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## TRENDS AND STABILITY FACTOR CONDITIONS OF BANKS CREDIT FLOWS: THE UKRAINIAN CASE

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*The present article analyses the tendencies and factor conditions of credit flows stability, as one of the main components of the banking activity in Ukraine. Using an econometric investigation we achieved sufficient basis to assume the existence of a tight bound between credit, deposit rates and the movement of credit flows.*

*Credit regulation is used to soften the economic crises and keep in check the inflation rate. To support the conjuncture, the government uses credit to stimulate the financial investments into different areas of the national economy. Credit policy is carried out by the means of direct or indirect approach. The difference between them is that the central bank either uses liquidity of the credit institutes to apply indirect control, or uses direct limits to economical credits (limits the credit quantity).*

*Defined the importance of interconnected analysis of the functioning of economics and banking sector. Singled out several steps of issuance of loans to the banks in the economics of the Ukraine.*

*Analyzed the factor conditions of credit banking activity development. Outlined the importance of the deposit and credit interest influence upon the persistence of credit inflows of the banks.*

**Keywords:** *Banks credit investments, money supply, deposit interest, credit interest, credit flows.*

## **ТЕНДЕНЦИИ И ФАКТОРНЫЕ УСЛОВИЯ СТАБИЛЬНОСТИ КРЕДИТНЫХ ПОТОКОВ БАНКОВ: УКРАИНСКИЙ СЛУЧАЙ**

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*В данной статье анализируются тенденции и факторные условия стабильности кредитных потоков, как один из основных компонентов банковской деятельности в Украине. Используя эконометрическое исследование, была достигнута достаточная основа, чтобы предположить наличие жесткой границы между ставками кредитов и депозитов и движением кредитных потоков. Определено значение взаимосвязанного анализа функционирования экономики и банковского сектора. Определено значение взаимосвязанного анализа функционирования экономики и банковского сектора. Выделил несколько шагов по выдаче кредитов банкам в экономике Украины. Проанализированы факторные условия развития кредитной банковской деятельности. Охарактеризована важность влияния депозитных и кредитных интересов на сохранение притока кредитов банками.*

**Ключевые слова:** *Кредитные вложения банков, денежная масса, депозитные проценты, кредитные проценты, кредитные потоки.*

## **ТЕНДЕНЦІЇ ТА ФАКТОРНІ УМОВИ СТАБІЛЬНОСТІ КРЕДИТНИХ ПОТОКІВ БАНКІВ: УКРАЇНСЬКИЙ ВИПАДОК**

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*У даній статті аналізуються тенденції і факторні умови стабільності кредитних потоків, як одного з основних компонентів банківської діяльності в Україні. Використовуючи економічні дослідження, була досягнута достатня основа, щоб припустити наявність жорсткої межі між ставками кредитів і депозитів та рухом кредитних потоків. Кредитне регулювання використовується для пом'якшення економічних криз і контролю за рівнем інфляції. Для підтримки кон'юнктури уряд використовує кредит для стимулювання фінансових вкладень в різні сфери національної економіки. Кредитна політика здійснюється за допомогою прямого або непрямого підходу. Різниця між ними полягає в тому, що центральний банк використовує ліквідність кредитних інститутів для застосування непрямого контролю або використовує прямі ліміти для економічних кредитів (обмежує кількість кредитів).*

**Ключові слова:** *кредитні вкладення банків, грошова маса, депозитні відсотки, кредитні відсотки, кредитні потоки.*

**Introduction:** During 2009-2016, Ukraine enjoyed high economic growth and stability, but in 2008 it was deeply involved in the worldwide financial crisis which brought the country's GDP to decline up to 14%. The main reason for the economic downturn was the international contagion stemming from the global financial crisis which caused the country to be cut-off from the international financial markets. At the same time, Ukraine's foreign debt rapidly increased to \$103 billion (57% of GDP) in the first years of crisis and this worsened the country's vulnerability. At international level, indeed, only the three Baltic countries faced worse figures and this highlights how much Ukraine was affected by the downturn.

Although nowadays the country seems to have overcome the worst of the crisis, conjuncture has brought substantial problems, most notably in terms of credit flows stability, which must now be addressed. In this framework, the problem of functioning and development perspectives of the Ukrainian financial and credit system has been largely analysed in the literature [7, 8, 9, 11]. However, the majority of these works explores either the general trends of the Ukrainian banking system or its separate

directions, without focusing on the correlated analysis of banks with the general functioning trend of economy as a whole.

