Overall, we are rather satisfied with the results of this project and the work we conducted to achieve them. We managed to adjust the model to fit Ukrainian realities and established that it can be used to study the labor sector of Ukraine. And system dynamics proved to be a great tool to do that.

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Maryna Ushchenko
1th-year master`s students, NaUKMA

APPROACH TO MODELING THE MAIN FACTORS THAT INFLUENCE THE FUNDING STRUCTURE OF COMMERCIAL BANKS

Funding is the resources that bank uses to provide its business. Sources of these funds can be deposits, funds on current accounts of clients, borrowing in Ukrainian and international capital markets, interbank loans, etc. When evaluating the financial performance of the bank the structure of the fund should be analyzed, including its maturity structure and costs. Funding can be long-term and short-term. For example, the first one includes borrowing in the capital markets, and the second one – current accounts of clients. The balance between the resource base and assets ensures the stable performance of the bank.

However, as of today, the biggest part of the banks liabilities consists of funds of the individuals and corporate clients. Their share in liabilities as of June 2018 exceeds 80 %. Due to this tendency, liquidity risks increase, because most corporate deposits consist of deposits on demand or ultra short deposits. Individuals also prefer short-term deposits (in general, among deposits prevail deposits up to 3 months). There can be several reasons for this. Firstly, now in the banking system there is a situation when with an increase in deposit term, the deposit rate almost does not increase. Such interest rate policy does not lead to the improvement in the term structure of banks deposits. Since October 2017, the NBU raised its discount rate four times (from 12.5 % to 18 %). After that, the banks ceased to reduce interest on

deposits in national currency. The rate for 12-month deposits is relatively stable: it stays in the range of 14.1-14.3 % annually for more than half a year. However, deposit rates for 3-6 months increased. As a result, in early May, the rate for 6-month deposits exceeded the one for 12-month deposits. Only in early June they were leveled out, but not enough to stimulate the clients to invest for a longer period. In general, banks should encourage depositors to keep funds for a long period, that is why the interest rate difference between long and short deposits should increase. Nowadays, it makes no sense for the population to invest their own funds for a longer period and increase their risks. And here is another point – the longer deposits are still seen by the depositors as much riskier.

As a result, the contraction of long-term external financing and the growth in the number of deposits have worsened the structure of liabilities. According to the NBU on April 2018 the number of deposits of individuals with a residual maturity of up to 1 month in the national currency was 76.1 %, in other currency - 61.3 %. The current structure of bank liabilities makes the whole system vulnerable to liquidity shocks. This condition requires the banking institutions to forecast flows on client accounts, as well as the availability of high-quality liquid assets.

Therefore, in order for banks to reduce the risks of a liquidity crisis, they should keep stock of highly liquid assets. It is also important to change the interest rate policy. The increase in the term of the deposits should lead to an increase in revenues – and thus create additional incentives for opening deposits for a longer period, even in spite of possible loss in profitability of banks.

In order to minimize the risks of banks failure during the crisis period, the NBU has introduced a new standard – the liquidity coverage ratio (LCR). At the beginning the minimum value of the LCR standard was set at 80 % with a step-by-step approach to the level of 100 % in 2020. The LCR is set in all currencies, as well as separately for a group of foreign currencies.

Figure 1 depicts the main factors that affect the flow of funds from long-term to short-term deposits and current accounts. The change in the term of deposits – from long to short from the depositors' point of view will be affected by: the factor of the perception of the consumers – it is safer to invest in deposits that they can quickly withdraw, the effect of the expected exchange rate and its volatility, price volatility and inflation expectations. One other important factor is the effect of rates spread – long-term deposits are seen as disadvantageous and unreliable (the rate is the same, the risks are bigger). It is also necessary to take into account seasonality.

