

# On the Relationship between Bank Lending Indicators and General Economic Indicators

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**Abstract.** One of the most important tasks of any state is to ensure stable economic growth. Banks can play an important role in performing this task, primarily by providing loans. The purpose of the study is to identify the relationship between indicators of banks' lending activity and general indicators of economic development. Index of physical volume of GDP and index of physical volume of fixed capital investment were selected as resultant economic indicators, and growth rate of debt on bank loans (overall and by loan types), the share of loans in fixed capital investment, and the ratio of debt on bank loans to GDP were used as factor variables. The study of the dynamics of these indicators showed that the trajectory of economic indicators has a general tendency to decrease their values; the dynamics of economic indicators depends more on bank lending to legal entities than on lending to individuals, and often reflects the change in the share of loans in fixed capital investment with a time lag; economic growth is more strongly influenced by bank lending to legal entities than by lending to individuals. The revealed patterns indicate the need to develop a monetary policy aimed at stimulating corporate lending and moderate curbing consumer lending.

**Keywords:** bank, lending, economic indicators, investment, gross domestic product.

## 1 Introduction

Ensuring stable economic growth and at the same time creating conditions for a positive role of banks in its implementation is one of the most important tasks of any state, including Russia. In the President's message to the Federal Assembly of Russian Federation in 2020, the idea of the need for active participation of banks in solving large-scale socio-economic problems facing the country was voiced several times. In particular, banks are encouraged to implement preferential mortgage programs. In addition, one of the measures proposed to launch a new investment cycle, which implies an annual increase in investment of at least 5% and achieve a ratio of investment to gross domestic product (GDP) at 25% by 2024, is to ensure the availability of long-term money by increasing the availability of credit in the real sector of the economy. It is worth noting that in *Russian*

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*Financial Market Development Program for 2019-2021* [1], ensuring access to financial services and capital is also identified as one of the main tasks of the *Bank of Russia*. At the same time, within the framework of this document, it is advisable to form a development strategy for each component of the financial market, including the credit market as its most significant sector [2]. In another strategic document – *Monetary Policy Guidelines for 2020–2022* [3], *Bank of Russia* emphasizes that its monetary policy creates conditions for accelerating economic growth, but cannot affect the economic potential itself, which depends primarily on productivity of labor and capital, and the speed of introduction of new technologies.

Considering these guidelines for the near term, it is important to identify the relationship between the rate of economic growth and development of bank lending. In this regard, the purpose of this study is to identify the relationship between indicators of banks' lending activity and general indicators of economic development in Russia.

The objectives of the study are: 1) to assess the trajectory of the dynamics of economic indicators in Russia for the period 2000-2018; 2) to analyze the evolution of bank lending indicators for the same period; 3) to compare the dynamics of general economic indicators and bank lending indicators in order to identify the relationship between them; 4) to determine the specific patterns of this relationship; 5) to formulate guidelines for monetary policy, taking into account the revealed patterns.

## 2 Literary Research

Relationship between banks' lending activity and macroeconomic indicators is one of the most important topics of economic research. In our opinion, the theoretical basis of specific empirical studies based on quantitative data in this area can be considered scientific works in which the question of existence of any connection between credit and economic development was raised in the most general form. Thus, the classics of economic thought (*Smith, Ricardo, etc.*) attached great importance to production, but at the same time diminished the role of credit. On the contrary, *Schumpeter, Hahn* and others, overemphasized credit as the primary engine of economic development [4]. In accordance with the ideas of *Marx* [5], credit should not be put forward as the primary engine of economic development, but it can contribute to it. And, therefore, excessive lending is not the root cause of crises, but it can develop and exacerbate accumulated production problems. *Keynes* [6] emphasized that one of the consequences of the increase in bank lending is the expansion of production based on investment growth. *Hayek* [7], who investigated how credit expansion affects the production structure, came to the conclusion that credit expansion, which is not supported by a previous increase in voluntary savings, distorts the production structure, artificially making it excessively capital intensive, and ultimately leads to recessions [8].

Modern scientists also continue to study the relationship between lending activity and macroeconomic indicators. While some authors emphasize mutual causal relationship between lending dynamics and economic development [9], others detect influences of the macroeconomic environment on bank lending [10], but most researchers prove the dependence of economic growth on bank lending, focusing on lending to companies [11, 12, 13, 14, 15, 16, 17, 18]. In particular, *Lavrushin* [19] examines in detail possible positive results of lending for the economy and negative consequences in case of illiterate handling of credit, and proposes a number of indicators to assess the role of credit in the economy.

Research in this area is also conducted by regulatory financial institutions. Thus, *International Monetary Fund (IMF)* representatives periodically prepare relevant reviews, and, in particular, in 2015, it was revealed to what extent credit growth is reflected in GDP growth in developing countries [20]. *Bank of Russia* experts found that an increase in loans

to the real economy before reaching the threshold of 86% of GDP contributes to economic growth, while after passing this threshold, on the contrary, can lead to macroeconomic instability [21].

