

ARTICLE – Are low global real interest rates set to continue?

There has been a trend decline in real interest rates over the past 30 years, all over the world. As financial assets can be moved freely between many different countries and currency areas, real required rates of return that apply in Sweden must be adapted to approximately the same level as in the rest of the world. The global trend towards lower real interest rates therefore has a crucial effect on a large number of economic decisions taken in Sweden, including the Riksbank's monetary policy decisions. This article discusses some of the drivers behind the global trend, its economic consequences and the conclusions that can be drawn about developments going forward based on current research.

A few factors indicate that real interest rates will remain low for the foreseeable future. One such factor is that the world's population continues to age and that this is reducing the profitability of corporate investments, something which in turn is keeping real interest rates low. But uncertainty surrounding developments going forward is considerable and future political decisions may have a major effect. This applies not least to fiscal policy decisions in the world's largest economies and to measures aimed at combating climate change.

Global downward trend in interest rates

Over the last 30 years, there has been a trend decline in the expected real return on different types of financial assets. This trend is global and the largest decline has occurred in various types of loan contracts, such as government bonds, mortgages and promissory notes issued by companies. But several measures show that there has also been a clear decline in the expected real return on equities and in the average real return on the entire portfolio of assets held by households.⁴⁰ The real return that a lender can expect on a risk-free loan is called the loan's real interest rate. The real interest rate is approximately equal to the interest rate on the loan minus the expected inflation rate during the loan's maturity period.

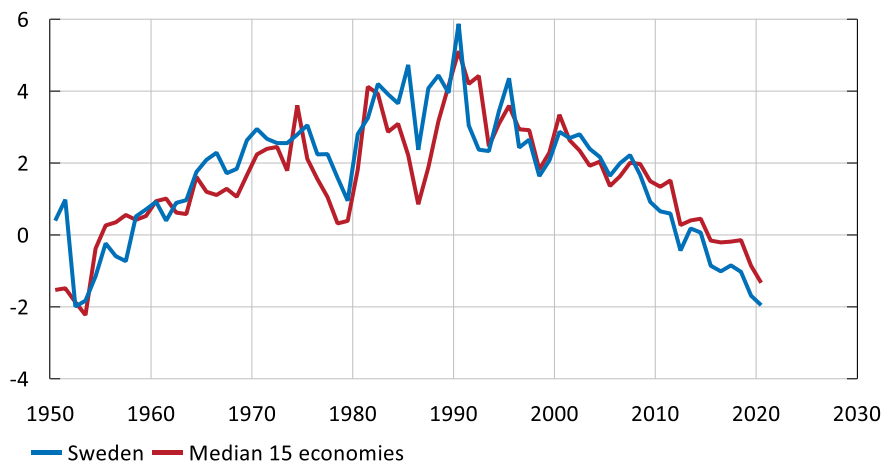
This article focuses on the global trend towards lower expected return which is common to different types of assets, and the concepts of real interest rate and real return are used synonymously. But it is worth pointing out that this is a simplification, and

⁴⁰ See sections A and D6 in L. Rachel and T.D. Smith (2015), "Secular drivers of the global real interest rate", *Staff Working Paper* no. 571, Bank of England; F. Duarte and C. Rosa (2015), "Equity risk premium: A review of models", *Economic Policy Review* 21(2), Federal Reserve Bank of New York and Ö Jordà, K. Knoll, D. Kuvshinov and A. M. Taylor (2019), "The rate of return on everything, 1870–2015", *Quarterly Journal of Economics* 134(3).

that there are often major differences in the return on assets with different risk profiles.

Figure 56. Real interest rates on government bonds, 1950–2020

Per cent



Note. Nominal interest rate on government bonds with a long maturity minus expected, average inflation according to the GDP deflator. Long maturity means 10 years in most cases. For each country and year in the sample, expected inflation is estimated using two different methods: a forecast from a simple autoregressive model, AR(1), and an average of inflation over the past 5 years. The average of the two measures is used to calculate the real interest rate.

Sources: Jordà et al. (2019), national statistic sources, the World Bank and the Riksbank.

