

Negative Nominal Interest Rates on Loans: The Newly-Established Normal Practice?

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Summary:

The purpose of this article is to initiate a discussion about the central banks' policy of negative interest rates and its impact on commercial banks' lending and the bank business model respectively. Recently Bank of Japan joined ECB, Riksbank, Swiss National Bank and Danmarks National Bank in introducing negative interest rates on excess reserves. Extremely accommodative monetary policy of central banks in some of the developed states and economic areas, accompanied by expanding government spending led the world in undiscovered economic reality. Deflation is casting its shadow on developed economies and the rise of bank liabilities is not transmitted into new lending for a healthier economic recovery to evolve. Does the newly established normal practice encompass negative yields on short- and long-term debt, negative interest rates on large private deposits, and even negative interest rates on loans to the private sector? We argue that even with negative nominal lending rates commercial banks still can maintain a viable business model.

Key words: Negative interest rates, Accommodative policy, Quantitative easing, monetary policy, Central banks, ECB, BOJ, SNB, Riksbank.

JEL Classification: E43, E44, E58, G12, G18, G21, G28.

Introduction

The central banks of some of the developed countries entered into uncharted territory of monetary easing. Record low interest rates, even negative interest rates on excess commercial banks reserves held with central banks and record large assets purchases are just an example of how determined central banks are to counter the consequences of the latest global financial crisis and to fight deflation and eventually to stimulate economic growth.

It should be admitted that extremely easy monetary policy of the biggest central banks has prevented the outbreak of a global debt deflation in such a way avoiding the worst scenario described in the works of Bagehot (1873), Fischer (1933) and Minsky (1992), i.e. central banks saved the world from another great recession similar to 1929 and even worse.

Central banks have expanded their balance sheet to record high levels and have lowered their main interest rates to unprecedented levels, even taking on the risk of introducing negative interest rates on excess reserves commercial banks hold with central banks. At the end of January 2016, the Bank of Japan joined ECB, Riksbank, Swiss National Bank and Danmarks National Bank in

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introducing negative interest rates on excess reserves Yield to maturity on a number of instruments plunged beyond zero, even for some five-, ten- or fifteen-year government bonds, such as German, Swiss and Japanese government bonds. Some commercial banks started to charge negative interest rates on excess reserves on large customers' deposits.

The point of departure in this analysis is central banks' policy of setting negative nominal interest rates on commercial banks' excess reserves held with them and their projections on selected interest rates (e.g. government bond yields, interest rates on deposits and loans). Nominal and real interest rates have converged lately due to the low-inflation, even deflationary at times, environment, making assumptions based on nominal rates relevant to the case of real interest rates.

The idea of negative interest rates on loans is heretical and still unpopular but in this article we argue that banks can be financially stable and profitable even lending to customers and charging them negative interest rates, that is, paying customers to borrow.

1. Central bank negative rate decisions

In July 2012, Danmarks Nationalbank introduced negative interest rates on Certificates of deposits, then increased them to 0.05% in April 2014 before assigning them negative values later in September 2014 and decreasing them further to -0.75% in early 2015. On June 11th 2014, ECB introduced for the first time in its history negative interest rate of 0.10% on excessive commercial bank deposits held with the Central bank. On September 10th 2014, ECB applied minus 0.20% on bank deposits and minus 0.30% on December

9th 2015. In February 2015, the Riksbank cut its repo rate, at which banks also can deposit funds at the Central bank for up to 7 days, below zero and on 11th of February 2016 the repo rate was lowered to minus 0.5%. In January 2016, BOJ, renowned for its dovishness, for the first time in its history has introduced negative interest rates on current accounts that financial institutions hold at the bank, thus joining other central banks around the globe on their attempt to stimulate economic activity and increase the price level with applying negative interest rates.

An extremely low-interest rate environment even negative interest rate in the euro zone is not preventing depositing and excess reserves build-up. As can be seen in figure 1, excess reserves of commercial banks are close to their all-time high values, albeit being charged for holding them on their current account at ECB. Commercial banks hardly can transmit such a vast amount of funds into the real economy by lending or by using private-sector financial instruments investments, given that they are constrained by factors on the demand and supply side of lending¹. Nevertheless, commercial banks seamlessly can transfer to their clients incurred costs from holding excess reserves, be it by demanding higher net interest income, or by imposing higher fees and commission.