Starting from these premises, the present paper tries to overcome the limitation of the previous studies by carrying out a comprehensive analysis of the contemporary tendencies and factor conditions of the Ukrainian banking credit flows. In particular, the paper identifies the development stages of the Ukrainian credit system and investigates the level of interaction between the credit, deposit rates and the movement of credit flows.

The paper is structured as follows. Section 2 describes the context of analysis. Section 3 deals with the methodology, reporting the econometric model carried out in our investigation. Section 4 reports the results achieved and section 5 ends with some concluding remarks.

**The context of analysis.** A preliminary review of the main trends in the Ukrainian banking system and of the problems affecting its development can start from the analysis of some relevant statistical facts. Fig. 1 reports the rate of change of loans and industrial production in Ukraine from 2004 to 2013.

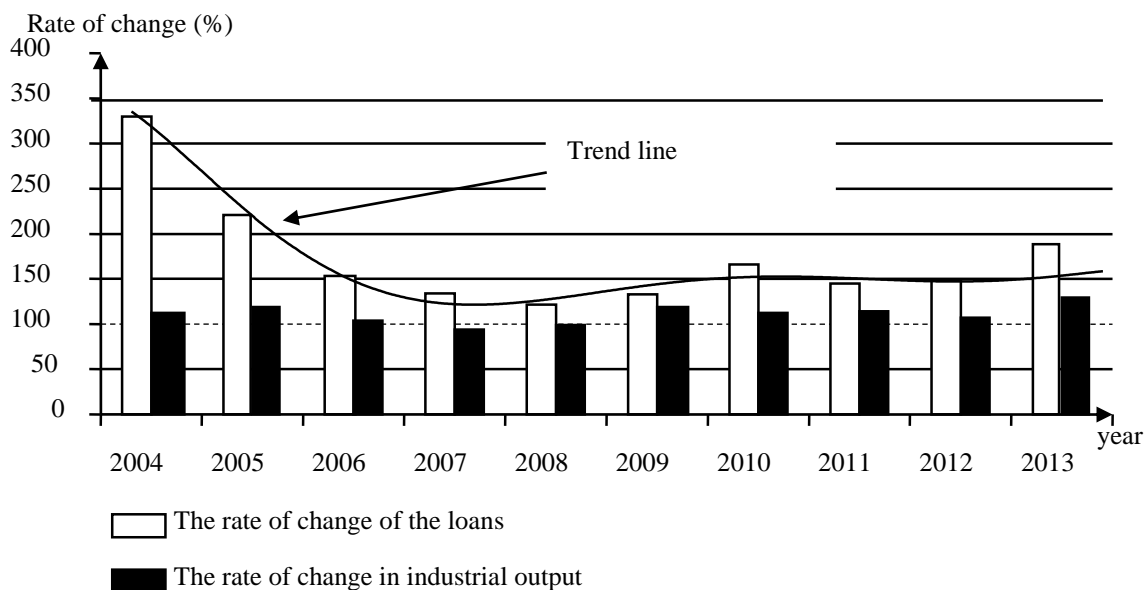


Fig. 1. Rate of change of loans and industrial production in Ukraine from 2004 to 2014 (% until previous year) [2,3,8].

Despite the steady increasing trend in loans, it is appropriate to note the existence of several stages of the process. In particular, from 2004 to 2005, there was a rapid slowdown in loans provided by Ukrainian banks. A significant decline in the industry, first of all, contributed to this, as reflected in the decrease in the annual production volume. The period from 2006 to 2008 was characterised by slight fluctuations in granting loans, followed by a gradual decrease in the rate of decline in industrial production. Since 2009 until 2014 there was a new wave of growth in the rate of lending, which contributed to increase the growth rate of production?

In order to understand the aforementioned trends, it is worth analysing the characteristics of the lending activity of Ukrainian banks. Since the beginning of 2012, the net assets rose by 34.5% for a total amount of 63.992.300.000uah while the total assets increased by 17042200000 uah or 33, 6% and up 67826700000 uah. (2015 - 2.4%) [8]. During 2013 the net assets rose by 57, 1% and made 100356600000 uah. Total assets rose by 55,8% to grow up to 105559300000 uah. This loan portfolio of Ukrainian banks rose more rapidly than assets at the end of 2013 when its volume amounted to 73445400000 uah. However, despite this, the share of loans in total assets structure of the Ukrainian banking system for

the period has slightly decreased from 68,96 % to 62,36% [8]. Thus, at the beginning of 2013, the share provided by banks in the structure of total assets was 68.96% while at the beginning of 2014 it declined to 62,36 %.

