

# High-Yield Deposits and Financial Stability

## Abstract

We study the risks and consequences of aggressive deposit pricing in the deposit market on banks' financial intermediation model, asset allocation, and failure. We exploit deposit product level data from the Russian banking industry where some banks were aggressively competing for deposit funds by setting up deposit rates above the market average level. Our results detect a number of fundamental risks associated with aggressive deposit-taking bank behavior. First, we find that high yield deposit-taking is associated with fast deposit growth and overall high costs of deposit funds. We also show that although loan growth and increase in lending rates are pronounced in banks with aggressive deposit pricing (and signify elevation of credit risk) they are not on par with increased deposit prices. As a result, the net interest margin shrinks. Secondly, we find that banks with aggressive deposit pricing tend to significantly increase their assets allocation into the risky private securities portfolios and to decrease the ratios of relatively less risky government securities. Finally, we find that banks which offer high-yield deposit product have higher likelihood of failure, mostly due to insolvency reasons. Collectively, the study results reveal substantial funding and asset-side risks associated with high-yield deposit products in a market with a flat deposit insurance premium, aggressive competition for limited deposit funds, and insured depositors' disincentives to monitor banks' behavior.

## Introduction

Banks constantly face the trade-off between costs and benefits of risk taking. The recent financial crisis has demonstrated that if banks' incentives are distorted by the moral hazard problem their choices can have substantial costs to the society. This raises the importance of prudent regulatory policies directed at alleviating the moral hazard problems in the banking sector. Allen et al. (2011) call for reconsidering the pre-crisis view on the costless nature of the deposit insurance policies. Allen et al. (2015) demonstrate that the design of much debated optimal capital regulation policies (i.e., Acharya et al. (2016), Admati et al. (2013)) should be implemented jointly with the deposit insurance.

Another important regulatory policy that can curb the possibility of the gambling behavior by banks in the presence of deposit insurance is imposition of the deposit rates ceiling. The theoretical papers by Hellmann et al. (2000) and Bhattacharya (1982) show that the combination of capital requirements and deposit-rate controls is needed in order to achieve the

socially optimal outcomes. Due to persistent monetary loosening conducted by the major central banks in the post-2008 period and historically low interest rates in the advanced economies the deposit-rate controls policy has not been widely discussed. However, in the view of the future shift to monetary tightening it is important to learn more about the proper mix of the regulatory policies that may also include the deposit rates ceilings. We contribute to this literature by studying the outcomes of the deposit rates monitoring policy conducted by the Central Bank of Russia (CBR) during the 2009-2015 period. In particular, we investigate how the maximum deposit rate offered by banks on retail deposits and which is explicitly monitored by the CBR is associated with the probability of the future banks' failures.

Understanding how the bank's funding costs are related to their solvency is important for stress-testing exercises conducted by the central banks (Aymanns et al. (2016)). The wide body of literature has established the robust positive link between riskiness of the banks' assets and the cost of wholesale funding (i.e., Flannery and Sorescu (1996), DeYoung et al. (2001) and Craig and Dinger (2013)). These findings confirm the market discipline hypothesis as they show that the uninsured wholesale creditors of banks adjust the interest rate on funds they supply to banks in accordance with the perceived solvency of banks.

The intuition why riskiness of bank's assets is positively related to interest rate on deposits is based on the classical moral hazard problem. Keely (1990) posits that in the presence of deposit insurance banks can take advantage of the risky projects if they succeed and bear limited liability if those projects fail. Hellmann et al. (2000) demonstrate that banks will get involved into market-stealing strategies by offering high deposit rates and "invest in inefficient gambling asset that can yield high private returns for the bank if the gamble pays off but imposes costs on depositors if the gamble fails".

Hellmann et al. (2000) argue that the regulatory policy of deposit-rate ceiling can prevent such behavior. Our setting is particularly well suited to study the effectiveness of such policy. Commercial banks in Russia offer a range of deposit products to their customers that vary in the

maturity, size and different convenience features (Chernykh and Sokolov, 2016). The CBR monitors the maximum (head-line) deposit rate on individual deposits and penalizes banks that offer a rate exceeding the average rate offered by top banks.

