

#### Box 4

Market perceptions of bank risk in connection with cuts in the deposit facility rate to below zero

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**To stimulate post-crisis economies characterised by low growth and low inflation, some central banks, including the ECB, have adopted negative policy rates.** The rationale for negative rates is that they provide additional monetary stimulus, giving banks an incentive to lend to the real sector and thereby supporting growth and a return to target inflation.<sup>39</sup>

**Negative rates, by stimulating the economy, improve the operating environment for financial institutions via an increase in loan demand and improved asset quality and boost the valuation of assets in trading portfolios.** On the other hand, an environment of low nominal yields can spur a “search for yield” among institutional investors that could lead to a disproportionate demand for high-yielding risky assets. For banks in particular, negative rates may exert pressure on profitability, as net interest margins may be compressed owing to the effective zero lower bound on retail deposit interest rates.<sup>40</sup> Furthermore, negative policy rates impose a direct cost on banks’ holdings of central bank reserves. To the extent that these effects suppress bank profitability, they weaken banks’ resilience. In addition, banks may attempt to offset any reduction in their profitability by extending loans to riskier borrowers (“risk-shifting”), thereby raising their overall risk profile.<sup>41</sup>

**This box studies the impact of increasingly negative ECB policy rates on banks’ propensity to become undercapitalised in a potential future crisis, as measured by “SRISK”.** SRISK is defined as the estimated capital shortfall of a bank resulting from a 40% drop in a world equity index over a six-month horizon.<sup>42</sup> The risk measure is modelled as a function of the market valuation of a bank’s equity, its leverage ratio, the volatility of its stock price and the correlation of its stock price with the world index. To ensure a representative sample, and to include non-listed banks in the analysis, a matching procedure is applied to infer SRISK for non-listed banks.<sup>43</sup> **Chart A** reports SRISK developments between 2011 and 2015 for different bank business model groups: (A) large universal banks; (B) corporate/wholesale-focused lenders; (C) fee-focused banks/asset managers; (D) small diversified lenders; (E) domestic retail lenders; and (F) mutual/cooperative-type banks.

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<sup>38</sup> See the article entitled “MREL: financial stability implications”, *Macprudential Bulletin*, Issue 4, ECB, December 2017 (forthcoming).

<sup>39</sup> See Cœuré, B., “Life below zero: Learning about negative interest rates”, presentation at the annual dinner of the ECB’s Money Market Contact Group, Frankfurt, 9 September 2014.

<sup>40</sup> See the box entitled “The ECB’s monetary policy and bank profitability”, *Financial Stability Review*, ECB, November 2016.

<sup>41</sup> See, for example, Heider, F., Saidi, F. and Schepens, G., “Life Below Zero: Bank Lending Under Negative Policy Rates”, mimeo, 2017.

<sup>42</sup> See Brownlees, C.T. and Engle, R., “SRISK: A Conditional Capital Shortfall Measure of Systemic Risk”, *Review of Financial Studies*, Vol. 30(1), January 2017, pp. 48-79.

<sup>43</sup> For details, see Nucera, F., Lucas, A., Schaumburg, J. and Schwaab, B., “Do negative interest rates make banks less safe?”, *Working Paper Series*, No 2098, ECB, September 2017.

