The impact of digitalization on the formation and implementation of bank's deposit policy

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Abstract
The article considers the efficiency of banks in Ukraine, which in turn depends on sufficient volumes of resources. Given the rapid pace of innovation and unstable dynamics of investment, it is not enough to artificially reduce the cost of deposits and increase the cost of loans to sustain the successful operation of banking institutions. It is necessary to create an effective management system that will be able to develop a deposit policy and respond adequately to all events in society. Issues of deposit policy in banking, which is influenced by the complexity of financial relations, in particular in the context of globalization, are becoming increasingly relevant. Therefore, the article examines the peculiarities of the formation and implementation of deposit policy in terms of the digitalization of business processes. The authors analyzed the allocation and dynamics of deposits by volumes, currency, sectors of the economy and terms of repayment. The results of the study allow claiming that banks' deposit policy needs constant improvement. To increase its efficiency, there are several ways, such as creating favourable conditions to meet customer needs in deposit services; ensuring the protection of depositors' interests, which, in turn, will increase the reliability of banks and the efficiency in the process of converting savings into investments; active digitalization of banks' relations with clients in solving all financial issues, including in the deposit sphere, which will simplify customer service processes and increase the banks' resources by attracting new categories of customers due to innovative deposit products with favourable terms.

Keywords: bank, deposit, deposit policy, digitalization, deposit guarantee.

Introduction
The banking sector constantly exists in conditions of fierce competition in the market. This is due to the unstable political situation in Ukraine, low level of economic development, the complex and unpredictable impact of the foreign economic environment surrounding the banks. These factors negatively affect the process of attracting free cash of legal entities and individuals to deposit accounts of banks, thereby inhibiting the process of increasing the resources of the banking system and their further transformation into investments. That is why banks are not insured against the impact of economic crises, bankruptcy, loan defaults, changes in supply and demand in the loan capital markets and other manifestations of market imbalances (Azarenkova G.M., 2008).

The effective operation of commercial banks in Ukraine directly depends on the availability of free funds in their accounts. Deposits are the basis for the formation of the financial base of banks. In the face of existing challenges and threats, including the COVID-19 pandemic, commercial banks are trying to find the best way to replenish banking resources by actively using advanced digital technologies. Digitalization is becoming a trend of
the entire banking industry, including in the direction of deposit sales. Such economists as Azarenkova A., Bidyuk O., Volkova N., Dzyublyuk O., Korneev V., Chmutova I. and others, paid attention to the theoretical and practical principles of banks’ deposit activity in their scientific works. Paying tribute to the work of these economists, it should be indicated that the need to study the impact of digitalization on the formation and implementation of the banks’ deposit policy in current conditions remain relevant and require further research and development.

**Material and methods**

As an information basis for assessing the distribution and dynamics of deposits of the banking system of Ukraine by volumes of attraction, currency, sectors of the economy and terms of repayment the statistical data of the National Bank of Ukraine (the NBU) were used. The following research methods were used to study the current state of formation and implementation of the bank’s deposit policy: structural and logical analysis; method of economic analysis (in assessing the dynamics and structure of the deposit base of banks); techniques of statistical methods, in particular comparison - when comparing actual data for the relevant periods; methods of analysis and synthesis, induction and deduction.

**Results and discussion**

Given the increasing internal requirements for the efficiency of the banking system of Ukraine, the relevance of the analysis of banks’ deposit policy is significantly growing. Deposit resources are the main source of borrowed funds. The volume, type and structure of borrowed resources determine the bank’s ability to maintain its liquidity and receive income and profit in the required amount. Therefore, it is necessary to consider the allocation and dynamics of deposits of the banking system of Ukraine by volume, currency, economic sectors and terms. The total amount of deposits attracted by Ukrainian banks for 2015-2019 is given in table 1.

| Table 1 – Analysis of deposits attracted by Ukrainian banks in 2015-2019, UAH million |
|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Indicators      | 2015            | 2016            | 2017            | 2018            | 2019            |
|                 | The number of funds, UAH million | The growth rate (%) in comparison to |
| National currency deposits | 391911          | 426418          | 490971          | 540683          | 642711          |
| Foreign currency deposits | 324817          | 367057          | 407873          | 392284          | 428955          |
| Deposits, total | 716 728         | 793 475         | 898 844         | 932967          | 1071666         |
| Share of foreign currency deposits, % | 45.3            | 46.3            | 45.4            | 42              | 40              |
| Deposit growth, % | 7.2             | 8.8             | 15.1            | 10.1            | 18.9            |
| Source: compiled by the authors according to (Official site of NBU, 2015-2021) |

As can be seen from Table 1, the number of attracted deposits during the period under study increased annually, which indicates the implementation of an effective deposit policy by banks. Besides, the share of foreign currency deposits decreased slightly, due to increased confidence in the stability of the national currency – the hryvnia.

