



ECONOMIC ANNALS-XXI

ISSN 1728-6239 (Online)
ISSN 1728-6220 (Print)
<https://doi.org/10.21003/ea>
<http://www.soskin.info/ea/>

Volume 190 Issue (5-6(2))'2021

Citation information: Ivanov, S., Yudina, S., Hanzhiuk, S., Gurzhiy, T., & Lysa, O. (2021). Factors affecting the market of household bank deposits in Ukraine. *Economic Annals-XXI*, 190(5-6(2)), 98-108. doi: <https://doi.org/10.21003/ea.V190-09>

UDC 330.567.25:336.71



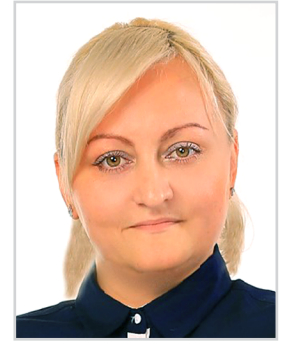
Serhii Ivanov

D.Sc. (Economics), Professor,
Corresponding Member of the NAS of Ukraine,
Honoured Scientist of Ukraine, Head, Department
of Analytical Economics and Management,
Dnipropetrovsk State University of Internal Affairs
26 Gagarin Ave., Dnipro, 49005, Ukraine
ivanovsv@abkdniipro.com
ORCID ID:
<https://orcid.org/0000-0002-1205-3797>



Svitlana Yudina

D.Sc. (Economics), Professor,
Department of Finance and Accounting,
Dniprovsky State Technical University
2 Dniprobudivska Str.,
Kamianske, 51900, Ukraine
yusv0763@ukr.net
ORCID ID:
<https://orcid.org/0000-0001-8318-4172>



Svitlana Hanzhiuk

PhD (Economics), Associate Professor,
Department of Finance and Accounting,
Dniprovsky State Technical University
2 Dniprobudivska Str.,
Kamianske, 51900, Ukraine
svetlanaganzyuk@gmail.com
ORCID ID:
<https://orcid.org/0000-0001-7859-4708>



Tamara Gurzhiy

PhD (Economics), Head,
Department of Graduate Studies,
Dniprovsky State Technical University
2 Dniprobudivska Str., Kamianske, 51900, Ukraine
tamaragurzhiy64@gmail.com
ORCID ID: <https://orcid.org/0000-0003-3206-7448>



Olena Lysa

PhD (Economics), Associate Professor,
Department of Finance, Banking and Insurance,
Oles Honchar Dnipro National University
72 Gagarin Ave., Dnipro, 49010, Ukraine
o_lysa@dnu.dp.ua
ORCID ID: <https://orcid.org/0000-0002-1870-0481>

Factors affecting the market of household bank deposits in Ukraine

Abstract. Ukraine currently needs additional investment resources in order to revitalize and develop the economy. The main objective of the study is to determine the regularities, peculiarities behind the formation of organized population's savings and assess the factors influencing the development of this market in order to improve the quality of its management and use of the potential of domestic investment resources for economic recovery and growth in Ukraine. In order to compare the trends as for the accumulation of savings through deposit investment, the authors analyzed the impact of major factors on these processes in Ukraine and Czech Republic. The main results of the study encompass improved approaches to determining the impact of the system of factors on household deposits based on correlation-regression analysis. This makes it possible to optimize the choice of tools for effective management of deposit resources; further elaborate the approaches to assessing the level of domestic household deposits as well as allows substantiating the directions of implementation of the state policy in the context of ensuring the further development on the market of bank deposit services.

Keywords: Market of Household Bank Deposits; Correlation-Regression Analysis; Ranking; Elasticity
JEL Classification: G21; G28

Acknowledgements and Funding: The authors received no direct funding for this research.

Contribution: The authors contributed equally to this work.

Data Availability Statement: The dataset is available from the authors upon request.

DOI: <https://doi.org/10.21003/ea.V190-09>

Іванов С. В.

доктор економічних наук, професор, член-кореспондент НАН України, Заслужений діяч науки і техніки України, завідувач, кафедра аналітичної економіки та менеджменту, Дніпропетровський державний університет внутрішніх справ, Дніпро, Україна

Юдіна С. В.

доктор економічних наук, професор, професор кафедри фінансів та обліку, Дніпровський державний технічний університет, Кам'янське, Україна

Ганзюк С. М.

кандидат економічних наук, доцент, доцент кафедри фінансів та обліку, Дніпровський державний технічний університет, Кам'янське, Україна

Гуржий Т. О.

кандидат економічних наук, завідувачка, відділ аспірантури, Дніпровський державний технічний університет, Кам'янське, Україна

Лиса О. В.

кандидат економічних наук, доцент, доцент кафедри фінансів, банківської справи та страхування, Дніпровський національний університет імені Олеся Гончара, Дніпро, Україна

Фактори впливу на ринок банківських депозитів домогосподарств в Україні

Анотація. Україна потребує додаткових інвестиційних ресурсів для відновлення та розвитку економіки. Основною метою дослідження є встановлення закономірностей, особливостей формування організованих заощаджень населення й оцінка факторів, що впливають на розвиток ринку банківських депозитів домогосподарств, із метою підвищення якості управління ним та використання потенціалу внутрішніх інвестиційних ресурсів для відновлення економічного зростання в Україні. Для порівняння тенденцій щодо формування накопичень через депозити проаналізовано вплив основних факторів на ці процеси в Україні та Чехії. Основними результатами дослідження є вдосконалення підходів до визначення впливу системи факторів на депозити домогосподарств на основі кореляційно-регресійного аналізу. Це дозволяє оптимізувати вибір інструментів для ефективного управління депозитними ресурсами, забезпечує подальший розвиток підходів до оцінки рівня депозитів домогосподарств і дає можливість обґрунтувати напрями реалізації державної політики в контексті забезпечення подальшого розвитку ринку банківських депозитних послуг.

Ключові слова: ринок банківських депозитів домогосподарств; кореляційно-регресійний аналіз; ранжування; фактори.

Иванов С. В.

