

# Staff memo

## Pass-through at Mildly Negative Policy Rates: The Swedish Case

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## Summary

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In this memo, we present stylized facts on the pass-through of policy rate cuts below zero to interest rates on securities traded in the capital markets and to bank lending rates to firms and households. We find that negative policy rates seems to have had a strong and immediate pass-through to yields on securities traded in the markets and to lending rates to firms. Pass-through appears though to have been somewhat slower and weaker for lending rates to households.

Our conclusion is that several transmission channels, e.g. channels working through capital market interest rates and therefore the exchange rate, were fully active at negative rates. While the bank lending channel might have been slightly muted for households, our conclusion is that mildly negative interest rates have successfully contributed to more expansionary monetary policy.

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<sup>1</sup> The authors of this note are senior advisers to the monetary policy department at the Riksbank. The authors are grateful for discussions and input provided by Kimberly Doherty, Jesper Hansson, Jesper Lindé, Jens Iversen, Stefan Laséen, John Svanäng, Lars EO Svensson, Ulf Söderström, Emre Ünü and Meredith Beechey Österholm. The views presented in this note are those of the authors and does not necessarily correspond to the views of the Riksbank.

## Introduction

Between February 2015 and February 2016, the Riksbank cut the policy rate, the “repo rate”, below zero (see Table 1) and initiated a program of government bond purchases to combat persistently low inflation. The Riksbank expected that some channels of monetary policy transmission would work as normal, including the exchange-rate channel, whereas the bank lending channel might be impeded by a possible lower bound on bank deposit rates.<sup>2</sup> More recently, some authors have formalized the idea that bank lending rates may respond more weakly to interest rate cuts when the policy rate passes below a certain level. Contributions include those by Brunnermeier and Koby (2018), Eggertsson et. al. (2017, 2018) and Eggertsson et. al. (2019). The last three papers by Eggertsson et. al expand on the deposit floor argument. They conclude that it can even be contractionary to lower policy rates further once the deposit floor has been reached.

This note comments on the Swedish experience and argues that the pass-through of policy rate cuts below zero to the economy has been reasonably good and that hence, the overall picture is that monetary policy has been effective even at negative policy rate levels, to some degree in contrast to the findings in Eggertsson et. al. (2019).

**Tabell 1. The Riksbank policy rate (decision dates)**

Date	New level (percent)
2014-12-07	0.00
2015-02-17	-0.10
2015-03-25	-0.25
2015-07-08	-0.35
2016-02-17	-0.50

## Pass-through to market interest rates

The Riksbanks expectation that some transmission channels would work more or less as normal at negative policy rates was partly based on the presumption that there would be a good pass through to market based interest rates, e.g. to securities issued and traded in the capital markets. Chart 1 plots selected interest rates together with the Riksbank policy rate, from November 2014 when the policy rate was zero.<sup>3</sup> It is evident that the pass through to these rates indeed was strong even when the policy rate became negative.<sup>4</sup> The trade-weighted exchange-rate depreciated around 4% following the announcement in December 2014 that the Riksbank were considering introducing negative interest rates and other measures. Lower interest rates in the capital markets also lowered the funding costs for

