

What should we make of the negative interest rates that we now see in many countries?

In order to stimulate economic growth, drive up inflation and weaken their exchange rates, some central banks have opted to push back the limits of their key interest rates by venturing into negative territory. These decisions have pushed many other interest rates below the zero threshold, which may seem difficult to grasp from a rational perspective. They also raise questions about the consequences that could ensue on savers and on the long-term stability of the financial system. This *Economic Viewpoint* provides a snapshot of where things stand as far as negative interest rates are concerned, and takes a look at the various issues they give rise to.

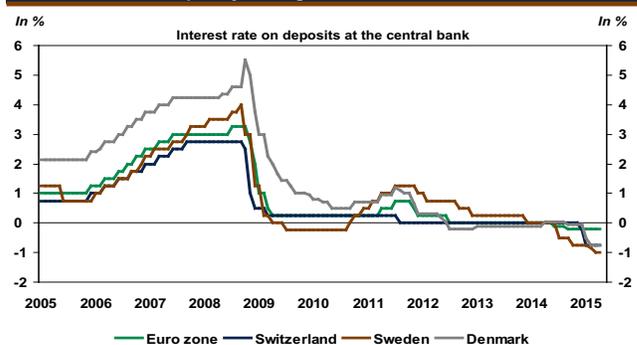
WHERE DO WE FIND NEGATIVE INTEREST RATES?

Negative interest rates are mainly concentrated in Europe, due to the recent actions by that region's central banks. The European Central Bank (ECB), the Swiss National Bank (SNB), the Bank of Sweden (Riksbank) and the National Bank of Denmark have all decided to impose a negative interest rate on their depositors (graph 1). The Riksbank went a little further, pushing its repo rate (the equivalent of the overnight rate) below zero (graph 2). The SNB acted similarly by lowering its target for the 3-month Libor rate to -0.75%.

By setting their interest rates so low, the central banks are encouraging financial institutions to use their surplus funds for other purposes, such as for granting more loans. The financial institutions can also purchase financial assets, such as government bonds, to reduce the amount of funds they deposit at their central bank. This has the effect of driving up demand for such assets, and of driving bond yields lower, sometimes even into negative territory (graph 3 on page 2). In fact, Switzerland is where we find the largest number of terms posting a negative yield.

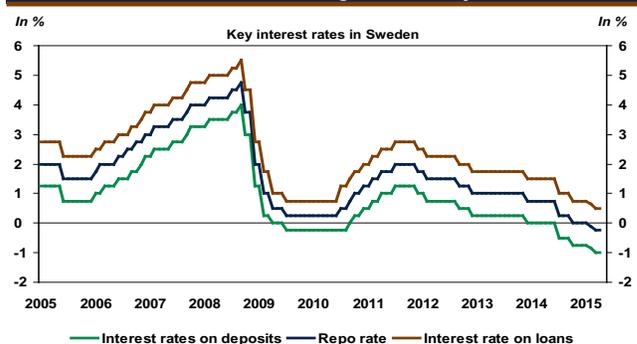
A few interest rates are also sitting in negative territory in Japan, in the money and bond markets, but those rates are still very close to 0%. In the United States, only a few money market rates have ventured temporarily into negative territory in recent years. The Bank of Japan and the Federal Reserve (Fed) have carried out policies of massive asset purchases, but have never lowered their key interest

Graph 1 – Many central banks of Europe have adopted a policy of negative interest rates



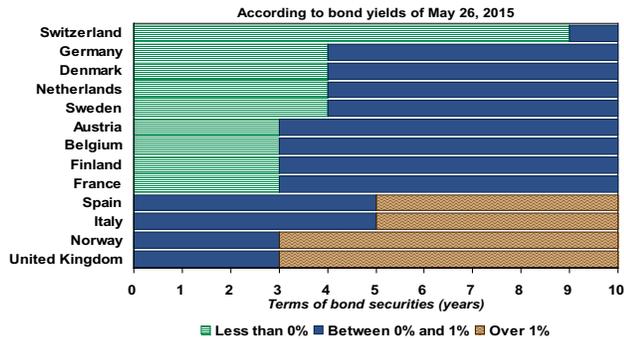
Sources: Datastream, Bloomberg and Desjardins, Economic Studies

Graph 2 – In Sweden, the mid-point of the range of key interest rates is also in negative territory



Sources: Datastream and Desjardins, Economic Studies

Graph 3 – In many countries, bond yields have also crossed over into negative territory



Sources: Bloomberg and Desjardins, Economic Studies

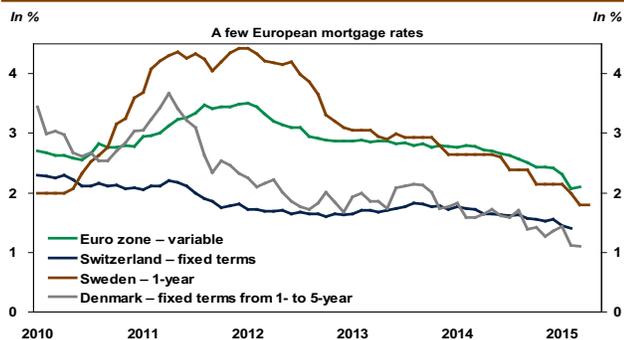
rates below zero. The Bank of Canada has never adopted a negative interest rate either, and the Canadian money market rates and bond yields have remained in positive territory.

