BANK DEPOSIT ACTIVITY IN UKRAINE: DIRECTIONS AND FACTORS OF DEVELOPMENT ACTIVATION

Marianna Kichurchak
Ivan Franko National University of Lviv, Ukraine

ABSTRACT

Scientific-methodical approaches of identifying the main factors for attracting deposits in the Ukrainian banking system are presented in this paper. The author offers the following procedure: a comparative analysis of the long-term dynamics (2000–2017) of the placement of deposits in Ukrainian, Belarussian, and Polish banking systems as a result of socio-economic development trends in these countries; an estimation at the macroeconomic level of the factors influencing this process, using methods of principal components analysis and factors classification; and detection of regression-correlating dependencies between the grouping variable (deposit volume) and variables of analysis through the sample regression function identification for these countries. The theory that attraction of deposits to the Ukrainian banking system was turbulent due to both the insufficient development of other financial market institutions and the prudent behavior of national economy agents is substantiated. Activation of bank deposit activity was found to be connected with measures of demographic situational improvements, thus ensuring the economic freedom of business entities in a hybrid war with the Russian Federation.

Keywords: Bank system, Bank deposits, Depositors, Interest rates in depositing, Correlation-regression analysis, Social-economic indicators.

DOI: http://dx.doi.org/10.15549/jeecar.v6i1.275

DEFINING THE PROBLEM

Banking has been quite responsive to changes in the Ukrainian economy caused by the loss of economic ties as a result of hybrid war, globalization, inflation, devaluation of the hryvnia, stagnation of the real sector, and reforms in the tax system. This creates prerequisites for reducing confidence in the banking institutions themselves, which also poses a threat to national economic security as a result of withdrawal of deposits from the banking system. From this position, assessing existing trends, factors, and mechanisms that affect the process of attracting deposits is important, as is the subsequent formation of scientific approaches to identify areas for improving bank deposit activity. Additionally, attracting funds from legal entities and individuals in the banking business is one of the sources of expansion of their resource base, which will ensure the stability of their activities.

ANALYSIS OF RECENT RESEARCH AND PUBLICATIONS

The outline of scientific approaches to the study of the features and patterns of attracting deposits by commercial banks is debatable. Smovzhenko, Khilenko and Andros (2012) formed scientific and methodical approaches to substantiating the size of interest rates on individuals' deposits in hryvnias, which protects the contribution earnings from

inflation. Reverchuk, Vladychyn and Davis (2015) developed recommendations to improve the transparency of the banking sector's functions for the purpose of activating deposit and credit activity, on the basis of an analysis of foreign banks' tendencies for development in Ukraine. Mishchenko and Naumenkova (2016) analyzed the changes in the structure of deposits and their value during the banking crisis of 2014–2015 in Ukraine. Taking into account the need to improve the effectiveness of the National Bank of Ukraine (NBU) regulatory measures to restore public confidence in the banking sector, Dziubliuk (2016) disclosed the main reasons for the mass outflow of deposits in Ukraine. Lobozynska (2016) described the state of the deposit market of Ukraine and the institutional features of ensuring the rights of depositors (individuals) before and during the banking crisis.

Zarenok (2016) specified scientific and methodological approaches to determining the state of a deposit portfolio in terms of attracting funds and using of new tools for analyzing the stability of term deposits. Melyushko (2017) conducted a comparative analysis of worldwide systems of guaranteeing bank deposits and determined the main directions of increasing the efficiency of the deposit insurance system in Belarus. Stefański (2008) identified clients' awareness of the principles and conditions for the functioning of the Polish deposit guarantee system. Deterministic factors for the formation of large deposits in 13 EU countries were formed by Kochaniak (2016), based on the estimation of the key characteristics of households by constructing econometric logit models. Using the determination of the links between the independence of the central banks of Turkey and the six countries of the former USSR in the Caucasus region and Central Asia, Rizvanoghlu and Nagac (2018) revealed that national economies with higher levels of development in their financial markets have more independent central banks.

Cull, Senbet, and Sorge (2005) defined the relationship between deposit insurance and risk-oriented banking by structuring and comparing different deposit insurance models and using econometric evaluation methodology. The banking sector's influence on household savings was estimated by Rahmanov (2015), along with the structuring of incentives for saving in emerging economies. Pitoňáková (2016) isolated and structured the factors of formation of bank deposits by Slovak households during the period of 1998–2015 using distributive-lag modeling. Arping (2017) discovered the nature of dependence concerning banking pricing on the deposit market and the activities of banking institutions in the risk lending segment. The peculiarities in the development of Romania's banking sector were analyzed, and the types of connections with Nguyen, Khoi, and Khai's (2018) measures of countercyclical monetary policy were determined. The concretization and coherence of scientific and methodological approaches to structuring the conditions for attracting deposits to the Ukrainian banking system at the macroeconomic level is necessary, as is assessing the factors influencing this process.

FORMULATION OF OBJECTIVES FOR THE ARTICLE

The purpose of this article is to identify and structure the main factors for attracting deposits into the banking system in order to substantiate scientific and practical approaches to improving the efficiency of this process in the Ukrainian economy. To achieve this goal, proceeding from the following basic assumptions and means of their proof is necessary:

- on the volatility of the trajectory of socio-economic progress of the country and its impact on the enhancement of the development of bank deposit activity in Ukraine. This involves a comparative analysis of the deposits dynamics, average weighted interest rates on deposits, the socio-economic situation in the country (1997–2017), and the development of Ukrainian, Polish and Belarusian banking deposit markets (2000–2017);
- the existence of a system of correlations between the volumes of attraction of deposits in the banking system and a combination of economic and socio-

demographic development indicators for Ukraine, Belarus, and Poland. The structuring of these interconnections is based on the method of principal components analysis, classification of factors, and the improvement of their identification by using the methodology of multivariate econometric modeling.

This modeling will make it possible to formulate recommendations for improving the deposit activity of national economy agents.

