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Оцінка впливу зміни депозитних ресурсів банків на валовий внутрішній продукт

Стаття присвячена дослідженню сутності депозитних ресурсів банків та обґрунтуванню методичних засад оцінки впливу їх зміни на величину валового внутрішнього продукту. Формування залучених банківських ресурсів через проведення депозитних операцій є однією з найважливіших складових фінансово-економічної діяльності банків, адже депозитним ресурсам належить основна роль у покритті потреб банку в грошових коштах для здійснення дохідних активних операцій. Здійснено аналіз обсягів строкових депозитів банківської системи України та валового внутрішнього продукту за період 2005-2014 рр. Виявлено, що строкові депозити є стійким джерелом ресурсів для банку, а їх відношення до валового внутрішнього продукту в Україні становить в середньому 25%. З метою встановлення тісноти зв'язку між строковими депозитами вітчизняних банків та виявлення їх впливу на обсяг валового внутрішнього продукту здійснено кореляційний аналіз за допомогою методів економіко-математичного моделювання.

Ключові слова: банки, депозитні ресурси, строкові депозити, валовий внутрішній продукт, кореляція, коефіцієнт бета.

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Оценка влияния изменения депозитных ресурсов банков на валовой внутренний продукт

Статья посвящена исследованию сущности депозитных ресурсов банков и обоснованию методических основ оценки влияния их изменения на величину валового внутреннего продукта. Формирование привлеченных банковских ресурсов путем проведения депозитных операций является одной из важнейших составляющих финансово-экономической деятельности банков, так как депозитным ресурсам принадлежит основная роль в покрытии потребностей банка в денежных средствах для осуществления доходных активных операций. Осуществлен анализ объемов срочных депозитов банковской системы Украины и валового внутреннего продукта за период 2005-2014 гг. Выведено, что срочные депозиты являются устойчивым источником ресурсов для банка, а их отношение к валовому внутреннему продукту в Украине составляет в среднем 25%. С целью установления тесноты связи между срочными депозитами отечественных банков и их влияния на объем валового внутреннего продукта, осуществлен корреляционный анализ с помощью методов экономико-математического моделирования.

Ключевые слова: банки, депозитные ресурсы, срочные депозиты, валовой внутренний продукт, корреляция, коэффициент бета.

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Evaluation of Impact of Changes of Bank Deposit Resources on Gross Domestic Product

The article says about investigation of the nature of bank deposit resources and substantiation of methodical bases for evaluation of impact of their changes on the value of gross domestic product. Formation of borrowed bank resources by conducting deposit operations is one of the most important components of financial and economic activity of banks, as deposit resources play a key role in covering the needs of bank in cash to implement profitable active operations. There are analyzed the volume of fixed-term deposits of the banking system of Ukraine and the gross

domestic product for the period 2005-2014. There are revealed that fixed-term deposits are stable source of resources for the bank, and their relationship to gross domestic product in Ukraine is an average of 25 %. In order to establish distress communication between fixed-term deposits of domestic banks and to identify their impact on gross domestic product there is carried out the correlation analysis by the methods of economic-mathematical modelling.

Keywords: banks, deposit resources, fixed-term deposits, gross domestic product, correlation, Beta coefficient.

Research Urgency. The current stage of development of the national economics requires from banking institutions effective financial and economic activity which should contribute to sustainable economic growth in terms of gradual integration of Ukraine into the European and world economics. Banks operate their special role of leading financial intermediaries; they should ensure efficient movement of financial resources between the different branches of economics and business to meet their needs. Appointed requires from banks to increase the volume and optimize the structure of their resource base, as for effective financial and economic activity they should have the sufficient amount of cash.

Recent research and publications analysis. The theoretical and practical aspects of the problem, including the formation of resources potential, management techniques of involved and borrowings financial recourses of banks have been researched by following scientists: N. Abzalava, J. Sinki, O. Vasyurenko, M. Alekseyenko, A. Dzyublyuk, L. Prymostka, I. Salo, O. Kruhmal, S. Yaroshenko, S. Frolov, I. Fedosik and others. They have developed modern theory and practice of acquired mechanism of formation, placement and management of bank resources.