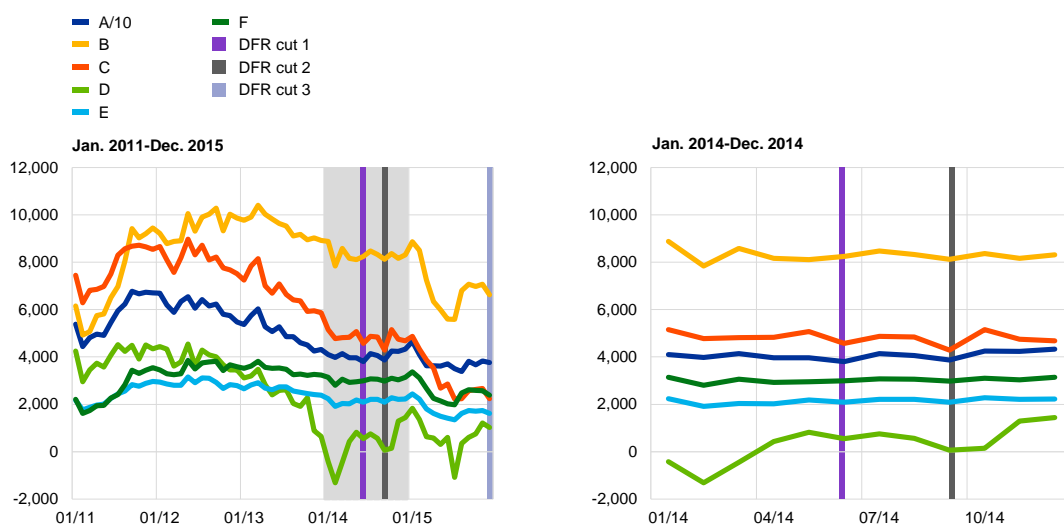
This classification is based on balance sheet items for a large number of banks over time.<sup>44</sup> In addition, three cuts in the ECB's deposit facility rate (DFR) to increasingly negative values are marked on the chart: on 5 June 2014, 4 September 2014 and 3 December 2015. A fourth cut in March 2016 is excluded from the analysis as it coincided with a key announcement concerning ECB asset purchases. The DFR was reduced by ten basis points each time.

## Chart A

Only minor SRISK responses to cuts in the ECB's deposit facility rate to negative rates

### Average SRISK for euro area banks at business model group level

(Jan. 2011 – Dec. 2015, USD thousands)



Sources: NYU Stern and ECB calculations.<sup>45</sup>

Notes: The chart shows average SRISK for different bank business model groups: (A) large universal banks; (B) corporate/wholesale-focused lenders; (C) fee-focused banks/asset managers; (D) small diversified lenders; (E) domestic retail lenders; and (F) mutual/cooperative-type banks. The average SRISK for group A is scaled by a factor of 1/10. SRISK estimates are available for 44 listed euro area banks at a monthly frequency. To ensure a representative sample, and to include more banks in the analysis, a matching procedure was applied to infer SRISK for non-listed banks. Specifically, 67 non-listed banks are matched to "nearest neighbouring" banks for which market data are available. The matching is based on accounting data which are available for all 111 banks. The business model classification and matching procedure follows Nucera et al. (2017). The vertical lines indicate the cuts in the DFR on 5 June 2014, 4 September 2014 and 3 December 2015.

**Three main observations are of interest. First, SRISK averages in the euro area fell markedly between mid-2012 and mid-2014 (see Chart A).** This development may have been sparked initially by the ECB's announcement of Outright Monetary Transactions in August 2012 and subsequently driven by the gradual recovery in economic growth and improving bank capital buffers. Compared with the pronounced variation in the level of SRISK for all banks until mid-2014, the impact of the subsequent three cuts in the DFR to negative rates on risk perceptions appears to have been relatively small.

**Second, some banks are perceived by markets as more risky following the cuts in the DFR to negative values.**<sup>46</sup> The risk impact depends on banks' business models. For example, universal banks with diversified income streams are generally perceived to be less (systemically) risky. For such banks, the benefits from negative rates cited above appear to dominate. By contrast, banks

<sup>44</sup> For further details on the business model classification methodology, see Lucas, A., Schaumburg, J. and Schwaab, B., "Bank business models at zero interest rates", *Working Paper Series*, No 2084, ECB, June 2017.

<sup>45</sup> SRISK data from NYU Stern.

<sup>46</sup> For detailed results, see Nucera et al., op. cit. Risk reductions are studied in a difference-in-differences framework relative to banks in group C ("fee-focused banks/asset managers").

that rely predominantly on deposit funding may be perceived by markets as more risky. For such banks, negative policy rates may contribute to lower net interest margins, as customer deposits are typically remunerated at rates above zero.

**Third, the three cuts in the DFR to negative rates can be compared with an earlier cut in July 2012 by 25 basis points to zero.** The cut in the DFR to zero in 2012 triggered different SRISK responses than the three cuts below zero in 2014 and 2015. For example, universal banks did not appear to benefit from the cut in July 2012. This tentatively suggests that cuts to negative rates may have different financial stability implications than more conventional cuts to non-negative rates.

**Overall, therefore, the analysis presented in this box points to a moderate impact of negative rates on market perceptions of bank riskiness.** An adverse effect is identified mainly for a subset of banks with a strong reliance on deposit funding.

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