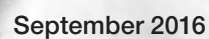




The impact of negative policy rates



Important information

Investing involves risk, including the possible loss of principle.

The views expressed represent the manager's assessment of the market environment as of September 2016 and should not be considered a recommendation to buy, hold, or sell any security, and should not be relied on as research or investment advice. Views are subject to change without notice and may not reflect the manager's current views.

Past performance is no guarantee of future results. All charts throughout are for illustrative purposes only.

Delaware Investments, a member of Macquarie Group, refers to Delaware Management Holdings, Inc. and its subsidiaries. Macquarie Group refers to Macquarie Group Limited and its subsidiaries and affiliates worldwide. Mutual funds are distributed by Delaware Distributors, L.P., an affiliate of Delaware Management Holdings, Inc., and Macquarie Group Limited.

International investments entail risks not ordinarily associated with U.S. investments including fluctuation in currency values, differences in accounting principles, or economic or political instability in other nations. Investing in emerging markets can be riskier than investing in established foreign markets due to increased volatility and lower trading volume.

Fixed income securities and bond funds can lose value, and investors can lose principal, as interest rates rise. They also may be affected by economic conditions that hinder an issuer's ability to make interest and principal payments on its debt.

High yielding, noninvestment grade bonds (junk bonds) involve higher risk than investment grade bonds.

Diversification may not protect against market risk.

All third-party marks cited are the property of their respective owners.

All charts throughout are for illustrative purposes.

Quantitative easing (QE) is a government monetary policy used to increase the money supply by buying government securities (or other securities) on the open market. Quantitative easing is designed to increase the money supply by providing financial institutions with capital in an effort to promote increased lending and liquidity.

The information in this document is provided for general information purposes only and is not, and should not be construed as, an advertisement, an invitation, an offer, a solicitation of an offer or a recommendation to participate in any investment strategy or take any other action, including to buy or sell any product or security or offer any banking or financial service or facility by any member of the Macquarie Group. This document has been prepared without taking into account any person's objectives, financial situation or needs. Recipients should not construe the contents of this document as financial, investment or other advice. It should not be relied on in making any investment decision.

Future results are impossible to predict. This document contains opinions, conclusions, estimates and other forward-looking statements which are, by their very nature, subject to various risks and uncertainties. Actual events or results may differ materially, positively or negatively, from those reflected or contemplated in such forward-looking statements.

Past performance information shown herein, is not a reliable indicator of future performance.

No representation or warranty, express or implied, is made as to the suitability, accuracy, currency or completeness of the information, opinions and conclusions contained in this document. In preparing this document, reliance has been placed, without independent verification, on the accuracy and completeness of information available from external sources. To the maximum extent permitted by law, no member of the Macquarie Group nor its directors, employees or agents accept any liability for any loss arising from the use of this document, its contents or otherwise arising in connection with it.

Other than Macquarie Bank Limited (**MBL**), none of the entities noted in this document are authorised deposit-taking institutions for the purposes of the Banking Act 1959 (Commonwealth of Australia). The obligations of these entities do not represent deposits or other liabilities of MBL. MBL does not guarantee or otherwise provide assurance in respect of the obligations of these entities, unless noted otherwise.

Contents

Executive summary	4
Introduction	5
Initial impact	7
Loss of income for banks	7
Impact on financial markets	11
Contagion to financial assets	11
Potential for excessive risk taking behaviour	11
Impact on the economy	13
Banks pass on negative rates to customers	13
Wealth effect from asset inflation on spending	14
Will lower yields increase demand?	15
Effect on business capital expenditure	16
Economic effects via negative rates impact on currency exchange rates	17
Conclusion	18

About the author



PATRICK ER, BSOC.SC (HONS), MCOMM (EC)
CASH, FIXED INCOME AND CURRENCY

Patrick specialises in econometric research in our quantitative research team, developing and further refining the investment processes for all cash, fixed interest and currency products.

Prior to joining Macquarie in 2005, Patrick spent two years in Westpac's Financial Markets Division in New Zealand where he focused on econometric modelling, forecasting and monitoring international economic developments.

Before joining Westpac, Patrick spent eight years as an economist in Commerce International Merchant Bank in Malaysia, with the last five years as head of economics research. His role involved analysing Asia-Pacific economies for investors in the region.

Executive summary

Negative interest rates are becoming increasingly common in the global economy as central banks struggle to effectively manage the persistent low growth environment. However, as interest rates begin to enter negative territory, there are many broad and serious implications that need to be considered. Our research looks at the implications of negative rates on three key areas – banks, financial markets and economies. We find that thus far, the evidence suggests the impacts of negative rates are largely negative.

The most immediate impact of negative interest rates (currently on bank reserves) is to the banks. It essentially is a tax on banks and has the effect of lowering profit margins and income for the banking system. Whilst we believe it is likely the banks will attempt to avoid or reduce the impact of this tax through changes to asset allocation (holding less reserves and more financial assets) for the overall banking sector, there is probably little that can be done to avoid it. Ostensibly, the added costs will likely be passed on to borrowers/depositors thus spreading the negative income effect to the wider economy.

As banks attempt to minimise the ‘tax’ that they are exposed to by reducing their holdings of reserves, the effects start quickly impacting financial assets. Beginning with increased demand for relatively low risk assets such as government bonds, this is likely to spill over to more risky assets as banks and investors alike look for higher yielding assets in this low income, low rate environment. This could cause strong asset price inflation but without any fundamental justification, the price increases would be accompanied by rising volatility.

We believe the more disturbing ramifications from negative interest rates are the unintended consequences if they should stay well into the business cycle and flow on to affect the economy. When added to the distortion of market incentives, excessive risk-taking could quickly rise as banks and investors look to maintain returns.

Touted benefits of negative rates such as higher spending levels by households and economies through lower funding costs are also unlikely to eventuate. Our research suggests that the fundamental outlook for their income is a much more important consideration in the spending decision making process than the cost of funding. And negative policy rates do reduce incomes for the overall economy.

As investors and fund managers, negative interest rates are yet another challenge that unfortunately cannot be avoided. Hence, a better understanding of the implications and consequences involved is imperative, especially towards generating the appropriate strategies and processes designed to deliver the optimal solutions in such unconventional times.

“

We are in a completely different world...

