

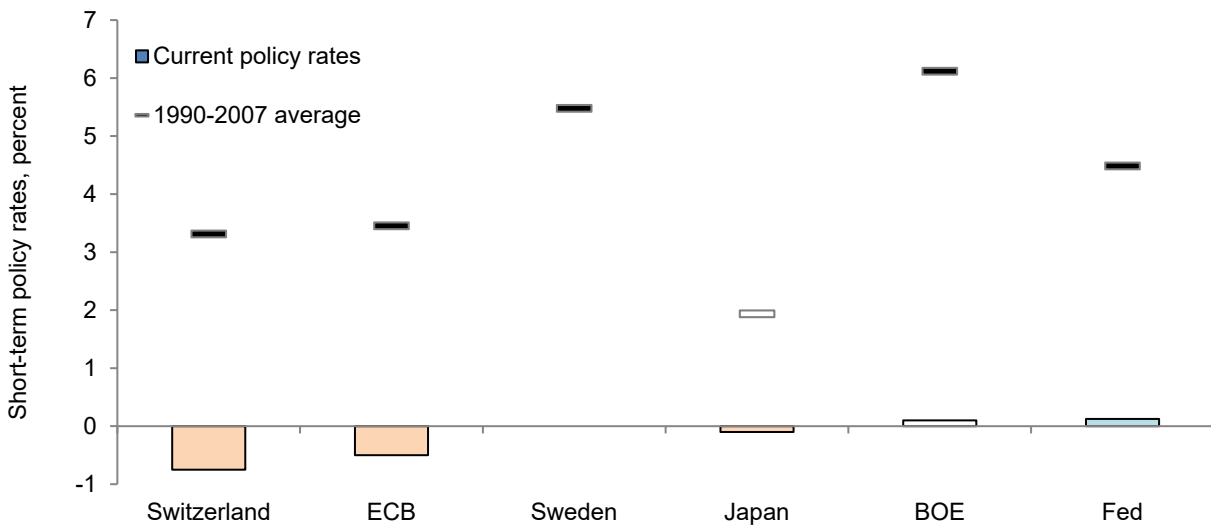
ON POINT

ECONOMIC AND POLICY INSIGHT FROM THE OCC

Do Negative Interest Rate Policies Actually Work? (And at What Cost?)

Since the 2008 global financial crisis, the European Central Bank (ECB) and the central banks of Switzerland, Sweden, and Japan have all implemented negative interest rate policies to boost weak growth and avoid deflation. The economic shock from COVID-19 prompted policymakers at other central banks to reconsider adopting negative deposit rates on bank reserves to support economic recovery. However, the observable international economic growth benefits of negative policy rates thus far are small, and risks exist for bank margins and profitability, which may decline as banks hesitate to pass interest costs onto retail depositors.

Figure 1: More Central Banks Adopting Negative Interest Rates



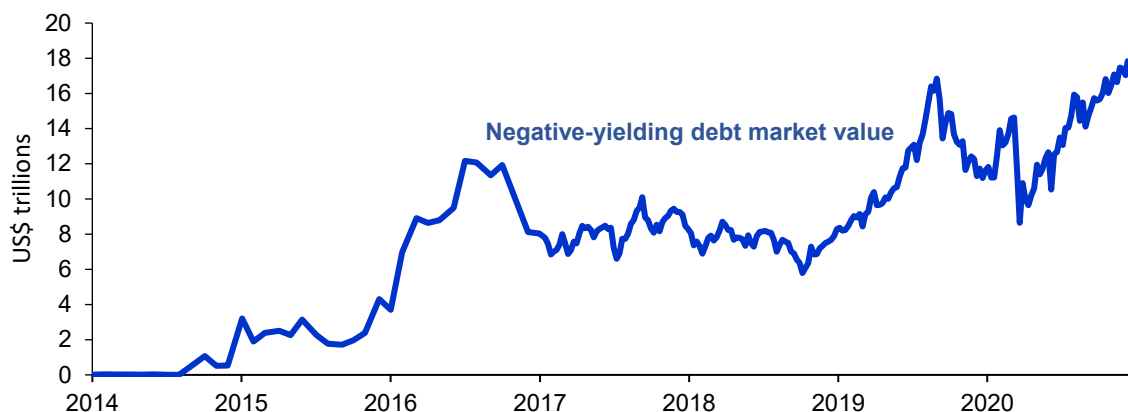
Note: Sweden policy rate was negative (-0.5%) through 2019.
ECB=European Central Bank, BOE=Bank of England, Fed=U.S.Federal Reserve System.