PRESENTATION OF KEY RESEARCH FINDINGS

In Ukraine, attracting temporarily free funds from legal entities and individuals to the banking system was marked by positive trends, except for 2008–2009 (Appendix. Table 1). In absolute terms, the banks' obligations towards funds attracted from the accounts of business entities and individuals from 1997 to 2017 increased by a total of 136 times in the national currency, 105 times in foreign currency, for a total of 244 times. The Ukrainian market of bank deposits may seem to have significant capacity and the ability to develop quite dynamically, with favorable conditions for its functioning. The monetary system of Ukraine, however, is not stable, as evidenced by the dynamics of the Consumer Price Index (CPI) and the changes in the average official exchange rates of the US dollar and Euro to the hryvnia. Ukrainian currency had a rapid loss of purchasing power (Appendix. Table 1), according to which the real value of deposits denominated in hryvnias was subjected to inflationary processes.

The specificity of the Ukrainian bank deposit market's functioning was such that by 2008, the growth rates of deposits in national and foreign currencies, and in general, were 3.0–3.5 times higher than the GDP growth rate. From 2009 until now they are still higher, but the excess is 3–12 percentage points. In our opinion, the 1997–2008 revival of the practice of saving and placing funds in the banking system took place as a result of the creation of conditions for positive changes in the Ukrainian economy, caused by the exit from the crisis, increase of real income of the population, exchange rate stability of the hryvnia, and renewal of confidence in banking institutions. As such, in 2008–2009 depositors' confidence in the activities of banking institutions was the lowest, a result of the violation of the integrity of the banking system caused by the annexation of the Autonomous Republic of Crimea. On the other hand, the temporary occupation of certain districts of the Donetsk and Luhansk regions less influenced the placement of deposits than the effects of the world financial-economic crisis of 2007–2009.

The slowdown in the placement of deposits in 2009–2017 is due to the stagnation of the national economy, delays in restoring the propensity of businesses and individuals to save, turbulent changes in real incomes, and the sharp devaluation of the hryvnia. In 2010–2013, commercial banks restored their image as reliable and predictable partners in terms of attracting deposits. From 2014 to the present, systemic risks inherent in the banking system have been uncertain about the termination of the hybrid war, macroeconomic instability, the need for capitalization of banking institutions, etc.

Appendix. Table 1.

The change in depositors' preferences in the bank deposit market is evidenced by a change in the structure of banks' liabilities for borrowed funds by currency (Appendix. Table 1). In this structure of deposits, the share of deposits in foreign currency increased in 1997–2009, which was gradually reduced to 37.4 % in 2010–2013, then became stable at 46-47% in 2014–2017. This indicates an increase in distrust of the national currency due to the significant risks of its devaluation, the weakness of counteracting the dollarization of the Ukrainian economy, and the desire to minimize losses from inflation. Compared to Belarus and Poland, in Ukraine, situations in which the contributions of the subjects of the national economy are not protected from depreciation have become more widespread (2004–2008, 2014–2017, Appendix. Table 1). This is indirect evidence that also shows the lack of transparent policies in attracting deposits by banking institutions themselves, which is conditioned by manifestations of monopoly in the banking services market.

Improving the identification of the main factors for attracting temporarily free funds to the Ukrainian banking system is based upon a comparison of the deposit market situations in Ukraine, Belarus, and Poland. The commonality for these countries is that in 2000–2017, the share of deposits in GDP increased: in Ukraine, this increase was 2.6 times; in Belarus, it was 5.6 times; and in Poland, the increase was 1.7 times. In Poland, compared to Ukraine and Belarus, depositors prefer placing savings in the banking system, since the share of liabilities attracted by banks is the highest, with an average of 38.7 % of GDP over this period. This testifies to the trust the subjects of savings have for banking institutions, as well as the intensification of their participation in the investment of Polish economy.

In Ukraine, the change in the share of bank deposits in GDP was wavy, from its gradual growth in 2000–2007, to a slight decrease in 2008–2009, another increase in 2010–2013, and then a reduction from 2014 and up to now. In 2000–2009 Belarus recorded a steady dynamic of increasing the share of bank liabilities in GDP, but in 2010–2017, its growth was "torn." In our opinion, this relief identifies the real threats that have arisen in the bank deposit market in Ukraine and Belarus after the global financial and economic crisis. The outflow of deposits from the Ukrainian banking system continues; in 2015, it was -7 % of GDP, it averaged -3.3 % of GDP in 2016–2017. The main reasons for this are the NBU's activities related to the withdrawal of insolvent banking institutions from the market, changes in the behavior of national economic agents during the hybrid war, and investors' orientation towards cooperation with banking institutions.

A relief outline of the bank deposits market situation is related to the assessment of the dynamics of commercial banks' liabilities for account funds on the basis of data representation by countries in US dollars (Appendix. Table 1). The peculiarity of the Ukrainian market of bank deposits was that there were more periods with a negative growth rate of deposits compared with Poland and Belarus – in 2014–2016, this tendency was aggravated. In 2017, the size of the deposit per person in Ukraine was 1.9 times lower than in Belarus, and 7.9 times lower than in Poland. The current development of the bank deposits market in Ukraine corresponds to levels from 2006–2007. This means that the activation of depositors' activity on it, and the restoration of the banking deposit market's activity to 2013 levels, is long-term in nature in the temporal dimension. A series of measures related to ensuring the stability of banking institutions have been important for this, but so have the actions aimed at resolving the geopolitical conflict and completing the hybrid war.