The analysis of the Ukraine residents' deposits during 2015-2019 in terms of economic sectors is shown in Table 2.
Table 2 – Analysis of residents' deposits by sectors of the economy for 2015-2019, UAH million

| Years | Other financial corporations | Share, % | General government sector | Share, % | Non-financial corporations | Share, % | Other sectors of the economy (including households) | Share, % |
|-------|-----------------------------|----------|---------------------------|---------|-----------------------------|---------|-----------------------------------------------|---------|
| 2015  | 29021                        | 4.0      | 6002                      | 0.8     | 265448                      | 37      | 416257                                        | 58.2    |
| 2016  | 26211                        | 3.3      | 5841                      | 0.7     | 310559                      | 39.1    | 450863                                        | 56.9    |
| 2017  | 28539                        | 3.2      | 22914                     | 2.5     | 343758                      | 38.2    | 503633                                        | 56.1    |
| 2018  | 28234                        | 3.0      | 23022                     | 2.5     | 342503                      | 36.7    | 539208                                        | 57.8    |
| 2019  | 31352                        | 2.9      | 20924                     | 1.9     | 433731                      | 40.5    | 585660                                        | 54.7    |
|       | The growth rate in comparison to 2015, % | 108   | 348.6                     | 163.4   | 140.7                       |         |                                               |         |
|       | The growth rate in comparison to 2018, % | 111   | 90.9                      | 266.6   | 108.6                       |         |                                               |         |

Source: compiled by the authors according to (Official site of NBU, 2015-2021)

During 2015-2019, the volume of deposits attracted from non-financial corporations have been growing steadily, primarily due to the development of the insurance market and other sectors of the economy, including households. Deposits of the general government sector in 2019 increased more than three times compared to 2015, with a share of 1.9%, but decreased slightly compared to 2018, in which both the volume and share (2.5%) were more significant. This sector unites legal entities whose main activity is to perform the functions of legislative, executive or judicial power concerning other institutional units within a certain territory and is divided into subsectors: central government, regional and local government, social insurance funds.

The largest share of attracted deposits during the entire analyzed period (more than half) was occupied by other sectors of the economy, which include households and non-profit institutions serving them. Households include employees, employers, self-employed workers, recipients of pensions, rentiers and recipients of other transfers. Non-profit institutions serving households are organizations that provide non-market goods and services to households free of charge or at prices that have no economic significance: political parties and other public organizations, charitable organizations and foundations, socio-cultural units of non-financial and financial corporations.

According to the terms of attraction, the allocation of deposits attracted by Ukrainian banks from residents in 2015-2019 is shown in Table 3.

Table 3 – Deposits of residents in terms of repayment period in 2015-2019, UAH million

| Years | including in terms of the repayment period | deposits on demand | up to 1 year | from 1 year to 2 years | more than 2 years |
|-------|--------------------------------------------|--------------------|-------------|-----------------------|-------------------|
| 2015  |                                            | 305383             | 271454      | 120055                | 19836             |
| 2016  |                                            | 364547             | 271849      | 148497                | 8581              |
| 2017  |                                            | 419126             | 293337      | 151485                | 34896             |
| 2018  |                                            | 456467             | 322065      | 125571                | 28863             |
| 2019  |                                            | 590541             | 348542      | 108142                | 24442             |
|       | The growth rate in comparison to 2015, %   | 193.4              | 128.4       | 90.1                  | 123.2             |
|       | The growth rate in comparison to 2018, %   | 129.4              | 108.2       | 86.1                  | 84.6              |

Source: compiled by the authors according to (Official site of NBU, 2015-2021)
From Table 3, we see that investors prefer deposits on demand. Short-term deposits with a term of up to 1 year predominate among term deposits. The volume of deposits for a period of 1 to 2 years and more than 2 years decreased in 2019 compared to the previous year.

In banking practice, various types of deposits are offered for customers. For instance, replenished deposits, which allow for an increase in the deposit amount during its storage in the bank; deposits with prolongation, which allow for the prolongation of the deposit; savings deposits, etc.