Thus, taking into account the results of these and other similar studies, we consider it necessary to study the peculiarities of the relationship between indicators of banks' lending activity and macroeconomic indicators on the basis of an extended list of factor variables, which is what this article is focused on.

### 3 Data and methods

Agreeing with the opinion that initially banks' lending activity influences economic development, we have selected as resultant (dependent) following economic indicators:

- Index of physical volume of GDP (hereinafter – GDP index);
- Index of physical volume of fixed capital investment (hereinafter – investment index).

As factor variables were chosen following bank lending indicators:

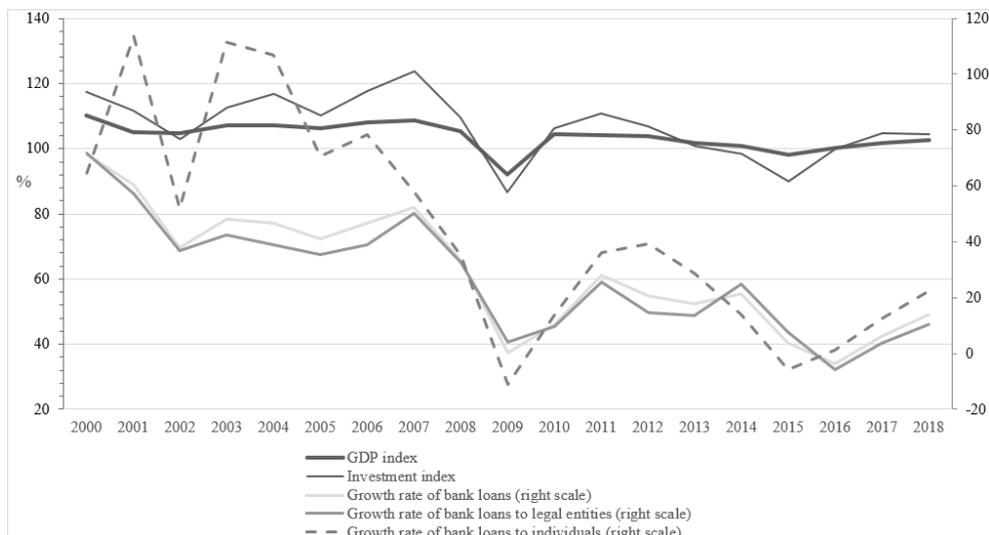
- Growth rate of debt on bank loans – overall and separately on loans to resident legal entities and to resident individuals (hereinafter – growth rate of bank loans);
- Share of loans in sources of fixed capital investment financing (hereinafter – share of loans in investment);
- Ratio of debt on bank loans (overall and by loan types) to GDP (hereinafter – ratio of bank loans to GDP).

The dynamics of these indicators was studied for the period 2000-2018 in Russia. Main data sources for the study were analytical materials of *Bank of Russia*, and *Federal State Statistic Service*.

The identification of the peculiarities of the relationship between selected resultant and factor variables required the use of graphical models, systems approach, comparative approach, dialectical method, deduction and induction.

### 4 Results and discussion

Comparative analysis of the dynamics of the GDP index and the investment index shows that their changes practically coincide and have a general tendency to decrease the values (Fig. 1). So, while for the periods 2000-2002, 2003-2005, 2006-2008 average values of these indices did not drop below 106%, the periods 2009-2011, 2012-2014, 2015-2018 not even reached the level of 105% (Table 1). At the same time, the investment index is characterized either by a higher growth or by a larger decrease in comparison with the GDP index, which indicates its more noticeable sensitivity to both crisis phenomena and the emergence of favorable conditions for economic development.



**Fig. 1.** Dynamics of the GDP index, investment index and growth rates of bank loans in Russia  
 Source: Own processing based on data of *Bank of Russia* [22] and *Federal State Statistic Service* [23].

**Table 1.** Average values of general economic indicators and bank lending indicators in Russia

Figure	Average values for the periods:					
	2000-2002	2003-2005	2006-2008	2009-2011	2012-2014	2015-2018
GDP index	106.6	106.9	107.3	100.3	102.1	100.7
Investment index	110.7	113.2	117.0	101.2	102.0	99.7
Growth rates of bank loans	56.4	45.2	44.0	12.9	20.0	5.0
Share of loans in investment	3.7	7.1	10.6	9.3	9.7	10.2
Growth rate of bank loans to legal entities	55.2	38.8	40.6	13.0	17.8	4.0
Growth rates of bank loans to individuals	76.6	96.2	57.1	13.1	27.3	7.6
Ratio of bank loans to GDP	14.3	22.8	35.6	40.8	46.8	48.3
Ratio of bank loans to legal entities to GDP	13.3	19.3	27.1	31.5	33.4	35.0
Ratio of bank loans to individuals to GDP	1.0	3.5	8.5	9.3	13.4	13.3

Source: Own processing based on data of *Bank of Russia* [22] and *Federal State Statistic Service* [23].