Figure 56 illustrates the downward trend with the median of the real interest rates on government bonds with a long maturity in a group of 15 advanced economies. The same figure also shows developments during the period 1950–1990, when the trend was instead an upward one. Longer historical time series show that the development in the second half of the twentieth century is not unique; upward and downward trends have also followed one another during earlier periods.⁴¹

Financial capital can be moved between different countries and currency areas both quickly and at a low cost. The expected real return on assets invested in Sweden must therefore be approximately the same as the return that investors can expect if they instead invest in foreign assets with a similar risk profile. The real interest rate on safe loans in Swedish kronor can, for example, not persistently deviate much from the real

⁴¹ See reference to Jordà et al. (2019) in footnote 39. The authors calculate measures of real interest rates that go back to the beginning of the 1870s for some countries. Even longer historical time series are presented in P. Schmelzing (2020), "Eight centuries of global real interest rates, R-G, and the 'supersecular' decline, 1311–2018", *Staff Working Paper* no. 845, Bank of England.

interest rate on equivalent loans in euro and US dollars, something that is also illustrated in Figure 56.⁴² Trend changes in the real interest rate abroad therefore give rise to similar trends in Sweden.⁴³

Far-reaching economic consequences

When real interest rates fall, it becomes cheaper for households to borrow for consumption and housing purchases, and it is then natural for indebtedness and asset prices to increase. Lower required rates of return also mean that it becomes cheaper to make various types of investment, both for the public sector and private companies, and that borrowing costs fall for indebted sovereign states. At the same time, falling real interest rates are an unwelcome development for those looking to save. This applies, for example, to many wage earners saving for their pension, and also to a large extent institutions and life insurance companies that have pledged pay-outs to future pensioners.

The Riksbank's monetary policy decisions are also affected directly and significantly by the global trend towards lower real interest rates. In the long term, the level of the repo rate is mainly determined by the level of the inflation target and by the real interest rate on safe, short-term loans that applies abroad. As there is a lower bound for how low the repo rate can be cut, persistently low real interest rates increase the probability that the Riksbank will find it difficult to use the repo rate to stimulate resource utilisation and inflation in a future recession.

Several different driving-forces behind low rates

The trend has far-reaching consequences for households, companies and economic policy. It is therefore interesting to understand the factors that drive down real interest rates to get an idea of likely developments going forward. Most researchers agree that several different structural changes have contributed to this development, and that these structural changes have effect regardless of the monetary policy conducted by various central banks around the world. Examples of such changes include the age and life expectancy of the population, the long-term growth prospects for productivity and the fact that China has been increasingly integrated into the global economy while savings there have been strikingly high.⁴⁴

⁴² If the conditions for non-arbitrage are met, differences in the real interest rate between two different assets, issued in different currencies but with the same maturity, can be attributed to expected changes in the real exchange rate and to differences in risk premium. For there to be significant and persistent differences in real interest rates between countries, expectations of trend changes in the real exchange rate and/or significant differences in risk premium are therefore required. See the discussion in King and Low (2014), "Measuring the 'world' real interest rate", *Working Paper* No 19887, National Bureau of Economic Research.

⁴³ The decades after the Second World War were characterised by rather strict regulation of the international, private movement of capital. During this period, it was therefore often difficult to make arbitrage between assets issued in different currencies. However, Bertil Ohlin has shown that the price of production factors in different countries also tends to even out via trade in goods. See B. Ohlin (1933), "Interregional and international trade", Harvard University Press: Cambridge.

⁴⁴ Other examples are falling relative prices of investment goods, lower public investment, higher premiums on safe assets and wider differences in income between households. For non-technical discussions of the

Although most researchers agree that the trend has more than one driving-force, they do not agree on which driving-forces have been the most important. One example is the long-term growth prospects for productivity. According to several studies, lowered growth prospects for productivity can explain much of the trend decline in real interest rates. In recent years, however, several other studies have been published questioning this relationship on empirical grounds. In the current situation, the extent to which more pessimistic growth expectations can help explain the trend is therefore an open question.⁴⁵

One driving-force that has been discussed intensively in recent years is the ageing of the population and its effects on savings and real interest rates. The background is the comparatively rapid increase in the average age of the global population. This is due to, among other factors, reduced fertility and the fact that, in many countries, unusually large cohorts of children were born during the decades following the Second World War. A consequence is that many countries, in recent decades, have had unusually large middle-aged population groups, the majority of whom tend to save the most. Several calculations also show that the age composition of the population has helped to push up the saving ratio and push down interest rates. Many economists have also pointed to the fact that these large groups are now approaching pensionable age, and have therefore drawn the conclusion that saving ratios going forward will fall and real interest rates will rise.