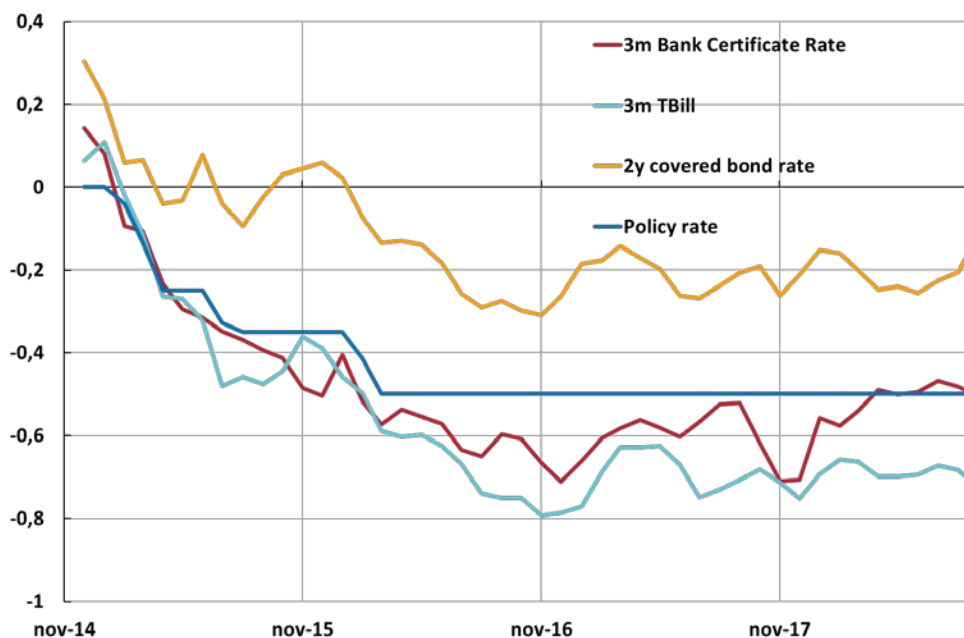
<sup>2</sup> See Sveriges Riksbank (2015), p. 41: “Now that the repo rate is being cut to –0.10 per cent, the banks can of course choose not to introduce negative deposit rates. The banks can then instead retain their earnings by not cutting lending rates to the same extent as usual when the repo rate is cut. This could mean that the monetary policy transmission mechanism may become somewhat weaker than normal, when the repo rate is cut below zero.”. See also Alsterlind, et.al. (2015).

<sup>3</sup> The Riksbank cut the policy rate to zero in October 2014. One motive for presenting the monthly data in the chart from November 2014 is that this change was then effective and thus behind us. Also, the first negative policy rate was effective from February 18 2015 when the policy rate was lowered in a small step, 10 basis points. Assuming agents have perfect foresight, average 3 month rates in November 2014 should only to a small extent be affected by the forthcoming negative rates. Thus, when illustrating the development of interest rates when the policy rate was cut from zero to -0.5, November 2014 seems to be the best starting date.

<sup>4</sup> During the time span of negative interest rates, the Riksbank also purchased government bonds. Thus, these purchases may also have contributed to the low government TBill rates.

banks and firms.<sup>5</sup> Thus, part of the funding costs for banks have declined with the policy rate even when some deposit rates have effectively been bounded by zero.<sup>6</sup>

**Chart 1. Market rates and the policy rate**



Source: The Riksbank, Macrobond.

The extent to which banks' lending rates to households and firms decline as a result of the policy rate cuts could depend, among other things, on how readily these customers can switch to alternative funding sources, e.g. direct borrowing in the capital market or borrowing from other institutions with a high degree of funding coming from bond issuance. In the next section we will look empirically at whether bank lending rates have followed the policy rate.

## Pass-through to non-financial firms and households

Chart 2 shows how the policy rate and Monetary Financial Institutions (MFIs) actual 3-month lending rates to households and firms have developed since the policy rate peaked in 2011.<sup>7</sup> The motives for illustrating the 3-month fixation period is twofold. First, a large majority of all mortgages are contracted at 3-month fixation periods.<sup>8</sup> Second, the 3-month interest rate should move in line with the actual policy rate while rates with longer fixation periods should, to a larger extent, reflect future policy rates.

The chart indicates that shifts in lending rates do not always occur contemporaneously with shifts in the policy rate.<sup>9</sup> However, over time, the pass through from the policy rate to

<sup>5</sup> A non-negligible and increasing part of the loan stock of companies consists of issued securities. Between Jan 2013 and June 2018, non-financial firms increased the loan volumes borrowed from banks by SEK 428 bln. During the same time span, the outstanding volume of issued securities from these firms, increased SEK 591 bln.

<sup>6</sup> Not all deposits are constrained by a zero bound. In general, households do not meet a negative deposit rate while many non-financial companies and most financial institutions meet negative interest rates on their deposits.