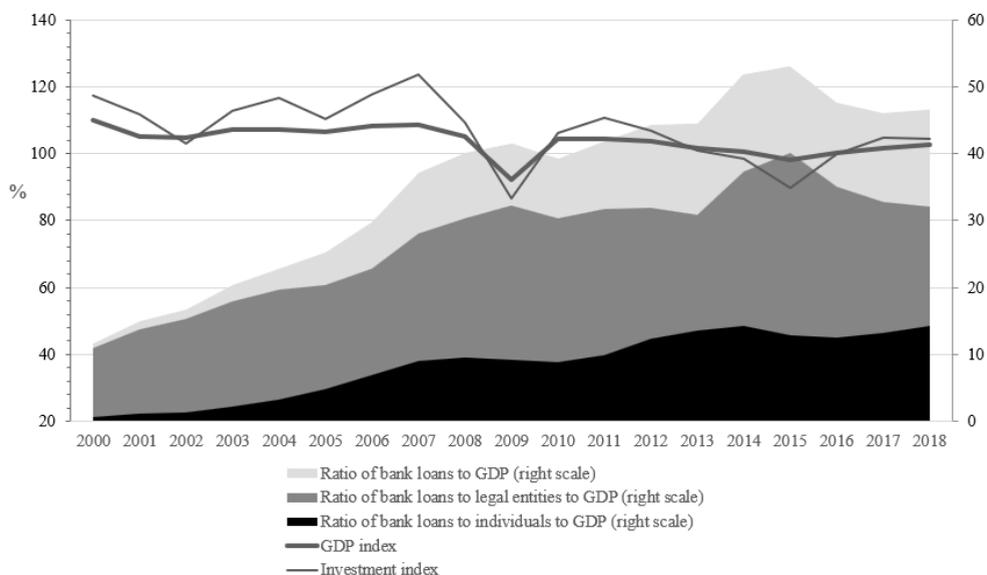
Assuming that the lending activity of banks is one of the factors of economic development, we analyzed to what extent the growth rate of loans to legal entities and individuals is reflected in the GDP and investment indices. The analysis shows that the dynamics of lending to legal entities almost coincide with the dynamics of total volume of lending. Trends in the growth rate of lending to individuals, on the contrary, often differ from this trajectory. Thus, in 2003, 2006, and 2010-2011, there was an increase in lending to individuals similar to the general dynamics of bank lending, but the actual growth rates of loans to individuals significantly exceeded the overall values of the corresponding indicators, which is primarily due to the more intensive development of consumer lending in comparison with corporate lending in these years. In other cases, trends in bank lending to individuals repeated trends in bank lending in general, but with some delay: while the decline in the overall growth rate of bank loans was observed in 2001-2002 and 2012-2013, the decline in the growth rate of loans to individuals occurred only in 2002 and 2013-2015.

However, in certain periods of time, the dynamics of the consumer loans segment, on the contrary, outpaced the overall trajectory. Thus, the slowdown in the growth rate of loans to individuals in the pre-crisis period already began in 2007, while the overall rate of bank loans significantly decreased only a year later. Or, the observed gradual increase in the growth rate of loans to individuals during 2016-2018 was accompanied by a similar trend in the corporate loans segment only starting from 2017.

Comparing dynamics of the growth rates of bank loans with dynamics of GDP and investment indices, one can see that their trajectories are similar and are characterized by a decrease in values. The slowdown in lending dynamics is associated, in particular, with an increase in concentration in the banking sector [24]. The trajectory of changes in macroeconomic indices is more similar to the trajectory of growth rate of loans to legal entities, which indicates a closer dependence of economic development on dynamics of corporate lending than on dynamics of consumer lending.