The research objective. The questions about estimation of bank deposit growth impact on the national economics development and volume of gross domestic product have not been researched enough.

Key research findings. The deposit resources take the main place in the financial resources of the bank. By definition of Professor S.M. Frolov, 'deposit attracted resources – funds which have been deposited in the bank by physical and legal entities to certain accounts and which have been used under the regime of accounts and banking legislation' [5, p. 65]. O.V. Vasyurenko notes that the deposit resources – is 'a set of borrowed bank resources that provide the necessary reserves in dealing with legislation demands, they give under these reserves necessary amount of credit resources' [13, p. 117]. And in article 'Resource potential of commercial bank' A.V. Vasyurenko and I.M. Fedosik suggest another definition of deposit resources, according to which – 'these are deposits in the bank for the storage and using of the interest paid by depositors' [14, p. 64]. This definition is different from the first one, it is stressed that funds are made for storage.

The scientist N.A. Abzalava gives the following definition: 'deposit resources – a combination of depositors funds which have been raised by banks on a contractual basis for a specified period or without defining such term, they should be repaid to the depositor, usually with interest that provide for bank the necessary amount of funds for active operations and

performance of the bank regulatory requirements under the law' [1, p. 63].

Thus, based on the above we can conclude that the deposit resources – funds which have been attracted by the bank to its liabilities by concluding special agreements with customers or issue of savings certificates for a clearly defined period with obligatory condition of interest payment after the expiry deposit agreement.

It should be noted that the formation of borrowed bank resources by conducting deposit operations is one of the most important components of financial-economic activity of banks. This is explained by fact that the deposit resources have a key role in covering the needs of the bank's cash requirements to implement active operations to be profitable.

In connection with background, we should note that the bank deposit resources are different by structure; the most important components of this structure are term deposits. In this regard it should be noted that in the domestic banking practice for a long time slightly different from international practice interpretation of the term 'deposit' was used, according to which deposits were funds that had been deposited to the accounts on identified term. In addition, these were deposits of legal entities, while funds which had been deposited in banks by population were called 'contributions'. As result of such terminology using it was assumed that banks deposit resources were generated through the mobilization of funds on deposit accounts of enterprises, organizations, institutions and population on deposit accounts. That is why the term of 'current deposits' was not used in international banking practice concept.

In this regard, it should be noted that, according to national legislation 'deposit (deposit) – cash or non-cash funds in the currency of Ukraine, or in foreign currency which are placed by customers on their personal accounts in bank on contractual basis for a fixed period or without specifying fixed period and payable to the depositor in accordance with the laws of Ukraine and conditions of the contract' [8].

We have made analysis for general information on the state deposit resources of the banking system and their impact on the gross domestic product (GDP), the main results are shown in Figure 1.

According to the data which are presented in Figure 1, term deposits of banks on 01.01.2014 were 455501 million UAH and had increased by almost in 10 times in comparison with 2005. The similar trend is observed for obligations of banks, rating dynamics shows that during 2004-2009 the ratio of banks' liabilities to GDP had increased and on 01.01.2010 it was 83.77 %, but starting from 01.01.2011 and it was reduction of this index to 68 %, and on 01.01.2014 it had resumed its trend to 74.61 %.