The basic condition for this change is to further enhance the liquidity of the banking system as a priority task for its development. However, this decrease could have the opposite effect due to the declining proportion of working assets as the main component of credit economy on the background of accelerating growth rates of production and the poor condition of the stock [10]. So on this issue it is reasonable determination of use of the credit opportunities banks of Ukraine for the multiplicative expansion of the money supply (Table.1). Because of the limiting credit activity of banks for the purpose of maintaining excess liquidity and reducing the risks ultimately dampen the wave of multiplicative expansion of deposits and the total value of money supply in the economy. The insufficient activation of the credit activity of the banks, not the emission of the National Bank of Ukraine, determines the insufficient availability of the economic turnover of financial resources. It's clearly confirmed by the data in Table. 1, where is the actual value of the money multiplier is lower than its standard value

*Table 1*  
*The use of credit opportunities banks of Ukraine for expansion of money supply multiplier 2006-2013 [11]*

Indicators	Years							
	2006	2007	2008	2009	2010	2011	2012	2013
Reserve requirements accounts of banks NBU, %	15	15	17	17	15	14	12	12
The actual money multiplier	1,85	1,76	1,82	1,84	1,92	1,98	2,11	2,37
Normative money multiplier	6,67	6,67	5,88	5,88	6,67	7,14	8,33	8,33
The difference between the normative and the actual multipliers	3,6	3,8	3,2	3,1	3,4	3,6	3,9	3,5

Along with the above definitions it should be noted that changes the structure of credit flows to the banking system of Ukraine slightly. So as on 01.01.11 loan portfolio of banks in Ukraine had the following structure (calculated based on published data), loans to business entities account for 38187700000 uah. (81,7% of the total loan portfolio); loans to other banks and the NBU are 5.096.200.000 uah or 10,9%; loans to individuals – 3254900000 uah or 7%; loans to state authorities - 195,6 million uah or 0,4%.

Figures at the beginning of 2012 have the following meanings: loans to business entities - 78,9% of the total loan portfolio; loans to other banks and the NBU - 8,9%; loans to individuals - 12,1%; loans to state authorities - 0,1%.

From the above numbers can make two conclusions:

- firstly - continues to decrease the share of credit flows from lending agencies of government (as at 01.01.2010, the share of these loans amounted to 0,5% of the total loan portfolio). Overall this is a very positive trend that helps to optimize the traffic flow of credit, because the direct government loans are mainly used to cover the deficit budgets of different levels that adversely affect the rate of change in the money supply as well as lending activities. According to this, we can determine that in the Ukraine in recent years

significantly reduced non-productive consumption level of financial resources and by their redistribution in favour of the real economy;

- second, the share of credit flows from granting loans to individuals. On the one hand, it is an activity of the population and the sustainability of the banking activity in general, and on the other - causes banks to improve the appropriate management for growth providing loans to individuals increased the number of outgoing flows of banks and in general enhances the probability of the onset of risk events in lending and therefore requires a more balanced and solutions to certain problems with the classic dilemma of managing banking - appropriate balance to support the relationship between profitability and liquidity of the bank. It should be noted that credit operations are crucially affect the liquidity banks of, because these operations are accompanied by a change bank investments and obligations [6].

As another parameter that characterizes the impact of bank loans to the reproductive processes economy-wide, it's used the estimate of credit in the days of the GDP [2]. Regarding the conditions of the banking sector in Ukraine this figure shows that the value for the period 2006 to 2013 has increased more than fourfold (Table. 2).

*Table 2*

*Credit investments in Ukrainian banks Real calculating in the period from 2006 to 2013 [2, 7]*

Indicators	Year							
	2006	2007	2008	2009	2010	2011	2012	2013
1. Gross Domestic Product, mln uah	81519	93365	102593	130442	170070	204190	225810	263228
2. Loans granted to the economy of Ukraine, mln uah	5452	7295	8873	11787	19574	28373	42035	73445
3. Bank loans in days GDP, mln uah	24,4	28,5	31,6	33,0	42,0	50,7	67,9	101,8

But next to value of this index on the basis of 2013 is only equal to a year and

almost twice less than the index value of 2002 (Fig. 2).