”

Mario Draghi, President of European Central Bank
5 June 2014¹

¹ <https://www.ecb.europa.eu/press/pressconf/2014/html/is140605.en.html>

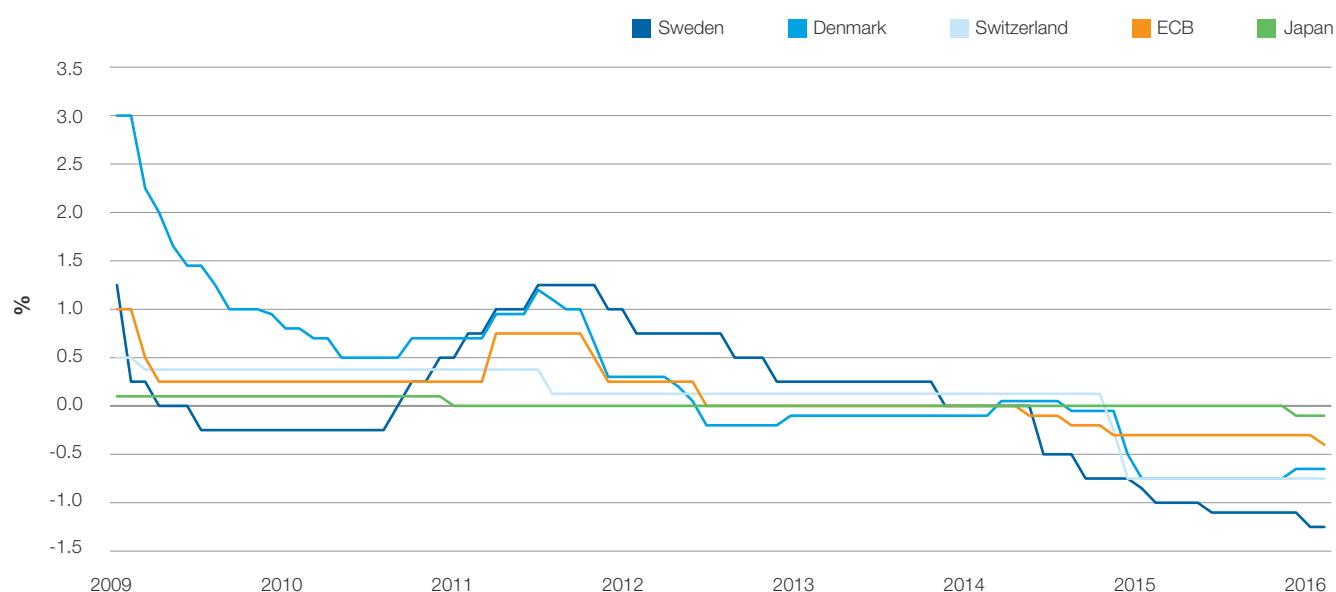
The views represented are those of the manager as of Sept. 2016. Forward looking statements presented are subject to various risks and uncertainties and actual events or results may differ materially.

Introduction

How negative interest rates came about

When the Bank of Japan (BOJ) implemented negative interest rates, it joined an exclusive club of central banks – those of the ECB, Denmark, Sweden and Switzerland (see Chart 1) – that turned a theoretical oddity to reality. If these policies become more widely applied and linger, the implications could be quite significant. Hence the purpose of this paper is to discuss what these measures involve, and to point out some of the consequences for economies and markets.

Chart 1: Central bank rates from 2009



Data: International Monetary Fund

Negative interest rates have historically been extremely rare. Even when faced with market anomalies of historic proportions, policy responses have rarely involved negative interest rates. Neither during the Great Depression nor even at the height of the Global Financial Crisis (GFC) have negative interest rates surfaced and stayed. Today, throughout the world, some major central bank policy rates as well as some government securities are trading below zero. At a time when

global financial markets are not in crisis, this certainly calls for some serious investigation. A major reason for negative interest rates was the lack of traction in any economic lift-off since the GFC. In the case of the European Central Bank (ECB) and the BOJ, continued failure in attaining the 2% inflation target was specifically mentioned by both banks. The former has also expressed the view that credit supply is lacking².

Furthermore, recent rhetoric suggests that policymakers will persist with these measures and perhaps even intensify them if their objectives are not achieved within the intended time horizon³. It now appears, as economic uncertainty spreads, more policymakers could be considering such policies even as those already on-board are set to keep them for longer. In particular, major central banks like the United States Federal Reserve (Fed), might be considering this route⁴.

For now negative interest rates apply only to banks' deposits, or reserves, at the particular central bank. This, therefore, limits the direct spill-over of such rates to the wholesale segments of the financial system. The box segment below provides a quick refresher on bank reserves with those details that are relevant to this paper.

3 "...so we give a date, and then we say if that is not enough, we can continue"
<https://www.ecb.europa.eu/press/pressconf/2015/html/is151203.en.html>.

4 Well before the BOJ's move, the Fed chair, Janet Yellen, stated in November 2015, that "Potentially anything - including negative interest rates - would be on the table."
<http://www.reuters.com/article/usa-fed-yellen-rates-idUSN9N0X501620151104>

Refresher on bank deposits at central banks, also known as reserves

Bank reserves are deposits that banks normally hold at their respective central banks primarily as settlement funds for clearing payments between banks, and between the government sector and the banking system. In many countries, banks are also required by law to hold a minimal level of reserves as some percentage of total customer deposits – interestingly, this is not the case in Australia and Canada. Those deposits or reserves can **only be 'created' by the central bank**.

Some bank deposits however, can be 'created' by the banks themselves, for example, when a loan is made, a deposit automatically results. So if a loan is made and then remitted in payment, reserves are also transferred at the interbank level as part of the settlement process. Note however that no new reserves are created – there was just a transfer.

In 'normal' times, central banks pay an interest rate on banks' reserves, or on the excess above the minimum legally required level if there is a reserve requirement. Reserve balances are generally minimised by banks given their low yield relative to other assets.

Now this next point is crucial: Whatever the number of transactions within a given banking system, the total level of reserves cannot change without involving its applicable central bank or government. This total level of reserves will

change **only** if banks chose to hold more currency/cash or transact with central government entities e.g. buying a Treasury bond from the central bank or subscribing to a government bill. Note that the latter two actions would remove reserves from the interbank settlement system and thus reduce the level of reserves at its central bank.

It is also clear that banks do not require reserves before making a loan—it is only when a transfer occurs that reserves are needed to facilitate the settlement of the transaction. Even then, according to monetary structure around the world, an individual bank short of reserves can typically procure them from its central bank using its net assets (i.e. equity) as collateral. So loans are constrained effectively by the banks' equity relative to assets rather than the amount of reserves held at the central bank.

In summary:

- Bank reserves can only be 'created' by a central bank
- Bank reserves can only be changed by banks if they choose to hold currency/cash or transact with central government entities
- Loans by commercial banks are not generally restricted by the amount of bank reserves held

Initial impact

Given that negative rates are currently focused on banks' deposits or reserves at a central bank, it is natural that the most immediate and direct impact of this policy regime will be on banks. Negative rates will generally have a negative effect on banks, effectively acting as a tax for holding deposits with central banks. We believe banks will try to minimise this by reducing reserves – either through attempting to raise lending or adjusting their asset composition. However it is likely that banks' efforts will fail to meet expectations. While individual banks could reduce their reserves, the total banking system is unlikely to be able to as the nature of the financial system means that, unless transacting with a government entity or converting into currency or cash, the total level of reserves in the overall banking system remains unchanged.