доктор экономических наук, профессор, член-корреспондент НАН Украины, Заслуженный деятель науки и техники Украины, заведующий, кафедра аналитической экономики и менеджмента, Днепропетровский государственный университет внутренних дел, Днепр, Украина

Юдина С. В.

доктор экономических наук, профессор, профессор кафедры финансов и учета, Днепропетровский государственный технический университет, Каменское, Украина

Ганзюк С. М.

кандидат экономических наук, доцент, доцент кафедры финансов и учета, Днепропетровский государственный технический университет, Каменское, Украина

Гуржий Т. А.

кандидат экономических наук, заведующая, отдел аспирантуры, Днепропетровский государственный технический университет, Каменское, Украина

Лыса Е. В.

кандидат экономических наук, доцент, доцент кафедры финансов, банковского дела и страхования, Днепропетровский национальный университет имени Олеся Гончара, Днепр, Украина

Факторы, влияющие на рынок банковских депозитов домохозяйств в Украине

Аннотация. Украина нуждается в дополнительных инвестиционных ресурсах для восстановления и развития экономики. Основной целью исследования является установление закономерностей, особенностей формирования организованных сбережений населения и оценка факторов, влияющих на развитие рынка банковских депозитов домохозяйств с целью повышения качества управления им и использование потенциала внутренних инвестиционных ресурсов для возобновления экономического роста в Украине. Для сравнения тенденций формирования накоплений через депозиты проанализировано влияние основных факторов на эти процессы в Украине и Чехии. Основными результатами исследования является совершенствование подходов к определению влияния системы факторов на депозиты домохозяйств на основе корреляционно-регрессионного анализа. Это позволяет оптимизировать выбор инструментов для эффективного управления депозитными ресурсами, обеспечивает дальнейшее развитие подходов к оценке уровня депозитов домохозяйств и дает возможность обосновать направления реализации государственной политики в контексте обеспечения дальнейшего развития рынка банковских депозитных услуг.

Ключевые слова: рынок банковских депозитов домохозяйств; корреляционно-регрессионный анализ; ранжирование; факторы.

1. Introduction

Modern Ukraine needs an inflow of investment resources for economic recovery and development. The general state and state-guaranteed debt of Ukraine keeps on rising: in the period from 2009 to 2018 it increased from USD 39 685 mln to 77 048 million, which was almost 72% of the country GDP (State and State-guaranteed debt of Ukraine, 2019). From 2019 to 2020 this index still grew by USD 11932.4 million (State and State-guaranteed debt of Ukraine, 2021).

Ongoing growth in borrowing on foreign markets is threatening Ukraine's economic security. Therefore, it is important to determine the factors and develop effective mechanisms for attracting domestic investment resources necessary for accelerated economic development.

Current aid from the IMF, other international organizations and governments cannot be considered an essential resource given the amount of the transferred funds. Sometimes, the amount of funds provided is even smaller than the current payments for repayment and debt servicing, that is, they are not enough to maintain macroeconomic stability.

In our view, Ukraine will be able to create the necessary investment resource independently at the expense of its own capital, but on condition of creating favorable climate for domestic households to attract (return) funds to the market of bank deposits.

According to G. Soros (2018), for radical reforms Ukraine needs to form a financial package of European funds equalling USD 50 billion. Then it will be possible to avert the threat of bankruptcy. Clearly, it is difficult to attract such funds in the country, but organized domestic savings can become an internal asset that will ensure the investment and innovative development of the country.

Attracting monetary funds from the population for the market of bank deposits will not only boost innovative development of the country, improve the financial condition of banks, facilitate the monetary policy of the National Bank of Ukraine (NBU), including the provision of cheaper loans, but it will also improve the well-being of domestic households.

2. Brief Literature review

In the last decade, many researchers have focused on the study of trends in the market of household bank deposits and their impact on the country's economy. Among them the following works should be mentioned.

Beck & Brown (2011) relied on survey data for 29,000 households from 29 transition economies in order to explore how the use of banking services is related to household characteristics, bank ownership structure and the development of the financial infrastructure. At the household level, they suppose that bank account balance or bank card balance increases with income, wealth and education in most countries and find evidence for an urban-rural gap, as well as for the impact of faith and social integration. Their results show that high-wealth, high-income and educated households are likelier to have more bank accounts in foreign banks. State-owned banks, on the other hand, do not induce financial inclusion of rural and poorer households. Authors find that higher deposit insurance coverage, better payment systems and creditor protection encourage replenishing bank accounts in particular by high-income and high-wealth households. These findings shed doubt on the ability of policy levers to broaden the financial system to disadvantaged groups.

According to another research (Kelly et al., 2014), the recent financial crisis highlighted the importance of stable funding and, in particular, customer deposits for the Irish banking sector. The authors argue that in order to ensure future viability the domestic banks must maintain and grow their household deposit books. This research focuses on the Irish household deposit market, describing some of the key developments in this segment during the crisis. It also verified if deposit movements affect the differences in deposit rates across the banks, over the period from 2003 to 2013. The key findings are that Irish householders are sensitive to differences in rates across the banks, but this relationship only holds in the pre-crisis period (i.e., till 2007).

The research by Brown and Stix (2015) is based on survey data covering 16,375 households in ten countries in 2011 and 2012, and it provides a comprehensive analysis of household-level deposits in Central, Eastern and Southeastern Europe. They examined how the advantages of households and their foreign currency deposit accounts are related to individual expectations about monetary conditions and network effects. Authors also examined to what extent monetary expectations and deposit euroization are the legacy of past financial crises. Findings question

the effectiveness of supply side interventions (e.g. bank regulation) or demand side interventions (local capital market development) in de-euroizing household savings. First, authors showed that deposit euroization is largely demand-driven. Second, they showed that households already have access to a broad range of savings products in local currency.

