

Wroclaw University of Economics
Faculty of Management, Computer Science and Finance
Department of Financial Investments and Risk Management

BEATA ŁUBIŃSKA

**Asset and Liability Management under interest rate risk and
liquidity risk – decision model**

Doctoral thesis - summary

Supervisor:

Prof. dr hab. Krzysztof Jajuga

Wroclaw 2018

The objective of the PhD thesis consists in the determination of the most profitable structure of the assets and liabilities sides of the banking book under existence of risk conditions. The analysis is performed through the application of the optimization method meanwhile risk conditions are determined by interest rate risk and liquidity risk exposure of the commercial bank. In particular, the optimisation criteria aim to obtain the target banking book structure being subject to the established constraints. The optimization constraints are constructed through the determination of the interest rate risk and liquidity risk exposure metrics and setting them to the desired level.

The author proposes the decision model as a solution to the integrated approach towards the management of the financial risks in the banking book. The implementation of the model ensures the quantifiable benefit in terms of the economic impact on a bank's P&L and improvement of metrics used in the measurement of the exposure to the interest rate risk in the banking book, liquidity and funding risk.

The analysis results in the calculation of proportions (weights) of the asset portfolios and funding structure which are based on the risk appetite of the bank in terms of the aforementioned risks' categories.

The dissertation launches 3 main hypotheses. The first one states there is an economic benefit, both in terms of the increased income from the asset side and savings coming from the decreased funding costs. The second hypothesis states that the application of the optimization technique improves the management of the banking book under interest rate risk and liquidity risk through the indication of the target position of a bank for both assets and liabilities side. The third one states that the sensitivity of the decision model depends strongly on the behavioural assumptions, i.e. the commercial banks are "model dependent", the concept which have been analysed by the author in detail.

Those hypotheses have been tested mainly through the articulation of the target structure of the banking book and calculation of the economic impact in terms of the increased income on assets side and reduced funding costs on liability side. Having determined such a structure of the banking book, in the next step, the dissertation examines the sensitivities of the calculated weights to the different external and internal scenarios which have been set up in order to stress the constructed model – model risk.

The work includes the review of the main concepts in the Asset and Liability management in the commercial bank along with the presentation of the existing techniques of the measurement and mitigation of the interest rate risk and liquidity risk. Given that there is a significant degree of uncertainty embedded in the banking book deriving from clients' behaviour, some methods for treatment of non-maturing deposits (from the liability side) and loans with early redemption optionality (from the asset side) are discussed.

The contribution of this work consists in the application of the integrated view of the banking book so that its profitability is maximized, and its risk exposure is in line with the bank's risk appetite. The proposed approach can be applied to all commercial banks located in different geographical locations.

Lubim'ska Beate