Loss of income for banks

A negative interest rate imposed on bank reserves is effectively a tax. That banking system as a whole is now charged a fee for holding deposits that it cannot unilaterally reduce. Individual banks might be able to cut their reserves holdings but an entire banking system cannot effectively do so without the participation of monetary authorities.

This immediately leads to a loss of income and one natural response to any cost imposition in general is avoidance, here it is to reduce reserves. As holding more currency/cash indefinitely is infeasible, individual banks would attempt to shift from reserves to other non-cash assets. We believe there are three key methods that banks will likely use to attempt to do so.

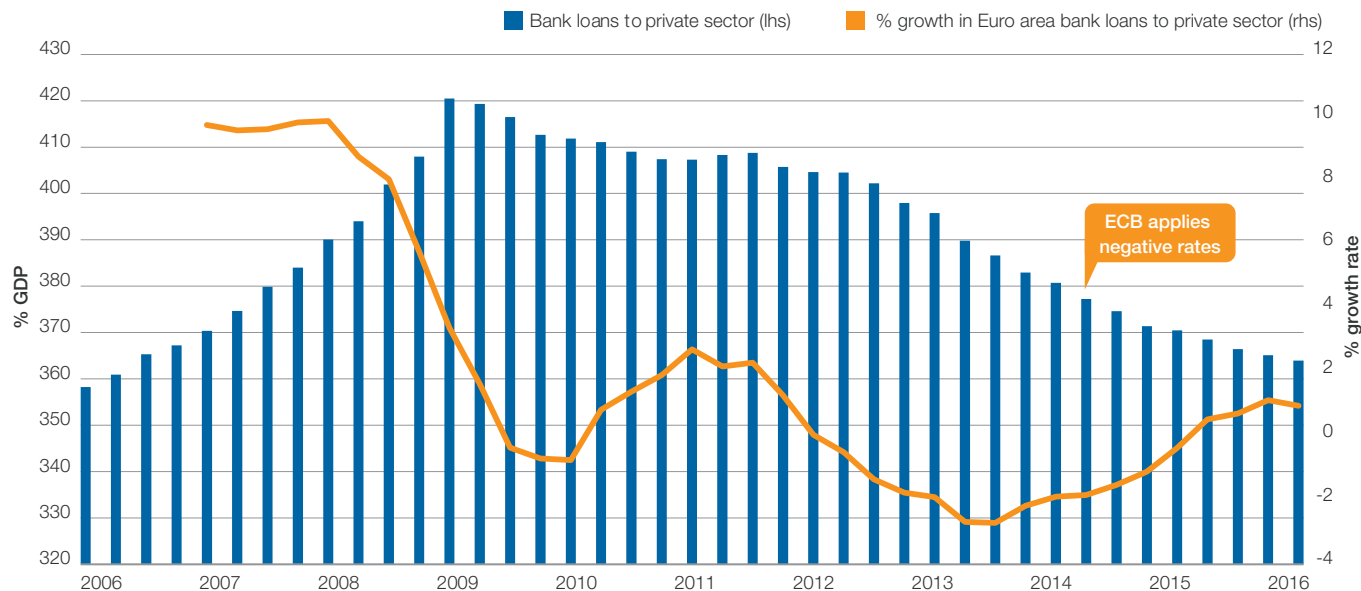
1. Make more loans so that reserves are remitted to other banks as settlement transactions

This is what policymakers hope for, that banks make a lot of loans in order to reduce their reserves. But the total banking system reserves will still be unchanged. As discussed in

the box segment, enacting transactions within the banking system (or even with the wider private sector) would not reduce the total holding of reserves – some banks may end up having less, others more, but the entire system's reserves will be the same.

For example, Tokyo Bank might try to reduce its reserves by making a big loan to Mr Fuji, who then pays Mr Tanaka who deposits the cheque at Osaka Bank. Reserves are then transferred to Osaka Bank as settlement of the transaction. Tokyo bank has less reserves but after settlement, Osaka Bank would now be holding more. So there is still the same total burden on the banking system. And therefore we believe more bank lending is not a feasible way of avoiding income losses from negative rates. Moreover the demand for loans, especially in the developed region, has not grown meaningfully in recent years, so it could be difficult anyway to increase lending (see Chart 2).

Chart 2 Low loans growth and loans to GDP



Source: ECB

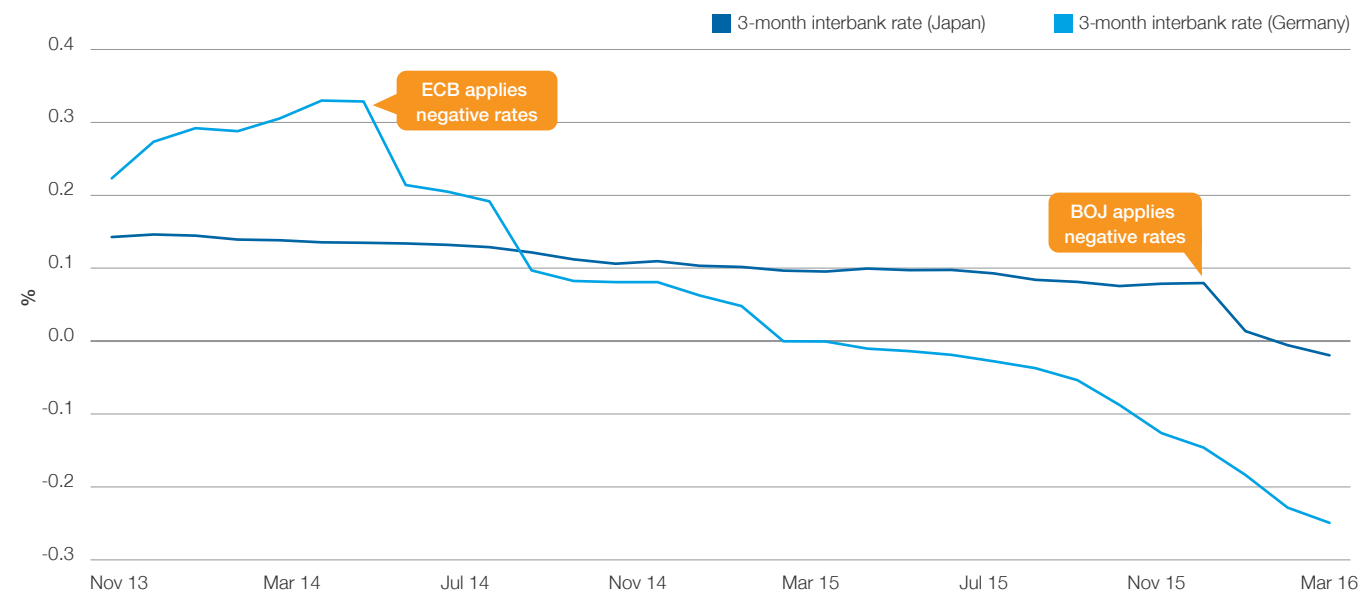
2. Reduce reserves holdings by buying more financial assets from parties other than government entities

The same conclusion as above holds if banks attempt to reduce reserves by buying financial assets from parties other than central government entities. Individual banks might succeed in holding more financial assets but an overall banking system's reserves would still be unchanged. In this case, though, we believe there will be relative price effects as the initial shift in asset composition would be to assets of similar risk as bank reserves e.g. short duration assets such as government bills, and these yields will fall even more from the record lows observed in recent times. Note that as net demand for reserves among banks falls in the short term, rates for extremely short term loans between banks to help meet reserve requirements—known as interbank rates—should also decline (see Chart 3).