Another structural change, that is also considered to have contributed to lower real interest rates, is increased inequality in the distribution of household income. It is a well-documented fact that high-income earners save on average a larger share of their income than low- and middle-income earners. In many advanced economies, income inequality has shown a rising trend for a long time.⁴⁶ This trend has meant that a larger share of total household income now goes to high-income earners, something that should therefore contribute to higher savings among households.

Household savings and their effect on the real interest rate

It is worth noting that both of these driving-forces – the ageing of the population and increased inequality – are considered to have had an effect through the same channel, that is to say higher savings. The idea is that there is a long-term, structural equilibrium on a global level in which total savings are equal to total investment. If savings increase for structural reasons, for example, because income distribution has become

various driving-forces, see C. Bean, C. Broda, T. Ito and R. Kroszner (2015), “Low for long? Causes and consequences of persistently low interest rates”, *Geneva reports on the world economy* No. 17, and L. Rachel and T. D. Smith (2017), “Are low real interest rates here to stay?”, *International Journal of Central Banking* 13(3). An example of an alternative view on the driving-forces behind the real interest rate trend can be found in C. Borio, P. Disyatat and P. Rungcharoenkitkul (2019), “What anchors for the natural rate of interest?”, *Working Paper* No. 777, Bank for International Settlements.

⁴⁵ For discussion of and references to studies about the link between low-frequency correlation between real interest rates and growth, see E. Gagnon, B. K. Johannsen and D. López-Salido (2021), “Understanding the new normal: the role of demographics”, *IMF Economic Review* 69(2), and Lundvall (2020), “What is driving the global trend towards lower real interest rates?”, *Economic Review* no. 1, Sveriges Riksbank.

⁴⁶ T. Piketty and E. Saez (2006), “The evolution of top incomes: A historical and international perspective”, *American Economic Review* 96(2).

more unequal or because the population has aged, the equilibrium real interest rate must fall. The reason for this is that companies' incentive to invest needs to increase, so that balance is restored between total savings and total investment. Gradually, structural increases in savings would therefore also lead to a trend decline in the equilibrium real interest rate. This would in turn mean that central banks, if they stick to their inflation targets, must gradually lower the long-term or normal level of their policy rates.⁴⁷

The explanation that increased savings have driven down the real interest rate may surprise some people as the ratio between total household loans and household income has been growing for a long time, in both Sweden and several other countries. But there is no conflict here as it is natural for debt to rise when savings increase. In each country at any given time, there are millions of households with very different economic conditions and in different stages of life. The point is that the idea of higher savings is about the average propensity to save for all households. A higher average propensity to save leads to a shift in the global equilibrium, so that the real interest rate falls and savings and investment rise as a share of GDP. But the lower real interest rate also means that it is cheaper to borrow. Some households will therefore choose to borrow more than they otherwise would have done and this helps to drive up the ratio between borrowing and income.

One of the weaknesses of the hypothesis that increased inequality drive up savings concerns in particular the effect on the average propensity to save. In studies on savings in the United States, savings among high-income earners are shown to have increased as a larger share of total household income goes to this group. But during the same period, saving ratios among low- and middle-income earners have fallen, and this decline has been substantial enough to push down the average saving ratio for all households.⁴⁸ Analysis of data from several countries also suggests a negative correlation between average savings in the household sector and the level of inequality in income distribution.⁴⁹

Demographic factors affect both savings and investment

What about the hypothesis that an ageing population has helped to press down interest rates? Of the explanations for lower interest rates investigated in different research studies, this is one of them with the strongest empirical support.⁵⁰ But several

⁴⁷ The equilibrium real interest rate can be defined as the level of the real interest rate on short-term loans that, in the long term, is consistent with normal resource utilisation, so that unemployment is at its long-term sustainable level, and with on-target inflation. See M. T. Kiley (2020), "What can the data tell us about the equilibrium real interest rate?", *International Journal of Central Banking* 16(3).

⁴⁸ See A. Mian, L. Straub and A. Sufi (2021), "What explains the decline in r^* ? Rising income inequality versus demographic shifts", and F. Guvenen (2021), "Commentary: What explains the decline in r^* ? Rising income inequality versus demographic shifts", both presented at the 2021 Jackson Hole Economic Symposium, arranged by the Federal Reserve Bank of Kansas City.

⁴⁹ F. Alvarez-Cuadrado and M El-Attar Vilalta (2018), "Income inequality and saving", *Oxford Bulletin of Economics and Statistics* 80(6).