2. Negative interest rates environment

There is a large contradiction between record high value of central bank balance sheets, record low interest rates, negative nominal interest rates on deposits and negative yield to maturity on government bonds on one hand, and the threat of deflation, on the other.

¹ Peshev (2015) summarizes that economic activity and risk taking factors usually determine the demand side on the bank loans market, while the supply is heavily affected by bank specific factors, eg. capital adequacy, liquidity, profitability, etc.

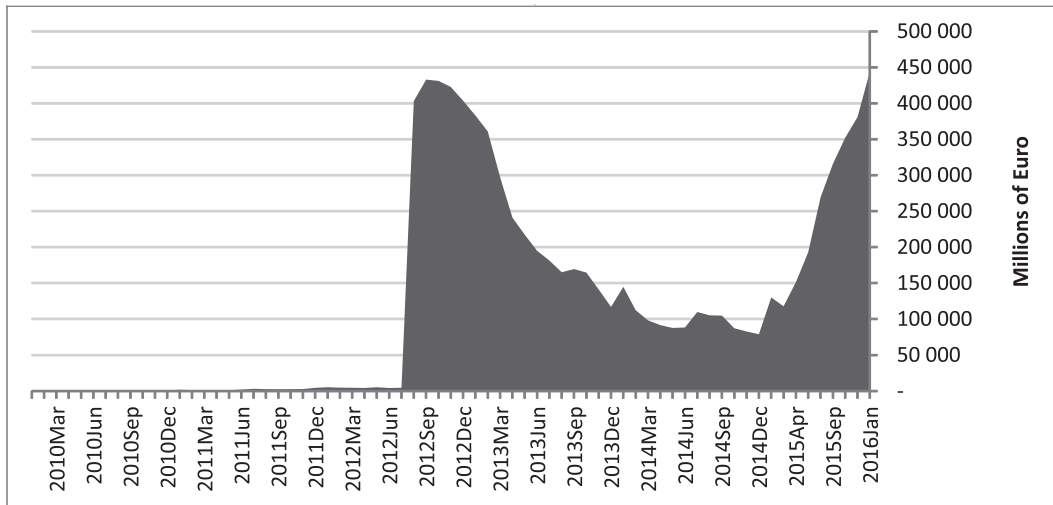


Fig.1. Euro zone excess reserves, stock values

Source: ECB

Table 1. Yield to maturity as of 5th of February 2016 on selected government bonds

Period	Switzerland	Austria	Belgium	Denmark	Finland	France	Germany	Italy	Japan	Netherlands
1D	-0.89			-0.05						
1W	-0.92									
1M	-0.84		-0.39	-0.52		-0.34	-0.37	-0.19	0.03	-0.40
2M	-0.74			-0.47						
3M	-0.69		-0.36	-0.45		-0.35	-0.38	-0.26	-0.14	-0.39
6M	-0.76		-0.37	-0.37		-0.36	-0.44	-0.10	0.03	-0.42
9M			-0.39			-0.36	-0.42	-0.07	0.03	
1Y	-0.65	-0.41	-0.39	-0.24		-0.41	-0.46	-0.07	-0.19	
2Y	-0.95	-0.43	-0.40	-0.25	-0.44	-0.41	-0.49	0.00	-0.19	-0.45
3Y	-0.90	-0.34	-0.40	-0.16	-0.39	-0.35	-0.43	0.06	-0.20	-0.43
4Y	-0.82	-0.31	-0.29		-0.33	-0.25	-0.39	0.27	-0.19	-0.36
5Y	-0.73	-0.24	-0.20	0.07	-0.19	-0.13	-0.31	0.50	-0.17	-0.27
6Y	-0.59	-0.02	-0.05		-0.13	-0.02	-0.20	0.78	-0.17	-0.15
7Y	-0.55	0.07	0.11			0.13	-0.10	1.01	-0.13	-0.03
8Y	-0.45	0.22	0.23	0.32	0.15	0.26	0.02	1.19	-0.08	0.12
9Y	-0.34	0.39	0.42			0.46	0.17	1.43	-0.01	0.25
10Y	-0.27	0.57	0.60	0.59	0.55	0.63	0.29	1.57	0.04	0.43
15Y	-0.02	0.71			1.04	1.08	0.62	2.03	0.35	
20Y	0.15	1.19				1.32	0.87	2.29	0.76	0.90
25Y		1.24								
30Y	0.28	1.37		1.11	1.21	1.65	1.01	2.72	1.08	1.15
40Y									1.21	
50Y	0.39					1.84				