Another paper by Chiu and Hill (2015) quantitatively studies the dynamics of core bank assets in deposit accounts in the United Kingdom. The authors argue: «We estimate a panel of Bayesian vector autoregressive models on a unique data set compiled by the Bank of England, and identify deposit demand and supply shocks, both for individual banks and in aggregate, using micro-founded sign restrictions» (Chiu & Hill, 2015). Based on the impulse responses, it is estimated by how much banks would be required to increase their deposit rates to cover a deposit gap caused by funding shocks. Banks generally find it costly to bid-up for deposits to cover a funding gap in the short run. The elasticity of household deposits with respect to the interest rate paid is typically around 0.3%, indicating that retail deposits are rate-inelastic. But this varies across banks and the types of shock conditioned on. The paper also shows evidence that banks are more vulnerable to deposit supply shocks than deposit demand shocks. Historical decompositions uncover plausible shock dynamics in the historical data.

A paper by Pitoňáková (2016) discusses household bank deposits in Slovakia relying on quarterly data Q2 1998 - Q1 2015 via the ARDL methodology. The results show that real interest rate, elderly dependency ratio, inflation and gross disposable income boost up deposits, while income growth reduces households deposits. Outcomes indicate that elder generation tends to increase financial wealth in the form of bank deposits.

Armstrong and Mulligan (2016) explore deposit growth in New Zealand and argue that the rate of domestic deposit growth has varied significantly since the Global Financial Crisis, and sharply slowed over 2016. They provide evidence that a range of supply and demand factors influence deposit growth, and that the recent slowdown was largely driven by a reduction in supply (that is, households wanting to allocate less money to deposit products). The authors also find that banks increased their demand for deposits in late 2016 in an effort to close the gap between deposit growth and lending. They consider the degree to which banks are able to increase deposit growth by raising interest rates. The authors find that 1-percentage point increase in the six-month deposit rate can increase the level of household deposits by about 1 percent after four quarters, and by 1.3 percent in the long run. Since they suppose that deposits are not strongly responsive to interest rates, if banks wish to maintain robust funding profiles by not becoming too reliant on offshore wholesale funding, they may need moderate credit growth or use a combination of approaches to bring deposit growth in line with credit growth.

Kochaniak (2016) analyses the occurrence and nature of high-value deposits in selected euro area countries and the determinants of a household's propensity to possess them. The analysis was conducted on household-level data and is based on logistic regression. Due to the rarity of high-value deposits in euro area households, the sample of households surveyed is balanced in accordance with G. S. Maddala's approach. The results reveal considerable diversification in high-value deposits as a part of total deposit amount from euro area households. Some of the features of households and reference persons, such as attitudes to financial risk, saving aims, overall investment preferences, and the priority assigned to deposits compared to other financial assets, suggest that high-value deposits are of long-term nature. The study finds that wealth, and certain socio-demographic characteristics, have a statistically significant influence on the likelihood of holding high-value deposit accounts.

A group of researchers (Hughson, La Cava, Ryan, & Smith, 2016) established in their analytical review that changes in interest rates on the bank deposit market can affect household spending by directly affecting household interest income and payments and, in turn, the amount of available cash households can spend. Typically, this was referred to as the «household cash flow channel of monetary policy». Household-level data provide evidence that the cash flow channel operates both for households that are net borrowers and for those that are net lenders, though the effect on borrowers was estimated to be much stronger than the one on lenders. Overall, changes in household cash flow appear to be an important channel through which lower interest rates can stimulate greater household spending.

Drechsler, Savov and Schnabl (2017) also presented the deposits market as a new channel for the transmission of monetary policy. They show that when the Fed funds rate rises, banks widen the spreads they charge on deposits, and deposits flow out of the banking system and presented

a model where this is due to market power in deposit markets. Since deposits are the main source of liquid assets for households, the deposits channel can explain the observed strong relationship between the liquidity premium and the Fed funds rate. Since deposits are also a uniquely stable funding source for banks, the deposits channel influences bank lending. When the Fed funds rate rises banks that raise deposits in concentrated markets contract their lending more than other banks. The estimates in the paper imply that the deposits channel can account for the entire transmission of monetary policy through bank balance sheets.

A paper by Cussen, Lydon and O'Sullivan (2018) compared the estimate of financial wealth of Irish households from the Irish Household Finance and Consumption Survey (HFCS) with estimates from statistical and administrative data sources. This crosschecking exercise yields three key results. First, as most wealth surveys in other countries, the Irish HFCS significantly under-records the total value of deposits held by Irish households: they authors estimate the HFCS captures around one-third of the aggregate figure. Second, this level of under-recording is broadly similar across the distribution of deposits. Thus, the HFCS appears to provide an accurate picture of the distribution of household deposits. Third, the degree of under-recording does not appear to be heavily concentrated in any one-population group, i.e. by region or age group. With regard to the reason for the under-recording, not a single factor behind the under recording was found. Issues identified in the survey design literature around sample design (sampling the wealthy), item and unit non-response all appear to play some role.

There is a number of papers by Ukrainian researchers discussing the trends on the bank deposit market, aspects of attracting households' funds to it and developing an effective deposit policy of commercial banks, namely by Alekseenko (2013), Galapul (2016), Gerasimenko (2011), Danylyshyna (2013), Kovalenko (2017). At the same time, due to recent decline of customer confidence in banking institutions resulting from their decreasing number for reasons of bankruptcy and liquidation, and deepening inflationary processes, it is becoming increasingly important to highlight to problem of stabilizing the situation on the market of bank deposits. Besides, it is really important to stimulate household deposits in the context of developing their investment potential in relation to domestic economy.

3. Purpose

The purpose of this study is to determine the patterns, characteristics of the formation of domestic organized savings and assess the factors affecting the development of household bank deposits market in order to improve the quality of its management and exploit the potential of domestic investment resources for economic recovery and growth in Ukraine.

To achieve this goal it was possible to realize the following: to analyze the level of deposits per person and one household in Ukraine and Czech Republic; to determine the impact of the main macroeconomic factors on the volume of household deposits by the correlation coefficient; to calculate the elasticity of income from deposits and the weighted average interest rate on deposits.

4. Results

According to the NBU official record for the period 1998-2010, the volume of cash outside the banking sector in Ukraine increased by almost USD 60 billion (Official site of the National Bank of Ukraine, 2021). The former acting head of NBU Ya. Smolii (2017) stressed that in 2017 there were about UAH 300 billion (USD 11.28 billion) outside the banking system of Ukraine, which is almost 41% of all revenues of the State Budget of Ukraine for 2017. Unofficially, in our opinion, the amount of cash outside the banks is much bigger, and, therefore, it can be considered the potential internal investment resource.