We will evaluate the system of interconnections between the volumes of attraction of deposits in the banking system, the socio-economic situation in Ukraine, Belarus, and Poland, and certain parameters of banking activity. At the initial stage, we specify the variables: dependent variable Y – corporate and private deposits with commercial banks, mln. national currency; independent variable x_1 – average weighted commercial banks' interest rates on deposits in national currency, %; independent variable x_2 – average weighted commercial banks' interest rates on deposits in foreign currency,%; independent variable x_3 – average official exchange rate of the national currency to 1 US dollar; independent variable x_4 – average official exchange rate of the national currency to 1 euro; independent variable x_5 – growth rate of average monthly real wages, % to the previous year (p.y.); independent variable x_6 – growth rate of GDP, % to the p.y.; independent variable x_7 – growth rate of money supply, % to the p.y.; independent variable x_8 – corruption perceptions index; independent variable x_9 – index of economic freedom; independent variable x_{10} – shadow economy, % of GDP; independent variable x_{11} – dollarization, % of money supply; independent variable x_{12} – number of population, thsd.; independent variable x_{13} – number of emlpoyment, mln.; and finally, independent variable x_{14} – the CPI, %. The covered period is 2000–2017, while the number of observations is 18. Initially, the correlation coefficients of the independent variables x_1–x_{14} with the dependent variable Y were determined (Appendix. Table 2).

To structure the factors of influence on the volume of deposits in the economies of

Ukraine, Belarus, and Poland we conducted principal components method analysis and factors classification. For Ukraine, the first factor is defined by the variables x_1, x_3–x_7, and x_{10}–x_{13}; the second is x_2 and x_8; the third is x_9 and x_{14}; and the fourth and fifth factors are situational, accidental, and unpredictable events (Appendix. Table 2). This structuring of variables by factors can be interpreted, for example: the first factor characterizes the main socio-economic and demographic indicators of the country's development and its monetary system; the second specifies the attractiveness of mobilizing foreign currency deposits and the state capture level; and the third describes the peculiarities of the institutional environment and the price stability conditions in Ukraine.

Appendix. Table 2.

For Belarus, the first factor characterizes the variables x_2–x_4, x_9–x_{10}, and x_{12}; the second is x_1, x_6–x_7, x_{11}, and x_{14}; the third is x_{13}; the fourth is x_5, x_8; and the fifth is situational, accidental and unpredictable events. The distribution of variables by factors can be determined as follows: the first factor indicates the attractiveness of mobilizing deposits in foreign currency and the existing socio-demographic situation; the second is the conditions for the provision of temporarily free funds (in national currency) into the banking system and the functioning of the monetary system; the third is the state of employment of the population; and the fourth is the dynamics of changes in wages and the state capture nature.

For Poland, the first factor is related to the variables x_1, x_2, x_6, x_8–x_{10}, x_{12}, and x_{13}; the second is x_3, x_7, and x_{11}; the third is x_5 and x_{14}; the fourth is x_4; and the fifth is situational, accidental and unpredictable events. Grouping these variables by factors, they are identified as: the first factor determines the general conditions for investing temporarily free funds into the banking system, the demographic situation and the state of the labor market; the second consists of the peculiarities of the functioning of the monetary system of the country; the third is the rate of change in material well-being and price stability; and the fourth is the exchange rate fluctuations of the national currency to the euro.

According to the results of factor analysis, the deposit activity of legal entities and individuals in Ukraine on the first factor was revealed to be directly influenced by the average weighted interest rates on deposits in national currency, the average official exchange rates of UAH to 1 US dollar and euro, the level of the shadow economy, and dollarization. The growth rate of the average monthly real wages, GDP and money supply, the population size, and employment show the reverse (Appendix. Table 2). The second factor is the inverse correlation between deposits and average weighted interest rates on deposits in foreign currency, and the direct correlation with the corruption perceptions index. The third correlation is direct to the index of economic freedom and CPI. This indicates that the availability of a stable macroeconomic environment and the minimization of manifestations of such negative phenomena as corruption, shadowing, and dollarization in the national economy are important for the activation of deposit activity in the banking sector.

In Belarus, the first factor directly acted to attract deposits into the banking system, as well as determined the average official exchange rate of the Belarusian ruble to the US dollar and the Euro. This factor also defined the level of economic freedom, the average weighted interest rates on deposits in foreign currency, the level of shadow economy, and the population (Appendix. Table 2). The second factor is the positive correlation between the average weighted interest rates on deposits in the national currency, the growth rates of money supply, the level of dollarization, and CPI, with a negative correlation for GDP growth rates. The third factor shows a positive relationship to levels of employment, while the fourth contains a positive correlation with the corruption perceptions index and a negative correlation with average monthly real wage growth. This indicates that in Belarus, the dynamics of attracting deposits to the banking system is mostly sensitive to changes related to the nature of how the monetary system functions, as well as the peculiarities of institutional corruption.

In Poland, legal entities' and individuals'

placement of savings into the banking system is primarily influenced by the average weighted interest rates on deposits in national and foreign currencies, the nature of economic growth, and the peculiarities of shadowing of the national economy. In turn, the banking system is also influenced by conditions for combating corruption, the implementation of economic freedoms, demographic development, and employment (Appendix. Table 2). According to the second factor, a direct correlation with the change in the average official exchange rate of the national currency to the US dollar and the level of dollarization was determined. The reverse was true for the relationship with the growth rate of money supply. By the third factor, we see a positive correlation with the growth rates of the average monthly real wage, and a negative correlation with the CPI. The fourth factor is the positive dependence on the change in the average official exchange rate of the national currency to the Euro.

Analyzing the values of the factors in time is important because they are what have determined the intensity of attraction of deposits to the banking systems of Ukraine, Belarus, and Poland. In Ukraine, the first factor, which was related to the dynamics of the main socio-economic, demographic indicators of the country's development, and the state of its monetary system, was substantially influenced by the dynamics of investments of legal entities and individuals in the periods of 2003–2004 and 2014–2015 (Appendix. Table 2). In 2009 and 2016–2017, the second factor was mainly influenced by the volume of deposits. In 2005–2007 and 2012–2013, the intensity of the attraction of deposits depended on the action of the third factor. In other periods (2000–2002, 2008, 2010–2011; 6 of a total 18 years), the fourth and fifth factors were decisive for the dynamics of attracting population deposits. These results demonstrate that the Ukrainian economy, under the influence of situational, accidental, and unpredictable events, creates "double" standards for the development of banking businesses, while attracting temporarily free funds in deposits, showing signs of variability and poor predictability.