Source: National central bank webpages, National ministry of finance webpages, SIX Swiss Exchange, Bloomberg, Reuters, as of 5th of Feb 2016

As can be seen from the information provided in Table 1, as of 4 February 2016, one/ two/ three/ four/ five/ six year AAA-rated zero-coupon euro area government bonds were traded at negative average yield of maturity YTM, at minus 0.46 / -0.47/ -0.44/ -0.35/ -0.24/ -0.11% respectively. Par yield curve reveals negative interest rates on - one/ two/ three/ four/ five/ six year AAA-rated coupon euro area government bonds came at minus 0.46/ -0.47/ -0.44/

Alternatively, Bank Schweiz is charging some individuals' bank accounts minus 0.75% for larger deposits and the same negative interest rates applies to some corporate bank accounts, like those exceeding 1 million CHF in nominal value. Deutsche Skatbank is also among the many banks across the board "awarding" large individual and corporate clients' deposits with negative interest, currently at minus 0.25%² (as shown in figure 2)

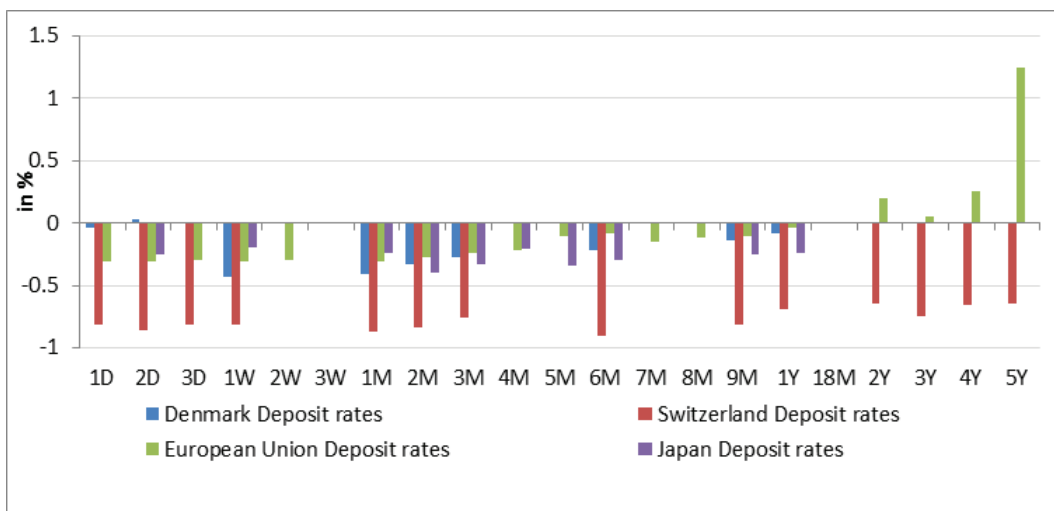


Fig. 2. Deposit interest rates (in selected countries)
Source: SIX Swiss Exchange, Thomson Reuters

-0.35/ -0.24/ -0.10% respectively.

Negative yields on AA corporate debt in Switzerland are nothing exceptional and negative interest on different maturities on private deposits has become the new standard practice for some EU member states such as Denmark or Japan, among other countries.

Even though there are limited data available, it can be concluded that commercial banks have been trying to offset central banks' excess reserves negative interest rates by passing them through large end customers.

It is hard to imagine how clients can possibly be paid to borrow money, especially considering all assumptions outlined in books and academic papers on economics, finance and investment. However this is the new reality we live in.

Institutional investors are expected to invest a fixed proportion of their assets under management in investment grade government bonds. Programs for the purchase of central bank assets are also among the main factors for the higher bid price of government bonds, and accordingly the decline in the yield to maturity. Other

² As of 25 of February 2016, Alternative bank Schweiz - <https://www.abs.ch/de/> and Deutsche Skatbank- <https://ssl.skatbank.de/>.

investors accept the negative yield finding less and less investment alternatives with acceptable reward/risk ratio. Holding government bonds for commercial banks is an alternative to holding funds in excess of required reserves at central banks and being charged. Central bank asset purchases programs, private sector holding bonds with negative interest rates, central bank excess reserves charges, deflationary environment, and negative interest rate on bank deposits are interrelated and only an empirical test can support the causation and dependencies in the process.