According to the data in [Table 1](#), which were compiled based on official data of NBU (National Bank of Ukraine, 2021) and the State Statistics Service of Ukraine (State Statistics Service of Ukraine, 2021; Macroeconomic statistics, 2021) it can be emphasized that, for example, in 2020 household deposits amounted on average to UAH 730.3 billion or, based on the current exchange rate, EUR 23.72 billion (USD 27.6 billion).

The volume of household deposits for the period 2010-2020 increased more than 5.2 times. The structure of deposits by types of currencies suggests that during the analyzed period, almost 45% of them are kept in foreign currency (Soros, 2018). However, if we analyze the level of household deposits in relation to GDP for the analyzed period, then the dynamics of this indicator

is characterized by the following data: in 2010 - 25.41%, in 2013 - 30.38%, in 2019 - 14.49%, in 2020 - 18.36%. That is, despite the growth of absolute indicators, the relative ones show a significant outflow of deposits from the banking system compared with 2010-2013.

For comparison, similar data for the same period are given for the Czech Republic - an EU member state (Table 2). We can see that the volume of deposits of Czech households exceeds the volume of household deposits of Ukraine (as of 2020 4.8 times) and this despite the fact that the number of households in the Czech Republic is less than in Ukraine (according to 2020 3.3 times).

As it was mentioned earlier, after a series of crises, the Ukrainians prefer to keep their savings outside the market of bank deposits, usually in US dollars, euros or other currencies.

In our opinion, the main factors that led to this situation can be grouped into several blocks: macroeconomic factors; institutional factors; factors of the cost of living; personal factors; the factors of the offer of deposit products by financial institutions (Figure 1).

Using the Excel spreadsheet, alternating between the coefficient of correlation, we determine the relationship between the total household deposits in Ukraine and the main macroeconomic factors and factors influencing the cost of living. Data for analysis are presented in Table 1 and Table 2.

Results of the ranking according to correlation coefficient are shown in Table 3.

Based on the performed calculations we can state that in practice the volume and dynamics of deposits in the banking market depends both in Ukraine and Czech Republic on the average monthly salary (or average monthly disposable income per capita), on the country's GDP, profits, mixed income, the amount of cash in circulation.

That is, the main factor is household income, which affects the ability to open a deposit account. The data on Ukraine given in the table show that the size of deposits is 6.9 times larger than the average monthly salary in 2010, while in 2020 it is only 3.9 times larger. The similar ratio in the Czech Republic in 2010 was 16.3 times, and in 2020 - 19.2 times. That is, there is a tendency in

Table 1:
Household deposits and main indicators of social and economic development of Ukraine for 2010-2020

Year	Household deposits, UAH bn / EURO bn	Number of households, thousand units	Deposits per one household, UAH / EURO	Average monthly salary, UAH / EURO	Employed population, by economic activity, Thou. persons	Middle-account number of employees, thou. persons	Nominal per capita GDP, UAH / EURO	Disposable monthly income per capita, UAH / EURO	Average value of the EURO exchange rate, UAH	Average weighted interest rates on deposits, annual ratio, %	Nominal GDP, UAH bn / EURO bn	Index of inflation, %	Profit, mixed income, UAH bn/ EURO bn	Index of money supply, M0, UAH mln/ EURO mln
			Y	X1			X2	X3	X4	X5	X6	X7	X8	X9
2010	275.1 / 26.13	17746	15502.0 / 1505.1	2250 / 213.7	20266	10612	24429 / 2371.7	18486 / 1755.6	10.53	11.4	1082.57 / 102.8	9.1	160.0 / 15.2	157.0 / 14.9
2011	310.4 / 27.99	17675	17566.5 / 1583.99	2648 / 238.8	20324	10165	29519 / 2661.8	21638 / 1951.1	11.09	9.1	1316.6 / 118.7	4.6	200.2 / 18.1	182.9 / 16.5
2012	369.3 / 35.96	17687	20888.0 / 2033.9	3041 / 296.1	19261	9958	32002 / 3118.0	25206 / 2454.3	10.27	11.9	1408.9 / 137.2	-0.2	224.9 / 21.9	192.6 / 18.8
2013	442.0 / 41.66	17656	25042.5 / 2360.3	3282 / 309.3	19314	9729	33473 / 3154.9	26719 / 2518.3	10.61	12.5	1454.9 / 137.1	0.5	243.7 / 23.0	203.2 / 19.2
2014	418.1 / 26.61	17607	23755.6 / 1512.1	3480 / 221.5	18073	8797	36904 / 2349.1	26782 / 1704.8	15.71	13.2	1566.7 / 99.7	24.9	254.3 / 16.2	237.7 / 15.1
2015	410.9 / 16.97	16575	24790.3 / 1023.6	4195 / 173.2	16443	8332	46413 / 1916.3	31044 / 1281.8	24.22	12.2	1979.5 / 81.7	43.3	254.5 / 10.5	282.9 / 11.7
2016	444.7 / 15.72	16574	26837.6 / 948.7	5183 / 183.2	16277	8244	55899 / 1975.9	35777 / 1264.7	28.29	10.4	2383.2 / 82.2	12.4	363.9 / 12.9	308.3 / 10.9
2017	495.3 / 16.51	16506	30018.2 / 1000.6	7104 / 236.8	16156	8271	70047 / 2334.9	36327 / 1210.9	30	7.8	2982.9 / 99.4	13.7	530.9 / 17.7	341.1 / 11.4
2018	507.4 / 15.79	16429	30901.3 / 961.5	8977 / 279.3	16360.9	7612	84192 / 2619.5	58442 / 1818.36	32.14	6.7	3558.7 / 110.7	5.6	565.2 / 17.6	361.5 / 11.2
2019	576.1 / 19.90	14881	38711.9 / 1337.2	9974 / 345.1	16578	7554	94589 / 3267.3	67524 / 2332.4	28.95	8.3	3974.6 / 137.3	4.1	678.3 / 23.5	372.4 / 12.9
2020	730.3 / 23.72	14784	49400.0 / 1604.4	10497 / 340.9	-	-	100432 / 2899.5	-	30.79	7.7	4194.1 / 121.1	5.0	701.1 / 22.8	388.3 / 12.6

Source: The official statistics of the National Bank of Ukraine (2021) and the State Statistics Service of Ukraine (2021)

the European country to increase household savings on deposit accounts with low interest rates. In Ukraine, on the contrary, even with the absolute growth of indicators, deposit savings in relation to wages are declining, which also confirms the conclusion that the availability and volume of deposits depends on the real income of citizens.