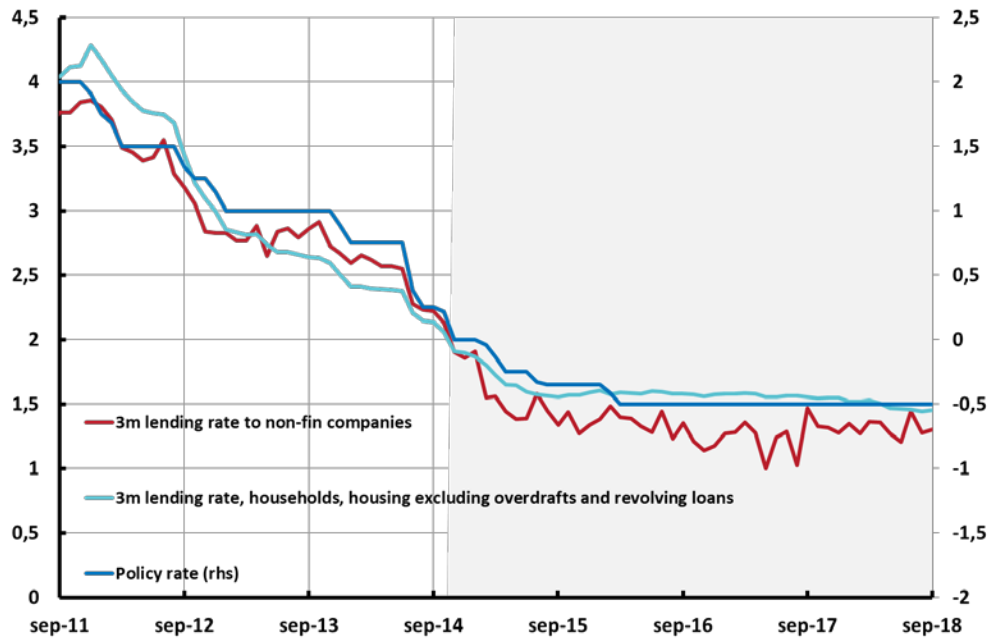
<sup>7</sup> These are compiled by Statistics Sweden based on all actual transactions. Throughout this article, 3m refers to fixation periods of 3 month or less.

<sup>8</sup> Between January and October 2018, 77% of all new mortgage loans had variable (3-month) rate according to Statistics Sweden. Flodén et. al. (2017) discuss the implication this has for the strength of the cash-flow channel for indebted households.

<sup>9</sup> The first policy rate cut occurred in December 2011. Since the data in Chart 2 starts in September 2011, forward looking agents should not yet have altered 3 month lending rates much. In the chart, the policy rate is depicted on the right axis and 3 month lending rates on the left. Please note though that the distance in basis points between the tick marks on the left axis is the same as on the right axis.

lending rates seems to be, more or less, one to one even in a negative policy rate environment.

**Chart 2. Policy rates and MFI lending rates, new and renegotiated loans**



Source: Riksbank, Statistics Sweden

Note: Shaded area starts in November 2014, three months before the first negative policy rate cut.

"Overdrafts and revolving loans" mainly consists of loans for renovating and building new homes.<sup>10</sup>

3m refers to all loans with a fixation period of up to three months.