⁵⁰ C. A. Favero, A. E. Gozluklu and H. Yang (2016), "Demographics and the behaviour of interest rates", *IMF Economic Review* 64(4), K. G. Lunsford and K. D. West (2019), "Some evidence on secular drivers of US safe

studies also show that the mechanism is not quite as simple as is sometimes claimed; namely that ageing has driven up the saving ratio. Demographic changes affect both households' propensity to save and companies' incentive to invest.⁵¹ Both effects must be considered when calculating the effects of ageing on the real interest rate.

A new study by Auclert et al. (2021) investigates the effects of demographic changes on a global level, and the findings confirm that ageing has contributed to the fall in real interest rates.⁵² The authors also show that ageing will probably continue to press down the equilibrium real interest rate, despite an ever-larger share of the population now reaching ages over 60 years when saving tends to decrease. The reason is precisely that ageing affects both saving and companies' incentive to invest. The fall in fertility in many large economies, including the United States, the EU and China, means that the working-age population is now growing more slowly than previously. The return on most investments is closely linked to the availability of labour; the return will be higher, the more labour is available. For a few decades from 1965 onwards, for example, the US labour force grew at a relatively rapid rate, when the large cohorts of children born in the post-war years entered the labour market. At that time, it was profitable for many companies in the United States to invest, not least because there were plenty of people to hire and demand grew rapidly as more and more people started to work. Correspondingly, several of the world's large economies are now in a period of slower labour force growth, when it is therefore less profitable for companies to make major investments. If population forecasts prove to be correct, this development will also continue, and more countries will enter a phase of slower labour force growth.

Global imbalances have helped push down real interest rates

But the findings in the study by Auclert et al. (2021) also show that the phenomenon of an ageing population can hardly explain the past 30-year trend towards lower real interest rates on its own. The demographic changes should quite simply not have had such large effects on total household savings as have been recorded.

A circumstance highlighted in many studies, and that provides a supplementary explanation, is that savings have been significantly higher than investment in certain countries and regions. This is not least true of China, where both savings and investment increased to higher levels after the country joined the World Trade Organization, WTO, in 2001. However, savings increased significantly more than investment, which resulted in a considerable surplus in China's current account (see Figure 57). In China,

real rates", *American Economic Journal: Macroeconomics* 11(4), J. M. Poterba (2001), "Demographic structure and asset returns", *Review of Economics and Statistics* 83(4), and L. Rachel and T. D. Smith (2017), "Are low real interest rates here to stay?", *International Journal of Central Banking* 13(3).

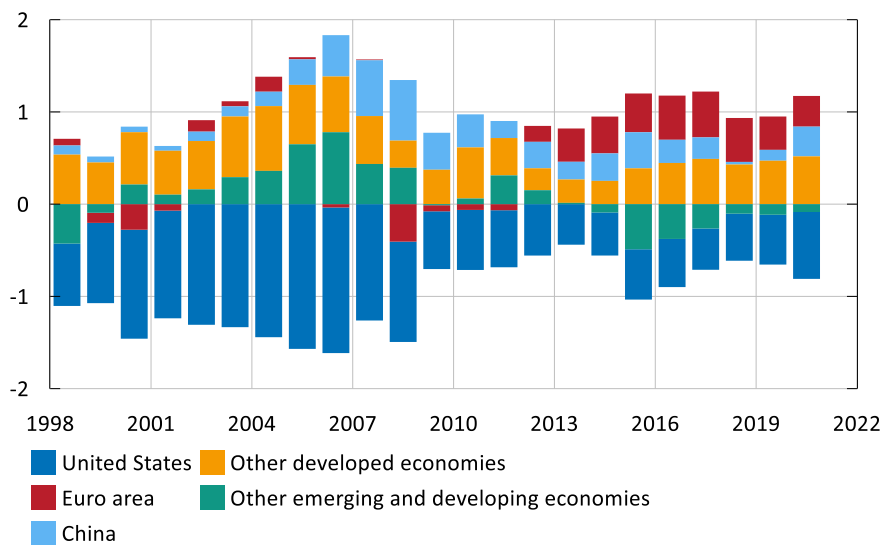
⁵¹ See for example E. Gagnon, B. K. Johansson and D. López-Salido (2021), "Understanding the new normal: the role of demographics", *IMF Economic Review* 69(2) and D. Krueger and A. Ludwig (2007), "On the consequences of demographic change for rates of returns to capital, and the distribution of wealth and welfare", *Journal of Monetary Economics* 54(1).

