



Stijn Claessens

Nicholas Coleman

Economists
Board of Governors of the Federal Reserve System

Michael Donnelly

Master's student
MIT

Limits of 'low-for-long' Interest Rates

How fluctuating economies affect bank margins and profits

While overall bank profitability in advanced economies, measured by return on assets, has recovered from the worst of the global financial crisis, it remains low. Many banks are facing profitability challenges related to low net interest margins, typically measured as net interest income divided by interest earning assets, and weak loan and non-interest income growth.

While NIMs across many banks in advanced economies have been trending downwards over the longer term, they have fallen more sharply since the financial crisis – in part, it appears, because of lower interest rates.

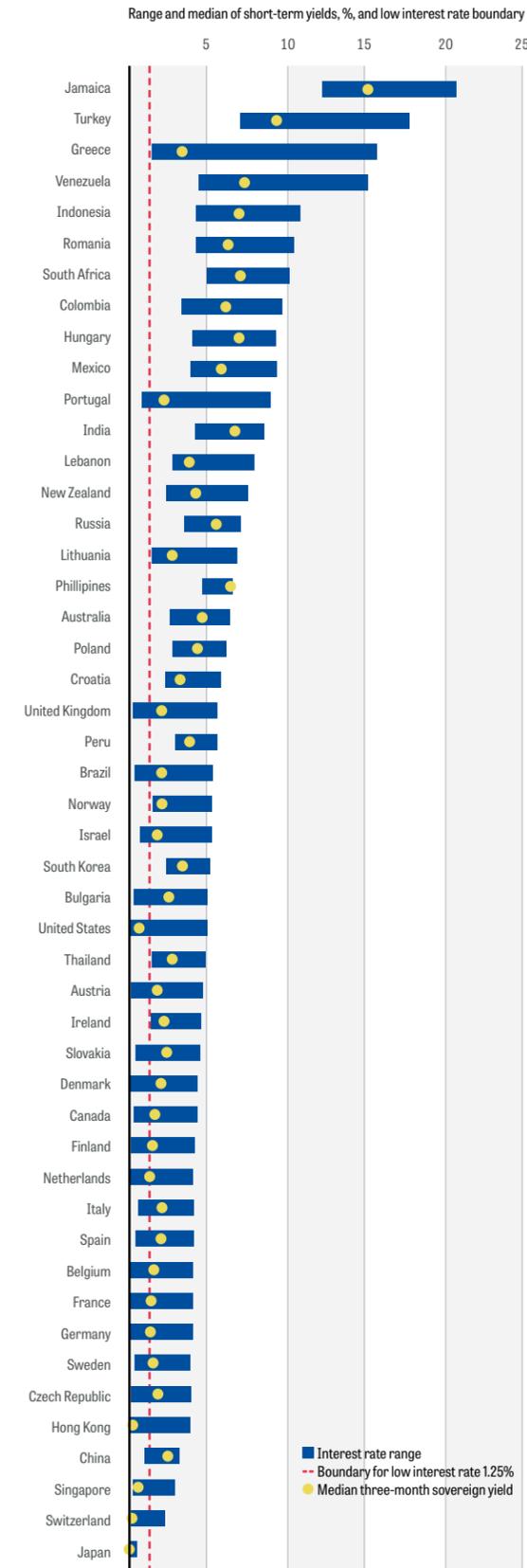
In many ways, banks can benefit from low interest rates both directly (such as through valuation gains on securities they hold) and indirectly (for example, levels of non-performing loans will be lower as borrowers' debt service is less burdensome). On the narrower question of the effects of low interest rates on banks' NIMs, however, analytics and empirical findings suggest that NIMs are lower when interest rates are low.

Low short-term interest rates can depress bank margins. For many types of deposits, banks are reluctant to lower interest rates. As they must pass on lower rates on assets linked to contractual repricing terms (such as floating rate loans) to borrowers with other financing choices – and have an incentive to do so – bank margins compress as rates decline.

Analysing a sample of 108 relatively large international banks, many from Europe and Japan, and 16 from the US, Claudio Borio, Leonardo Gambacorta and Boris Hofmann, in their 2015 paper 'The influence of monetary policy on bank profitability' (BIS Working Paper 514, October 2015), documented the negative effects of low interest rates (and shallow yield curves) on banks' NIMs and profitability, concluding that effects were stronger at lower interest rates.

Evidence from the US supports this conclusion, though the direct effects of low rates are relatively small. Analysis for Germany suggests normally small long-run effects of interest rate changes on NIMs, but large effects in the recent, low-interest rate environment. Evidence for other countries has been more scarce.

PARTICULARLY ADVANCED ECONOMIES FACED LOW YIELDS AFTER THE GLOBAL FINANCIAL CRISIS.



New analysis: Data and methodology

Our new cross-country analysis confirms and expands on these findings. A database was assembled with 3,418 banks from 48 countries for the period 2005–2013. Countries were classified each year as being in either a low- or high-rate environment, based on whether the interest rate on their three-month sovereign bond was below or above 1.25 percent (other cut-offs were also tested and yielded similar results).