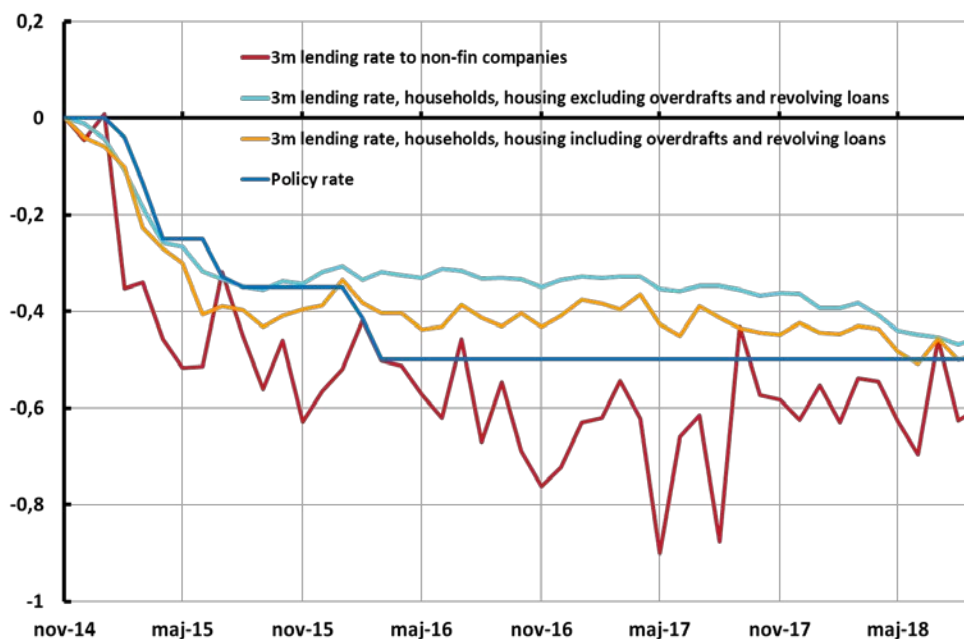
Let us now examine more closely the period starting just before the introduction of negative policy rates to the end of 2018. Since lending rates and policy rates differ in levels, Chart 3 plots the change in these rates since November 2014.<sup>11</sup>

<sup>10</sup> In Statistics Swedens terminology, overdrafts and revolving loans are termed "transaction accounts etc.".

<sup>11</sup> Please consult footnote 3 for a motivation of November 2014 as starting date for the charts.



Chart 3. Change of interest rates on new and renegotiated loans since November 2014



Source: The Riksbank, Statistics Sweden

Note: "Overdrafts and revolving loans" mainly consists of loans for renovating and building new homes. 3m refers to all loans with a fixation period of up to three months.

The 3-month lending rate<sup>12</sup> to firms is volatile, but Chart 3 shows that the cumulated decline in Monetary Financial Institutions (MFI) lending rates to firms indicates full pass-through. One reason could be that firms, to a high extent, view direct funding in the capital markets as an alternative and competitive funding source.

As is clear from Chart 3, the last rate cuts had limited initial pass-through on the lending rates to households, as expected by the Riksbank and emphasized by Eggertsson et. al. (2019). However, over time transacted 3-month mortgage rates continued to decline and pass-through was more or less complete by mid-2018.<sup>13</sup> One possible interpretation behind the more gradual pass-through of the last two cuts is that the established banks initially tried to exploit their market power and resist further interest rate cuts. But this strategy was not sustainable as new entrants and some established banks, more reliant on market-based funding, started to offer lower mortgage interest rates to households, forcing other banks to gradually cut their lending rates.<sup>14</sup>

In Chart 3 we have plotted the interest rates for housing loans, with and without "overdrafts and revolving loans", which is a series mainly consisting of loans for renovating and building new homes. The results are similar, but we note that a discrepancy of around 10 bp can easily arise depending on which series we choose to look at.

As motivated above, we believe that the pass through from policy rates to lending rates is best illustrated with 3-month rates. However, for the sake of completeness, in Chart 4 we plot the weighted average of all lending rates. This data does not alter our conclusions.<sup>15</sup> We also include the series lending to households, all accounts, which also includes consumption loans. This is a further indication of the uncertainty surrounding the actual pass-through of

<sup>12</sup> Of the MFI corporate lending stock, 65% were initiated with a 3 month fixation period. The short duration in the corporate lending stock motivates our use of the 3 month rates, also for firms, in our illustration of the pass through.