RETAIL INTEREST RATES REACT TO A LESSER DEGREE

Negative bond yields constitute an advantage for the European governments, which now receive interest income when they obtain financing. A few large, international corporations have also issued bonds with negative interest rates in the European market, but instances of individuals or small businesses enjoying negative interest rates on their borrowings are still very rare.

A few cases have received plenty of publicity, like that of a Danish lady who obtained an interest rate of -0.0172% on a 3-year loan.¹ However, the official data on credit interest rates show that they are still above the zero mark (graph 4).

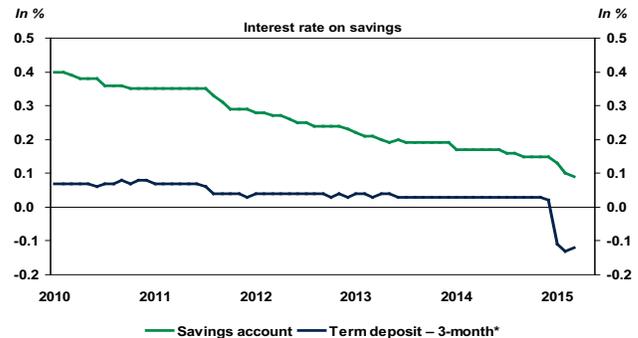
Graph 4 – Mortgage rates in Europe are still positive



Sources: European Central Bank, National Bank of Denmark, Datastream and Desjardins, Economic Studies

On the other hand, cases of individuals paying interest fees on their savings are somewhat more frequent. The official data on deposit rates in Switzerland clearly show this new reality (graph 5). However, the interest rates demanded by financial institutions are not as steep as the rate paid to the central bank, or those prevailing in the money market. In addition, this penalty mainly affects large deposits.

Graph 5 – Savers pay interest in Switzerland



* Deposit of 100,000 francs or more.
Sources: Datastream and Desjardins, Economic Studies

WHY SHOULD WE ACCEPT NEGATIVE INTEREST RATES?

The concept of investors and financial institutions agreeing to hold bonds with a negative yield, or of individuals agreeing to pay interest on their deposits, may seem like an aberration. However, there are many rational explanations for these decisions.

First of all, bonds with negative yields may turn out to be a lesser evil, especially for financial institutions, which face the alternative of making a deposit at the central bank. Then, we must consider their return in real terms. If investors are worried about a prolonged period of deflation, the expected return on their investments is still positive in real terms.² Investors may also be apprehensive of a resurgence of financial difficulties in certain European countries. They would therefore prefer to hold a German bond with a negative yield, but with a low risk of payment default. An extreme view would be that negative yields on certain European bonds are seen as a premium for hedging oneself against the risk of the euro zone collapsing. If that were to happen, German, French and Dutch bonds would be paid back in marks, francs or florins, and those reborn currencies could be worth more than euros. With a potential gain linked to the exchange rate, the return on such bonds would then be above 0%.

¹ www.nytimes.com/2015/02/28/business/dealbook/in-europe-bond-yields-and-interest-rates-go-through-the-looking-glass.html?_r=0.

² For example, a bond posting a yield of -0.5% will bring in a real return of 0.5% if inflation is at -1.0%. Real rate = nominal rate - inflation.

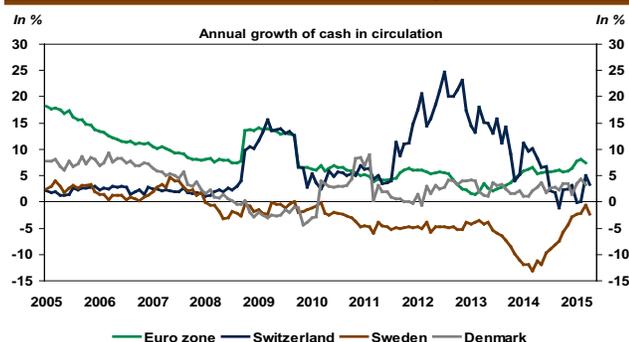
Holding cash could seem to make more sense in many cases, however. For example, even if negative inflation is anticipated, holding cash at 0% interest could be a way of obtaining a better real return compared with that of an investment with a negative nominal interest rate. But this reasoning does not take into account the cost and inconvenience of holding cash, especially in large quantities. Holding cash can quickly become cumbersome. Transaction times are also longer due to the time spent counting, and recounting. Moreover, security issues must also be considered, which can involve costs for purchasing a safe or for a new insurance policy. Lastly, cash is subject to deterioration and is vulnerable to bad weather and to accidents, not to mention the danger of falling victim to counterfeiting.

