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GLOBAL MACRO RESEARCH

— THE CASE FOR A HIGHER NEUTRAL INTEREST RATE

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BNY MELLON
INVESTMENT MANAGEMENT



MANY FORECASTERS, INCLUDING THOSE WITHIN CENTRAL BANKS THEMSELVES, BELIEVE THAT INFLATION WILL REMAIN ABOVE TARGET FOR QUITE SOME TIME YET. THIS WOULD INDICATE THAT HIGHER REAL RATES ARE REQUIRED TO BRING INFLATION BACK TO TARGET IN A TIMELY MANNER. IF THE NEUTRAL LEVEL OF INTEREST RATES HAS RISEN, AND CENTRAL BANKS DECIDE TO KEEP RATES BELOW THIS NEW NEUTRAL RATE, IT WILL MAKE IT DIFFICULT TO BRING INFLATION BACK TO TARGET ON A SUSTAINED BASIS. ULTIMATELY THAT WOULD MEAN CENTRAL BANKS ARE CHOOSING TO ACCEPT HIGHER LEVELS OF INFLATION OVER THE LONGER TERM.

The neutral rate, or long-term equilibrium interest rate, is the level of real interest rates at which central bank policy is neither stimulating or restricting economic growth.

EXECUTIVE SUMMARY

1 **FACTORS AFFECTING THE NEUTRAL RATE:** Given the importance of this topic we have brought together Insight's Global Macro Research team and BNY Mellon's Economics team to provide their thoughts on this topic, highlighting where their views come together and where they diverge:

- **Deglobalisation:** After being one of the most important sources of disinflation for decades, globalisation is in the process of reversing. **Both teams agree that this is likely to exert clear upward pressure on the neutral rate.**
- **Productivity and artificial intelligence:** Productivity has materially slowed over recent decades, but some believe that artificial intelligence could result in a new productivity boom. This is an area where the views of the two teams diverge to the largest degree. **The BNY Mellon team are optimistic about the potential for this new technology to boost productivity, and believe this could put significant upward pressure on the neutral rate, but the Insight team is more pessimistic about the benefits and cautious on the timescales.**

- **Demographics:** The impact from demographic decline is complex and unclear. As growth in working-age populations slows, so does potential growth, exerting downward pressure on the neutral rate, but a shortage of labour can result in higher wages and investment, exerting upward pressure on the neutral rate. The interplay between these two factors is key and can vary between economies – **both teams take a slightly different view on which is more important.**
- **Long-term economic growth and volatility:** Slower, more volatile and negatively skewed growth results in greater demand for safe assets, exerting clear downward pressure on the neutral rate. But, if inflation is also volatile, an increase in risk premia can push the neutral rate upwards. **The Insight team would put more emphasis on inflation volatility than on growth volatility and believe this could put more upward pressure on the neutral rate relative to the BNY Mellon team's view.**
- **Climate investment:** The impact of climate investment is hard to quantify, and the effect on the neutral rate is unclear. A difference of opinion on how this investment will have to be funded means **the Insight team believe there will be more upward pressure on the neutral rate from this factor than the BNY Mellon team.**

2 THE NEUTRAL RATE HAS RISEN: Aggregating these factors, there is agreement that the neutral rate has likely risen, but with both teams taking slightly different views of what has driven this.

3 INVESTMENT IMPLICATIONS OF A HIGHER NEUTRAL RATE:

- A higher neutral rate is arguably already priced in
- Higher yields should mean healthy levels of income in the year ahead, while providing a buffer against negative returns should yields drift higher still
- If we're wrong, and neutral rate has not shifted higher, it could mean an opportunity for substantial returns from fixed income investments

In our view, these factors make investing in fixed income assets compelling.



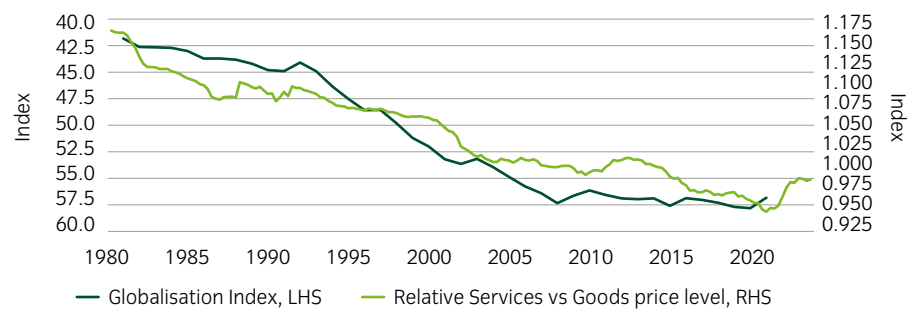
FACTORS THAT COULD IMPACT THE NEUTRAL RATE