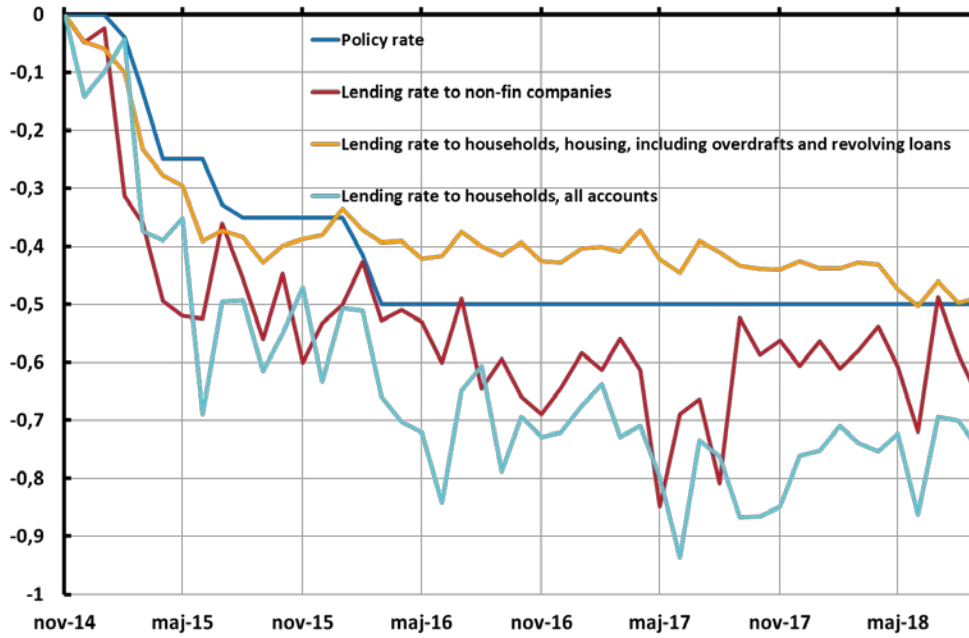
<sup>13</sup> In December 2018, the Riksbank decided to hike the policy rate from -0,5 to -0,25 effective from January 09, 2019. The last observation in Chart 2 is the average level of the policy rate and the 3 month lending rates during September 2018.

<sup>14</sup> Another possible explanation is that regulatory measures, including amortization requirements, have reduced the amount of funding provided to weaker customers, leading to a decline in the average mortgage rate customers pay since stronger customers receive higher discounts from the listed rates.

<sup>15</sup> We can note that household loans, other than mortgage loans, seems to have fallen more when not only 3 month fixation periods are included. One reason could be that many consumption and transaction accounts are on other maturities, actually sometimes on a daily basis.

changes in the policy rate, as it is unclear which of these series that represent the most relevant measure.

**Chart 4. Change of interest rates on new and renegotiated loans since November 2014**



Source: The Riksbank, Statistics Sweden.

Note: "Overdrafts and revolving loans" mainly consists of loans for renovating and building new homes.

## References

Alsterlind, J., Armelius, H., Forsman, D., Jönsson B. and A. Wretman (2015),  
“How Far Can the Repo Rate be Cut?”,  
Economic Commentary No. 11, Sveriges Riksbank.

Brunnermeier, M. and Y. Koby (2018),  
“The Reversal Rate”,  
mimeo, Princeton University.

Eggertsson, G., Juelsrud, R. and E. Wold (2017),  
“Are Negative Nominal Interest Rates Expansionary?”,  
NBER WP 24039.

Eggertsson, G., Juelsrud, R. and E. Wold (2018),  
“Monetary policy with negative nominal interest rates”,  
VoxEU.

Eggertsson, Juelsrud, Summers and Wold (2019).  
“Negative Nominal Interest Rates and the Bank Lending Channel”,  
NBER WP 25416.

Flodén, M., Kilström, M., Sigurdsson, J. and Roine Vestman (2017),  
“Household Debt and Monetary Policy: Revealing the Cash-Flow Channel”,  
CEPR DP12270.

Sveriges Riksbank (2015). Monetary Policy Report, February 2015.



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