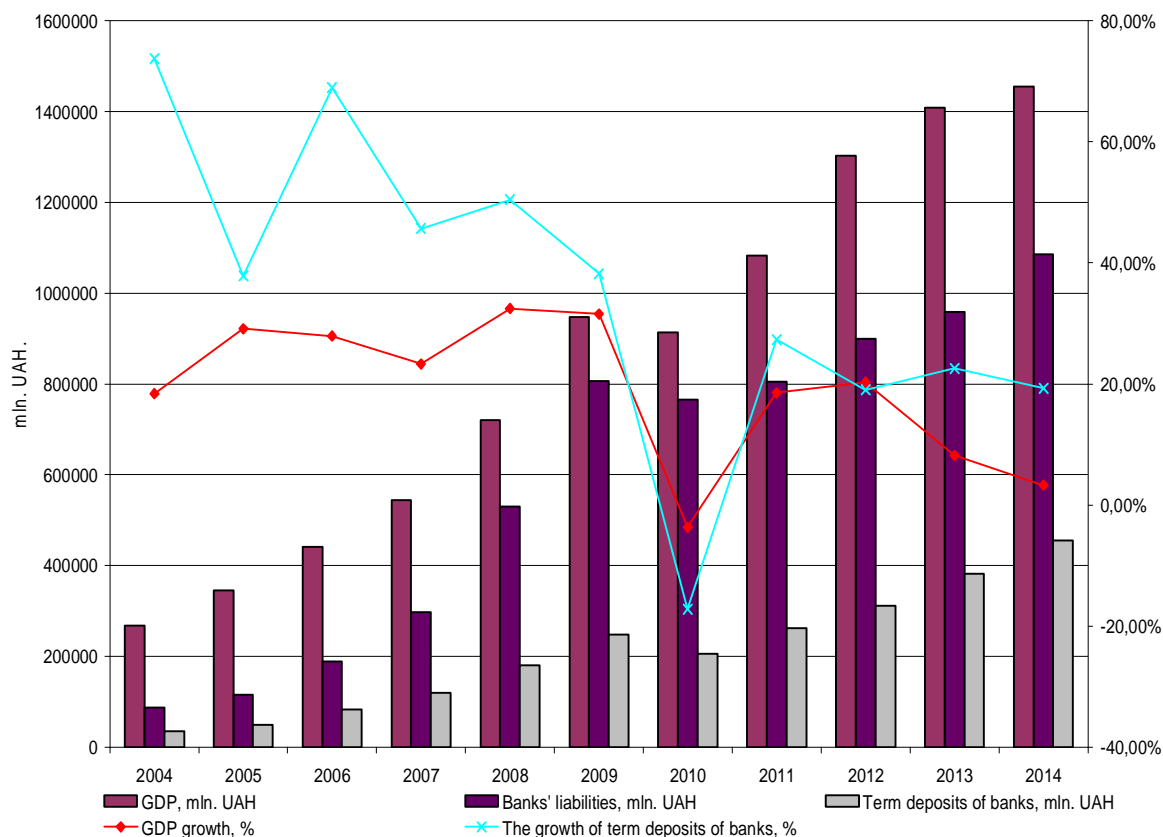


Fig. 1. Dynamics of bank liabilities in Ukraine and GDP

Source: compiled and calculated on the basis of [11; 12].

The ratio of time deposits to GDP had been increasing during the 2004-2008 and on 01.01.2009 it was 26.21 %. But due to the financial crisis on 2009 the ratio of time deposits to GDP started to decline, but at the beginning of 2013 it resumed its positive trend and it was to 27.11 %, and on 01.01.2014 it was 31.31 %, and the ratio of time individuals to the GDP at the beginning of 2014 was 24.11 % and deposits of legal entities was 7.20 %.

Since 2009 it was the worst year for the economics of Ukraine, as it is evidenced by the decreasing of GDP on

3.66 %, there is falling of growth rates and term deposits of banks at 17.22 % in the same year, it was made faster than the declining of GDP, and as a result, the ratio of time deposits to GDP in 01.01.2010 also had decreased from 26.21 % to 22.52 %.

Take into account that fixed-term deposits are the stable source of resources for the bank their ratio to GDP is an average 25 %, it is reasonable to conduct correlation analysis [3, c. 99-101] to identify the connection between GDP and fixed-term deposits.

