

Vox piece:

Bank Performance under Negative Interest Rates

by Jose A. Lopez, Andrew K. Rose, and Mark M. Spiegel

The Danmarks Nationalbank's decision to lower its policy rate below zero in July 2012 was an important extension of monetary policy. While "non-standard" monetary policies, such as quantitative easing and forward guidance, had followed the global financial crisis of 2008, the Danish negative nominal interest rates represented an unprecedented leap across the mythical "zero lower bound." Of course, the zero boundary has been subsequently proven to be quite porous, as negative rates have now also been enacted by Switzerland, Sweden, the Eurozone and Japan. However, prior to these movements into negative territory there were notable concerns that financial institutions – deposit-taking banks in particular – would be dramatically and negatively affected by negative policy rates.

A number of earlier studies have found that banks experienced difficulties with low positive rates. For example, Borio et al (2017) found that bank profitability was reduced at low rates of interest and that the sensitivity of profitability to rate reductions is enhanced as interest rates fall. Similar results were found by Claessens et al. (2018), driven by reductions in net interest margins. Moreover, Borio and Gambacorta (2017) found that bank lending becomes less responsive to reductions in policy rates as they approach zero, suggesting that the financial channel of the monetary transmission mechanism is weaker as interest rates approach zero.

Now that banks have actually experienced negative rates for some period of time in a number of countries, we can assess their relative abilities to cope with any special challenges associated with crossing the zero bound. In particular, we can observe how banks responded to these policies, and the implications of those responses for the financial transmission channel of monetary policy.

Our research into this question [Lopez, et al (2018)] suggests that banks were able to fare relatively well under negative interest rates, although the sustainability of their strategies over longer periods under negative rates remains in question. Our analysis examines annual balance

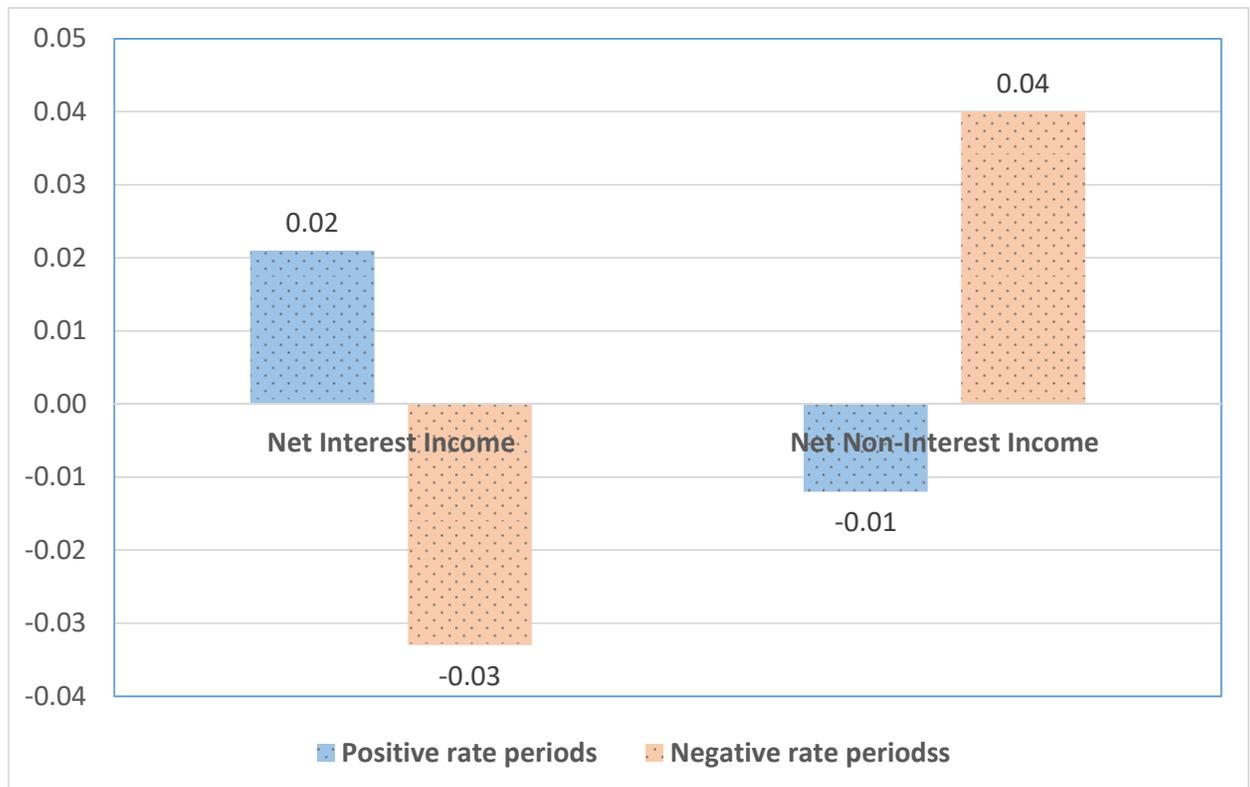
sheet data from over 5,000 banks in the European Union and Japan, between 2010 (before the advent of negative nominal rates) and 2016 (the most recent year available for all banks). Our large sample of banks across fourteen different currencies allows us to examine a variety of countries that “go negative” at different times and for different reasons. We also compare the fortunes of these banks with institutions in similar countries that do not experience negative rates over our sample period.