However, deposits accounts depend not only on the general economic situation, but also on the corresponding motives of households. The motives and the nature of customer behavior in the financial market regarding the management of organized savings are rather ambiguous. Apart from being objective, they also rely heavily on subjective assessment of the economic situation, personal aspirations, as evidenced by the lack of connection between household deposits and the weighted average interest rate on deposits and inflation.

Simple logic suggests that rising deposit rate is supposed to ensure the growth of deposits, while increasing inflation - the formation of deposits in foreign currency. However, calculations showed that such dependence was not detected. This leads, on the one hand, to the instability of monetary demand, and on the other hand, raises serious difficulties with its forecasting, outlining the main parameters within the appropriate policy for attracting money to the banking system.

In order to identify the impact of non-price and price factors on demand for deposits from Ukrainian households, we analyzed the elasticity of demand for deposits, based on the level of household income and interest rates on deposits (i.e. their prices) in Ukraine. The results of the calculations allowed us to draw the following conclusions: first, the increase in deposits depends largely on the growth of household income; secondly, the interest rate policy of banks to some extent affects the growth of deposits, but not significantly; third, the dynamics of deposits is mostly affected by financial and economic crises, hostilities in the country, political and macroeconomic instability, and inflation, which undermines public confidence in the banking system and government policy, and forces people to keep money at home. At the same time, the depreciation of household incomes due to inflation limits the ability of households to save money.

Table 2:
Household deposits and main indicators of social and economic development of Czech Republic for 2010-2020

Year	Households' deposits, UAH bn / EURO bn	Number of households, thousand units	Deposits per one household, UAH / EURO	Average monthly salary, UAH / EURO	Employed population, by economic activity, Thou. persons	Middle-account number of employees, thou. persons	Nominal per capita GDP, UAH / EURO	Disposable monthly income per capita, UAH / EURO	Average value of the EURO exchange rate, UAH	Average weighted interest rates on deposits, annual ratio, %	Nominal GDP, UAH bn / EURO bn	Index of inflation, %	Profit, mixed income, UAH bn / EURO bn	Index of money supply, MO, UAH mln/ EURO mln
			Y	X1			X2	X3	X4	X5	X6	X7	X8	X9
2010	1641.6 / 64.6	4219.7	389027.7 / 15305.3	23864 / 939	5057.24	4251.40	380864.9 / 14984.3	271994.5 / 10701.6	25.42	0.89	3992.87 / 157.1	1.47	2851.50 / 112.2	357.51 / 14.1
2011	1711.3 / 69.1	4244.5	403181.8 / 16362.9	24455 / 992	5043.43	4230.15	387010.6 / 15628.4	270096.4 / 10912.1	24.75	1.31	4062.32 / 164.1	1.91	2835.11 / 114.5	377.94 / 15.3
2012	1770.3 / 70.1	4260.7	415497.0 / 16517.8	25067 / 997	5064.62	4255.34	389076.1 / 15401.6	274029.7 / 10847.4	25.26	1.63	4088.91 / 161.9	3.28	2879.85 / 114.0	388.88 / 15.4
2013	1812.2 / 69.6	4282.5	423173.0 / 16318.8	25035 / 965	5080.93	4295.85	394151.1 / 15147.1	282318.5 / 10849.4	26.02	1.65	4142.81 / 159.3	1.43	2967.37 / 114.1	405.45 / 15.1
2014	1923.2 / 70.2	4304.5	446783.3 / 16351.5	25768 / 943	5108.96	4333.87	412907.9 / 15078.0	293156.6 / 10705.1	27.38	1.4	4345.76 / 158.7	0.34	3085.41 / 112.7	432.16 / 15.8
2015	2034.8 / 74.5	4324.7	470493.9 / 17500.9	26591 / 974	5181.91	4418.37	438718.0 / 16066.8	315595.1 / 11557.8	27.31	1.6	4625.37 / 169.4	0.30	3327.30 / 121.9	467.05 / 17.1
2016	2209.3 / 81.4	4347.8	508136.5 / 18761.3	27764 / 1017	5264.31	4499.48	454022.2 / 16741.5	328878.9 / 12127.0	27.12	0.91	4796.87 / 176.9	0.68	3474.69 / 128.1	514.29 / 19.0
2017	2370.2 / 89.7	4372.3	542096.4 / 20589.4	29638 / 1126	5345.81	4581.41	482622.5 / 18266.2	349778.1 / 13238.3	26.42	0.66	5110.74 / 193.5	2.45	3703.98 / 140.2	548.34 / 20.8
2018	2558.5 / 98.9	4441.8	575994.4 / 21465.5	32051 / 1241	5417.11	4653.23	509076.4 / 19282.4	369052.3 / 14268.6	25.86	1.35	5409.66 / 209.2	2.14	3921.70 / 151.6	571.19 / 20.0
2019	2725.5 / 106.1	4462.8	610706.3 / 23810.7	34111 / 1330	5431.04	4673.19	538816.2 / 20977.0	384815.3 / 14981.4	25.68	1.52	5748.80 / 223.8	2.84	4105.71 / 159.8	598.91 / 23.3
2020	3056.8 / 113.5	4486.1	681402.5 / 25429.3	35402 / 1321.2	5447.06	4691.28	503861.6 / 18725.8	361770.0 / 13531.2	26.90	0.59	5390.76 / 200.3	3.30	3870.54 / 143.9	668.06 / 24.8

Source: The official statistics of the National Bank of Czech Republic (2021), the Czech Statistical Office (2021)