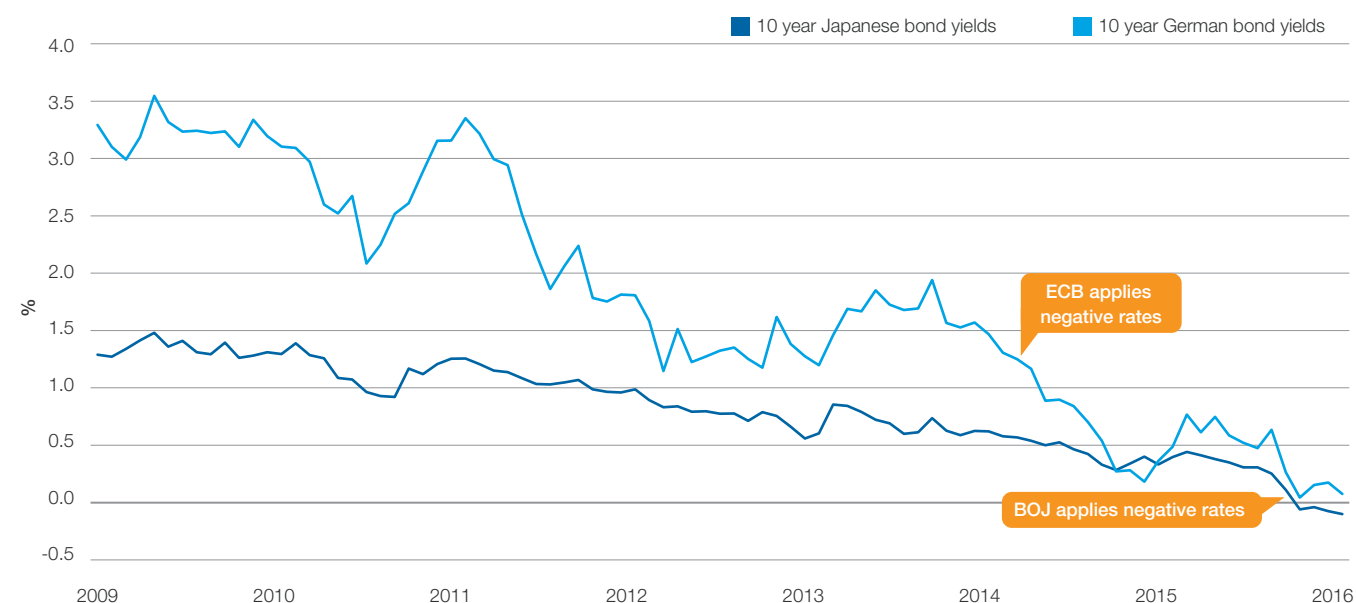
3. Purchase securities from the government or central bank

This is an efficient way for the banking sector to effectively reduce its holdings of reserves and thus avoid the cost of negative interest rates. In general, this implies the demand for government bonds will be higher. But there is also no guarantee of easily procuring government securities at prices that make the 'tax avoidance' exercise worthwhile. This is especially true in low yield economies, more so in those economies like Japan that are actively running Quantitative Easing (QE) policies, where central banks themselves are buying government securities.

Consider again the Japanese example. To avoid paying the tax, the total banking system must reduce its reserves, and the most effective way is to buy Japanese Government Bonds (JGBs) from its central bank or its government. But the BOJ is buying JGBs as part of its QE program. This will ultimately be self-defeating because more competition is created for JGBs – banks want the JGBs to reduce the cost of negative interest rates, the private sector wants JGBs as a better yield than a savings deposit, and the BOJ wants JGBs as part of its QE program. In our view, this would make it even harder to shift out of reserves. If the government fails to raise fiscal spending and/or its debt, more JGBs are unlikely to be issued. The need to obtain JGBs would effectively be QE on steroids. In this scenario, JGB yields will decline very quickly (see Chart 4).

Chart 3: Rapidly falling interbank rates since negative rates applied

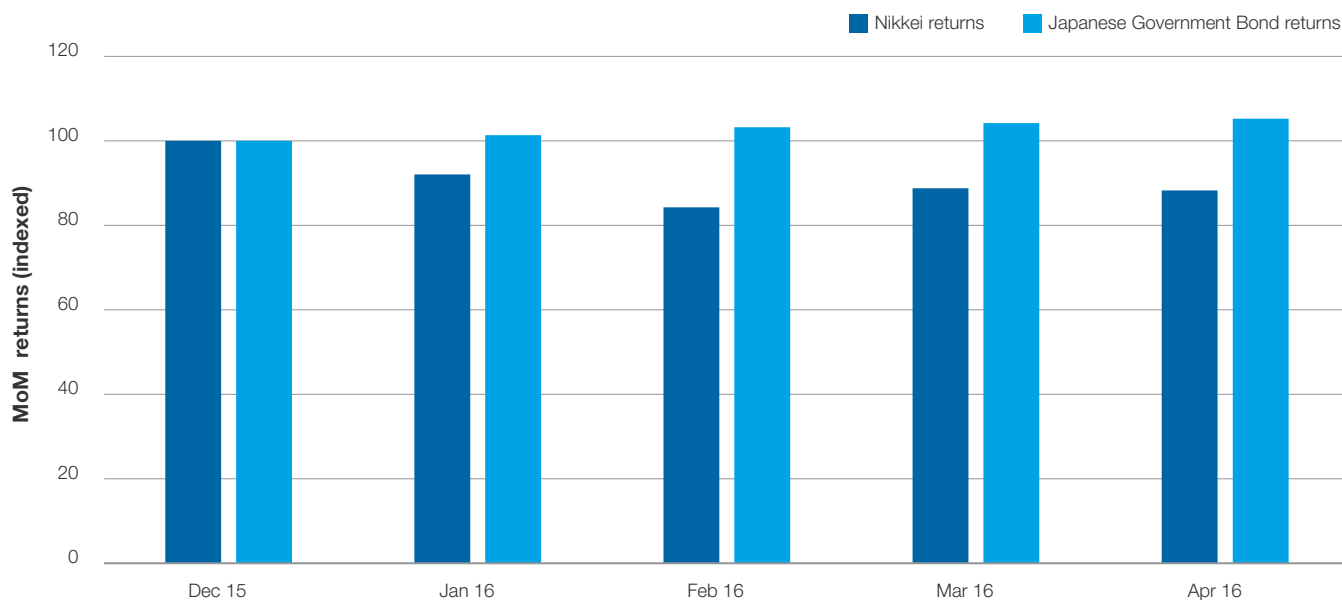
Source: ECB and BOJ

Chart 4: Falling treasury yields since negative rates applied

Source: ECB and BOJ

It is likely that other market participants may be anticipating this shortage of JGBs, thereby adding significantly to the demand for government bonds. This tremendous reach for yield could alter the dynamics of bond trading by placing a structural ceiling to yields such that even slight rises in inflation might not affect it. So risk free rates could structurally stay lower, and even go below zero. With negative interest rates becoming entrenched, we believe the motivation for holding bonds purely for capital appreciation rather than yield could grow in importance. Investors are likely to look at total holding period returns but over shortening horizons as bonds get increasingly viewed as an investment where income is no longer the primary aim (see Chart 5).

