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**Research Report**

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**DIW Roundup**  
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# The Natural Rate of Interest and Secular Stagnation

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# The Natural Rate of Interest and Secular Stagnation

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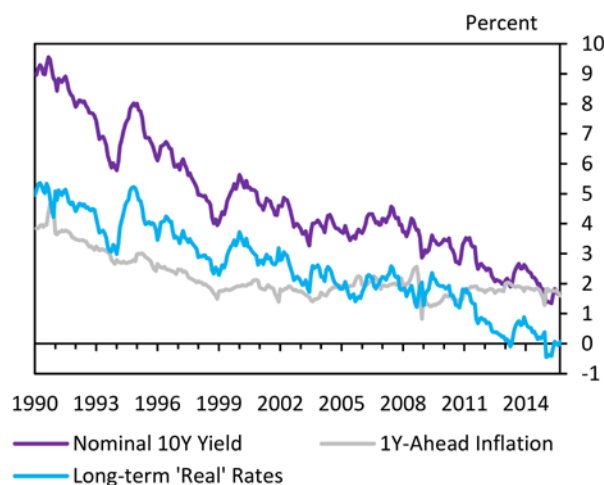
In many advanced economies, there has been a declining trend in interest rates over the past thirty years. Since the financial crisis, interest rates have remained particularly low. Though a decrease in inflation explains part of the fall in nominal interest rates, there is also a clear downtrend in real interest rates. Against this backdrop, a debate has emerged over the factors that might have contributed to this decline. Potential persistent factors discussed under the heading of “secular stagnation” include a decline in profitable investment opportunities and high global savings rates. It is often argued that, due to these factors, the so-called natural interest rate, which is the level of interest rate consistent with stable, non-inflationary growth, has decreased. However, there are also arguments that the low interest rates are transitory and are due to factors such as post-crisis private debt deleveraging, a temporary “savings glut”, or higher regulatory burdens for firms and households. This report summarizes the discussion on the underlying causes of the low interest rate environment and the potential for a period of secular stagnation.

In most advanced economies, there has been a decreasing trend in output growth rates since the 1980s (see e.g. [Baldi and Harms \(2015\)](#)). After the outbreak of the financial crisis, economic growth has been especially subdued. The decrease in economic growth rates is mirrored in the declining trend in real interest rates (Figure 1). As inflation rates have also decreased, nominal interest rates have been on a similar downward trend as real interest rates. The slight increase in many nominal interest rates in the second half of 2016 probably reflects a moderate rebound of inflation expectations, but does not yet seem to be associated with an increase in real interest rates. It has been argued that this development reflects a decline in the natural rate of interest – an unobserved, theoretical interest rate that is supposed to equilibrate desired savings and planned investment when output is equal to its potential (for an overview, see e.g. [Laubach and Williams \(2016\)](#), [Holston, Laubach and Williams \(2016\)](#), [Chervyakov and König \(2017a\)](#), or [Chervyakov and König \(2017b\)](#)). According to this reasoning, there would be an excess of savings over investment at higher interest rate levels.

The interpretation of the low interest rate environment as reflecting a persistent excess of desired savings over investment is at the heart of the so-called “secular stagnation” view (see e.g. [Summers \(2013\)](#), [Baldi and Harms \(2014\)](#), or [Summers \(2015\)](#)). According to the secular stagnation view, weak aggregate demand and a lack of productive investment opportunities have shifted the economy into a state of persistent stagnation at very low - if not negative - real interest rates. As a result, a vicious cycle emerges between subdued demand and low investment: Dampened aggregate demand causes low investment, which in turn reduces the economy’s

potential growth rate through a reduction and a deterioration of the quality of physical and human capital. As a result, the low interest rate environment may in turn generate asset-price bubbles; investment will increase and the economy can attain full employment, but only at the risk of financial instability threats. Prior to the crisis, higher output growth rates in the wake of housing and stock market booms are often argued to have masked the emergence of an underlying decrease in potential economic growth in many countries (Summers (2013)). The secular stagnation hypothesis is of particular policy relevance because central banks typically adjust their policy rates in an attempt to track the natural rate over the medium term. Provided that the natural real rate is very low or even negative and inflation rates are also low, central banks might face difficulties in setting the appropriate nominal policy rate as it might also be negative.