Table 1

Data of GDP and fixed-term deposits in banks of Ukraine

Period	GDP, million UAH	Fixed-term deposits, million UAH
01.01.2005	345113	48581
01.01.2006	441452	82064
01.01.2007	544153	119525
01.01.2008	720731	179814
01.01.2009	948056	248494
01.01.2010	913345	205712
01.01.2011	1082569	261906
01.01.2012	1302079	311677
01.01.2013	1408889	381915
01.01.2014	1454931	455501

Source: created on the basis of [10; 11].

Фінанси та оподаткування

Let introduce the following notations: $Y = \text{GDP}$, million UAH.; $X = \text{time-fixed deposits}$, million UAH.

The calculation will be done in several stages with using the program Microsoft Office Excel and following statistical functions.

Find the average value of the variables X and Y :

$$\bar{Y} = \frac{1}{N} \sum_{i=1}^N y_i \quad (1)$$

$$\bar{Y} = 916131.80 \text{ (million UAH);}$$

$$\bar{X} = 229518.90 \text{ (million UAH).}$$

2. Find the covariance of the variables X and Y :

$$\text{cov}(X, Y) = \frac{1}{N} \sum_{i=1}^N (x_i - \bar{X}) \cdot (y_i - \bar{Y}) \quad (2)$$

$$\text{cov} = 45856504820 \text{ (million UAH).}$$

3. Find the standard deviation based on two variables:

$$s = \sqrt{\frac{1}{N} \sum_{i=1}^N (x_i - \bar{X})^2} \quad (3)$$

$$s_y = 379306.05 \text{ (million UAH);}$$

$$s_x = 123316.21 \text{ (million UAH).}$$

4. To assess the correlation between two variables it is used correlation coefficient (R), which can take value from -1 to 1. If the coefficient R value is closer 1 or (-1), so the linear connection between GDP and fixed-term deposits of banks is closer and, conversely, if the coefficient R is close to 0, then the connection is the weaker or non-linear. The negative correlation coefficient indicates the inverse connection between GDP and fixed-term deposits of banks, that is, if the fixed-term deposits of banks rise, the GDP will decline and vice versa.

The correlation coefficient is calculated by the following formula:

$$R = \frac{\text{cov}(X, Y)}{s_x \cdot s_y} \quad (4)$$

$$R = 0.98.$$

Thus, the correlation coefficient is close to 1, it indicates a strong direct connection between GDP and fixed-term deposits of domestic banks.

5. Calculation of beta (β) coefficient should show how GDP changes by changing of the fixed-term deposits of the banking system.

This coefficient can be positive and negative. The coefficient β below zero suggests a positive correlation between two variables, an increasing of fixed-term deposits of banks will be accompanied by GDP growth and declining -the declining of GDP respectively. Negative coefficient β means that GDP will change in the direction opposite to the changes of fixed-term deposits.

There are limits of coefficient β :

- If $\beta = 0$ - this means that the change in GDP does not depend on changes of fixed-term deposits of banks;

- If the coefficient β is in the range $0 < \beta < 1$ - this means that the change of GDP moderately depends on changes in fixed-term deposits of banks;

- If $\beta = 1$ - this means that GDP will increase proportionally to fixed-term deposits of banks;

- If $\beta > 1$, then GDP will grow faster than fixed-term deposits.

β coefficient is calculated by the following formula:

$$b = \frac{R \cdot s_y}{s_x} \quad (5)$$

$$b = 3.$$

Conclusions. Thus, according to calculations, the β coefficient is 3, which is a high value of this indicator. It means that if fixed-term deposits of banks increase by 1 UAH, the GDP could raise up to 3 UAH, so the increasing of fixed-term deposits of the banking system on 1 million UAH could lead to GDP growth on 3 million UAH.

If we turn to research about the dependence of GDP growth from bank capital [6] and add the result which has been obtained from the research of dependence between GDP and fixed-term deposits, we can make following conclusion that an with increasing the capital of Ukrainian banks by 1 million UAH and increasing fixed-term deposits by 1 million UAH, GDP could rise to almost 10 million UAH. Thus, in the domestic banking practice it should be significantly increased the volume of banks capital and fixed-term deposits to provide financing of economic growth and gross domestic product growth.

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