Chart 5 Government bond total returns higher than equities in aftermath of negative rates



Data: Datastream

The Nikkei is an index that measures the performance of stocks traded on the Tokyo stock exchange. It is comprised of 225 Japanese stocks.

Conclusion

In short, Japan's banking system as a whole is unlikely to avoid the cost of negative interest rates. This could lead to pressure on margins, a reduction in profits and a distorted demand for assets. Government securities will likely be heavily bid, causing a structural ceiling for bond yields.

Impact on financial markets

The previous section showed that avoiding reserves through shifting into other assets will not be easy. Therefore in order to offset some of the costs of negative interest rates, banks will likely attempt to increase revenue through non-traditional activity such as investing in financial markets. Starting with government securities, this will eventually spill over to other more risky assets as yields are pushed lower and banks and investors alike search for better returns. Indeed, as negative rates persist, this particular impact on these assets would likely be much more widespread as well as possibly more intense as market participants may engage in excessive risk taking behaviour to maintain profits.

Contagion to financial assets

In order to counter the adverse impact on net margins, banks could also attempt to increase revenue through non-lending activity such as investing in financial markets. This, of course, would raise expected returns for such assets. We have previously discussed the heightened motive for demanding government securities. Hence there is now also a revenue motive for banks to hold government securities to counter the impact of negative interest rates.

This suggests that negative interest rates on bank reserves will affect government fixed income assets the most. We expect this to intensify, adding further pressure to hold these assets all the way to the longest maturity. Portfolio rebalancing is also likely as investors begin allocating into higher risk assets that could provide either better yield and/or capital appreciation. In our opinion, these actions would lead to asset price inflation.

The above is, of course, a standard reaction to QE. Though there is one key difference: with negative interest rates, there is a need to offset the loss of income and shrinking margins as well as generating revenue. Therefore the overall effect on other assets such as equities, foreign financial assets and even real assets could be more intense. None of this is a response to fundamental forces.

A few observations are important. Firstly while equities can be expected to attract demand, the initial response might be a sell-off, especially financial institution shares, as markets realise that income losses are unavoidable. Whether equity prices rise, ultimately depends on the impact of income losses.

Secondly, while it is reasonable to expect investors to look outside their home markets for financial assets thus depreciating the currencies of negative-rate economies, there might be unexpected temporary effects. For example, the offshore demand for local bonds may be so great, especially in QE affected markets, that a short term appreciation occurs instead. How long this unexpected development lasts will depend on central bank signals on whether more negative rates can be expected. Moreover, given the sensitive nature of deliberately depreciating national currencies—termed ‘currency wars’—depreciation could be short-lived if countries whose currencies appreciate begin to retaliate⁵.

Potential for excessive risk taking behaviour

If negative interest rates persist, and long term bond yields continue to decline, the progressive flattening of term structures (in which there is a shrinking difference between short-term and long-term yields) could shrink bank margins even more. In response, banks might deliberately relax lending standards even more, to make up for the contraction in margins, and seek to maintain total profits through higher loan volumes.

⁵ Only under very specific conditions does deliberate progressive currency depreciation by countries give rise to overall positive economic effects. These conditions are unlikely to hold today. See Trade Depression and the Way Out. by R. G. Hawtrey, *The Economic Journal*, Vol. 42, No. 165 (Mar., 1932)

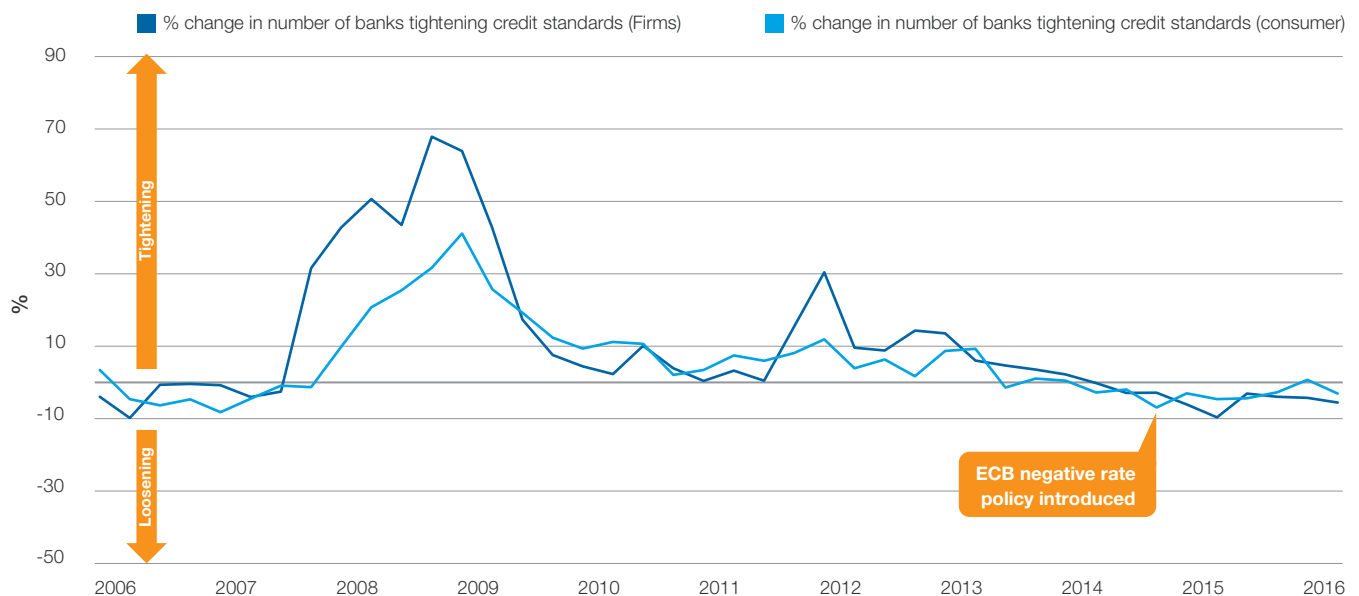
This could result in overly risky lending.