⁵² A. Auclert, H. Malmberg, F. Mertenet and M. Rognlie (2021), "Demographics, wealth, and global imbalances in the twenty-first century", *Working Paper* No 29161, National Bureau of Economic Research.

savings have been high both in the public sector and among households. Several circumstances have been highlighted to explain the unusually high household saving ratio, including falling effective replacement rates in the pension system, in combination with rapid demographic changes.⁵³ In recent years, however, China's current account surplus has decreased, and the same is true of several petroleum-exporting countries that were negatively affected by the major falls in the oil price in 2014.

Figure 57. Current accounts in various countries and groups of countries

Share of total global GDP, per cent



Note. Current account as a share of total global GDP, expressed in USD at current prices. The classification of countries into the categories Developed, Emerging and Developing economies follows the convention in the IMF World Economic Outlook.

Sources: The IMF and the Riksbank.

During the same period, however, the euro area's current account has strengthened considerably, and the currency area is now a significant net exporter of capital (see Figure 57). This development has partly to do with the European debt crisis in 2011–2012, which resulted in falling investment and rising savings in several southern European countries that had previously had large deficits. Put simply, these countries borrowed large amounts from other countries in the currency areas, mainly Germany, prior to the debt crisis. In conjunction with the debt crisis, deficits shrank dramatically in southern Europe, and several countries started to show a surplus. At the same time, Germany has continued to have total savings that have far exceeded the countries comparatively low investment ratio.⁵⁴

⁵³ See N. Coeurdacier, S. Guibaud and K. Jin (2015), "Credit constraints and growth in a global economy", *American Economic Review* 105(9) and D. T. Yang (2012), "Aggregate savings and external imbalances in China", *Journal of Economic Perspectives* 26(4).

⁵⁴ For a discussion of the causes of Germany's large surplus, see the blog entry by B. Bernanke, April 2015. "[Why are interest rates so low, part 3: The global savings glut](#)".

It can be worth pointing out that the high savings in Asia and Germany has probably helped keep savings down in the United States and in several other advanced economies. There is much to indicate that lower real interest rates, in combination with greater access to credit, partly explain why many households in the United States have reduced their savings, and why indebtedness has instead increased.⁵⁵

Future trend developments affects Sweden

In summary, population ageing and global imbalances have helped to press down real interest rates over the past 30 years. One explanation for the global imbalances is special circumstances in certain countries and regions, not least China and the euro area, that have created large saving surpluses in these regions in particular. How changes in income distribution in various countries have affected developments is more unclear.

The continuing ageing of the global population is one reason to believe that the trend towards lower real interest rates will persist. Another reason is historical data on real required rates of return indicating that most trends persist for quite a long time and do not reverse quickly.

But there is considerable uncertainty, not least regarding developments in China. As the Chinese economy is large and fast-growing, and savings are high to start with, future political decisions may be of major significance. This is true of, for example, the design of social insurance systems. The global equilibrium is also affected by political decisions in other countries and continents. This applies to both the design of fiscal policy in the broad sense and the level of public savings.

Another source of uncertainty is climate change, which can affect real interest rates via several different channels. If no effective climate policy is put in place, the risk of negative economic effects from global warming will increase. Such a development should put further downward pressure on real interest rates.⁵⁶ But the transition to more climate-neutral production is also expected to lead to extensive investment in many countries, something that will affect real interest rates in the opposite direction.

A small, open economy such as Sweden only has a marginal effect on the global trend under discussion here. Conversely, the same trend is of major economic significance for Swedish households and companies, and for the design of economic policy. If the real interest rate remains low, more investment projects, for example, should be considered profitable, compared with if the real interest rate begins to rise again.

Monetary policy decisions are also affected by the global supply of savings and investment. The equilibrium real interest rate on safe, short-term loans is of crucial significance for the normal level of policy rates, both abroad and in Sweden. If the equilibrium interest rate remains low or falls further, it means that, given the current levels of the inflation target, policy rates will remain comparatively low also in the medium

⁵⁵ Compare with the findings in Coeurdacier et al. (2015), see reference in footnote 53.

⁵⁶ See E. Bylund and M. Jonsson (2020), "How does climate change affect the long-term real interest rate?", *Economic Commentaries* No. 11, Sveriges Riksbank.

to long run. In such a scenario, the probability of central banks being limited in their scope for stimulating resource utilisation and inflation with the help of the interest-rate weapon will increase.