DEGLOBALISATION: CLEAR UPWARD PRESSURE ON THE NEUTRAL RATE

From the mid-1990s through to the Global Financial Crisis (GFC), the world experienced what was arguably a period of ‘hyper-globalisation’. Global goods, capital, and labour markets rapidly integrated, most notably following the entry of China into the WTO in 2001. Simultaneously, the rapid industrialisation of the Chinese economy, during which millions moved off the land into Chinese factories, amounted to a massive global manufacturing labour supply shock, reducing manufacturing wages and costs worldwide. This accelerated the de-industrialisation of developed economies, but also delivered those economies a large positive real income boost by cheapening many basic manufactured products such as clothing.

Figure 1: Globalisation drove global goods prices downwards¹



The data in Figure 1 shows median goods price vs median service price indices across the US (CPI), the euro area (HICP), the UK (CPI) and Japan (CPI), against a Globalisation Index by the Swiss Economic Institute.

In a world of inflation targets, the disinflationary forces that globalisation created didn't only drive inflation lower, but also policy rates. This became particularly clear in the wake of the GFC of 2008. That huge negative shock to global aggregate demand reinforced those underlying disinflationary trends, pushing interest rates towards zero. With the impact of the GFC now fading into memory, a reversal of globalisation is likely to result in both higher inflation and higher neutral interest rates as central banks are forced to maintain tighter policy to keep inflation close to target.

Both teams agree that globalisation, the most important driver of the disinflationary pressure we have witnessed over the last decade, is in the process of reversing.

The pandemic highlighted the fragility of global supply chains, forcing corporates to consider that lower costs may be less important than security of supply. This has been compounded by national security concerns, and a deteriorating relationship between Western powers and China. Green protectionism – government policies explicitly designed to expedite decarbonisation efforts while incentivising domestic manufacturing – is likely to be a key factor in the years ahead, spearheaded by the US with the Biden administrations ‘Inflation Reduction Act’ and CHIPS and Science Act. Governments in developed markets are now openly incentivising the reshoring of production, and relaxing state aid rules, while in emerging markets governments appear increasingly happy to intervene to restrict the export of sought-after resources in the name of national interest.

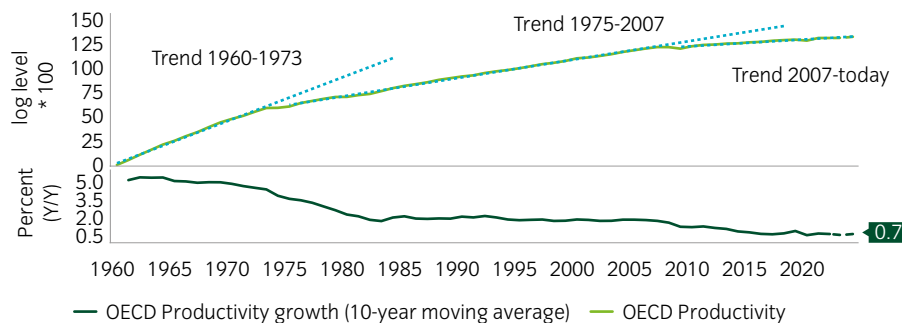
¹ Source: Macrobond, BNY Mellon Investment Management. Data as at 11 September 2023.



PRODUCTIVITY AND ARTIFICIAL INTELLIGENCE: UPWARD PRESSURE ON THE NEUTRAL RATE, BUT OF UNCERTAIN SIZE

Recent decades have seen a noticeable slowdown in productivity growth across the world economy, most notably following the GFC (see Figure 2).

Figure 2: The productivity problem²



Although there are good reasons to be a productivity pessimist and there is a vast body of research seeking explanations for the slowdown, some believe the recent advancements in generative Artificial Intelligence (AI) has the potential to revolutionise working practices.

Like other revolutionary, general-purpose, technologies, AI promises to bring about a radical transformation of the economy and the world of work. The first and second industrial revolutions automated routine, manual tasks, thanks to the advent of steam and electricity. The third industrial revolution, which saw the rise of computers and information and communication technology, targeted routine, cognitive, tasks (e.g., data organisation and analysis). The current technological revolution driven by AI (and robotics), has the potential to reshape non-routine cognitive functions (as well as some manual ones), areas untouched by previous technological waves.