However, the post-GFC environment, despite the regulatory changes made, has not been one where funding has generally been hard to come by or too expensive to incur (see Chart 6, which looks at changes in credit standards across a representative sample of euro area banks). This is because as crisis conditions dissipated, cost of funds plummeted and credit standards eased accordingly. So the more 'creditworthy' demand for loans has most likely been met. Any greater growth in loan volume from this point without any corresponding improvement in the overall economy will likely be through less prudent credit standards. And this is what could raise risks to the overall banking system.

Similar risk-taking behaviour may be observed in markets as asset prices rise. The low yield environment tends to lead investors and banks to engage in more risk-taking behaviour in search of better returns for their portfolios. Recall the point that the 'hunt for yields' from negative rates should be greater than from QE alone. This could certainly cause excessive risk taking on a bigger scale as investors attempt to extract greater price appreciation to counter the lack of income.

It gets worse for those institutions around the world (such as pension funds) that are constrained to hold some level of government bonds by statutory requirements. With these bonds likely to be at low to negative yields, this could just intensify their demand for riskier securities in order to achieve target returns whilst at the same time piling more downward pressure on yields.

Chart 6 Senior Loan Officers surveys show loosening lending standards since GFC end



Source: ECB

Conclusion

It is clear to us that in addition to the banks, financial markets would face significant disruption should negative interest rates prevail. Excessive risk-taking in the chase for yield has the potential to cause significant asset price inflation that is not justified by economic fundamentals.

Impact on the economy

From the preceding discussion the immediate outcome from the imposition of negative rates is clearly loss of income – the same as from a tax increase. In fact we believe this is the most significant economic impact of negative interest rates. So the initial economic impact of negative interest rates is unambiguously contractionary and any expected economic gain can only emerge after this. The previous sections showed that banks' immediate term natural responses to negative rates – avoidance and raising revenue from financial market activity to compensate for net margin contraction – are unlikely to meet expectations. Which means eventually banks will have no option but to devise means of sharing their loss of income with customers, either through higher lending rates or deposit fees, and/or lower deposit rates.

There are however, also a number of economic impacts which may not be so straightforward. We find that although asset prices would likely be artificially inflated following negative interest rates, the magnitude of any positive 'wealth effects' on spending has been diminishing and is likely to diminish further going forward.

For the household sector, the expectation is that negative interest rates would make deposits less attractive, and thus spur investment and consumption. However an analysis of the data suggests that this is unlikely as households are much more influenced by the outlook for their income than interest rates. And in an environment of low economic growth, they should not be expected to spend more despite the lower rates on offer. Similarly businesses are much more concerned with the outlook for their incomes than their access to low cost borrowing.

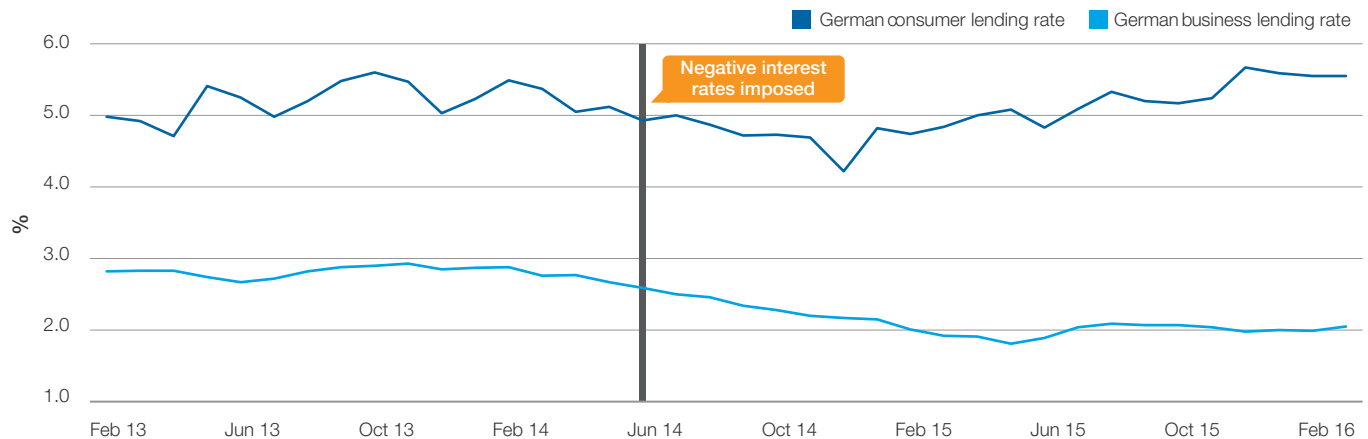
Banks pass on negative rates to customers

In general, a given banking system's attempts to avoid the impact of negative rates will likely not meet expectations. This means banks might look to lower deposit rates, charge deposit fees or raise lending rates in order to compensate for their loss of income. In the long run, lending rates might actually turn out to be the opposite of what policymakers intended⁶ when they applied negative rates (see Chart 7). This is starting to happen in Europe⁷.

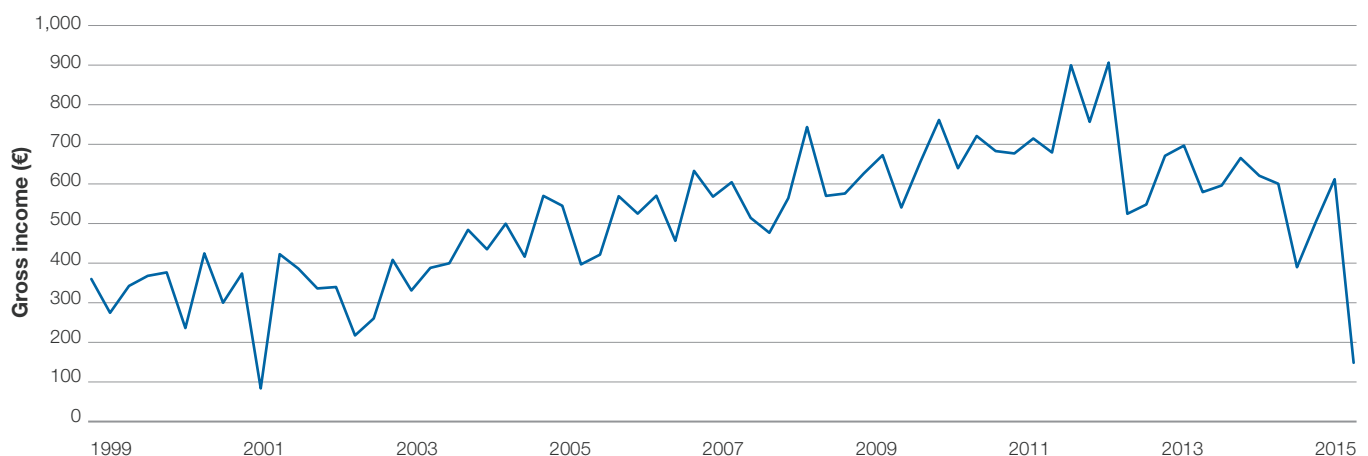
However, there could be unintended consequences. An obvious one is a huge demand for currency/cash. This is because, for retail depositors, it is less costly to avoid negative rates by stuffing paper money under the mattress and forgoing bank deposits. But the same could not be said for institutions. The latter would face greater storage costs. Moreover financial innovations have reduced the circulation of currency thereby limiting the overall capacity to get hold of cash.