It is appropriate to consider the state of deposit policy in more detail on the example of PJSC “Privatbank” because it is the largest bank in Ukraine, which occupies a leading position in all financial indicators in the industry. The bank makes up almost a quarter of the country’s entire banking system, being the largest and systemic structure that specializes in savings and serves a third of the country's deposits.

At the moment PJSC “Privatbank” is a state bank. Due to strict state control over the activities of state-owned banks, they quickly adapt to the changing conditions of the external and internal financial and economic environment and quickly redirect financial flows to those industries and enterprises that need additional financial resources mostly. It is also necessary to specify the existence of strict specialization of such banks, due to which the allocation of budget funds is the most efficient (Chmutova I.M., 2011).

The leader in sales from Privatbank is the “Standard” deposit for 9-12 months, which is due to the highest of the proposed interest rates. “Junior” deposit is offered as a deposit for the benefit of the child, and “Private Deposit” provides the opportunity to withdraw all or part of the deposit without commission and reduction the rate. In addition to the mentioned services, the bank also offers such a deposit product as “Standard non-taxable” (for recipients of salaries, pensions and social payments) – interest on this bank deposit is not taxed.

Deposits in foreign currency are provided by the bank for a period of 1 to 24 months (dollar) and from 3 to 24 months (euro) at a constant rate of 0.01% per year. The analysis of term deposits depending on depositors in PJSC “Privatbank” during recent years is given in Table 4.

Table 4 – Analysis of term deposits of legal entities and individuals in PJSC “Privatbank” in 2015-2019, UAH million

| Deposits    | 2015   | 2016   | 2017   | 2018   | 2019   | The number of funds, UAH million | The growth rate (%) in comparison to |
|-------------|--------|--------|--------|--------|--------|----------------------------------|-----------------------------------|
| Individuals | 108381 | 119519 | 119476 | 109778 | 99168  | 91,5                             | 90,3                              |
| Legal entities | 16608  | 14675  | 12797  | 11422  | 10626  | 64                               | 93                                |
| Total       | 124989 | 134194 | 132273 | 211200 | 109794 | 87,8                             | 52                                |

Source: compiled by the authors according to (Official site of PJSC “Privatbank”, 2021)

As can be seen from Table 4, most of Privatbank’s term deposits are individuals’ funds. Attracting deposits, both legal entities and individuals, plays an equally important role for banks.

It is worth noting that the purpose of investments for individuals and legal entities is completely different. Individuals, buying deposit products of the bank, aim to ensure the preservation of the money value and increase their income. Placing savings on deposits is a motivated action that involves receiving benefits in the future (Volkova N.I., 2016).

With the development of digital technologies, more and more banks in different countries of the world prefer to switch to providing online services to customers, thus there is a gradual digitalization of the banking
sector.

The term “digitalization” comes from the English language and means “bringing in digital form” (Kuprina K.A., 2016). A detailed interpretation of this concept is formulated by Teteryatnyk B.S. (2018), who notes that digitalization is a process based on the capabilities of the modern IT industry by business entities to use information and communication technologies to achieve the goal of economic activity, aimed at changing existing economic relations by digitizing them; a set of acts of implementation of digitized objects to achieve the goals of economic activity, considered in their unity and associated with the formation of a new form of economic relations - digital (Teteryatnyk B.S., 2018).

The reasons for active digitalization in the banking sector of Ukraine are shown in Figure 1.

The development of information technology can significantly “reduce the distance” between the producer and consumer of banking services, significantly exacerbates interbank competition, and, consequently, contributes to the development of banking services in both quantitative and qualitative terms (“Review of Internet banking systems in Ukraine”, 2015-2019).

The digitalization of banking institutions creates certain benefits in customer service. These benefits include:
- high speed in comparison with traditional methods of crediting funds and passing them between banks;
- reducing the cost of operations and costs for the bank and the client;
- reducing the complexity of operations with paperless technology;
- reduction of risks of non-payment;
- the need for labour-intensive work with cash disappears for the bank;
- ease of use (the virtual bank can work around the clock, the customer has the opportunity not to visit the bank, no need to have money for small purchases, speed of registration greatly reduces the time from order to delivery, etc.) (Kvasnytska R.S. and Antonyuk O.V., 2021).