Given the uncertainties, the BNY Mellon team have modelled three distinct scenarios to quantify the potential impact of AI on productivity growth.

- **Pessimistic scenario (productivity increases by 0.2% pa):** the progress of AI systems is limited, and factors such as computing power limitations and regulatory constraints hinder rapid adoption.
- **Baseline scenario (productivity increases by 1.5% pa):** envisions widespread adoption of AI technologies, facilitated by user-friendly software updates from major tech companies. In this scenario, if a more intelligent AI system emerges, its capabilities and adoption would be controlled by an agency akin to the International Atomic Energy Agency (IAEA).
- **Optimistic scenario (productivity increases by 3% pa):** foresees continuous AI development, synergising with other innovations like robotisation, and thereby accelerating the overall pace of innovation.

The central scenario of the BNY Mellon team would see productivity rise by 1.5% pa, and this would be expected to translate into a rise in the neutral rate by around 0.75%.

The Insight team are more sceptical that AI will lead to a productivity miracle and would lean more towards the pessimistic scenario. Since the tech boom in the early part of the century, various claims have been made that rapid technological progress would lead to improvements in productivity, but actual productivity growth has remained modest. As the initial euphoria around this new technology has started to subside, we are already seeing potential issues around accuracy and reliability, with some companies initially restricting usage in fear of data leaks. Although AI is certainly something to monitor, the Insight team believe the impact is likely to be more modest and take place over longer time horizons than many expect.

² Source: Macrobond, BNY Mellon Investment Management OECD (Organisation of Economic Co-operation & Development), Penn World Table, Growth & Development Centre, University of Groningen. Data as at 11 September 2023.





DEMOGRAPHICS: THE IMPACT ON THE NEUTRAL RATE IS COMPLEX

The rate at which populations are aging, and issues such as changes in longevity and birth rates can have a powerful impact on growth, but the impact on the neutral level of interest rates is more complex. There are, however, at least three channels of influence:

- 1. A fall in the growth rate of the working population:** This leads, other things being equal, to a fall in growth and in theory puts downward pressure on the neutral level of rates. However, as a decline in the working-age population also shifts the demand/supply balance within labour markets as workers become more sought after, and this can lead to higher wages and in turn inflation. If labour becomes too hard to find or wage growth too high, then it can result in companies increasing their capital investment as they seek ways to replace labour, and this can lead to high investment needs, requiring a higher neutral rate to attract that investment.
- 2. Rising longevity:** Individuals are likely to spend more years in retirement than in the past, which prompts households to set aside a larger stock of savings before reaching retirement age.
- 3. Population ageing:** Changes in the age structure of the population can cause the elderly dependency ratio to rise. As the number of retirees per worker rises, more people are transitioning from being savers to dis-savers.

Although the relationship between demographics and the neutral level of rates is complex, work by BNY Mellon suggests a small negative impact in aggregate over the next decade. Arguably, we have already seen this effect play out in the past decade, as the prospect of falling working populations has affected real returns in countries like Japan and more recently started to impact China. The BNY Mellon team expect a slower rate of population growth to exert downward pressure on the neutral rate as slower growth results in less investment. In this scenario sufficient savings can be attracted to cover this investment even if real rates decline.

The BNY Mellon team modelled the impact of rising longevity and population aging and found that the former tends to exert downward pressure on the neutral rate while the later tends to exert upward pressure. The Insight Global Macro Research team would take a more cautious position, viewing the balance of risks as skewed to the upside relative to the BNY Mellon team's view – labour shortages have played an important role in the persistent inflationary pressures of recent years and are likely to continue to do so.

There is a final demographic consideration. Within several ageing, developed economies, large non-working older cohorts will be demanding goods and services from a smaller, younger, working cohort (notably healthcare services). Of course, some of this demand can be met from overseas – either through imports or migration - and technology could come to the rescue. But assuming there are limits to this, and the output of younger generations struggles to meet those older cohort demands, ultimately the older generation could find that its purchasing power falls compared with what they currently expect.

There are basically two ways that could happen: The price of those goods and services in demand rises sharply and/or the value of the assets held by older generations falls. One way asset values could fall is if real rates rise and retirement portfolios are revalued downwards to reflect that higher future, internal rate of return. In short, if the promises we have made to ourselves turn out to have been based on expectations of future output that are too optimistic, that could put upward pressure on equilibrium real interest rates.