IS THERE A LIMIT TO NEGATIVE INTEREST RATES?

What could be considered a limit on negative interest rates is the threshold beyond which it would make no difference to an individual, an investor or a business whether he or it held an investment with a negative return or held cash, with the inconvenience and expense that that entails. From that point onwards, a central bank would lose its leverage over credit growth, as any further decline in interest rates would drive savings away from the financial system and would reduce the ability of financial institutions to grant loans.

Few analysts are bold enough to specify a precise limit to negative interest rates. This is largely due to the absence of empirical evidence to support any such claim. So far, the declining interest rates in Europe have not led to a strong increase in demand for bank notes, which suggests that the limit has not yet been reached in those countries (graph 6).

Graph 6 – There has been no explosion in the quantity of cash in circulation since the arrival of negative rates



Sources: Datastream and Desjardins, Economic Studies

We could conceivably estimate the limit of negative interest rates, but doing so would require several hypotheses that are often difficult to validate. It would also seem logical that the threshold for moving to cash holdings would vary

from one saver to another. Smaller savers would face fewer constraints for holding cash, and would therefore react more quickly to a drop by interest rates into negative territory. On the other hand, institutional investors, who invest hundreds of millions, or even billions of dollars, in the money and bond markets, would likely be far more patient. They would face particularly high costs to store, transport and account for their assets in bank notes. This issue would be all the more troublesome in a country like Canada, where the largest denomination is a \$100 bill. In comparison, a 1,000 franc denomination is available in Switzerland, reducing by a factor of ten the amount of space required to store cash. So everything is relative, and the definition of the limit for interest rates is rather a threshold at which a critical mass of deposits and investments is converted into cash.

In a note sent to the U.K. Treasury Committee in May 2013, the Bank of England (BoE) estimated that the limit of its overnight rate was around -0.50%. “So, while a temporary reduction in Bank Rate to significantly below zero might be feasible, it would probably not be possible to hold Bank Rate below minus ½ per cent (or thereabouts) for more than a year or two without provoking such a movement into cash, unless the convertibility of bank reserves into cash were to be restricted in some way.”³

It is interesting to note that the BoE ties its -0.50% limit to a sufficiently lengthy application period of one to two years. It is indeed likely that the interest rate limit would change over time. A depositor could accept a negative, weaker rate in the short term, but in the longer term would hope to invest in a safe or something else to avoid paying a rate that penalizes. The BoE also assumes that no measures that constrain holding onto cash would be adopted. In fact, if the government voted in laws to restrict the use and holding of cash, interest rates could fall sharply lower. However, it would be hard for the government to gain the population’s support for such measures.

With a key rate at -0.75%, the SNB will actually test the limit suggested by the BoE in 2013 for its own rate. At -0.25%, the Riksbank is closing in. The ECB does not seem to want to test such a low limit. Governor Mario Draghi firmly closed the door to reducing the deposit rate below -0.20% and gave no indication as to a decrease for the main refinancing operations rate. The Fed showed even more caution, with Janet Yellen having indicated in November 2013 that even a slightly positive deposit rate

³ www.bankofengland.co.uk/publications/Documents/other/treasury_committee/ir/tsc160513.pdf.



would impair the money market,⁴ which is where financial institutions find financing. Seen from this perspective, the interest rate limit is no longer simply a threshold where a critical mass of wealth is converted into cash; rather, it is a threshold where the costs for the economy and financial markets become too large.

POTENTIALLY HIGH COSTS

The worst case scenario is clearly a massive conversion of deposits into cash. As noted previously, this would translate into a loss of power of central banks which would have more difficulty influencing economic activity through credit. The inability for central banks to act would also have collateral damage such as a reduction in inflation expectations, which could harm consumption. Without savings fueling the financial system, it would be difficult for a company to invest and for a household to buy a home. At the end, the collapse of the financial system would very likely push the economy into a depression.