It has been previously shown that when dealing with the retail investors financial institutions tend to misprice products sold to this class of investors (Henderson and Pearson (2011)). When advertising their deposit products to customers banks quote the maximum deposit rate that they offer on one of their products. This phenomenon has been formally modeled in the competition for attention literature (Bordalo et al. (2013, 2013, 2016)). According to this literature firms create attention externality by drawing the consumers' attention to the most salient features of their products. Bordalo et al. (2013) extend this theory to asset pricing and develop a model where attention of investors is drawn to the assets with the pay-offs that are above the market average and in making their choices investors overweight such assets.

In our case banks draw attention of depositors by advertising the maximum deposit rates on their head-line products in order to increase their funding by the retail depositors. Under the CBR deposit rate monitoring policy the deposit rates above the market average are a signal that banks offering such rates are engaged in gambling investments *a la* Hellmann et al. (2000).

In this article, we study how aggressive deposit taking strategies pursued by banks affect their growth, profitability and stability. In order to address these questions we employ the comprehensive dataset containing the whole range of deposit rates offered each of the Russian banks. This enables us to extract the maximum deposit rates (monitored by the CBR) and match these rates with the official financial data reported by banks.

We contribute to the growing literature that studies risk-shifting by banks in the presence of deposit insurance policies. Lambert et al. (2016) find that banks with the increased amount of insured deposits start issuing risky real-estate loans and become more risky. Bologna (2015) shows that larger share of uninsured deposits increase the likelihood of the banks' failure.

Our analysis consists of three parts. First, we study how variation in the maximum deposit rates is related to banks' growth and profitability. Secondly, in order to evaluate the riskiness of banks we look into the relationship between the maximum deposit rates and the banks' assets composition. Finally, we examine if higher deposit rates offered by banks lead to higher likelihood of banks' failure the future periods.

When looking at the growth of banks and their profitability we find that maximum deposit rate offered by banks is significantly positively related to future growth of household deposits on the banks' liabilities side and total loans on the banks' assets side. At the same time our results show that the maximum deposit rate is significantly negatively related to the Net interest margin (NIM). This can be explained by the fact that the estimated elasticity of banks' funding costs to the maximum deposit rate is higher than the same elasticity for the banks' return on loans. In other words banks pursuing aggressive deposit rate talking policy are not able to cover the increase in the funding costs by increase in the return on their assets.

Further, we investigate how aggressive policy of deposit taking affects the composition of banks' assets. We do not find that maximum deposit rates offered by banks significantly affect the composition of the banks' loan portfolio along the corporate versus household loans nexus. Nevertheless, we find a strong divide in the composition of the securities holdings by banks. We show that the pursuit of the aggressive deposit rate policy proxied by the maximum deposit rate results in the significantly higher share of investment in private risky securities and lower share of the government bonds as proportion of banks' total assets. This result is consistent with the classical moral hazard view that argues that in the presence of deposit insurance banks compete with each other only in the deposit rate dimension which forces them to "search for yield" and engage in more risky investments. This risk-shifting policy may lead to decrease in the banks' stability - the issue that we explore in the third part of our analysis.

Our logit model estimates show a significantly higher probability that banks offering higher than market average maximum deposit rates are later liquidated by the regulator through

banking license withdrawal. The preliminary results indicate that insolvency is the leading reason for the banking license revocation suggesting that one year prior to license revocation banks' management foresees the future solvency problems and starts increasing the deposit rates in order to secure the insured deposit funding. This activity sends a signal to the CBR regarding the internal bank's problems which leads to the further regulatory actions. We interpret our findings on a positive monotonic relationship between the likelihood of the bank's failure and the interval by which the maximum deposit rate of a given bank exceeds the regulatory benchmark as evidence of the successful policy of maximum deposit rate monitoring. The stronger was a signal regarding the bank's internal problems the more likely are the regulatory actions.