



University of
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Master Thesis

Swiss banks' funding costs and their relationship with Swiss franc
LIBOR and SARON

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Executive Summary

Problem

By taking funds from savers and lending those to investors, banks are exposed to certain risks such as interest rate risk. In order to manage interest rate risks, banks can rely on interest rate swaps (IRS), where the floating rate leg is anchored to a benchmark interest rate. Ideally, this rate correlates with banks' funding costs because otherwise risks emerge that cannot be removed by the bank, so-called basis risks. Interest rate benchmarks underpinned by transactions in the unsecured interbank markets were the first ones to be used (Bank for International Settlements, 2013). The most important of these rates is the London Interbank Offered Rate (LIBOR), which reflects the funding costs in the wholesale, unsecured London interbank market. However, according to the Financial Stability Board (2020), the correlation between funding costs of banks and LIBOR has decreased since the global financial crisis given the reduced reliance on unsecured funding. Moreover, a report by the Bank for International Settlements (2013) claims that average rates based on unsecured interbank markets are not good proxies for the borrowing costs of banks because the distribution of bank credit risk premia has increased. Currently, public sector bodies together with financial market participants are transitioning away from Interbank Offered Rates (IBORs) towards new interest rate benchmarks due to lower market activity underpinning the rates and past manipulations (Financial Stability Board, 2014). This has wide implications for various market participants but in particular for banks regarding their ability to hedge above mentioned interest rate risks. In Switzerland, the National Working Group on Swiss Franc Reference Rates (NWG) recommended the Swiss Average Rate Overnight (SARON) as alternative for the Swiss franc (CHF) LIBOR, which will cease at end-2021. Accordingly, the floating rate leg in CHF-denominated IRS contracts will change from CHF LIBOR to SARON.

Empirical Analysis

On the basis of publicly available data from the Swiss National Bank (SNB), this master thesis investigates the relationship of Swiss banks' funding costs with CHF LIBOR and SARON. Specifically, this thesis argues that the correlation between the funding costs and SARON is equal or even higher than with CHF LIBOR. In addition, the interest rate pass-through from SARON to the funding costs is positive and equal or even higher than from CHF LIBOR. Finally, in both cases the relationship gets weaker when moving into the negative interest rate environment, regardless of the benchmark rate. In order to analyse these hypotheses, the funding costs are approximated by the average rate on savings and three-month (3M) term deposits offered and reported by Swiss banks. Furthermore, the analysis is conducted for three different sample periods as suggested by Baeriswyl et al. (2021): a positive-rate environment (June 2000 - July 2009), a zero-rate

environment (August 2009 - December 2014) and a negative-rate environment (January 2015 - May 2021). This is of interest with regard to the zero lower bound on deposits, which might influence the results since bank customers can circumvent negative rates by withdrawing their money from their bank accounts (Baeriswyl et al., 2021). The empirical strategy consists of two parts. In a first step, I use Pearson's linear correlation coefficient in order to examine the correlation of various funding-benchmark rate combinations. Next, I conduct an ordinary least squares (OLS) regression on the model of Rousseas (1985), which claims that deposit rates can be explained in a simple way by market rates. Importantly, I use instead of SARON itself the standardized SARON Compound Rate calculated by SIX and applied as in-advance rate for the correlation analysis. Finally, I challenge my results by conducting two robustness checks. First, I use the SARON Compound Rate as in-arrears instead of in-advance and second, I rerun all calculations on the basis of three alternative subperiods suggested by Bowman et al. (2020). These periods divide the sample into a pre-crisis (July 2001 - June 2006), a crisis (July 2006 - June 2011) and a post-crisis (July 2014 - June 2019) period with reference to the global financial crisis starting in 2007.

Results and general assessment

The empirical analysis shows that the CHF LIBOR has not necessarily a higher correlation than the SARON Compound Rate. Nevertheless, interest rate pass-through from the 3M CHF LIBOR to the two funding rates is mostly stronger than from SARON. According to the obtained results, the savings rate has for comparable maturities in most cases a higher correlation with the SARON Compound Rate than with the CHF LIBOR. Furthermore, the highest correlation in each period (full, positive, zero and negative) can be attributed to a SARON Compound Rate. While overall the correlations mostly break together in the zero-rate environment, they again increase when moving to the negative-rate environment. In contrast to the savings rate, the picture for the 3M term rate is different. The correlation with the 6M SARON Compound Rate is in each period weaker than with the corresponding CHF LIBOR rate. In addition, the 1M and 3M SARON Compound Rates are only in the full and positive-rate period higher than their CHF LIBOR counterpart. As was the case for the savings rate, correlations decrease for the term rate in the zero-rate environment. Regarding the pass-through analysis, changes in SARON and the 3M CHF LIBOR have only an economically small effect on the savings rate. In fact, SARON has only in the negative-rate sample a significant effect of 0.03. While the corresponding point estimates for the CHF LIBOR are mainly significant they remain low and vary between 0.02 and 0.04. In terms of pass-through to the 3M term rate, the point estimates for both benchmark rates increase and are mostly significant. For example, an increase in SARON or the 3M CHF LIBOR of 100 basis points (bps.) in the positive-rate sample leads to an increase in the 3M term rate of 26 bps. and 55 bps.,

respectively. Overall, the results obtained when using the alternative periods confirm the just mentioned observations. In the pre-crisis period, SARON Compound Rate has a bigger correlation for all maturities and both funding rates than the CHF LIBOR. Moving to the crisis and post-crisis period, the pattern again changes as was the case when using the "old" periods. In contrast, the results markedly change when using instead of the SARON Compound Rate in-advance the in-arrears version. In fact, both funding rates correlate in the vast majority of cases better with the CHF LIBOR than with the SARON Compound Rate in-arrears. This might have implications for banks that use such an in-arrears strategy in their products. In fact, as reported by the NWG (2021), many banks use the option Lookback, which has by definition an in-arrears structure. To summarize, the results show that the correlations between the CHF LIBOR/SARON and the funding rates strongly depend on the maturities of the benchmark rates, how funding costs of Swiss banks' are defined and importantly, which period is of interest. In addition, they confirm the expectation that the correlation of SARON with Swiss banks' funding costs is not necessarily lower than the correlation of CHF LIBOR. In terms of the expected effects regarding the pass-through, the results only partly confirm the expectations. While SARON has for both funding rates and all considered periods a positive effect, it has a lower impact on the funding rates than the 3M CHF LIBOR. Lastly, the point that the relationship weakens when moving to the negative-rate environment can only be confirmed for the pass-through analysis. With few exceptions, correlations even increase and are higher in the negative-rate period compared to the other periods. Future work might be interested in studying the relationship of Swiss banks' funding costs with benchmark rates using individual bank data to infer whether some business models or the share of deposit funding might influence the results. Moreover, the inclusion of long-term relationships between interest rates might give more indication on the dynamics of the pass-through from CHF LIBOR and SARON to deposit rates.

References

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