**Figure 1: Real rates in advanced economies**



Sources: IMF, DataStream, Consensus Economics & Authors' calculations

Notes: Purple line shows the GDP-Weighted average of 10-year sovereign yields for 20 advanced economies (G7, Australia, Austria, Belgium, Denmark, Finland, Ireland, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland). Grey line uses 1-year ahead inflation expectations from Consensus Economics as a proxy for 10-year inflation expectations for each country (again GDP-weighted together). The blue line simply shows the difference – so this measure of real rates does not take account of changes in risk premia.

Source: Rachel and Smith (2015)

### Low interest rates due to a decline in profitable investment opportunities or due to a surge in savings?

Because the natural interest rate depends on desired savings and investment, it is influenced by a variety of global and domestic factors affecting investment and savings (see e.g. Desroches and Francis (2007) and Grigoli et al. (2014)). As a result, the natural real interest rate is a function of the underlying characteristics of the domestic and global economy. The strong co-movement in real interest rates in the past decades suggests that common factors at the global level might play a more important role than domestic factors.

Slowing growth in total factor productivity (TFP), which indicates how productively an economy utilizes its factors of production, is often seen as a main cause for the apparent decline in profitable investment opportunities (see e.g. [Gordon \(2012\)](#), [IMF \(2015\)](#), [Baldi and Harms \(2015\)](#) or [Furman \(2015\)](#)). It has been repeatedly shown that productivity growth in many advanced economies has decreased since the 1980s ([Furman \(2015\)](#)). Lower productivity growth reduces the profitability of investment and the economy approaches a lower capital stock per person. As a result, investment rates in many advanced economies have declined in the past decade (see e.g. [Baldi et al. \(2014\)](#)). Regarding future long-term productivity growth, there are very divergent views that range from very optimistic to rather pessimistic perspectives. Several authors (see [Brynjolfsson and McAfee \(2014\)](#) or [Mokyr \(2015\)](#)) stress progress related to the digital revolution and scientific advances in other areas, which can be expected to lay the foundation for productivity growth in the future – potentially with a lag. However, there are also pessimists such as [Gordon \(2012\)](#), who points to various headwinds such as the stagnation of the quality of human capital, pressures from globalization, the increase in the old-age dependency ratio, environmental issues, and public and private debt as drags on future innovation and growth (see also [Gordon \(2016\)](#)). In particular, the increase in the old-age dependency ratio and the associated stagnation or decrease in the labor force may be important factors underlying weak investment in many advanced countries because these demographic developments imply that less investment is needed to hold the capital-labor ratio constant.

An additional factor affecting the demand for investment is the considerable decrease in the relative price of investment goods in the past decades, which dampens desired investment expenditures (see e.g. [Thwaites \(2014\)](#)). One potential interpretation of this fact is that technological progress has been embodied in capital and manifested itself in lower relative prices for capital goods. At the same time, technological progress has somewhat puzzlingly not led to higher productivity growth. Presumably, digital innovations have not yet complemented the available skills of workers in an optimal way.

While desired investment has probably been on a downward trend in advanced economies, desired savings are likely to have increased (see e.g. [Rachel and Smith \(2015\)](#)). This development has been driven by an increase in desired savings by households in a number of countries (in particular emerging economies), which can be mainly attributed to demographic forces but also to higher inequality within countries. In addition, one can observe for many advanced economies a rise in corporate savings through retained earnings (see e.g. [Gruber and Kamin \(2015\)](#)) – potentially because of a lack of profitable investment opportunities. This has led to a remarkable development since the late 1990s: Firms in many advanced economies have moved from being net borrowers from the rest of the economy to being net lenders of funds.

### **Is secular stagnation indeed secular or transitory?**

Though there appears to be broad agreement among many economists on the potential causes for the current low interest rate environment, disagreements remain on the particular importance of these factors and the persistence of the current economic situation. Several observers argue that the current modest growth rates and low interest rates are temporary. They argue that some underlying causes of this situation such as post-crisis private sector deleveraging ([Rogoff \(2015\)](#)) and a temporary “global savings glut” ([Bernanke \(2015\)](#)) might slowly fade away.