The negative interest rate environment is unstable in the long term and the non-financial sectors is trying to predict the next move of central banks, being aware that as economic recovery intensifies, central banks will start to tighten their monetary policy and bank loans will be serviced at higher costs, which will in turn have a negative effect on the demand for loans.³ A negative and low interest rate environment may fuel yet another housing and stock bubble, under

the disguise of an implication of economic recovery.

3. Monetary developments under ultra low, even negative interest rates in the euro area

It should be admitted that extremely easing monetary policy of the biggest central banks has prevented a global debt deflation vicious cycle, saving the world from another great recession much in the fashion of the one in 1929.

As classical economics literature says, it is by lowering interest rates that more and more investment alternatives would become profitable, hence investment activity and overall economic activity would be kick-started. As shown in figure 3, interest rates on deposits and loans have been declining since late 2011 onwards, but lending activity remains depressed (see figure 4).

Risk aversion of borrowers, fresh reminiscences of a financial meltdown, ageing population with different spending and savings patterns, public and private

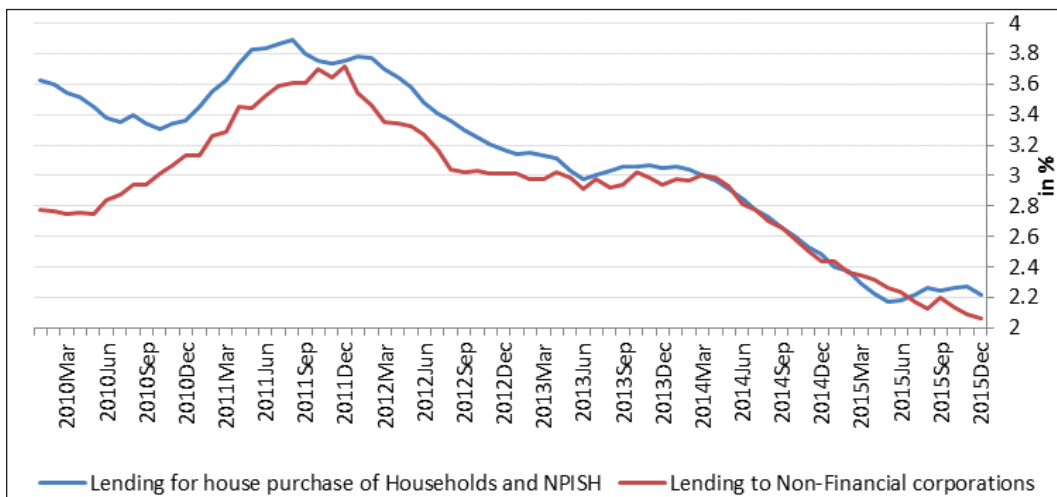


Fig. 3. Euro area interest rates on loans for house purchases of Households and NPISH and on loans to non-financial corporation, (in percentage)

Source: ECB

³ Negative interest rate environment is unstable in the long term due following assumptions: maximizing behavior of consumers and non-financial corporations; ECB 2% inflation targeting policy is assumed to be successful in the long term.

indebtedness, fiscal and monetary policy lead to distortions of economic expectations and current economic activity, and eventually lead to the deposit-credit mismatch for most of the developed countries, especially for eurozone members, Japan and Denmark⁴.

Bank deposits and credits dynamics in the Eurozone reveals few distinct trends: first, overnight deposits and capital issuance and accumulation are the main sources of growth of bank balance sheet on the liabilities side; second, bank loans of the non-financial sector are experiencing

loans have experienced a modest growth of 1.2% for the period Dec 2012- Dec 2015 and of 1.6% for the period Dec 2013- Dec 2015. Lending to households for house purchases grows by 3.2% and 2.4% in the first and second period respectively. However other households' bank loans shrank by 6.5% and 4% during the first and second period. Lending to general government, buying government securities and net external assets are among the main growth drivers of eurozone commercial bank assets, growing by 20% and 31% at the end of 2012.