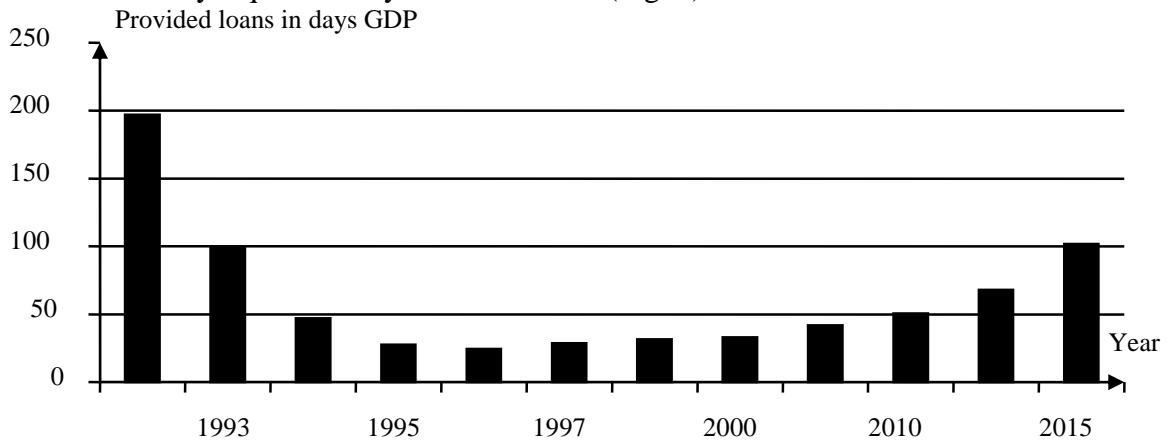


Fig. 2. Dynamics of loans Ukrainian banks in days GDP [4,7]

In addition, it should be added that in developed countries this indicator is 300-350 days. Thus the recession of the appointed indicator appears twice in less than a period of growth, indicating the difficulties of increasing the volume of credit investments of banks in Ukraine. Among the negative effects of this process and should indicate first of all, the considerable shadowing of economy, and imbalance in the process of taxation of business entities in Ukraine, which is reflected in the frequent change of the legal basis and an excessive the total burden of its taxation.

So the primary task of strengthening and development of the banking system of Ukraine should be aimed at improving domestic resource base - the aggregate banking resources which have been mobilized by the bank in the financial market and which are in his possession for a specified time. This is because a stable resource base of the bank is the basis for the expansion of its active operations. The basis of this analysis may be construction of appropriate econometric model and test its adequacy.

**Methodology:** According to a common definition of the essence of the

operation of any business entity (i.e. gaining profit), we fully analyse the impact of the credit flows and their base formation on the financial performance of the Ukrainian banking system. For this purpose, we followed an approach already employed by other authors [1] the main empirical literature on the topic [1] by estimating the following econometric model:

$$FR_t = \alpha + \beta_1 \frac{1}{LOANS} + \beta_2 \frac{1}{FUNDS} + \beta_3 t \quad (1)$$

where:

FR - is the financial result of the banking system at the end of the period;

LOANS - is loans provided by the banking system at the end of the period;

FUNDS - is attracted funds by the banking system at the end of the period;

t – time factor coefficient;

$\alpha$  – constant.

Using powers of MS Excel with auto regression calculations we've received definite model with calculated parameters, according to calculations based on tables above (table 1, 2).

$$FR = 3828 + 7,58 \frac{1}{LOANS} + 11,03 \frac{1}{FUNDS} + 3,65 t,$$

On the basis of this is the construction of certain econometric model and verification of its adequacy. So on the appropriate analysis for the same period as for the model equation 1 was obtained following econometric model:

$$\frac{1}{KR} = 0,0002 + 0,989 * SP + 1,601 * t, \quad (2)$$

SP - The spread between the weighted average interest rates annual rate in Ukraine banks on loans and deposits.

We gathered data for estimating the aforementioned model from the State

Statistics Service of Ukraine (2016). We estimated the model by employing the adjusted coefficient of determination.

**Results:** Statistical significance of the model is described by the next group of parameters: value of the adjusted coefficient of determination - 0,74; t - statistics for all regression coefficients is significant and relevant factor equal to the terms of Equation 1 such value - (-4,83) at p – levels 0,003; (4,70) at p - levels 0,003 and (3,82) at p - levels 0,008.

