

Negative interest rates

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Abstract

Who went below zero, how far, why banks are the crux, the reversal rate, and what the evidence from the euro area and Switzerland says.

The lower bound in The effective lower bound is not exactly zero. Holding cash costs money: vaults, insurance, transport. A deposit rate slightly below zero does not trigger a flight to banknotes, so several central banks tested how far below zero they could go.

Who and how far

Central bank	First negative rate	Trough	Exit
Danmarks Nationalbank	2012	about minus 0.75 percent	2022
European Central Bank	June 2014, deposit rate minus 0.10	minus 0.50 (September 2019)	July 2022
Swiss National Bank	January 2015	minus 0.75	September 2022
Sveriges Riksbank	February 2015	minus 0.50	2019
Bank of Japan	January 2016	minus 0.10 on part of reserves	March 2024

Nobody went much below minus one percent, and every bank that went negative built in exemptions: the ECB's two-tier system from October 2019 exempted a multiple of minimum reserves, the SNB exempted balances up to a threshold set as a multiple of minimum reserves, the Bank of Japan applied the negative rate only to a marginal tier. The exemptions are the point: the negative rate is meant to be a *marginal* price that moves market rates, not a tax on the whole banking system.

Why banks are the crux

The transmission of a rate cut from zero to minus 0.5 is the same as from 1 to 0.5, with one exception: banks did not pass negative rates to most retail depositors, because households can hold cash. The bank's funding cost stays at zero while its lending rates and the return on its liquid assets fall. Net interest margins compress.

Brunnermeier and Koby formalised the consequence as the **reversal interest rate**: the level below which further cuts *reduce* lending, because the hit to bank capital from lower margins outweighs the stimulus from cheaper credit (Brunnermeier & Koby, 2018). The reversal rate depends on how much of banks' funding is retail deposits, on how much of their assets reprice, and on how long the policy lasts; it rises over time as fixed-rate assets roll over into low yields.

Definition 1 (Reversal interest rate). The policy rate below which a further cut is contractionary, because the loss of bank profitability and capital lowers lending by more than the lower rate raises credit demand. It is not a constant: it moves with bank balance-sheet structure and with the duration of the low-rate period.

Eggertsson, Juelsrud, Summers and Wold documented the mechanism with Swedish bank-level data: once the policy rate went negative, deposit rates stopped falling, and lending rates for the affected banks stopped falling too, so the cuts below zero had little of the intended effect (Eggertsson et al., 2024).

Evidence that it worked anyway

The euro-area evidence is more favourable. Altavilla, Burlon, Giannetti and Holton showed that healthy banks did pass negative rates to corporate depositors, and that firms facing negative deposit rates shifted out of cash into investment, so that the transmission ran through the *asset* side of firms rather than through bank lending alone (Altavilla et al., 2022). Their reading: for sound banks with corporate depositors there was no zero lower bound in the sense that matters.

The two findings are less contradictory than they look. The Swedish result concerns retail-funded banks and the lending channel; the euro-area result concerns corporate deposits and the portfolio channel. Which dominates depends on the banking system.

The Swiss case

The SNB's negative rate was aimed less at domestic demand than at the exchange rate. After the minimum exchange rate was abandoned in January 2015, minus 0.75 percent, combined with foreign-exchange purchases, was meant to make franc deposits unattractive relative to euro deposits and lean against appreciation. Banks passed the rate to large and institutional depositors, later to wealthy retail clients above thresholds, and raised mortgage margins to compensate, which is the margin compression channel in reverse. Mortgage rates in Switzerland fell less than the policy rate, and the mortgage market stayed profitable, which is one reason the SNB could hold the rate for seven years.

What the episode settled

- The bound is below zero, by roughly half to one percentage point in practice.
- Tiering is essential; without it the policy is a tax on banks rather than a change in marginal rates.
- The effect depends on bank funding structures, so the same rate can be stimulative in one country and near-useless in another.
- Duration matters: the longer the rate stays negative, the closer the reversal rate creeps to the policy rate.

The next lesson, The central bank balance sheet, follows the reserves that negative rates were charged on.

Altavilla, C., Burlon, L., Giannetti, M., & Holton, S. (2022). Is there a zero lower bound? The effects of negative policy rates on banks and firms. *Journal of Financial Economics*, 144(3), 885–907. <https://doi.org/10.1016/j.jfineco.2021.06.032>

Brunnermeier, M. K., & Koby, Y. (2018). *The reversal interest rate* (NBER Working Paper 25406). National Bureau of Economic Research. <https://doi.org/10.3386/w25406>

Eggertsson, G. B., Juelsrud, R. E., Summers, L. H., & Wold, E. G. (2024). Negative nominal interest rates and the bank lending channel. *Review of Economic Studies*, 91(4), 2201–2275. <https://doi.org/10.1093/restud/rdad085>