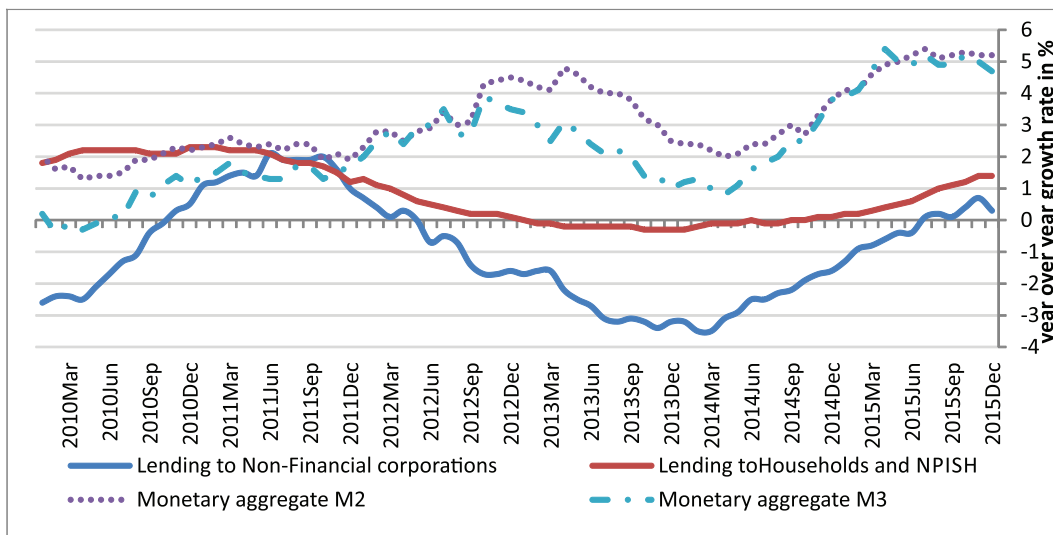


Fig. 4. Euro area lending to the private non-financial sector and Monetary aggregates M2 and M3 dynamics, year over year change
Source: ECB

modest growth compared to the growth of monetary aggregates M1, M2 and M3.

As of the end of 2015, M1, M2 and M3 monetary aggregates grew by the hefty 29%, 13% and 11% compared to the end of 2012. As of the end of 2015 non-financial corporations' bank loans have shrunk by 6% compared with the end of 2012 and by 2% vs. the end of 2013. Households and non-profit institutions serving households' bank

Lending to the non-finical private sector in the Eurozone has been recovering very slowly in the post-crisis period, being outpaced by much by the growth of bank deposits (mainly due to the private sector) (as can be seen on Fig. 4). Among above mentioned factors probably due higher risk aversion, new regulations and rigid bank supervision commercial banks are not transmitting the pace of growth of deposits

⁴Economic activity is among the main contributors to the net interest spread according to Peshev (2015).

into heftier growth of loans. Reason could be found, both, on the demand side and on the supply side of bank credit.

Composite interest rates on new business loans for house purchases of households and NPISH and on non-financial corporative loans reached an all-time low in nominal terms in 2015. Interest rates on both sector loans are approaching the 2% barrier with interest rates on firms' loans experiencing a steeper downward curve in the second half of 2015.

Being the exception to subdued lending, monetary aggregates increase at a double pace compared to lending in Sweden, and still the country is among the best performers. Lending to the non-financial sector in Sweden is growing faster than the EU average level and lending in the real economy. Residential house prices have increased by the hefty 22% in the period between the late 2012 and the end of 2015. The benchmark Stockholm 30 rose by 31% for the same period. Swedish economic growth exceeds the EU average rate and the rate in the euro zone, and gross capital formation and the export of goods and services are seen as the main drivers. Riksbank's extremely easing monetary policy aims to restore and increase the competitiveness of the Swedish economy through currency devaluation and to deter capital inflows. Low interest environment and deposit and loans growth however may stimulate asset price bubbles, mainly in the housing sector, which is experiencing a record price dynamics⁵.

The external liabilities of Denmark's commercial banks shrank by 26% in the period between end of 2012 and end of 2015. Capital and reserves rose by 25% compared to the end of 2012. Deposits of

firms and households in Denmark rose by 9% in the respective period, while loans to firms and households went up by the modest 2%.

Swiss commercial banks loan growth catches up with non-MFIs bank deposits growth, both exceeding a 10% growth rate in the period between the end of 2012 and October 2015.