For Belarus in 2013–2015, the influence of the first factor, due to changes in the socio-demographic situation and exchange rate dynamics, was important for attracting deposits (Appendix. Table 2). In 2000 and 2005–2008, the second factor was important for making decisions on the formation of bank deposits. In 2002–2003 and 2010–2011, during the placement of deposits in the banking system, the third factor became the determining factor. In 2001, the volume of deposits was influenced mainly by the fourth factor, which reflected the nature of changes in material well-being and state capture. In 2004, 2009 and 2012, deposit activity was subject to random, situational, and unpredictable events. Unlike in Ukraine, the fifth factor was twice as low, indicating better predictability for the implementation of deposits in the socio-economic environment.

For Poland in 2005–2007 and 2013–2016, legal entities' and individuals' placement of deposits in the banking system was most significantly influenced by the first factor, as the subjects of the banking market reacted sensitively to changes in the general terms of investment (Appendix. Table 2). In 2003 and 2008, the influence of the second factor on determining the volume of deposits was decisive. The third factor had a dominant influence on making decisions on the implementation of bank deposits in 2011–2012. In 2002 and 2004, the intensity of attracting deposits to the banking system was largely dependent on the action of the fourth factor. We conclude that in 2009–2010, the decisive value for the formation of savings in the Polish banking system was given to the fifth factor, caused by the partial unpredictability of the the global financial and economic crisis' effects on the country's development. In Poland, the manifestation of random, situational and poorly predicted events covers smaller periods of time than in Ukraine. Taking into account Polish experience in Ukraine, developing an integrated approach to the development of the segment of banking services market is necessary because is related to the process of deposit placement. An integrated approach takes into account not only the state of affairs in the banking system itself, but also the features of the functioning of the monetary system, the implementation of

economic freedoms, employment, and the demographic processes development.

Improving the identification of factors that affect volumes of deposits in the economy of Ukraine, Belarus, and Poland is a result of multiple regression analysis. The choice of the final parameters of the econometric model is based on a stepwise regressive method. The algorithm foresees the construction of a number of the sample regression functions based on the sequential incorporation of one of the independent variables x_1–x_{14} into the equation, determining which has the highest rank, analyzing the change in the determination coefficient R^2, and calculating the partial F-criteria and their comparison with the corresponding critical value in F-distribution. Multi-regression models for Ukraine, Belarus, and Poland were obtained on the basis of such an iterative process (Appendix. Table 3).

The sample regression function for Ukraine can be interpreted economically as follows: when increasing the population by 1 thousand people, the amount of liabilities of banks for the funds involved in the accounts of business entities and individuals will decrease by an average of UAH 123.862 million; increasing the growth of the index of economic freedom by 1 point means banks; liabilities for the funds involved in business entities' and individuals' accounts will decrease on average by UAH 21248.634 million. This means that the improvement of the demographic situation and the index of economic freedom in Ukraine will lead to legal entities' and individuals' decisions to expand the use of temporarily free funds outside the banking system. National economy agents can be expected to direct their savings mainly to increase current consumption, develop their own businesses, and use other investment instruments.

Economically explaining the multiple regression model for Belarus is as follows: when increasing GDP growth by 1 %, the amount of banks' liabilities for funds attracted to business entities' and individuals' accounts will decrease by an average of 11085.854 billion Belarus. rub., while the growth of average weighted interest rates on deposits in foreign currency by 1 means the amount banks' liabilities for funds attracted to business entities' and individuals' accounts will decrease by an average of 30041.592 billion Belarus. rub. This means that the improvement of the economic situation and the fluctuation of interest rates on foreign currency deposits in Belarus will facilitate the reorientation of economic entities' and individuals' temporarily free funds, as well as those in other segments of the financial market, or an intensification of consumer demand.

Appendix. Table 3.

From an economic point of view, determining the multivariate econometric model for Poland is as follows: when increasing the value of the corruption perceptions index by 1, the amount of banks' liabilities for funds involved in the accounts of business entities and individuals will increase by 91085.070 million zł on average. If there is growth of the shadow economy by a factor of 1 % of GDP, the amount of banks' liabilities for the funds in business entities' and individuals' accounts will decrease by an average of 77210.089 million zł. This means that the fight against corruption positively influences the activation of attracting savings into the country's banking system, while increasing the shadowing of the national economy creates conditions for the withdrawal of deposits outside the Polish banking sector. The Polish experience is useful for Ukraine, because reduction of corruption and economy shadowing reorient how the banking services market for deposits functions. Increased competition between banks is caused by an increase in legal entities' and individuals' interests in saving and co-operating with them.

CONCLUSIONS AND RECOMMENDATIONS

Identification and structuring of the main factors for attracting deposits to the banking system of Ukraine should be carried out with the help of the following scientific and methodological approaches: a comparative analysis of the long-term dynamics (1997–2017) of deposits in the national banking system, taking into account existing trends in socio-economic development and the bank

deposits market functions of Ukraine, Poland and Belarus (2000–2017); estimation of the factors influencing this process at the macroeconomic level on the basis of principal components method analysis and factors classification; and finally, detection of regression-correlation dependencies between the explained variable (deposit volume) and the explanatory variables through the construction of multiple regression models for these countries.

Accordingly, the fact that bank deposit activity in Ukraine was carried out in the turbulent conditions of socio-economic development is justified. Violations of the integrity of the Ukrainian banking system caused by the hybrid war with the Russian Federation significantly influenced the functioning of the bank deposits market, the external manifestation of which was the reduction of its capacity, which in 2017 corresponded to the level from 2006–2007. The peculiarity of attracting temporarily free funds to national banking institutions is the fact that the average weighted interest rates on deposits in the national currency in 2004–2008 and 2014–2017 were lower than the CPI, which prevented protection of investments from inflation. This encouraged depositors in Ukraine to form foreign currency deposits, gradually reorienting the activities of banking institutions to this segment of the deposit market.