6 One possible perverse effect of prolonged negative rates is that higher lending rates could also be accompanied by a reluctance to lend. Why? Remember in normal times, banks make money on the margin. So if a bank's margin is squeezed by negative rates, at a time when economic prospects are not strong, then the bank has to be extra cautious about its lending practices as the insurance of the margin to cover the risk of nonperforming loans is now reduced.

7 The Alternative Bank Schweiz (ABS) informed customers in October 2015 that it is imposing interest charges on deposits in 2016. Read <http://news.yahoo.com/swiss-alternative-bank-breaks-negative-rates-taboo-055303880.html>.

Chart 7 Lending rates could rise rather than fall with negative rates

Source: ECB

Chart 8 EU financial sector, gross income

Source: ECB

This means that while negative rates could, at least initially, reduce bank income (see Chart 8), we believe efforts to counter this should result in income losses eventually spreading to the wider economy. Therefore overall economic income growth could be stunted by negative rates – surely not an intended aim of central bankers. This is a predictable effect of a contractionary tax hike, which is what negative rates are.

Wealth effect from asset inflation on spending

One consideration raised in regards to negative rates is whether the subsequent asset price increases will offset income losses. If negative rates are an enhanced version of QE, the argument is that asset prices should rise by more than prior stand-alone QE applications. And if so, the related wealth effects would be translated to the economy a lot more strongly. Recent experiences with QE (2001-2006 in Japan, 2009 – 2014 in the US etc.) suggests the contrary: economic effects of asset price

inflation from unconventional policies are not great and in fact diminish with successive applications (see Chart 9).

It is likely asset price wealth effects from negative rates will not be any different from QE. This is because financial asset wealth effects on economic behaviour are never quite as large as expected from, for example, real estate asset-related wealth effects⁸. The major reason is that the former tends to be temporary in nature, whereas sustained spending requires a more permanent support. This is especially true in the case of financial asset price movements from unconventional policies like negative rates because of the greater volatility that accompanies such gains. Wealth effects could be even smaller today given the rising gap in wealth inequality to historic highs – concentrating gains to a wealthy minority who have a lower consumption propensity does not encourage more spending.

8 For more details please read *Wealth Effects Revisited: 1975-2012*, Karl E. Case, John M. Quigley, Robert J. Shiller, NBER Working Paper No. 18667, January 2013 <http://www.nber.org/papers/w18667>

Will lower yields increase demand?

Regardless of the wealth effect, the general consensus that lower long term yields should still ultimately generate some positive economic effects through lower borrowing costs, and a move from savings to spending and consumption. But if households are not particularly optimistic, due either to job insecurity and/or low income expectations, then spending is unlikely to rise, even with lower borrowing costs. Our analysis shows that the correlation of consumer spending with

income growth is about 82% while that with interest rates is a perversely positive, but relatively small, 20%.

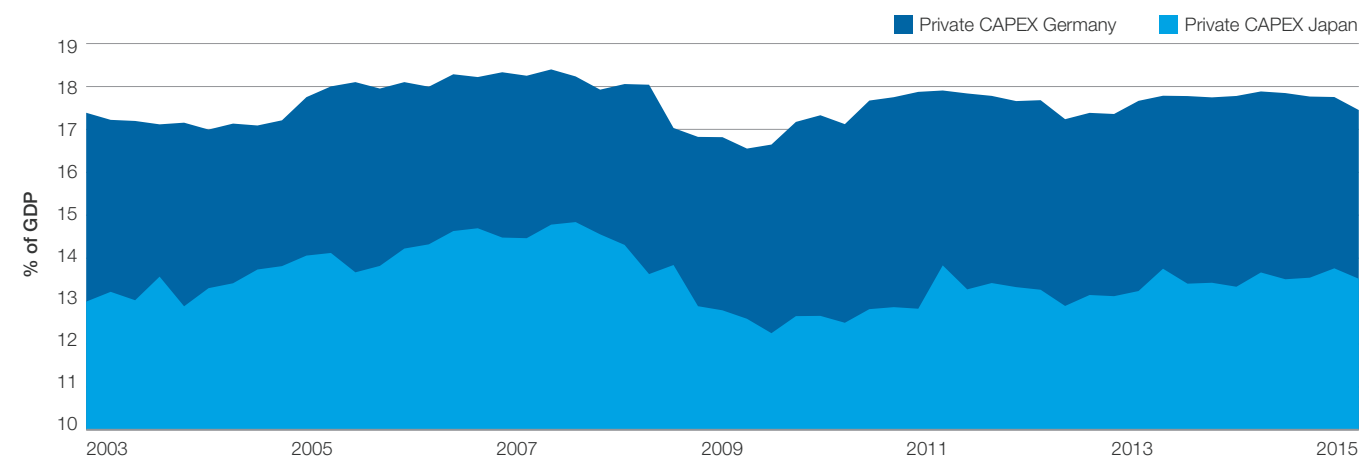
This result is supported by research⁹ which suggests that income expectations outweigh both financial wealth effects and marginal interest rate effects when it comes to household spending. So when income losses from banks spread to the wider economy, then any anticipation of more spending needs to be pared back.

Chart 9 US Industrial Production vs QE



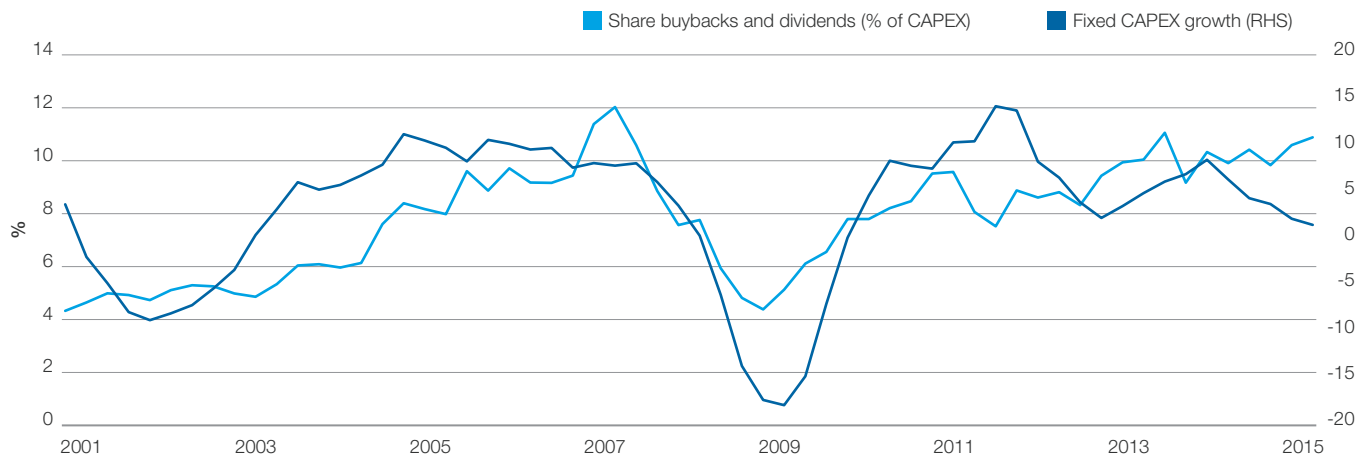
Source: Datastream and US Federal Reserve