Since the end of 2012 bank deposits held with Japanese commercial banks have been growing by about 3.5% per annum, while lending has grown by 2%. Deflation has been a threat not only for the last few years but also for the last couple of decades and economic growth remains sluggish altogether.

4. Bank business model with negative lending rates

Let us imagine what happen when banks charge negative interest rates on loans, that is to say they lose money on each extended loan. Instead of depositing their excess reserves, why should commercial banks prefer to lend them out at negative interest rate lower than the negative deposit rate they are charged by the central bank to keep the money in their vault? Is this a viable bank business model? Banks take care of the interest rate spread, the net fee and commission income and net investment income, and the former has been seen as the most indicator in both diachronic and synchronic terms. Banks can preserve their profitability by lending at negative nominal interest rates.

Net interest income is the most important source of banking income, despite the low-interest rate environment. Net fee and commission income usually comes second in relevance with regard

⁵ Balance sheets of Swedish banks improve considerably in the post-2012 period, with declining non-performing loans to gross loans ratio, increasing Regulatory Capital to Risk-Weighted Assets and with healthy ROA and ROE ratios, above 0.6 and 16% respectively. Swedish banks are increasing lending and decreasing their Liquid Asset Ratio, but keep maintaining high liquid assets to short-term liabilities ratio.

to the operating incomes of banks. Bank operating income usually comprises 2/3 of the net interest income of EU banks according to ECB data for the last five years. According to IMF's Financial Soundness Indicators data, Interest Margin accounts for 73% of bank operating income on average for Danish and German commercial banks in the period between 2011 and the third quarter of 2015. Available data for Sweden for the period between 2011 and 2013 shows that about 60% of the gross banking income stems from net interest income. Japanese commercial banks also generate about 60% of their gross income from the spread between interest paid and received, while Swiss banks' net interest income comprises 1/3 of the gross income.

Figure 5 presents a chart of the hypothetical interest rate spread in negative interest rate environment. The interest rate spread, and the net interest margin accordingly, still retain positive values despite the negative nominal interest rates on the extended loans. If banks lend at negative interest rate higher than the negative interest rate levied on customers' deposits, the net interest margin would be a positive value, and the ceteris paribus bank business model is still viable. Non-interest sources of income also can support bank profitability and make up for the possible decline of the net interest income.

By charging large-notional value on customers' deposits, banks act as vaults, being paid for keeping safely deposited funds. The price of storing cash safely,