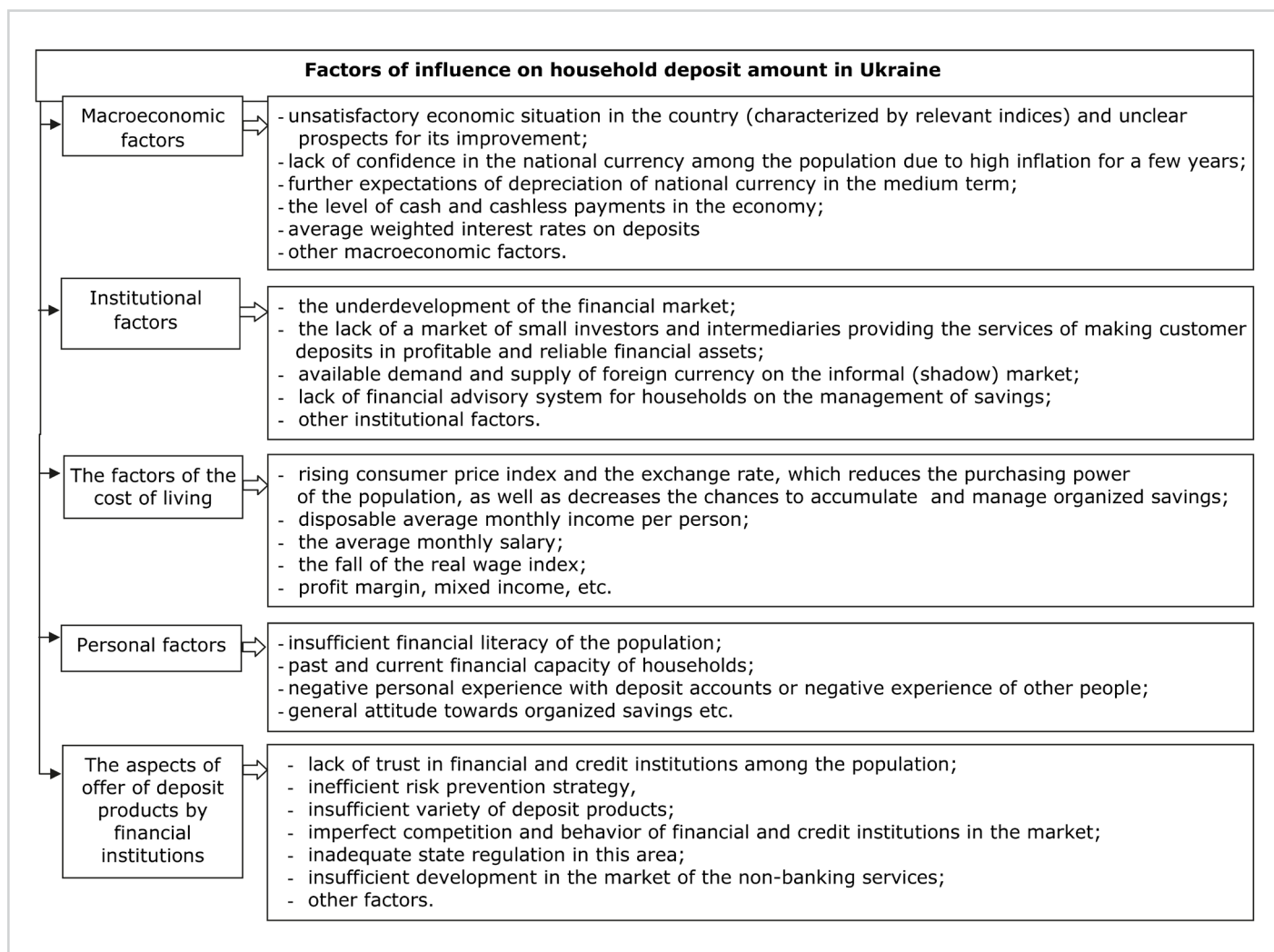


Figure 1:
Groups of factors influencing the volume of household deposits in Ukraine
Source: Compiled by the authors

Table 3:
Ranking according to correlation coefficient for dependency of single household deposits in Ukraine and Czech Republic (Y) on indices X1-X9

Ranking according to correlation coefficient, UAH				Ranking according to correlation coefficient, EUR		
	Regression equation	Coefficient of correlation	Ranking	Regression equation	Coefficient of correlation	Ranking
Ukraine						
x1	$y = 0.2942x - 2603.9$	$R^2 = 0.8524$	2	$y = 0.0653x + 163.76$	$R^2 = 0.25$	7
x2	$y = 2.5444x - 15360$	$R^2 = 0.8348$	4	$y = 0.6457x + 1477.6$	$R^2 = 0.1016$	9
x3	$y = 2.1761x - 20480$	$R^2 = 0.8488$	3	$y = 0.8382x + 633.36$	$R^2 = 0.6766$	2
x4	$y = 0.0007x - 1.0634$	$R^2 = 0.5544$	6	$y = -0.0151x + 42.982$	$R^2 = 0.5437$	3
x5	$y = -0.0001x + 13.966$	$R^2 = 0.3548$	7	$y = 0.0023x + 6.7849$	$R^2 = 0.2162$	8
x6	$y = -0.8923x + 39629$	$R^2 = 0.0428$	8	$y = 0.0338x + 63.557$	$R^2 = 0.5414$	4
x7	$y = -0.0002x + 16.325$	$R^2 = 0.0199$	9	$y = -0.014x + 31.329$	$R^2 = 0.2504$	6
x8	$y = 0.0192x - 149.79$	$R^2 = 0.8544$	1	$y = 0.0061x + 9.3558$	$R^2 = 0.416$	5
x9	$y = 0.0077x + 63.923$	$R^2 = 0.7741$	5	$y = 0.0062x + 5.2107$	$R^2 = 0.8805$	1
Czech Republic						
x1	$y = 0.0421x + 7226.1$	$R^2 = 0.9795$	2	$y = 0.0432x + 258.26$	$R^2 = 0.9428$	2
x2	$y = 0.558x + 167363$	$R^2 = 0.8829$	5	$y = 0.5535x + 6450.2$	$R^2 = 0.8458$	3
x3	$y = 0.4198x + 109699$	$R^2 = 0.8748$	6	$y = 0.4257x + 4091.7$	$R^2 = 0.8412$	5
x4	$y = 2E-05x + 13.456$	$R^2 = 0.4383$	7	$y = 5E-05x + 25.212$	$R^2 = 0.0388$	8
x5	$y = -0.0244x + 16147$	$R^2 = 0.0304$	9	$y = -5E-05x + 2.0968$	$R^2 = 0.1568$	7
x6	$y = 0.0062x + 1596.7$	$R^2 = 0.8933$	3	$y = 0.0063x + 59.861$	$R^2 = 0.8473$	4
x7	$y = 5E-06x - 0.8072$	$R^2 = 0.215$	8	$y = 0.0002x - 1.6167$	$R^2 = 0.3225$	6
x8	$y = 0.0047x + 1036.5$	$R^2 = 0.8861$	4	$y = 0.0047x + 39.087$	$R^2 = 0.8458$	3
x9	$y = 0.0011x - 46.449$	$R^2 = 0.9889$	1	$y = 0.001x - 1.5336$	$R^2 = 0.9765$	1