The Off-setting Roles of Interest and Non-Interest Income

Overall bank net income – total bank income minus expenses – appears to be unaffected by negative nominal interest rates, at least compared with low positive rates. This finding supports results in earlier studies largely based on samples of banks from a single currency regime; for example, as found by Basten and Mariathasan (2018) for Swiss banks. Moreover, relative to earlier studies, our sample has more small banks by asset size as well as more banks that are heavily reliant on deposit funding (i.e., high-deposit banks). Banks from both of these categories have claimed to face greater exposure to losses under negative interest rates.

However, more granular income and balance sheet data reveals notable effects below this headline income figure. The figure below shows our model-implied ratios of net interest and net non-interest income relative to total assets for banks in our sample during periods of positive policy rates (the blue bars) and negative rates (the orange bars). First, banks experienced significant declines in *net interest income*, the income from loans and bond holdings minus expenses such as interest paid on deposits and other outstanding debt; as shown in the figure, the decline was from 0.02% of total assets to -0.03%. Notably, banks do not substantially reduce deposit expenses, consistent with the narrative that nominal deposit rates are sticky at zero. The reduction in interest income under negative interest rates is different across bank size. Large banks (i.e., greater than \$10 billion in assets) appear to be more capable of lowering their deposit expenses, whereas changes in small bank deposit expenses were insignificant.

Figure: Income ratios for all banks in the sample (Units: %)



Second, banks mitigated the losses on net interest income by generating significant increases in *net non-interest income*. As shown in the figure, this income ratio rose to 0.04% under negative policy rates from -0.01% under positive rates. These increases were due almost entirely to increased non-interest income, from fees and from other sources such as capital gains and gains on securities. Here again, large banks were able to reduce their non-interest expenses, such as salaries, more so than their smaller counterparts.

These results suggest that banks adjusted their operations to offset the expected decline in interest income under negative rates by generating additional non-interest income, especially smaller and more deposit-dependent banks. These adjustments were successful in maintaining their income levels, but whether they are sustainable over longer periods of time remains an open question. In particular, capital gains on securities enjoyed when policy rates drop below the zero bound are unlikely to endure just because rates remain negative. As noted in the report by the

Committee on the Global Financial System (CGFS, 2018), banks are likely to continue more structural changes in their operations in light of the adverse effect of negative rates on bank profitability. The health and viability of banks and other financial firms are key drivers of the macroeconomy and effective monetary policy, and the results suggest guarded optimism about their viability under negative rates going forward.

Conclusion

Overall, the results in Lopez, et al (2018) mirror those in earlier studies for low rates, suggesting that banks also fared reasonably well under negative nominal interest rates. However, the increased non-interest income enjoyed by banks under negative rates may prove to be unsustainable; for example, capital gains on securities following negative interest rate surprises are unlikely to endure over a prolonged negative rate period. Nevertheless, concerns about the financial channel of the monetary transmission have not as of yet materialized, which accordingly argues against the need to adjust long-term monetary policy assumptions. We would recommend caution, however, in concluding that such bank performance and lending would be sustainable over extended periods of negative or “low for long” policy rates.

References

- Basten, Christoph, and Mike Mariathasan (2018) “How Banks Respond to Negative Interest Rates: Evidence from the Swiss Exemption Threshold” CESIFO Working Paper 6901-2018, February.
- Borio, Claudio, and Leonardo Gambacorta (2017) “Monetary policy and bank lending in a low interest rate environment: diminishing effectiveness?” *Journal of Macroeconomics*, 54(B), 217-231.
- Borio, Claudio, Leonardo Gambacorta, and Boris Hofmann (2017) “The influence of monetary policy on bank profitability” *International Finance*, 20, 48-63.

Claessens, Stijn, Nicholas Coleman, and Michael Donnelly (2018) “ ‘Low–For-Long’ interest rates and banks’ interest margins and profitability: Cross-Country Evidence” *Journal of Financial Intermediation*, 35, 1-16.

Committee on the Global Financial System (2018) “Financial Stability Implications of a Prolonged Period of Low Interest Rates” CGFS Papers No. 61.

Lopez, Jose A., Andrew K. Rose, and Mark M. Spiegel (2018) “Why Have Negative Nominal Interest Rates Had Such a Small Effect on Bank Performance? Cross Country Evidence” NBER Working Paper #25004.