Paper No. 48, Federal Reserve Board, Washington, DC.

Chamon, M D and E S Prasad (2010), "Why Are Saving Rates of Urban Households in China Rising?", *American Economic Journal: Macroeconomics* 2(1): 93–130.

DeLong, J B and L H Summers (2012), "Fiscal Policy in a Depressed Economy", *Brookings Papers on Economic Activity* (Spring): 223–97.

International Monetary Fund (IMF) (2014), World Economic Outlook April, 2014, "Prospective on Global Real Interest Rates," Research Department paper (Washington).

Warnock, F E and V C Warnock (2009), "International Capital Flows and U.S. Interest Rates", *Journal of International Money and Finance* 28(6): 903–19.