To explain the sluggish growth and the low interest rate environment after the financial crisis, [Rogoff \(2015\)](#) presents his theory of the “debt-supercycle” to counter the secular stagnation theory (see also [Lo and Rogoff \(2015\)](#)). The core of the theory suggests that there are phases in economic history that are characterized by increasing asset prices and leverage during the boom followed by subsequent asset price drops and a longer phase of deleveraging when the bubble bursts. As these financial cycles tend to be far more pronounced and longer lasting than common business cycles, Rogoff calls them supercycles. In particular, the phase after the bubble bursts is more prolonged because of the deleveraging process that occurs in the private sector. The growth sluggishness is expected to end when the deleveraging process is over and consumers and firms start to behave normally. In addition, Rogoff also argues that the low level of commonly used so-called risk-free interest rates might be misleading. The low interest rates observed might not be the interest rates relevant for most firms. In reference to [Geanakoplos \(2014\)](#), he criticizes the focus on the risk-free rate as not taking into account that more risky projects or riskier borrowers are not getting the funding they might need to implement investment projects.

[Bernanke \(2015\)](#) argues that rather than a secular stagnation, the current period of low economic growth and interest rates is more similar to a temporary global “savings glut”, a hypothesis he already developed in 2005. Although both hypotheses regard imbalances between savings and investment, Bernanke argues that the savings glut is a transitory phenomenon, influenced by macroeconomic policies in other countries, which is already on a diminishing trend. In particular, the Chinese government started to implement policies to reduce its dependence on exports, which has already showed its effects in sharply reducing the Chinese current account surplus. Moreover, current account surpluses of oil-producing countries have vanished. In addition, he argues that European surpluses are likely to vanish when the peripheral countries escape from the trough of their business cycles.

Though the perspectives presented thus far mainly differed as to the causes of the low interest and growth environment, they generally appear to agree that the current interest rate policies followed by the major central banks are appropriate. In these arguments, the central bank has to follow the medium- or long-term economic forces driving down interest rates. However, there are also economists and finance professionals who argue that the current policies of the major central banks are causing or at least reinforcing the current economic situation and even preventing a faster recovery (see, in particular, [Hamilton et al. \(2015\)](#), [Gross \(2016\)](#), [Singer \(2016\)](#), and [Taylor \(2016\)](#)). Most of these economists argue that the natural real interest rate has not declined or at least has declined less than proponents of the secular stagnation hypothesis suggest. For instance, [Taylor \(2016\)](#) argues that most research is not useful in determining whether the equilibrium real interest rate has declined. Taylor presents findings that contradict the hypothesis that there has been a significant decline in the natural real interest rate. According to Taylor, the current low level of the real interest rate is caused by a policy-performance cycle in its trough phase, and bad regulatory and tax policies in particular. He argues for policy reforms such as lower tax rates on businesses and households in order to reduce disincentives to invest and work; regulatory reforms to scale back regulations that fail cost-benefit tests; free trade agreements to open markets, and entitlement reforms to prevent a debt explosion and improve incentives.

## Conclusions

The secular stagnation hypothesis and the associated discussion surrounding the level of the natural interest rate are part of the debate on the long-run growth prospects of advanced economies. Interest rates have been on a downward trend in recent decades paralleled by a steady decline in economic growth. In the second half of 2016, a slight increase in many nominal interest rates could be observed. However, this probably reflects a moderate rebound of inflation expectations leaving real interest rates unaffected. Since the beginning of the financial crisis in 2008, these developments have become more pronounced and are interpreted as the beginning of a period of secular stagnation. Among economists, there is a considerable degree of disagreement on the time horizon of the low interest rate and economic growth environment. One group of economists even questions whether the natural interest rate and potential growth have fallen. Irrespective of the extent of the presence of secular stagnation, the discussion among economists highlights important policy challenges. The potential for a secular stagnation depends on the willingness of economic policy-makers to implement measures to boost investment and the innovative capacity of advanced economies. These measures may include both traditional demand- and supply-side measures such as well-designed fiscal stimulus programs that increase public investment in infrastructure and education, and appropriate measures to reduce regulatory burdens and simplify tax systems.

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