Source: National Central Banks, Haver Analytics

Negative Interest Rates: Market Observed Versus Purposeful Policy

The total amount of global debt outstanding with negative nominal yields exceeds \$17.5 trillion.¹ This figure increased over the past decade as more central banks instituted aggressive low and negative interest rate policies. In March 2020, even U.S. Treasury bill yields briefly fell below zero as the Federal Reserve System (Federal Reserve) aggressively loosened policy and investors sought safe assets amid market turmoil caused by the pandemic.

Figure 2: Steady Rise in Global Debt With Negative Yields



Source: Bloomberg Barclays bond indices

The nominal T-bill yield quickly rose above zero again, but key U.S. rates remain below the inflation rate, so investors are earning negative *real* interest on Treasury securities of up to 30 years in maturity. And while real interest rates tend to be positive, it is not uncommon for them to be below zero. Two-year maturity interest rates were below measures of core personal consumption expenditures (PCE) inflation in the late 1970s and after the global financial crisis. During periods in the mid-2000s shorter-maturity securities were at or near measures of U.S. inflation. Market measures of real interest rates using inflation-indexed securities at constant maturity (R-CMT) available in 2003 are not negative until after the 2008–09 global financial crisis. Changes to the term premiums and inflation expectations influence real interest rates over time.

So to be clear, negative interest rate policy (NIRP) differs from negative observable market rates or yields (nominal or real).

When central banks lower interest rates as a policy choice, most commonly (but not always) to stimulate economic activity, monetary transmission occurs through several channels:

1. Lower policy rates are arbitrated into market interest rates throughout the economy, stimulating loan demand and spending on credit-sensitive items.
2. Banks respond to declining interest on reserves held at the central bank by boosting lending.
3. The currency often depreciates against peers, making exports more competitive.

¹ As of December 15, 2020.

4. As investors “reach for yield,” savings can shift into higher-yielding vehicles, pushing up asset prices, and the higher unrealized “wealth” levels may trigger increased spending.²
5. Central bank large-scale asset purchases of longer-dated securities force long-term interest rates down, stimulating long-term capital expenditures.

In principle, the channels that boost economic growth through lower interest rates also apply when policymakers set rates below zero, with these provisos:

- NIRP is an unconventional monetary policy whereby a central bank deliberately sets nominal policy rates below zero. NIRP is aimed at boosting economic growth and inflation by encouraging risk-taking by both firms and households, as well as by banks to some extent.
- NIRP is controversial in part because borrowers could repay less than the amount originally borrowed. And in theory, savers could be charged for depositing money in their banks.
- In the United States, the policy rate is the federal funds rate, which sets the price at which banks lend reserve balances overnight to each other on an unsecured basis. These reserve balances are an asset for banks and a Federal Reserve liability.

There is considerable debate about whether NIRP actually boosts growth and to what extent NIRP side effects counterbalance any positive effects. Measuring the effects of negative interest rate policies is complex, as NIRP affects the behavior of a variety of economic actors. In addition, the policy is usually implemented in conjunction with other policies such as large-scale asset purchases (“quantitative easing”) and against the backdrop of weak growth and inflation, making it difficult to determine whether the economy would be even weaker without NIRP.

Examining negative interest rate policies in Europe and Japan may yield insight. For example, thus far in the euro area, smaller retail depositors have not yet been assessed negative nominal interest rates through direct debits of accounts,³ although banks have passed along some of their costs in the form of higher account fees.