On the basis of principal components method analysis and factors classification at the macroeconomic level, five types of factors that have influenced the attraction of deposits to the banking system of Ukraine, Belarus, and Poland have been identified. Further structuring of factor characteristics, with the help of econometric modeling, made distinguishing the most significant of them possible. The most significant factors for the three national economies is as follows: for Ukraine, the demographic situation and providing economic freedoms were primary; for Belarus, it was GDP growth rates and average weighted interest rates on deposits in foreign currency; and for Poland, the level of the shadow economy and corruption. In Poland, proper social and economic conditions have been formed to achieve positive changes in attracting temporarily free funds from business entities to financial market institutions, including the banking services market. For Ukraine and Belarus, the attraction of deposits to the banking system was determined mainly by the market conditions of legal entities and individuals. The main reasons for this were the narrowing of possibilities to diversify the attraction of temporarily free funds to other types of economic activity, caution in assessing positive changes in the socio-economic development of the economy by economic entities, poor development of other financial market institutions, and insufficient experience in cooperating with banks for implementing savings.

In Ukraine, the activation of bank deposits attraction is connected with factors that are formed outside the banking system. This involves taking a number of measures aimed at improving socio-economic and demographic situations in order to improve the national economy in general. Commercial banks need to intensify their activities with legal entities and individuals in order to develop effective marketing strategies, create a positive image, and diversify their provision of services. Prospects for further research on this topic are related to the assessment of the state of interbank competition in the deposit market using econometric modeling tools.

EFERENCES

Arping, S. (2017). Deposit competition and loan markets. *Journal of Banking and Finance, 80 (3),* pp. 108–118.

Corruption Perceptions Index 2000–2017. Retrieved November 21, 2018 from https://www.transparency.org/research/cpi/overview.

Cull, R., Senbet, L.W., Sorge, M. (2005). Deposit Insurance and Financial Development. *Journal of Money, Credit and Banking, 37 (1)*, pp. 43–82.

Dziubliuk, O. (2016). Social-economic principles of the public trust to the bank sector. *The Herald of Ternopil National Economic University, 2,* 54–69 (Original work written in Ukrainian).

Index of Economic Freedom 2000–2017.

Retrieved November 22, 2018 from https://www.heritage.org/index/.

Kochaniak, K. (2016). High value household deposits in the Eurozone: single post-crisis approach vs. national facts. *Bank and Kredit*, *47 (6),* pp. 529–552.

Lobozynska, S. (2016). Protection of the rights of individual depositors in Ukrainian banking market. *Journal of Finance and Financial Law, 3 (1)*, pp. 83–96.

Medina, L. & Schneider, F. (2018, January). Shadow Economies Around the World: What Did We Learn Over the Last 20 Years? *IMF Working Paper, 18/17*. Retrieved November 23, 2018 from https://www.imf.org/~/media/Files/Publications/.../2018/wp1817.ashx.

Melyushko, O.V. (2017). On International Experience of Guaranteeing Bank Deposits. *Belarus economic journal, 4 (81),* 56–65 (Original work written in Russian).

Mishchenko, V.I., Naumenkova, S.V. (2016). The banking system of Ukraine: problems of formation and development. *Finance of Ukraine*, 5, pp. 7–33 (Original work written in Ukrainian).

National Bank of Poland. Official web site, *Statistical data and various reports*. Retrieved November 23, 2018 from https://www.nbp.pl/homen.aspx?f=/en/statystyka/statystyka.html.

National Bank of the Republic of Belarus. Official web site, *Statistical data and various reports*. Retreived November 24, 2018 URL https://www.nbrb.by/.

National Bank of Ukraine. Official web site, *Statistical data and various reports*. Retreived November 24, 2018 from https://bank.gov.ua/control/uk/.

National Statistical Committee of the Republic of Belarus. Retreived November 24, 2018 from http://www.belstat.gov.by/.

Nguyen, Ch. V., Khoi, Ph. D., Khai, H. V. (2018). Asymmetries in Responses of Commercial Banks in a Transitional Economy to Countercyclical Monetary Policy: the Case of Romania. *Journal of Eastern European and Central Asian Research, 5 (1)*.

Pitoňáková, R. (2016). Determinants of Household Bank Deposits: Evidence from Slovakia. *Journal of Economics, Business and Management, 4 (9),* pp. 528–533.

Rahmanov, R. (2015). Banking Sector Development and Household Saving in Emerging Eastern Europe. *William Davidson Institute Working Paper, 1089*.

Reverchuk, S., Vladychyn, U., Davis, Ch. (2015). Foreign Banking in Ukraine: Development Trends and Ownership Structure Regulation. *Journal of Eastern European and Central Asian Research, 2 (2)*.

Rizvanoghlu, I., Nagac, A. (2018). Central Bank Independence and Economic Performance in Caucasus and Central Asia Countries. *Journal of Eastern European and Central Asian Research, 5 (2)*.

Schneider, F. (2016, December). Estimating the Size of the Shadow Economies of Highlydeveloped Countries: Selected New Results. *CESifo DICE Report*, 4. Retrieved November 22, 2018 from www.cesifo-group.info/.../dice-report-2016-4-schneider-december.pdf.

Smovzhenko, T., Khylenko, V., Andros, S. (2012). Simulation of the dynamics of interest rates under inflation. *Economy of Ukraine, 5,* pp. 52–66 (Original work written in Ukrainian).

State Statistic Service of Ukraine. Retrieved November 24, 2018 from http://www.ukrstat.gov.ua/.

Statistics Poland. Retrieved November 23, 2018 from http://stat.gov.pl/en/.

Stefański, M. (2008). Clients of Banks with a Deposit Guarantee System – Results of Own Research. *Bank and Kredit*, *39 (3),* pp. 25–33 (Original work written in Polish).

Trends of Shadow Economy in Ukraine (2008–2017). (2009–2018). Kyiv.

Zarenok, M.A. (2016). Analysis of Bank Portfolio of Term Deposits and Assessment of the Level of Its Stability. *Economy and Banks, 1,* 9–16 (Original work written in Russian).

Appendix.