Chart 10 Capex growth modest



Source: Datastream

Chart 11 Financial market transactions by businesses e.g. share buybacks rise as capex growth slows due to unconventional monetary policy



Source: Bloomberg and Datastream

CAPEX, or capital expenditures, typically consist of outlays for larger scale enhancements such as new equipment or updated facilities

Effect on business capital expenditure

What about businesses? Can they be expected to borrow and spend? The evidence is not supportive (see Chart 10). Access to funds was not the main issue, especially over the last 5 years or so. But corporations chose instead to build up savings surpluses from the profit recovery. Surveys¹⁰ on business activity show that fixed capital investments have not recovered to pre-GFC levels, especially in those countries that have adopted negative rates. They also indicate that this reluctance to invest is due to the uncertainty on earnings. Banks were happy to lend even as yields fell but there was no desire to borrow and invest. So poor income prospects may override the incentive from greater and cheaper access to funds.

All this should not be surprising. As income losses are the first major structural impact of negative interest rates, a diminished desire to spend naturally follows, especially on big ticket items like factories and machinery. Low interest expense is not typically the main driver for expanding a business, it is

usually about getting more revenue and income, as can be seen in Table 1 below. Until sales recover meaningfully there is little chance of more capital spending. In fact, as discussed earlier, if negative rates persist, it will be the case of higher, not lower, lending rates. In this sense, negative interest rates are effectively a form of monetary tightening.

In our opinion, there is a more insidious effect of negative interest. This is because when financial asset prices rise within a low growth environment, unintended incentives emerge. Corporations, with growing financial surpluses but faced with demands to raise the return on assets, may be tempted to undertake financial rather than technical engineering. Where initially there was aggressive refinancing of debt, as marginal gains diminished at lower yields, they are now increasingly undertaking share buybacks while raising dividend payouts (see Chart 11). In short, companies would rather invest in financial assets, despite lofty valuations, than invest in becoming better producers simply to capture short term gains.

Table 1: Comparisons of correlations with Capex growth: income expectations dominate lending rates

Correlation comparisons	Private CAPEX growth versus long term interest rates	Private CAPEX growth versus income trend expectations
USA	0.23	0.89
Germany	-0.05	0.81
Japan	0.11	0.64
Australia	0.34	0.68

Source: Macquarie and Datastream

¹⁰ See International Monetary Fund World Economic Outlook and Bank of Japan Tankan Capital Spending Surveys. Various issues from 2005.

Economic effects via negative rates impact on currency exchange rates

Lastly, there is a view in the market that negative rates could depreciate currencies, thereby boosting external demand for domestic output and raising inflation rates. Assuming depreciation does occur, the economic benefits will likely be transitory at best. For example, it is hard to raise export volumes in the short term. Any increase in export earnings reflects a price change in local currency terms, not from selling more, implying there is no rise in production. Moreover, necessities still need to be imported. This just adds more costs on domestic consumers already suffering income losses.

The benefits of a weaker currency are also contingent on an economy well placed to take advantage of it. If there is a lack of capital expenditure, especially in sectors that benefit from currency depreciation, then any rise in demand from foreigners will not be sufficiently strong to offset any negative income effects. This has been the case in Japan where tourist arrivals, while at peak levels since 2014, have not been sufficient to compensate stagnant domestic demand¹¹.

More fundamentally, any advantage from a weaker domestic currency from negative rates could prove short-lived. As highlighted earlier, this is because 'currency wars' could break out and any foreign exchange-related price advantage will quickly dissipate.

Conclusion

Economic impacts of negative interest rates are not as clear as some market participants may believe. Much like other recent QE actions, it attempts to stimulate the economy without addressing the underlying drivers of current economic growth. As such, it is likely that any benefits of negative interest rates for the economy will be smaller in magnitude and also be relatively short-lived.

¹¹ "Visitors to Japan surge to record 19.73 million, spend all-time high ¥3.48 trillion", The Japan Times, 19 January, 2016
<http://www.japantimes.co.jp/news/2016/01/19/national/japan-sets-new-inbound-tourism-record-2015-comes-just-short-20-million-target/#.Vz1Qf0J95mM>

Conclusion

Negative interest rates, currently on bank reserves, are an extension of unconventional monetary policies adopted in a low growth, low inflation world. As negative rates could be more widespread and stay for longer, a clearer understanding on the implications and consequences is necessary.

So we have seen little evidence of economic benefits from negative rates as very few policies whose initial impact reduces incomes can be viewed positively.

If any significant economic advantage should emerge, it would likely not fully compensate for the income losses suffered by a given banking system as negative interest rates on bank reserves are effectively a tax. If governments do not return the revenue from the tax rise back into the economy, then imposing negative rates is just old-fashioned fiscal austerity.

One natural response from banks would be to avoid the burden by holding less reserves and/or make up the loss in revenue by other non-traditional sources such as investing in financial assets. In our view, these are unlikely to meet expectations and eventually banks could pass on costs thereby spreading income losses to the rest of the economy.

Financial asset prices are expected to rise as negative rates become more pervasive. Firstly banks, in trying to reduce holdings of reserves, and then everyone else, will respond to the incentive to offset lower incomes by increasing investing activity in financial markets. So expect major market moves, greater than in reaction to stand-alone QE measures. And

expect fixed income assets, beginning with government securities, to post the biggest gains. As portfolios are rebalanced, and arbitrage likely intensifies, other assets will likely get bid as well. However, we believe that without an underlying structural improvement in economic growth drivers, market price moves would not have sustainable economic foundations. This could just widen the gap between market and economic outcomes and will lead to higher volatility. In fact, any significant retracement in this environment could cause systemic market stress and possibly lead to a crisis event.

This also means there is little reason for private households and businesses to spend and borrow more despite the negative rates. Income losses do not motivate more demand. In fact, it is just as likely that lending rates could increase, thereby discouraging business capital expenditure. In a stagnant economy and without net demand rising, households and businesses would probably not engage in any meaningful increase in spending, and therefore economic growth and inflation are not expected to emerge significantly as well. Ultimately we believe, economies are not likely to benefit from negative interest rates.