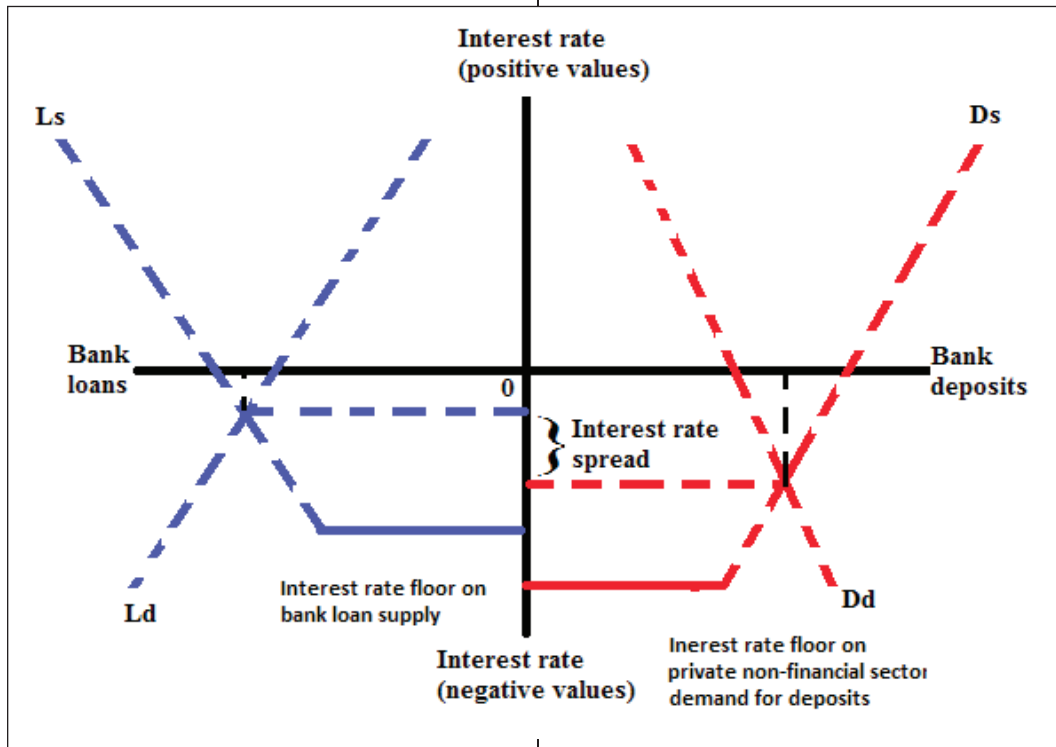


Fig. 5. Demand and supply for bank deposits and loans, interest rate spread under negative rates on deposits and loans
 Source: Author's figure

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e.g. 1%, 2% or 3% of the notional value (hypothetical), should be the lower depending on how low negative interest rates on private deposits can go, and that price floor depends on the value of the positive net interest income determined.

Conclusions

Central banks' brave decisions to avert debt deflation and another global economic debacle and their aim to reflate economies have taken them to the uncharted territories of implementing enormous asset-buying programs and lowering their main interest rates even to negative values. This is seen as the newly established standard for a number of government bonds with different maturities to be traded, even issued with negative yields. Commercial banks start passing negative interest rates on larger deposits.

Despite the central bank stimulus, commercial banks and non-financial private borrowers have a high perception of risk and uncertainty, thus bank lending is experiencing a modest recovery and not matching the higher growth of deposits.

If banks start lending at negative interest rates they still can maintain profitability, not only through maintaining positive net interest margins, but also by rising fee and commission charges they impose on clients. Negative interest rates on deposits and loans, however, would be regarded as an indicator for decelerated private business activity and confidence, and trigger more speculative alternatives, though they are a real option in current dynamically changing environment.

We argue that lending under negative nominal interest rates is possible and probably would be accountable for a segment of bank loan portfolio, e.g. aiming

to match the size and maturity of deposits with negative interest rates. Perhaps odds are high that negative interest rates can't last long and eventually would hamper economic sustainability.

References

Fisher, I., (1933). The debt-deflation theory of great depressions, -*Econometrica: Journal of the Econometric Society*.

Bagehot, W. (1873). *Lombard Street: a description of the money market*, A Gutenberg Project, Release Date: August, 2003, Etext #4359.

Beev, I and E. Sotirova (2005), "Teoretiko-prilozhen analiz na efektite ot izmenenieto v normativnata sreda w parichniya sector", Naucna konferentsiya" Ikonomiceskata teoriya v nachaloto na XXI vek, Ikonomiceski universitet Varna.

Minsky, H. (1992). *The Financial Instability Hypothesis*, The Jerome Levy Economics Institute, Working Paper No. 74.

Peshev, P. (2015) Peshev, Petar, Determinants of Interest Rate Spreads in Bulgaria (October 31, 2015). BNB Discussion papers series, DP/99/2015, last accessed at http://www.bnb.bg/bnbweb/groups/public/documents/bnb_publication/discussion_2015_99_en.pdf

Peshev, P. (2015) Modelling the demand and supply of loans in Bulgaria. *Economic Thought Journal*, Bulgarian Academy of Sciences – Economic Research Institute, Issue 5, p. 70-85, https://www.researchgate.net/publication/290728537_MODELLING_THE_DEMAND_AND_SUPPLY_OF_LOANS_IN_BULGARIA

Peshev, P. (2014), Faktori na kreditna dinamika izvyn Evrozonata (Factors of Credit Dynamics Outside the Eurozone) (June 3, 2014). Bulgarian National

Articles

Bank Discussion series, DP/95/2014, http://www.bnb.bg/bnbweb/groups/public/documents/bnb_publication/discussion_2014_95_bg.pdf

Other sources:

EUROPEAN CENTRAL BANK - <https://www.ecb.europa.eu/>;

BANK OF JAPAN - <https://www.boj.or.jp/en/>;

DENMARKS NATIONALBANK - <https://www.nationalbanken.dk>;

RIKSBANK - <http://www.riksbank.se/en/>;

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SWISS NATIONAL BANK - <https://www.snb.ch/>;

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BLOOMBERG - [http://www.bloomberg.com/markets/rates-bonds](http://www.bloomberg.com/markets/rates-bonds;);

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