Table 1. The Tendencies of Deposits and Average Weighted Commercial Bank's Interest Rates of Depositing, and Social-Economic Situation in Ukraine, and State of the Bank Deposits Market in Ukraine, Belarus and Poland.

Indicator*	1997	1999	2000	2001	2004	2006	2007	2008	2009**	2010	2011	2012	2013	2014	2015	2016	2017
Corporate and private deposits with CB, mln. UAH	6357	12156	18738	25674	82959	184234	279738	355353	324515	410220	485309	563436	663285	666794	705364	781446	867610
Corporate and private deposits in NC with CB, mln. UAH	4685	6830	11551	17393	52759	114093	189906	198158	173091	239302	280440	320268	421754	365454	391911	426418	490971
Corporate and private deposits in FC with CB, mln. UAH	1672	5326	7188	8281	30200	70142	89832	157195	161862	177348	211316	252074	248220	309638	324817	367056	407872
Corporate and private deposits in NC with CB, share in total, %	73.7	56.2	61.6	67.7	63.6	61.9	67.9	55.8	53.3	58.3	57.8	56.8	63.6	54.8	55.6	54.6	56.6
Corporate and private deposits in FC with CB, share in total, %	26.3	43.8	38.4	32.3	36.4	38.1	32.1	44.2	49.9	43.2	43.5	44.7	37.4	46.4	46.0	47.0	47.0

Table 1. Continue.

Growth rate of corporate and private deposits with CB, % of the p.y.	...	146.8	154.1	137.0	134.6	138.8	151.8	127.0	91.3	126.4	118.3	116.1	117.7	100.5	105.8	110.8	111.0
Growth rate of corporate and private deposits in NC with CB, % of the p.y.	...	135.4	169.1	150.6	125.8	130.8	166.4	104.3	87.3	138.3	117.2	114.2	131.7	86.7	107.2	108.8	115.1
Growth rate of corporate and private deposits in FC with CB, % of the p.y.	...	164.8	135.0	115.2	153.6	154.0	128.1	175.0	103.0	109.6	119.2	119.3	98.5	124.7	104.9	113.0	111.1
Average weighted CB's interest rates on deposits in NC, %	18.2	20.7	13.5	11.2	7.8	7.6	8.2	9.9	14	10.3	8.1	13.4	10.9	11.9	13	11.4	9.1
Average weighted CB's interest rates on deposits in FC, %	...	9	5.8	5.6	6.2	5.8	5.8	5.4	9.2	7.9	5.5	5.7	5.9	6.7	6.7	4.7	3.2
Average official exchange	1.862	4.130	5.440	5.372	5.319	5.05	5.05	5.267	7.791	7.936	7.968	7.991	7.993	11.887	21.845	25.551	26.597

Table 1. Continue.

rate, UAH to 1 US dollar, UAH																	
Average official exchange rate, UAH to 1 euro, UAH	2.113	4.393	5.029	4.814	6.609	6.918	7.559	7.708	10.868	10.533	11.092	10.271	10.612	15.716	24.229	28.292	30.004
Growth rate of GDP, % of the p.y.	97.0	99.8	105.9	109.2	112.1	107.3	107.3	102.6	84.9	104.1	105.4	100.4	100	93.4	90.2	102.4	102.5
CPI, %	110.1	119.2	125.8	106.1	112.3	111.6	116.6	122.3	112.3	109.1	104.6	99.8	100.5	124.9	143.3	112.4	113.7
	Country		**2000**	**2001**	**2004**	**2006**	**2007**	**2008**	**2009****	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Excess of average weighted CB's interest rates on deposits in NC over CPI, %	Ukraine		-12.3	5.1	-4.5	-4.0	-8.4	-12.4	1.7	1.2	3.5	13.6	10.4	-13.0	-30.3	-1.0	-4.6
	Belarus		-17.4	15.4	2.6	2.7	-1.2	-1.7	7.7	3.0	-77.8	11.0	18.5	12.2	17.7	4.8	1.7
	Poland		-3.4	2.4	0.3	2.5	1.7	1.7	-0.3	0.5	0.1	0.3	1.5	2.0	2.5	1.9	-0.7
Corporate and private deposits with CB, % of GDP	Ukraine		11.0	12.6	24.0	33.9	38.8	37.5	35.5	37.9	37.3	40.0	45.3	42.6	35.6	32.8	29.1
	Belarus		4.6	5.3	9.7	13.8	14.1	14.5	20.7	18.4	16.9	18.0	19.6	20.7	26.2	28.0	25.9
	Poland		...	...	26.6	29.0	30.1	33.7	38.9	38.6	41.9	41.6	41.1	43.6	45.3	47.3	44.9
Corporate and private deposits with CB, mln. US dollars	Ukraine		3444	4779	15596	36482	55394	67465	41652	51694	60910	70509	82983	56096	32290	30583	32621
	Belarus		638	662	2243	5117	6375	8808	10197	10508	11237	11790	14828	16313	14793	13298	14077
	Poland		...	...	67165	98986	127682	178513	167877	181394	206984	194299	215600	237681	216210	223014	236620
Growth rate of corporate	Ukraine		...	138.8	135.0	140.8	151.8	121.8	61.7	124.1	117.8	115.8	117.7	67.6	57.6	94.7	106.7
	Belarus		...	103.7	141.0	154.5	124.6	138.2	115.8	103.0	106.9	104.9	125.8	110.0	90.7	89.9	105.9

Table 1. Continue.

and private deposits with CB, % of the p.y.***	Poland	...	...	113.9	119.5	129.0	139.8	94.0	108.1	114.1	93.9	111.0	110.2	91.0	103.1	106.1
Corporate and private deposits with CB, US dollars per person	Ukraine	70.8	99.1	331.1	785.1	1199.2	1467.8	909.8	1133.7	1340.1	1554.0	1834.1	1311.9	758.1	721.1	772.7
	Belarus	64.1	66.9	231.3	534.2	668.1	925.9	1073.3	1108.2	1187.2	1245.8	1566.1	1720.6	1557.4	1399.1	1483.0
	Poland	...	...	1759.5	2596.3	3349.9	4681.0	4398.5	4707.9	5370.9	5042.4	5600.6	6177.0	5625.0	5802.7	6158.5

* NC – national currency; FC – foreign currency; CB – commercial banks; CPI – consumer price index; p.y. – previous year.