Did Negative Interest Rates Achieve Policy Goals in Europe and Japan?

After the global financial crisis and the European debt crisis in 2011–2012, short-term interest rates in the eurozone declined to the zero-lower bound (ZLB). However, deleveraging kept unemployment at elevated levels and deflationary pressures began to set in. In response, the ECB began lowering its deposit rate to -0.1 percent in June 2014 and decreased the rate in increments of 10 basis points, until it eventually rested at -0.5 percent in September 2019. The

² Empirical analysis of the degree to which wealth effects of rising asset values may trigger further spending has generally found stronger connection for increases in home values versus financial assets. Karl E. Case, John M. Quigley, and Robert J. Shiller, [“Wealth Effects Revisited: 1975-2012,”](#) National Bureau of Economic Research, January 2013.

³ Melanie Klein, Deutsche Bundesbank, “Implication of Negative Rates for the Net Interest Margin and Lending of Euro Area Banks,” Bank for International Settlements, March 2020.

cuts were intended to boost inflation and growth through greater leverage. The ECB⁴ maintains that NIRP improved monetary transmission and boosted inflation expectations.

Other central banks in Europe implemented negative policy rates to promote financial stability and reduce deflationary pressures. In Switzerland, Denmark, and Sweden policymakers instituted negative interest rates to discourage foreign investment and safe haven inflows. As eurozone banking and market stress increased, capital flowed into these countries, their currencies appreciated rapidly, and their export goods became less competitive. Moreover, import prices declined, triggering deflationary pressures. NIRP in Switzerland, Sweden, and Denmark did help prevent further rapid appreciation of their currencies. Nevertheless, inflation pressures remained subdued, though economic growth did bounce back. While prices for government bonds, corporate bonds, real estate, and equities increased, banks' profitability declined.

The Bank of Japan (BOJ) introduced negative interest rates in 2016 to address chronic deflation and low growth persisting since financial crises in the 1980s and 1990s. Negative policy rates were paired with quantitative easing and increases in government spending. Neither really worked out, and Japan's macroeconomic dynamics remain largely unchanged as a result. NIRP in particular struggled to be fully effective as banks were reluctant to pass costs onto retail depositors and smaller banks were offered tiered rates for deposits at the central bank. Initially, the yen depreciated significantly against major peers, and asset prices increased.⁵

NIRP: The Cost to Banking Performance

So it appears that European and Japanese policymakers have seen mixed economic performance and results after implementation of NIRP.⁶

One thing seems clear, however. Bank profitability in the countries that adopted negative interest rates declined.

Specifically, net interest margins (NIM) fell as interest income declined at a faster rate than funding costs. Typically, banks are reluctant to pass the costs of NIRP onto retail depositors while still facing competitive pressure to lower rates on loans. Other measures of profitability such as return on equity and return on assets show similar results. In general, banking performance under conditions of low or negative interest rates tended to deteriorate over time.⁷

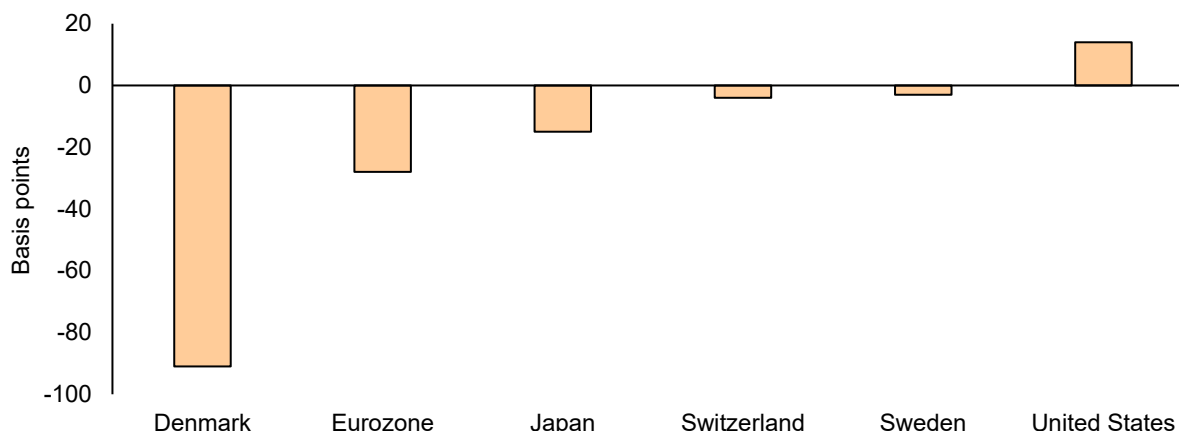
⁴ Isabel Schnabel, European Central Bank, "Going Negative: The ECB's Experience." Remarks at the 35th Congress of the European Economic Association, Frankfurt, August 26, 2020.