Source: Compiled according to the authors' calculations

It is known that the indicators calculated per person are highly informative. Therefore, for comparison, Table 4 shows deposits, interest on deposits per person in Ukraine and the Czech Republic.

The calculated indicators show that income from deposits has not become a significant component of total income of domestic households. In absolute terms, their volume per capita indicates that interest income on deposits, as well as total volume of deposits, is insignificant (just over EUR 40 of passive income from deposits per year in Ukraine and EUR 62 in the Czech Republic).

The problem of outflow of money from the banking deposit market, in our opinion, results from the following factors namely:

- the growth of the national financial services market, which can provide to the customers various investment services by sectors and segments of the economy;
- the development of financial intermediation institute that relies on the trust of the customers (credit unions, investment funds, etc.);
- the creation of appropriate innovative products and their offer, development of special investment tools intended for retail investors;
- the level of financial literacy among the customers and lack of a financial advisory institution for the country's population;
- the elaboration of tax incentives for household investments;
- the improvement in the field of compensation mechanisms in the financial services market of Ukraine as a whole and lack of efficient household deposit guarantee fund in particular;
- high shadowization of economy.

In our opinion, major priorities in the development of the market of household bank deposits and further eliciting of funds from the population should be:

- a comprehensive policy aimed at increasing the real income of household members;
- consolidation of interests of participants in the savings process resulting from a new system for coordinating their interests, for example, through the creation of the State Deposit Bank in order to attract high interest funds and guarantee full repayment;
- multi-purpose orientation, aiming to accumulate savings of the population for the projects in priority sectors of the economy (priority sectors for the customers investing their funds, and the ones which are important in terms of innovative development of the country);
- a differentiated approach to investments in different directions: both by type and by the timing of their implementation;
- elaboration of normative-legal protection policy for customer deposits.

5. Conclusions

The study showed that households use deposits as financial resources and as investments that generate additional income in the form of interest. The level of deposits in relation to the level of

Table 4:
Deposit indicators in Ukraine and Czech Republic as of period 2010-2019

Indicators	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Population, mln people:										
- Ukraine	45.78	45.64	45.56	45.44	42.93	42.76	42.58	42.39	42.15	41.90
- Czech Republic	10.52	10.50	10.51	10.51	10.52	10.54	10.57	10.59	10.63	10.67
Household deposits, EURO bn:										
- Ukraine	26.13	27.99	35.96	41.66	26.61	16.97	15.72	16.51	15.79	19.90
- Czech Republic	64.6	69.1	70.1	69.6	70.2	74.5	81.4	89.7	98.9	106.1
Deposits per person, EURO:										
- Ukraine	570.77	613.28	789.29	916.81	619.85	396.87	369.19	389.48	374.61	474.94
- Czech Republic	6140.68	6580.95	6669.84	6622.26	6673.00	7068.31	7701.04	8470.25	9303.86	9943,77
Average weighted interest rates on annual deposits,%:										
- Ukraine	11.4	9.1	11.9	12.5	13.2	12.2	10.4	7.8	6.7	8.3
- Czech Republic	0.89	1.31	1.63	1.65	1.40	1.60	0.91	0.66	1.35	1.52
Interest income on deposits, EURO:										
- Ukraine	2.97	2.54	4.27	5.20	3.51	2.07	1.63	1.28	1.06	1.65
- Czech Republic	0.57	0.90	1.14	1.14	0.98	1.19	0.74	0.59	1.33	1.61
Interest income on deposits per person, EURO:										
- Ukraine	65.07	55.8	93.9	114.6	81.8	48.4	38.3	30.4	25.1	39.4
- Czech Republic	54.69	85.7	108.0	92.1	92.8	112.4	69.8	55.7	125.3	151.0

Source: Official statistics of the NBU (2021), and the State Statistics Service of Ukraine (2021), the Czech Statistical Office (2021), authors' own calculations

GDP indicates that the use of such financial resources in Ukraine is unsatisfactory compared to the Czech Republic.

It is determined that customer deposit behavior is due to various factors. The main negative factor for Ukraine is the decline in real incomes of most households and the uncertainty as to chances of obtaining them in the future. In this context, the results of this study confirm the conclusions made by Beck and Brown (2011) on the inability of poor households to increase their savings in deposit bank accounts.

We also believe that government regulatory policy measures in Ukraine, in particular those concerning the changes in deposit rates and the protection for customer savings accounts through the Customer Deposit Guarantee Fund cannot attract more funds from such households to bank deposits.

The case of the Czech Republic and other EU countries shows the potential of such a resource for both the welfare of the population and for economic growth in the country. At the same time, it improves financial security of households. A comparison of the average amount of deposits per household with the average level of wages in Ukraine and the Czech Republic indicates that deposited funds can support households in case of loss of income for 19 months, while in Ukraine - only 4 full months, i.e. the so-called «financial cushion» for the households in the Czech Republic is almost 5 times larger than in Ukraine.