Figure 1 – Reasons for active digitalization in the banking sector of Ukraine's economy

Current conditions for the development of banking services and the ever-growing needs of bank customers contribute to the development of digitalization. Therefore, one of the most advanced services in the banking sector in terms of digitalization, which is due to the increased interest in remote customer service is Internet banking, which opens access to accounts and account transactions at any time and from any computer through the Internet.

The list of Internet banking services, with rare exceptions, repeats the entire product line of banks. With the help of Internet banking, you can not only control the movement of funds in your accounts, but also perform more complex operations: for example, order a payment card or open a deposit account, repay the loan, and recently it became possible to buy and sell currency.

When servicing customers through Internet banking it is necessary to adhere to the following basic principles of banking services: accessibility, ease of use, confidentiality, efficiency, complexity, maintaining the integrity
of information, authentication (Demenkov M.S., 2009).

It should be noted that legal entities have been using the remote control of bank accounts since the mid-90s. PrivatBank, which launched the Privat24 system in 2001, became a pioneer in retail Internet banking. In addition to Privatbank, today among the banks that are actively advancing on the path of digitalization and mastered Internet banking are A-Bank, UkrSibbank, Ukreximbank, FUIB, Universal Bank, Alfa-Bank, OTP Bank and others.

According to Prostobank Consulting, in 2020, the Internet banking service for individuals was offered by 24 banks from among the 50 largest retail banks. At the same time, banks compete with each other, constantly improving the capabilities of their remote service (Prostobank Consulting, 2021).

Another new application of digitalization capability is that in modern conditions for most developed countries of the world is characterized by the transition from the classic branch model to a more innovative remote banking customer service. Due to the emergence of customers the opportunity to carry out more and more operations without a visit to the bank in Ukraine, there are banks without branches (the first of them was “Monobank”), and other banks are beginning to make more use of online banking.

Despite the great interest of Ukrainian banks in the digitalization of their services, there are still some problems that complicate the expansion of the digital format of the banking sector of Ukraine. Among them a large amount of paperwork and a surplus of branch networks – in Ukraine, each bank branch has on average 2-3 times fewer customers than in developed countries, which indicates the feasibility of further optimization of networks. Besides, Ukrainian banks face strict regulation of processes and the need to implement a significant amount of paperwork; high share of cash transactions – bank branches are overloaded with cash transactions, which reflects the high percentage of the shadow economy and the insufficient level of payment infrastructure development; there is a big difference between the productivity of different banks – the leaders are significantly ahead of other banks in the number of retail customers served in one branch, and more successfully transfer cash transactions both through ATMs and through electronic channels.

Our study shows the widespread use of digital technologies in the banking sector. As a result, there is a need to change the rules of doing business that will be able to ensure the competitive position of banks in the market in the face of rapidly changing opportunities, technologies and innovations. Therefore, banks face the task of developing a kind of digital strategy, which should take into account that the key changes in the banking sector in the context of digitalization should be customer-oriented and should increase the efficiency of the banking sector and its development.

Thus, digitalization is a fairly new direction of development for Ukraine, which involves the use of various technologies (Internet, mobile devices or other electronic channels). Given that customers are beginning to turn to digital services, it becomes clear that modern forms of remote banking are extremely necessary for customers. Internet banking’s main advantage is the convenience and accessibility of banking operations without visiting a bank branch. First of all, the development of technologies is needed to spread and widely implement digitalization into Ukrainian banks. And this will allow banks to reduce maintenance costs and strengthen their competitiveness.

It should be noted that the bank deposit guarantee system, which is designed to protect depositors from “moral hazard” and banks from “raids”, needs great attention to ensure the implementation of deposit policy of banks and
maintain public confidence in the banking system in the country. After all, it is true that the moral hazard from the client's point of view is reduced in the case of certain guarantees for the return of invested deposits, regardless of the financial condition of the bank. In other words, we are talking about the functioning of the Deposit Guarantee Fund (DGF), which has been operating in Ukraine since 1998 and which guarantees each depositor of the bank a refund on his deposit. The DGF reimburses the amount of the deposit, including interest, as of the date of the withdrawal of the bank from the market, but not more than the amount of the maximum amount of reimbursement on deposits set on that day, regardless of the number of deposits in one bank. The amount of the maximum amount of reimbursement of funds on deposits may not be less than UAH 200,000 (unless otherwise provided by Article 26 of the Law of Ukraine “On Households Deposit Guarantee System”) (“On Households Deposit Guarantee System”, 2012).