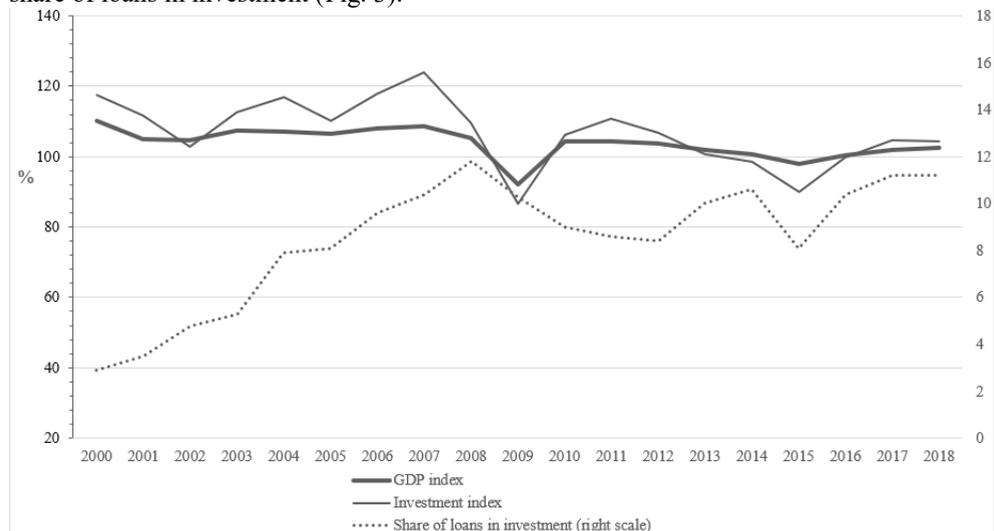
As a follow-up to this idea, we will evaluate the impact of the ratio of bank loans to GDP on the dynamics of the studied macroeconomic indicators (Fig. 2). It is obvious that there is no similarity in trends between the growth rate of loans and the ratio of loans to GDP [25]. During the analyzed period 2000-2018, there was a gradual increase in the value of the ratio of loans to GDP from 11.6% at the end of 2000 to 46.5% at the end of 2018. At the same time, over these years, the contribution of lending to individuals in this indicator has noticeably increased: if at the end of 2000 ratio of this segment to GDP was only 0.6%, then at the end of 2018 it jumped to 14.3%.

However, the GDP and investment indices in 2000-2018 did not show similar significant growth, moreover, the development of consumer lending was sometimes accompanied by a parallel decrease in the values of the GDP and investment indices. In this regard, it should be noted that some authors emphasize the risk of domination of short-term consumer loans in our country over long-term [26], and there are studies that prove that corporate lending has a more beneficial effect on economic growth than consumer lending. [27, 28].



**Fig. 2.** Dynamics of GDP index, investment index and ratio of bank loans to GDP in Russia  
 Source: Own processing based on data of *Bank of Russia* [22] and *Federal State Statistic Service* [23].

In support of this idea, we compared GDP and investment indices with the dynamics of share of loans in investment (Fig. 3).



**Fig. 3.** Dynamics of the GDP index, investment index and the share of loans in investment in Russia  
 Source: Own processing based on data of *Bank of Russia* [22] and *Federal State Statistic Service* [23].

The results of this analysis showed that changes in the share of loans in investment often affect growth rates of macroeconomic indices in about 2-3 years. For example, a noticeable increase in the share of loans in investment in 2000-2002, 2004, 2006-2008, and 2013-2014 was accompanied by an increase in macroeconomic indices in 2003-2004, 2006, 2010-2011, and 2016-2018, respectively. Conversely, the downward trend in the share of loans in investment in 1998-2000 and 2009-2012 may have influenced the decline in the values of macroeconomic indices in 2001-2002 and 2012-2015, respectively. A similar relationship is shown by a comparison of the dynamics of the average values of these indicators presented in Table 1. Thus, the increase of the average values in 2003-2005, 2006-2008, 2012-2014 compared to the previous three-year periods was observed for the macroeconomic indices, and the share of loans in investment. At the same time, in 2015-2018, the average value of the share of loans in investment increased in comparison with the previous period, while the average values of macroeconomic indices decreased. In our opinion, the fact that in some cases an increase in the share of loans in investment is reflected in economic growth, and in others it is not, can be attributed primarily to the fact that this share itself, even despite the increase, may remain insignificant. This indicator would certainly have a more noticeable impact on economic growth if it reached the level of more than 20%, as in developed countries, where it is equal to 30-50% [29].

## 5 Conclusion

Summarizing the results of the study, we can draw the following conclusions:

1. The trajectory of dynamics of GDP and investment indices in most cases coincides and has a general tendency to decrease the values, while the investment index is more sensitive to both crisis phenomena and the emergence of favorable conditions for economic development, including lending factors.

2. The dynamics of lending to legal entities almost coincides with the dynamics of total volume of lending, but trends in the growth rate of lending to individuals often differ from this trajectory.

3. Economic indicators are more dependent on the development of bank lending to legal entities than on lending to individuals.

4. In most cases, there is a dependence of the GDP and investment indices on the share of loans in investments with a time lag of 2-3 years, however, there are facts that contradict this conclusion, which may be due to the low values of the share of loans in investment in Russia, which are insufficient to obtain a more noticeable impact on the economic growth.

5. The revealed patterns of interrelation between bank lending indicators and general economic indicators indicate the need to develop a monetary policy aimed at stimulating corporate lending and moderate curbing consumer lending.

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