Based on the above, we believe that currently it is not possible to accumulate additional domestic investment in Ukraine through household deposits without a significant increase in real incomes for the majority of population (even provided the state regulatory policy becomes more effective in stimulating household savings). It can also be noted that domestic households are currently very limited in sources of income, its volume and opportunities for its accumulation, thus their passive income generation and the corresponding increase in their well-being are not expected to improve in the near future.

The practical significance of the presented observations is that they can be used in public administration in determining the priority areas of socio-economic development of the national economy.

References

1. Alekseenko, M. (2013). Topical issues of deposit formation of the resource base of banks. *Banking*, 3, 34-42 (in Ukr.).
2. Armstrong, J., & Mulligan, N. (2017, September). Diving in the deep end of domestic deposits. Reserve Bank of New Zealand. Analytical Note Series AN2017/05. <https://www.rbnz.govt.nz/-/media/ReserveBank/Files/Publications/Analytical%20notes/2017/an2017-05.pdf>
3. Beck, Th., & Brown, M. (2011, February). Which households use banks? Evidence from the transition economies. European Central Bank. Working Paper Series No. 1295. <https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp1295.pdf?60f8b90e80572736e58ab68a93c83b7d>
4. Brown, M., & Stix, H. (2015). The euroization of bank deposits in Eastern Europe. *Economic Policy*, 81(30), 95-139. <https://doi.org/10.1093/epolic/eiu002>
5. Chiu, Ch.-W. (J.), & Hill, J. (2015, August). The rate elasticity of retail deposits in the United Kingdom: a macroeconomic investigation. Bank of England. Staff Working Paper No. 540. <https://www.bankofengland.co.uk/-/media/boe/files/working-paper/2015/the-rate-elasticity-of-retail-deposits-in-the-uk-a-macroeconomic-investigation>
6. Cussen, M., Lydon, R., & O'Sullivan, C. (2018). Macro and Micro Estimates of Household Wealth. Research Technical Papers 11/RT/18. Central Bank of Ireland. <https://ideas.repec.org/p/cbi/wpaper/11-rt-18.html>
7. Czech National Bank. (2021). Monetary and financial information database. Official web-site. https://www.cnb.cz/cnb/STAT.ARADY_PKG.STROM_DRILL?p_strid=0&p_lang=CS
8. Czech Statistical Office. (2021). Official web-site. https://www.czso.cz/csu/czso/obyvatelstvo_hu (in Czech)
9. Danylyshyn, V. O. (2013). Formation and distribution of deposit portfolios by commercial banks in Ukraine. *Innovative economy*, 3, 273-277 (in Ukr.).
10. Drechsler, I., Savov, A., & Schnabl, Ph. (2017). The Deposits Channel of Monetary Policy. Working Paper No. 22152. National Bureau of Economic Research. <https://doi.org/10.3386/w22152>
11. Galapup, L. (2016). The deposit banking action of Ukraine: modern realities and prospects for development. *Scientific Bulletin of Odessa National Economic University*, 236(4), 58-72. <http://n-visnik.oneu.edu.ua/collections/2016/236/pdf/%D0%9D%D0%92%20%E2%84%964%202016.pdf> (in Ukr.)
12. Gerasimenko, R. A., Khorosheva, E. I., & Gerasimenko, V. V. (2011). Deposit policy of banks and factors influencing its formation. *Finances, accounting, banks*, 17(1), 141-150 (in Ukr.).
13. Hughson, H., La Cava, G., Ryan, P., & Smith, P. (2016). The Household Cash Flow Channel of Monetary Policy. *Bulletin of Reserve Bank of Australia*, September quarter, 21-29. <https://www.rba.gov.au/publications/bulletin/2016/sep/pdf/rba-bulletin-2016-09-the-household-cash-flow-channel-of-monetary-policy.pdf>
14. Ilyina, K. O., & Marochko, M. S. (2015). Trends and Problems of Monetization of the Ukrainian Economy. *Scientific Bulletin of NLTU of Ukraine*, 25, 344-350 (in Ukr.).

15. Kelly, J., O'Donnell, N., Sherman, M., & Woods, M. (2014). Do Irish households respond to deposit rates? Economic Letters 02/EL/14. Central Bank of Ireland. <https://ideas.repec.org/p/cbi/ecolet/02-el-14.html>
16. Kochaniak, K. (2016). The Nature and Determinants of High-value Household Deposits in the Euro Area. Argumenta Oeconomica Cracoviensia, 15, 21-42. <https://doi.org/10.15678/AOC.2016.1502>
17. Kovalenko, M. O. (2017). Deposit policy of Ukrainian banks and its influence on the efficiency of attraction of deposit resources. Investments: practice and experience, 2, 39-44 (in Ukr.).
18. National Bank of Ukraine. (2018). Comprehensive Program for the Development of the Financial Sector of Ukraine until 2020. <https://bank.gov.ua> (in Ukr.)
19. National Bank of Ukraine. (2021). Official web-site. <http://www.bank.gov.ua> (in Ukr.)
20. Pitoňáková, R. (2016). Determinants of Household Bank Deposits: Evidence from Slovakia. Journal of Economics, Business and Management, 4(9), 528-533. <http://www.joebm.com/index.php?m=content&c=index&a=show&catid=64&id=792>
21. Smolij, Ya. (2017, June 07). Outside of the banking system there is more than 300 billion UAH. Interfax-Ukraine news agency. Official web-site. <https://interfax.com.ua/news/economic/426954.html> (in Ukr.)
22. Soros: Save Ukraine to oppose Russia (2015, January 08). BBC News Ukraine. https://www.bbc.com/ukrainian/business/2015/01/150108_soros_ukraine_ft_int_az (in Ukr.)
23. State and State-Guaranteed Debt of Ukraine. (2021). Statistical official web-site Minfin. <https://index.minfin.com.ua/ua/finance/debtgov> (in Ukr.)
24. State Statistics Service of Ukraine. (2021). Macroeconomic statistics. Official web-site. <http://www.ukrstat.gov.ua> (in Ukr.)
25. State Statistics Service of Ukraine. (2021). Official web-site. http://www.ukrstat.gov.ua/druk/publicat/kat_u/publdomogosp_u.htm (in Ukr.)

Received 4.05.2021
Received in revised form 29.05.2021
Accepted 31.05.2021
Available online 10.07.2021