** – from 2009 deposits by residents except deposits by general government and non-profit institutions serving households. *Source*: calculated based on data of State Statistic Service of Ukraine; National Bank of Ukraine; National Statistical Committee of the Republic of Belarus; National Bank of the Republic of Belarus; Statistics Poland; National Bank of Poland.

Table 2. Correlation Coefficients (R) Between the Dependent Variable Y and the Independent Variables X_1–X_{14}, and their Rank, the Factor Coordinates Matrix of Variables Based on Correlations and Factor Values Matrix Based on Correlations for Ukraine, Belarus and Poland

Indicator	Country	Variables													
		x_1	x_2	x_3	x_4	x_5	x_6	x_7	x_8	x_9	x_{10}	x_{11}	x_{12}	x_{13}	x_{14}
Y, the grouping variable	Ukraine	0.342	-0.279	0.804	0.867	-0.381	-0.519	-0.782	0.650	-0.529	0.559	0.826	-0.948	-0.753	0.209
		12	13	4	2	11	10	5	7	9	8	3	1	6	14
	Belarus	-0.038	-0.682	0.992	0.989	-0.398	-0.785	-0.363	0.088	0.653	-0.780	0.650	-0.549	0.303	-0.185
		14	5	1	2	9	3	10	13	6	4	7	8	11	12
	Poland	-0.55	-0.635	-0.01	0.240	0.167	-0.328	-0.011	0.972	0.826	-0.978	-0.803	0.779	0.962	-0.398
		8	7	14	11	12	10	3	2	4	1	5	6	3	9
Factor 1	Ukraine	**0.61**	0.002	**0.816**	**0.859**	**-0.709**	**-0.763**	**-0.877**	0.411	-0.543	**0.782**	**0.822**	**-0.89**	**-0.803**	0.501
Factor 2		-0.570	**-0.812**	0.499	0.476	0.593	0.451	0.108	**0.691**	0.137	-0.499	0.017	-0.367	-0.426	-0.220
Factor 3		-0.22	0.187	-0.01	0.009	-0.206	-0.126	0.228	0.246	**0.740**	-0.020	-0.023	-0.098	-0.013	**0.667**
Factor 4		-0.18	0.379	-0.20	-0.093	0.175	-0.262	-0.293	0.449	0.205	-0.033	0.377	-0.159	0.301	-0.467
Factor 5		0.081	0.273	0.138	0.073	-0.022	-0.258	0.041	0.097	-0.018	-0.239	-0.395	0.049	-0.227	-0.153
Factor 1	Belarus	-0.46	**-0.800**	**0.862**	**0.899**	-0.397	-0.592	-0.587	-0.022	**0.868**	**-0.920**	0.304	**-0.89**	0.583	-0.405
Factor 2		**0.82**	0.183	0.360	0.330	-0.313	**-0.619**	**0.602**	0.352	-0.136	-0.183	**0.915**	0.294	0.039	**0.731**

Table 2. Continue.

Factor 3		-0.01	0.354		-0.25	-0.186	0.133	0.152		0.362	-0.590	0.260	-0.310	-0.064	-0.286	**0.732**	0.423	
Factor 4		-0.25	0.009		-0.19	-0.168	**-0.697**	0.230		0.205	**0.613**	0.098	-0.027	-0.182	-0.161	0.128	0.183	
Factor 5		0.045	-0.414		0.042	0.069	0.424	0.372		0.296	0.220	0.269	-0.075	-0.001	-0.019	-0.140	0.197	
Factor 1	Poland	**0.71**	**0.857**		-0.34	-0.481	0.127	**0.598**		0.397	**-0.903**	**-0.938**	**0.828**	0.582	**-0.83**	**-0.773**	0.501	
Factor 2		-0.24	-0.310		**0.811**	0.566	-0.651	-0.474		**-0.774**	-0.387	0.044	0.532	**0.692**	-0.126	-0.598	-0.134	
Factor 3		-0.55	0.207		0.361	0.060	**0.672**	0.358		0.206	-0.120	0.102	-0.052	0.333	-0.316	0.047	**-0.822**	
Factor 4		-0.25	-0.224		-0.14	**0.608**	-0.139	0.370		0.269	-0.082	-0.276	0.009	-0.152	0.050	-0.054	0.103	
Factor 5		0.025	0.137		0.030	-0.122	-0.181	0.356		-0.121	0.034	-0.010	-0.009	0.130	0.404	-0.025	-0.111	
	Year	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Factor 1	Ukraine	-0.42	-1.07	-1.08	**-1.04**	**-0.99**	-1.01	-0.79	-0.82	-0.14	0.900	0.09	-0.02	0.270	0.173	**1.31**	**2.03**	1.384	1.207
Factor 2		-1.56	-0.06	0.280	0.210	0.250	0.224	0.668	0.418	-0.21	**-2.15**	-0.67	0.094	-0.17	-0.11	-0.63	-0.47	**1.49**	**2.39**
Factor 3		-0.32	-0.95	-0.76	0.254	0.570	**1.55**	**1.17**	**1.02**	0.807	-0.03	-0.66	-1.23	**-1.66**	**-1.25**	0.835	1.489	-0.53	-0.29
Factor 4		**-2.73**	-1.20	-0.07	-0.40	-0.02	0.791	1.062	-0.01	0.149	1.519	**0.70**	0.397	1.034	0.482	0.309	-1.22	-0.40	-0.38
Factor 5		-1.04	**1.26**	**1.76**	0.307	-0.73	0.950	-0.56	0.004	**-1.93**	1.252	-0.32	**-1.46**	-0.63	0.342	-0.57	0.938	0.442	-0.07
Factor 1	Belarus	-1.78	-1.46	-0.98	-0.76	-0.65	-0.39	-0.23	-0.04	0.046	0.279	0.37	0.344	1.060	**1.06**	**1.33**	**1.78**	...	...
Factor 2		**2.21**	0.294	0.494	-0.03	-0.84	**-1.185**	**-1.326**	**-1.051**	**-1.072**	-0.21	-0.71	1.123	0.297	0.319	0.494	1.196	...	...
Factor 3		0.504	0.621	**-1.55**	**-1.53**	-1.06	-0.32	0.181	0.390	0.821	0.596	**1.09**	**2.06**	0.113	-0.22	-0.52	-1.19	...	...
Factor 4		0.554	**-2.97**	0.705	1.054	0.095	-0.23	-0.04	0.415	0.508	0.577	0.23	1.235	-0.88	-0.94	0.120	-0.44	...	...
Factor 5		0.780	-0.99	-0.52	-0.43	**1.06**	0.912	0.556	-0.04	-0.44	**-2.76**	0.06	0.590	**1.39**	0.441	0.027	-0.63	...	...
Factor 1	Poland	...	...	0.450	0.548	0.864	**0.84**	**1.26**	**1.32**	1.195	-0.16	-0.37	-0.18	-0.73	**-0.96**	**-1.12**	**-1.38**	**-1.57**	...
Factor 2		...	...	1.830	**1.46**	1.245	0.589	-0.40	-1.21	**-2.00**	0.258	-0.33	-0.64	0.259	-0.22	-0.46	-0.26	-0.12	...
Factor 3		...	...	-0.33	1.041	-0.33	0.215	1.184	0.719	-0.45	-0.89	-0.90	**-1.40**	**-1.84**	-0.04	0.426	1.244	1.355	...
Factor 4		...	...	**-2.76**	0.381	**1.91**	0.545	0.187	-0.16	-1.09	0.466	0.35	0.610	-0.35	0.082	0.242	-0.41	-0.02	...
Factor 5		...	...	0.509	-0.17	0.288	-0.66	0.752	0.570	-1.14	**-2.76**	**1.15**	1.038	0.165	0.551	0.519	-0.28	-0.54	...