At the same time, the growth of the short-term deposits may cause liquidity risks for the bank, thereby forcing banks to restrict, for example, the withdrawal of money. Limitations on withdrawal or information on liquidity issues may stimulate the withdrawal of funds from deposits in the future. Hence, there will be a causal loop. Moreover, the structure itself provokes risks that lead to the worsening conditions in the banking system and then affect outflows in the future.

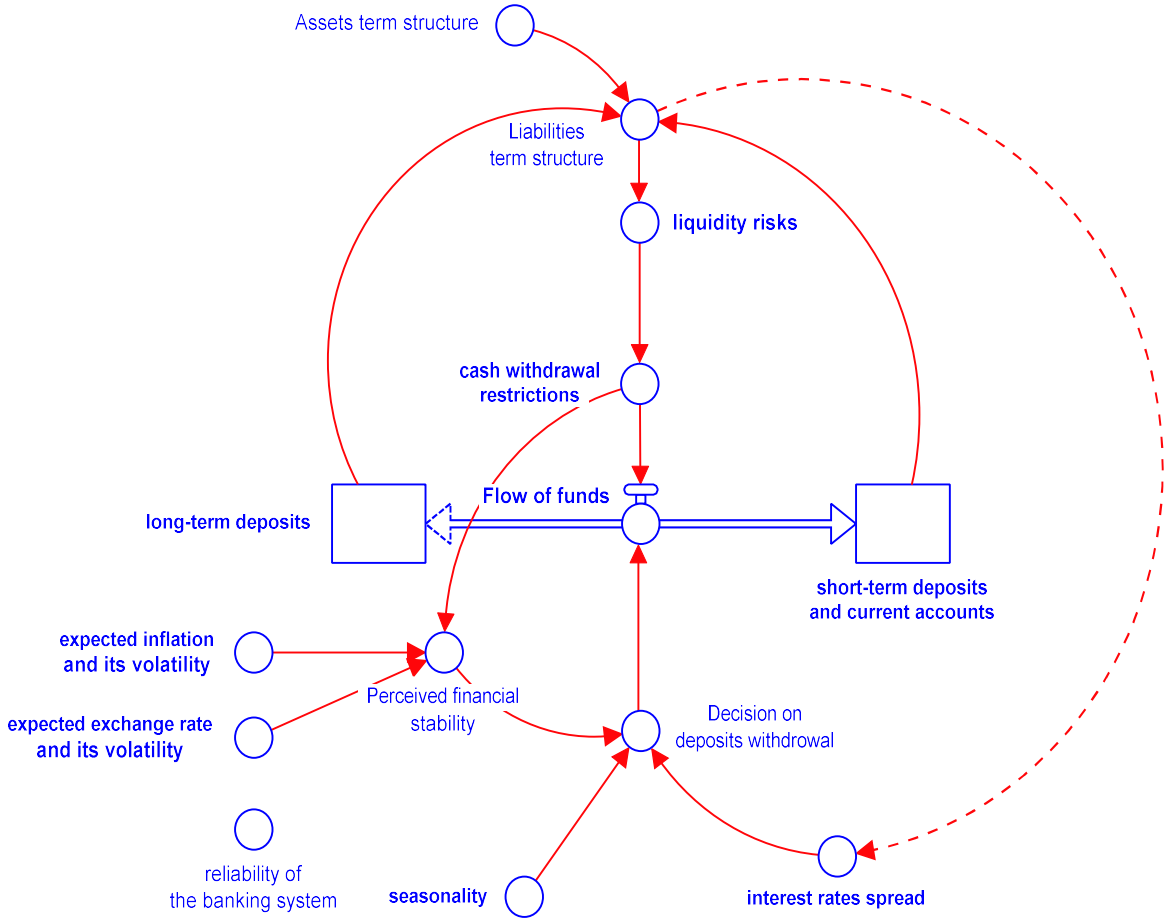

Figure 1. **Model of factors that cause the flow of funds from long-term to short-term deposits and current accounts**

System dynamic models have many advantages for modeling not only unidirectional impact on the system, but integral relations between all objects in the system.

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