Today, all banks in Ukraine - 72 banks - are members of the DGF. Currently, the guaranteed deposit amount in Ukraine is one of the lowest in Europe, is at the level of poor third world countries and does not meet EU standards. At the same time, the increase in the guaranteed amount should take into account the position of all participants in the financial security system, the ability of banks to increase insurance premiums and given the dynamics of income recovery in Ukraine. As the experience of Eastern European countries shows, it was better if this process would be divided into two stages. In Ukraine, this can be done in stages (for example, increasing the guaranteed amount of compensation to depositors to the equivalent of 20,000 – then 50,000 – and lastly 100,000 euros – following the experience of Eastern European countries such as Poland, Romania or Slovakia). These stages can last for several years and should begin only with the resumption of active work of the banking system for lending and attracting deposits. At the same time, this process should have a clear time frame that banks, regulators and European partners could focus on (Danylenko A., 2017).

The larger the amount of the deposit guaranteed by this fund, the more protected the client will feel from the impact of moral hazard. At the same time, the moral hazard from the point of view of the guarantee system is a situation in which the depositor chooses a bank with a higher interest rate on the deposit, knowing that he is insured against risk, and losses in case of bankruptcy will be endured by the DGF. Therefore, the client is interested in depositing in a bank with a higher interest rate, despite the riskiness of the bank. Such behaviour of depositors and banks increases the total risk of the system and ultimately leads to “bank failures”.

The problem of building an effective deposit guarantee system is about the need to balance between “moral hazard” and “bank raids”. It is very relevant for Ukraine because it has spent 5% of GDP on the recapitalization of banks during the crisis of 2008-2009, and 14% of GDP during the crisis of 2014-2015. During the crisis of 2008-2010, 24 banks were declared insolvent and 3.61 UAH billion has been repaid. The crisis of 2014-2017 was a much bigger challenge when every second of more than 180 banks was withdrawn from the market. The most shocking in terms of repayments was 2015 when the DGF reimbursed depositors 49.5 UAH billion. In 2014-2015, 33 banks were withdrawn annually (DGF, 2021). Each time, this led to an increase in public debt and, consequently, a deterioration in the country's financial stability. Thus, the DGF, which was established to protect the rights and legitimate interests of bank depositors, is one of the functional elements of levelling the impact of moral hazard on the deposit activities of Ukrainian banks.

Therefore, to ensure the effectiveness of the deposit guarantee system, the maximum
amount of deposit coverage should be set at such a level that, on the one hand, does not encourage banks and depositors to behave irresponsibly and prevent the growth of deposits in financially unstable banks, and on the other – should be sufficient to cover the losses of financially disadvantaged and knowledgeable depositors, as well as to ensure the confidence of depositors in the banking system and prevent banking panic.

Thus, a prerequisite for the successful operation of banks remains the focus on international standards, the practice of the world's leading banks in the field of expanding banking in general, and deposit operations through the introduction of non-traditional banking operations and services (Bidyuk O.O., 2017).

**Conclusions**

Based on the analysis of the formation and implementation of the deposit policy of Ukrainian banks, it can be concluded that the current deposit policy of banking institutions needs constant improvement, especially in a recession due to the negative impact of the COVID-19 pandemic.

Among the main areas of improving the efficiency of banks' deposit policy are the following:

- creation by banks of the most favourable conditions for individuals and legal entities in order to gain an advantage when investing their free funds in deposits, as well as ensuring that the bank maintains creditworthiness at a sufficient level and ensuring a balanced financial condition;

- meeting the needs of customers in deposit services offered by banks, as well as making a profit by investing these funds in active operations while ensuring a normal level of liquidity of the balance sheet and minimizing the risks of deposit operations;

- ensuring the protection of depositors' interests, due to certain guarantees of return of the deposit, i.e. increasing the efficiency of the Deposit Guarantee Fund (increasing the number of deposit refunds by the Deposit Guarantee Fund, taking into account foreign experience and inflation in Ukraine, the introduction of deposit insurance such as carried out in foreign countries), which, in turn, will increase the reliability of banks and their ability to perform the function of converting savings into investments;

- active digitalization of banks' relations with clients in solving all financial issues, including in the deposit sphere, which will simplify customer service processes, as well as help increase the resource base of banks by attracting new categories of customers based on offering new innovative deposit products with favourable prices conditions.

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