Source: Calculated based on data from the State Statistic Service of Ukraine; National Bank of Ukraine; Trends of Shadow Economy in Ukraine (2008–2017); Transparency International; Heritage Foundation; National Statistical Committee of the Republic of Belarus; National Bank of the Republic of Belarus; Transparency International; Heritage Foundation; Medina & Schneider (2018, January); Statistics Poland; National Bank of Poland; Transparency International; Heritage Foundation; Schneider (2016, December).

Table 3. The Sample Regression Function for Ukraine, Belarus and Poland, and Reporting Regression Results.

Country	Variables	Intercept and slope parameters	Standard error*	*t*-statistic	Confidence interval, 95 %		*DW*, 99 %
					low-level	high-level	
Ukraine	*y*-meet	7072658.922	426717.558	16.5746	6163131.4	7982186.4	1.354
	variable X_{12}	-123.862	9.287	-13.3367	-143.7	-104.1	d_L=0.700
	variable X_9	-21248.634	6142.870	-3.4591	-34341.9	-8155.4	d_U=1.252
	Regression statistics		**Analysis of variance**				
	R	0.9716		*df*	*SS*	*MS*	*F*
	R^2	0.9440	Regression	2	1309228289016.4	654614144508.2	126.456
	Normalized R^2	0.9365	Residue	15	77649474379.6	5176631625.3	
	Standard error**	71948.8125	Total	17	1386877763396.0		
Belarus	*y*-meet	1424686.624	175897.621	8.0995	1049769.5	1799603,8	1.694
	variable X_6	-11085.854	1759.271	-6.3014	-14835.7	-7336.1	d_L=0.700
	variable X_2	-30041.592	3886.023	-7.7307	-38324.5	-21758.7	d_U=1.252
	Regression statistics		**Analysis of variance**				
	R	0.9581		*df*	*SS*	*MS*	*F*
	R^2	0.9179	Regression	2	145929084726.6	72964542363.3	83.903
	Normalized R^2	0.9070	Residue	15	13044467912.8	869631194.2	
	Standard error**	29489.5099	Total	17	158973552639.4		
Poland	*y*-meet	2023654.367	721016.787	2.8067	452693.9	3594615.1	1.371
	variable X_8	91085.070	33674.579	2.7049	17714.5	164455.7	d_L=0.569
	variable X_{10}	-77210.089	22075.916	-3.4975	-125309.4	-29110.8	d_U=1.274
	Regression statistics		**Analysis of variance**				
	R	0.9861		*df*	*SS*	*MS*	*F*
	R^2	0.9724	Regression	2	686149873967.9	343074936983.9	211.330
	Normalized R^2	0.9678	Residue	12	19480897041.2	1623408086.8	
	Standard error**	40291.5386	Total	14	705630771009.1		

* – the slope parameters and intercept;

** – the regression. *Source*: Calculated based on data from the State Statistic Service of Ukraine; National Bank of Ukraine; Trends of Shadow Economy in Ukraine (2008–2017); Transparency International; Heritage Foundation; National Statistical Committee of the Republic of Belarus; National Bank of the Republic of Belarus; Transparency International; Heritage Foundation; Medina & Schneider (2018, January); Statistics Poland; National Bank of Poland; Transparency International; Heritage Foundation; Schneider (2016, December).

ABOUT THE AUTHOR

Marianna Kichurchak, email:
Marianna_Kichurchak@ukr.net

Dr. Marianna Kichurchak holds a Doctoral Degree in Economics. She is the Associate Professor at the Department of Economics at Ivan Franko National University of Lviv. She was awarded with scholarship as a Young Scientist by the Lviv Regional State Administration (2003-2004). Dr. Kichurchak is an author of 195 scientific papers, 7 scientific monographs, and 2 textbooks. She has presented the results of her scientific researchers at various national and international conferences. Her main scientific interests are in the research of national economy development, institutional transformation in ex-socialist countries, public goods reproduction, public finance, and banking.