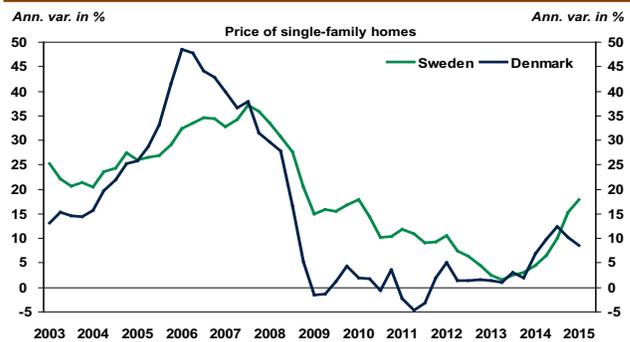
Before arriving at such an extreme scenario, other potentially high costs may pile up. These costs often manifest even before interest rates fall into negative territory. For example, defined benefit pension plans have already been hard hit by weak bond yields. Negative rates clearly aggravate their situation, forcing them to revise upward the contribution level of participants or reduce the benefit promised to future retirees. Those without such a retirement plan still face a similar problem and must increase their savings rate, work longer or revise downward their expected retirement income. In all cases, current or future consumption will be negatively affected.

One solution to low returns is taking more risk, also known as reaching for yield. It is still a perilous solution for the future, because if more savers acquire risky securities, more people will be penalized if the risks manifest one day.

Like the situation with retirement plans, the long-term profitability of European life insurance companies was threatened by very weak interest rates, and it worsens with negative rates. The impact varies depending on the insurance product; those with a fixed premium and high return assumptions are the most problematic. Insurance companies obviously cannot change existing contracts. For example, they cannot raise premiums for their existing clients to offset the decrease in returns. But they can improve their profitability by offering products that are less sensitive to interest rates or by increasing premiums for new clients.

The creation of bubbles is another problem that threatens the financial system and economic growth. For example, weak retail interest rates, which may be amplified by central banks implementing negative key rates, encourage credit and increase the risk of a real estate bubble. Home price growth has also accelerated in the last year in Sweden and Denmark (graph 7). The situation is even more problematic when household debt levels are high, as this makes them more sensitive to an eventual price correction or a future rebound in interest rates. Bubbles can also appear in stock markets or other categories of assets.

Graph 7 – Growth in house prices increased in Sweden and Denmark



Sources: Datastream and Desjardins, Economic Studies

The analysis of the cost of low interest rates should also consider the time and capital that are wasted in analyzing the new situation and making changes to adapt to it. The arrival of negative rates raised particular issues with investments in IT to ensure that systems could operate in this new reality. Building safes in response to monetary policy would be another good example of wasting resources. Companies could offer solutions to other companies or individuals to help them avoid paying interest on their deposits. Institutional investors that manage great quantities of funds would be particularly interested in this kind of solution. This could even extend to creating a parallel currency that would be based on cash reserves held in enormous vaults.

In fact, there are no limits on innovation when there is something to be gained (or a cost to be avoided). In a recent speech, the Director of Research of the New York Fed⁵ noted several changes that could occur in our lives in an environment of negative interest rates. For example, companies might prefer to hold off on cashing cheques to avoid paying interest. Individuals might also pay their credit card accounts more quickly, or even in advance, to

⁴ Hearing of Janet Yellen before the Committee on Banking, Housing, and Urban Affairs of the U.S. Senate on November 14, 2013, p. 18, www.gpo.gov/fdsys/pkg/CHRG-113shrg85910/pdf/CHRG-113shrg85910.pdf.

⁵ James MacAndrews, “Negative Nominal Central Bank Policy Rates: Where Is the Lower Bound?”, speech delivered on May 8, 2015, www.newyorkfed.org/newsevents/speeches/2015/mca150508.html.



avoid interest on bank accounts. Along the same lines, individuals could hold off on cashing their tax refunds. These examples are clearly not all the effective ways of using financial resources, but an illustration of the extent to which behaviour and ways of doing things could change, which would not be without a cost to society.

IN CONCLUSION, WE SHOULDN'T STRETCH THE ELASTIC TOO FAR!

Up to a certain point, negative interest rates could make sense and be used to stimulate the economy. But it would be wrong to believe they can be reduced sharply without individuals, business and investors reacting, which could generate costs for the financial system and the economy. In such an unusual context, it is understandable that the ECB is cautious and reluctant to further lower its key rates.

The SNB and the Riksbank are testing a much lower level, and it is important to monitor the consequences of their actions. For now, the negative effects seem to be limited, but it could take time before a critical mass of individuals, business and investors decided to adapt to an environment of negative rates. Potentially high costs could therefore manifest in the next few quarters.

Lastly, it should be remembered that it does not take negative rates for the harmful effects on the economy and financial system to become significant. An environment of weak interest rates in several areas of the world is already raising major issues for savings, pension funds and life insurance. It is also heightening the risk of speculative bubbles, which could lay the groundwork for the next crisis. Central banks are clearly walking a tightrope.

Hendrix Vachon
Senior Economist