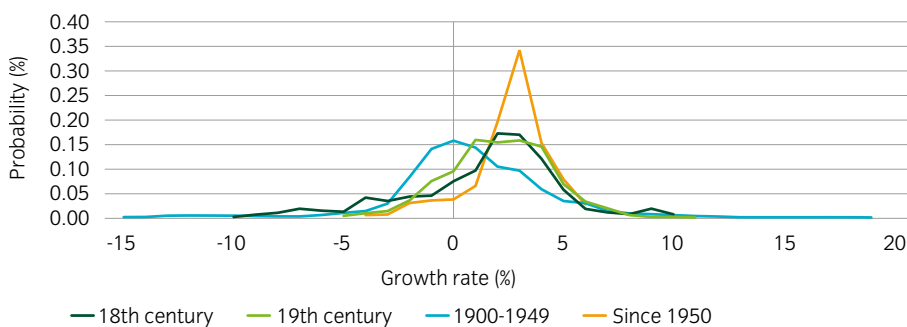


LONG-TERM ECONOMIC GROWTH AND VOLATILITY: GROWTH AND INFLATION ARE BOTH IMPORTANT

The relationship between growth and the neutral level of interest rates is often perceived to be linear: higher long-term growth leads to a higher neutral rate, and vice versa. In reality, in a world characterised by asymmetric and fat-tailed shocks, it is the entire distribution of future growth that matters. Not only (average) long-term growth, but also its volatility, the extent to which booms and busts are asymmetric (the skew), and the likelihood of outturns that are very far from the mean. In a world characterised by high economic volatility, households and corporates will tend to pay more for safe assets, depressing the risk-free rate and in turn the neutral level of rates.

When we examine growth over time, we find that not only has it weakened, but it has also been more volatile, more negatively skewed and fat tailed (see Figure 3, using the UK as an example). When incorporating this information in a model of the real equilibrium rate that accounts for the full distribution of growth, BNY Mellon found a relatively large 50bps dampening effect on the neutral rate. Although the Insight Global Macro Research team would broadly agree that slower, more volatile growth would generally put downward pressure on the neutral rate, they believe that the volatility of inflation is just as, if not more, important. If inflation is volatile, it can mean that safe assets no longer generate positive real returns and are therefore no longer as 'safe'. To compensate for this increased risk, markets may demand a higher risk-premia for assets, pushing up the neutral rate.

Figure 3: The distribution of growth has changed significantly in countries such as the UK³



If inflation is volatile,
it can mean that safe assets
no longer generate positive real
returns and are therefore
no longer as 'safe'

³ Source: Macrobond, BNY Mellon Investment Management. Data as at 11 September 2023.





CLIMATE INVESTMENT: THE IMPACT ON THE NEUTRAL RATE IS UNCLEAR

Many countries have committed to decarbonise their economies over the next 30 years, to hit the 'net zero' emissions target by 2050. An implication is that the size and nature of the global capital stock will have to change radically in that time, with clean 'green' capital replacing polluting 'brown' capital in a relatively short timescale. This could have quite significant consequences for global investment demand and hence, by implication, real equilibrium rates.

There are three potential channels by which this could occur:

1. A large rise in global net investment demand.
2. If the replacement of polluting capital by green capital proves costly.
3. If the rise in the relative price of polluting capital stems or reverses the decline in the price of investment goods seen in the past few decades.

It is hard to quantify each of these effects but work by the BNY Mellon economics team suggests that the second and third impacts may put modest upward pressure on real rates over the longer-term. The team don't expect a significant impact on investment demand, with the bulk of the transition achieved through replacement investment, where existing capital stock slowly replaced with greener alternatives as it reaches the end of its economically useful life. Insight's Global Macro Research team is less convinced that the required investment can be achieved primarily through replacement investment. For example, data from the International Renewable Energy Agency (IRENA) shows global investment in energy transition technologies was \$1.3 trillion in 2022⁴, estimated to rise to \$35 trillion by 2030. This should boost potential growth and require higher rates of return to attract sufficient capital exerting some upward pressure on the neutral rate.