Figure 1 shows the sample of countries covered and the range and median of the short-term yields in each country. The variations in rates are large for a number of countries, with many both in the high- and low-yield environment for some time (the median provides a sense of how long each country has been in each environment).

Particularly advanced economies faced low yields after the global financial crisis – 19 such countries in 2009 as opposed to just two in 2005. These shifts help to estimate the differential impact of low rates on banks' NIMs.

Figure 1: Advanced economies affected most by low yields
 Source: Bloomberg, FRB staff calculations. Values used are yearly averages of the implied three-month rate published by Bloomberg.

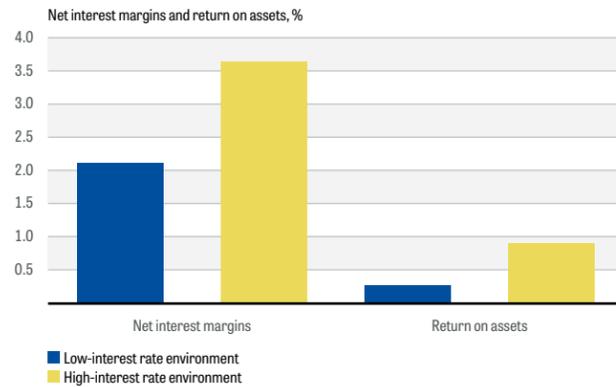


Figure 2: Negative impact when rates fall below 1.25 percent
Source: Bankscope, Federal Reserve staff analysis

Figure 3: Short-term rates drive bank returns
Source: Federal Reserve staff analysis

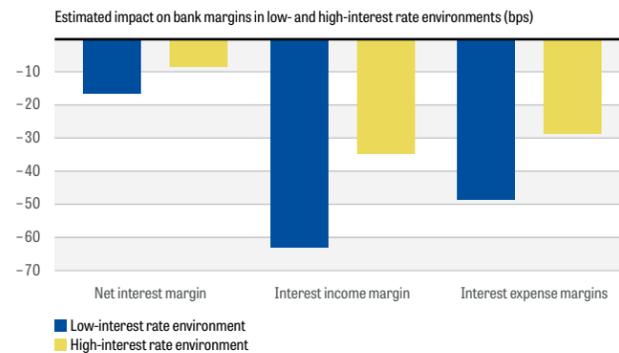


Figure 2 shows that average NIMs are higher in the high-rate environment than in the low-rate environment. Profitability, measured by return on assets, is higher too in the high-rate environment. This is likely to reflect both higher NIMs and concurrent better overall economic and financial environments.

To isolate effects, we regressed the NIMs for all banks for each year on the average level of the three-month sovereign rate in that year (a common proxy for banks' marginal funding costs) – controlling for the bank's own lagged NIM, other time-varying bank characteristics, and a bank fixed effect, as well as GDP growth and the spread between the three-month and 10-year sovereign rates. The sample was then split into banks in low- and high-interest rate environments.

The results show that a decrease in the short-term interest rate lowers NIMs in both low- and high-rate rate environments, with effects symmetric for an interest rate increase. But, all other things being equal, effects are statistically greater in a low-rate environment.

Figure 3 summarizes the regression results. For a representative bank, a one percentage point decrease in the short-term rate is associated with a 0.09 percentage point decrease in NIM in the high-rate environment versus a 0.17 percentage point decrease in the low-rate environment.

We also analyzed separately the effects of movement in interest rates on changes in interest expenses and interest income.

The more pronounced effects on NIMs in the low-rate environment are largely driven by the greater pass-through of low rates on interest income rather than on interest expenses.

Specifically, a one percentage point decrease in the short-term rate is associated with a 0.63 percentage point decrease in the ratio of interest income to earning assets in the low-rate environment, and only a 0.35 percentage point decrease in the high-rate environment, a 0.28 percentage point difference. The equivalent difference is around 0.20 percentage points for the ratio of interest expense to liabilities.

In other words, at low rates, banks have greater difficulty reducing their funding rates. Moreover, they still largely have to pass the lower rates on to their borrowers.

This is likely to be due to greater competition, including from non-bank lenders, and lower demand for loans. Economic activity is lower in times of low interest rates, causing NIMs to decline more.

Overall effects and conclusions

While there are caveats, our findings strongly suggest that NIMs are low when interest rates are low.

An important issue then is how banks can adjust their activities and cost structures to offset adverse effects on profitability and capital. Although institutions are making adjustments, such efforts take time, with limited immediate pay-offs when facing weak cyclical conditions and deleveraging pressures.

This poses a challenge for banking systems in many low-interest rate countries. Until lost income can be offset through other actions, lower profitability will reduce financial institutions' ability to build and attract capital.

This increases their vulnerability to shocks and declines in market confidence, undermines their ability to support the real economy, and potentially weakens the transmission channel of monetary policy.■

The views expressed are those of the authors and should not be attributed to the Board of Governors of the Federal Reserve System. The full article is published in the OMFIF Bulletin. www.omfif.org

AT LOW RATES, BANKS HAVE GREATER DIFFICULTY REDUCING THEIR FUNDING RATES.