*Table 3*

*Reports the results achieved*

Variable	p-levels	t statistics	adjusted coefficient of determination
Credits	0.003***	-4,83	0.74
	0.003***	4,70	
	0.008***	3,82	
p-levels significant at ***= 1%			

Thus, despite the negative value to some components of the regression, the model indicates that in the case of increasing the loans, the financial result of the banking system is raising. However, this growth is quite slow. Moreover, with increasing volumes of financial result resource growth also slowed. This is generally consistent with relevant economic considerations, so the model with formula 1 can be defined as an adequate. At the same time, on the basis of an econometric model of the formula 1 can also identify certain imbalance between the loan portfolio and the volume of attracted resources are one of the manifestations of hidden negative effects of the banking system in Ukraine. Therefore, it should be emphasized that the dynamics of changes in interest rates on loans and deposits is not conducive completely to the formation of the definite results of the activities of the commercial banks in Ukraine in general. In

other words, except outlined above, it should be noted that the effective functioning and development of any bank is largely determined by the optimum ratio between the size of the deposit and credit interest.

Expediency of the appointed, primarily, connected with the fact that the impact of certain banks mediated by a set of measures aimed at regulating the volume of credits to the economy through influence on quantitative parameters of supply of credit money. One of such parameters is – the level of interest rates. At the same time the balanced deposit interest rates contribute to the formation of sustainable resource base of bank, credit – into the development of the most significant proportion of its active operations. At the same time, the value of the relevant interest is very important for both the lender and the borrower, because the real interest rates play a significant role in investment decisions because of the backlog

rate of interest from the rate of return is a prerequisite for the effectiveness of investments aimed at expansion or modernization of production. Therefore, careful consideration concerning the

influence of bank interest on the relevant activity is very important. On this basis it is appropriate to determine the impact of interest rates on credit flows of banks.

*Table 4*

*Reports the results achieved*

Variable	p-levels	t statistics	adjusted coefficient of determination
Spr	0,007***	3,75	0,85
	-0,0003***	-6,36	
p-levels significant at ***= 1%			

Statistical significance of the model is characterized: the value of adjusted coefficient of determination equal to 0,85; t - statistics that all regression coefficients are significant and relevant factor equal to the conditions of this value equation 2 are - (3,75) with p -levels 0.007 and (- 6,36) at p -levels - 0,0003.

Econometric model by the formula 2 indicates that increasing the spread is undesirable because in this case the initial movement of credit flows is slowed down. In other words, equalization of the spread for different regions should be made towards its reduction while reducing total cost of credit resources. In other words, approximately the same magnitude fundraising and providing more loans will contribute to the sustainability of movement of initial credit flows. This is due to the fact that in this case, firstly, banking is more predictable and foreseen; Second, the behaviour of potential depositors will already be worn the system, not prolonged nature. Ultimately, this is what will increase the volume of credit flows and reduce the threat of losses from credit activities of banks. However, it should be noted that this proposal may at first sight slightly contrary to the market conditions of free competition. Therefore, in order to avoid the possible consequences of this is not fully force-restrain the price of banking resources, but only to stimulate entrepreneurship in the less attractive regions, which eventually should limit excessive concentration of

banking resources in one region and promote the banking system as a whole.

**Conclusions:** Based on consideration of the general trends of bank lending in Ukraine highlighted several stages of the process. Also proved that the use of credit facilities for banks Ukraine for the multiplier expansion of the money supply is not limited by their relatively high credit activity. However, determined that the current dense connection between credit and deposit interest credit and movement of credit flows, leads to a more accurate and balanced policy both flows of credit banks, and improve measures to create credit and deposit interest, which may be the direction for further researches.

Carrying out the credit regulation, the government aims to achieve the following: manipulating the credit activity of the commercial banks and directing them towards expansion or diminishing of the credit economy, it, as it is, achieves the stable development of the internal economy, improvement of the financial flow and support of the national experts on the external market. Therefore, manipulating the credit allows achieving more profound strategic goals of the national economy development as a whole.

Dynamic development of the bank service, as well as increasing competition of commercial banks in order to get the client even nowadays presents a rather difficult task



of expansion of the commercial banks operations to open various deposits.

One of the most important instruments of the deposit policy is the rates that bank pays to the clients for their financial resources. Rates payments is the main item of the bank operations. Therefore, the bank is not interested in high interest rates. At the same time, it has to support level high enough to attract clients. The more reliable the period and sum of the deposit, the higher interest the bank provides.

The significance of the entrancing credit market is that it allows, via distribution of the excessive for some of the banks financial resources, improvements of the systems efficiency as a whole.

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