THE NEUTRAL LEVEL OF RATES HAS LIKELY SHIFTED UPWARDS

While any effort to provide a point estimate for interest rates in the forthcoming decade is riddled with uncertainty, we see a high probability that the global economy is transitioning into a higher interest rate regime. **The two teams have different views on the extent the upward shift and what has driven the upward shift – but both agree that the neutral rate has moved higher.**

If correct, then central banks will have to accept that policy is not as restrictive as currently perceived. In the absence of a meaningful recession this would imply that interest rates are unlikely to fall anytime soon. For investors and asset allocators, the projection that rates may remain at recent levels over the medium term carries important consequences. This could well herald the re-emergence of fixed income as an attractive source of long-term returns.

⁴ <https://www.irena.org/>

THE INVESTMENT IMPLICATIONS OF A HIGHER NEUTRAL RATE

A HIGHER NEUTRAL RATE IS ARGUABLY ALREADY PRICED IN

The sharp rise in global bond yields that we've witnessed (see Figure 4) means that markets are already priced to reflect a sustained period of higher interest rates. The nominal level of yields is also sufficiently high to protect investors against a further backup in yields. If we take the Bloomberg US Agg Index as an example, at the end of October this index was yielding 5.65%, with a duration of just over 6 years. If the neutral level of rates has moved higher and yields remain at these levels over the years to come, then it is possible to earn a healthy level of income, towards the bottom of the ranges normally used for long-term equity returns. If markets start to price in an even higher neutral rate and yields drift upwards, then the income generated is sufficient to absorb a 90bp upward move without incurring losses, and even a 100bp rise in yields from here would still incur only a small loss (see Figure 5).

Figure 4: Nominal yields of the Bloomberg US Agg Index have moved sharply upwards⁵



Figure 5: Yields would need to rise sharply to incur losses⁶

Change in yields over 12mths	Return
Unchanged	5.65%
+50bp	2.58%
+90bp	0.12%
+100bp	-0.50%

BEING WRONG WOULD MEAN AN OPPORTUNITY FOR SUBSTANTIAL RETURNS

Although we believe that inflation is likely to be structurally higher in the decade ahead than it has been in the decade running up to the pandemic, there is a risk that we are wrong. Perhaps the most important measure of inflation to monitor in this respect is inflation expectations, as they would likely give some warning that society at large was anticipating higher inflation and building that into wage demands. Data from the NY Fed would suggest that inflation expectations have rapidly normalised – at least for now (see Figure 6).

So, what happens if we are wrong? Normally, if you make the wrong call as an investor, there are negative financial consequences. But if we're wrong in this instance, and the neutral level of rates reverts to the levels seen just a short while ago, then fixed income investments would be expected to generate meaningful returns. For example, a 100bp drop in yields would result in the Bloomberg US Agg generating a return in excess of 11% over a one-year time horizon. If yields were to drop to the average level seen since the start of 2021 the return would be in excess of 20% (see Figure 7).

⁵ Source: Bloomberg US Agg Index. Data as at 31 October 2023.

⁶ Source: Insight. Data as at 31 October 2023. Any projections or forecasts contained herein are based upon certain assumptions considered reasonable. Projections are speculative in nature and some or all of the assumptions underlying the projections may not materialise or vary significantly from the actual results. Accordingly, the projections are only an estimate.





Figure 6: Inflation expectations are dropping sharply⁷



Figure 7: The potential returns from a drop in yields⁸

Yield declines	Return
Unchanged	5.65%
-50bp	8.73%
-100bp	11.80%
To average from 2021: 3.21%	20.66%

IN OUR VIEW, THESE FACTORS MAKE INVESTING IN FIXED INCOME ASSETS COMPELLING

Taking these two scenarios together, it is clear that the rise in yields that has occurred over recent years has created an asymmetrical payoff profile for investors. Tighter central bank policy is expected to result in a sustained period of sub-trend growth, and the variable lags by which interest rates impact different sectors of the economy mean the full effect is yet to be felt. If the neutral rate has risen, then yields likely already reflect this and investors will benefit from higher incomes over a longer-period. If markets are still not fully priced, then downside risk is limited by the available income and were yields to rise to the point that losses were incurred, the risk of recession would likely be significant. If the neutral rate hasn't risen and central banks are able to achieve their goals, then the potential returns available would be substantial.

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⁷ Source: NY Fed, Median inflation expectations, 1 year ahead. Data as at 31 October 2023.

⁸ Source: Insight. Data as at 31 October 2023. Any projections or forecasts contained herein are based upon certain assumptions considered reasonable. Projections are speculative in nature and some or all of the assumptions underlying the projections may not materialise or vary significantly from the actual results. Accordingly, the projections are only an estimate.

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