⁵ William C. Dudley, President and Chief Executive Officer, Federal Reserve Bank of New York, "Lessons at the Zero Bound: The Japanese and U.S. Experience." Remarks at the Japan Society, New York City, May 21, 2013.

⁶ Jose A. Lopez, Andrew K. Rose, and Mark M. Spiegel, "Why Have Negative Nominal Interest Rates Had Such a Small Effect on Bank Performance? Cross Country Evidence," *European Economic Review* Vol. 124, pp. 1–17, May 2020.

⁷ Remy Beauregard and Mark M. Spiegel, "Commercial Banks Under Persistent Negative Rates," *Federal Reserve Bank of San Francisco Economic Letter* 2020-29, September 28, 2020.

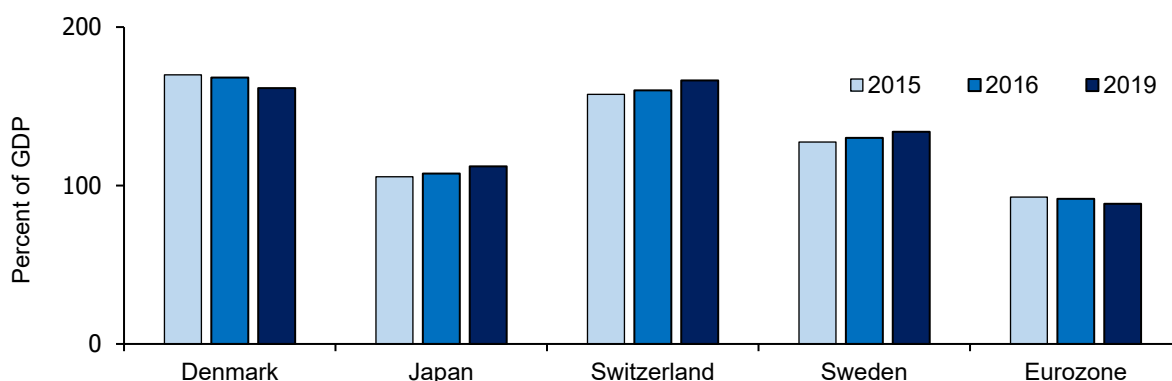
Figure 3: Change in Net Interest Margin 2014–2019



Source: Company filings, OCC Economics Department calculations, Bloomberg

At the aggregate level, bank loans and deposits, as well as credit flows in the economy, generally did not change significantly as a result of NIRP. Figure 4 measures bank credit extended to the private nonfinancial sector as share of gross domestic product (GDP). In Denmark and the eurozone, lending to the private nonfinancial sector contracted after the negative rate policy was adopted. In Japan, wholesale loan and deposit growth was higher after the NIRP, but since wholesale shares are relatively small compared with total loans and total deposits, the realized effect of the NIRP was not significant.

Figure 4: Bank Credit to Private Nonfinancial Sector as Share of GDP



Source: Bank for International Settlements, Haver Analytics

Should the U.S. Ever Adopt a Negative Interest Rate Policy?

In response to the pandemic-related macroeconomic shock, the Federal Reserve implemented a series of policy actions that effectively increased liquidity and contained risk premiums in credit markets. As economic activity remained subdued, there were suggestions⁸ that the

⁸ Yi Wen and Brian Reinbold, "[How to Achieve a V-Shaped Recovery Amid the COVID-19 Pandemic.](#)" St. Louis Federal Reserve Bank, May 29, 2020; Jessica Dickler, "[Here's What Negative Interest Rates From Fed Would Mean for You.](#)" CNBC, June 10, 2020; and Vineer Bhansali, "[Why the Fed Will Go Negative.](#)" Forbes, March 26, 2020.

Federal Reserve should reconsider reducing policy rates below zero. However, the costs of such a policy would likely outweigh the benefits for several reasons.

The current combination of near zero policy rates, asset purchases, Federal Reserve lending programs, and rulemaking authority has already increased bank lending by a considerable amount in recent months. For instance, mortgage rates remained at record lows, which enabled both rising home prices and a surge in mortgage refinancing by existing homeowners seeking lower monthly payments. Lower rates also encouraged increased housing construction, boosting real economic activity. Other markets that require financing such as the auto markets experienced a similar effect.

For corporations, debt issuance in investment-grade and high-yield markets has overtaken prior peaks, despite higher default probabilities. As a result of historically low interest rates, corporations are able to lock in lower borrowing costs. To the extent that weakness in credit growth remains, this is likely the result of the pandemic-induced constraints on economic activity (stunted demand) rather than constrained supply of credit. In this sense, the current weakness in the economy is akin to a natural disaster, and further lowering policy rates into negative territory might not have the stimulative impact on lending and activity that would occur in a more typical economic cycle.

In addition to questions about the impact of negative rates on economic activity, there are also concerns about the functioning of U.S. dollar funding markets alongside negative policy rates. Like their European and Japanese counterparts, U.S. banks would face the decision as to whether to pass the costs of negative rates onto depositors or incur a reduction in NIM. Imposing negative rates on commercial and high-dollar retail deposits is likely to be feasible, but doing so on smaller retail deposits would be more difficult. This suggests that banks that depend on retail deposits as a source of funding could see more significant pressure on NIM under negative policy rate conditions.

In contrast to Europe, U.S. wholesale funding markets rely heavily on money market mutual funds (MMMF), and U.S. MMMFs operate under a different set of regulations than their European counterparts. Negative rates are particularly challenging for MMMFs because the redemption value (including interest) of a security with below zero yield is lower than the initial purchase price, which makes it difficult, if not impossible, to maintain a 100 percent net asset value. For instance, in the 2008–09 recession, policymakers went to great lengths to ensure that U.S. MMMFs did not “break the buck” and ensured redemptions took place when prime money market fund (MMF) net asset values (NAV) were at 100 percent or above. With fees and restrictions, investors were still presented with the negative real returns discussed in the previous section. Even with the Securities and Exchange Commission’s (SEC) prime MMF reforms in 2016, a comprehensive and uniform implementation of MMF reverse distribution mechanisms, including share cancellations, is still lacking. The share cancellation method is like those used in European money market funds whereby shares are deducted from the holder’s account over time, resulting in negative interest rates on deposits. Utilization of schemes such as the stock cancellation method is unlikely to be uniform across funds in the industry and may increase volatility in short-term funding markets.

Households confronted with negative rates on deposits or MMMF holdings would need to balance the costs of staying put versus moving deposits out of the banking system to either riskier corporate bond or stock holdings, or perhaps holding physical currency without the same security banks offer. And would reversing such long-held canons of U.S. retail banking produce other adverse consumer behavior patterns due to heightened fear or uncertainty, such as

increased precautionary savings or higher savings rates to offset the now-higher marginal costs of thrift?

The Point?

As to negative interest rate policy, the benefit and effectiveness are debatable, reduced banking industry profitability is very likely, and favorable preconditions for U.S. implementation are lacking.