

## THE ROLE OF FINANCIAL INTERMEDIARIES IN THE ECONOMY: THE EVIDENCE FROM AZERBAIJAN

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### ABSTRACT

The performance of financial intermediaries has an important role in the generation of economic output in a country. The research aims to examine the role of financial intermediaries in the Azerbaijan economy – especially the non-oil sector. Using yearly data of 2000-2020, the research explores the long-run impact of bank and non-bank credits over the non-oil GDP of Azerbaijan. The ARDLBT approach to cointegration is employed to test the existence of any cointegration relationship in the estimated models. While controlling for the role of public expenditures, empirical results reveal that there is a significant positive long-run impact of non-bank credits over the non-oil sector in Azerbaijan. On the contrary, the impact of bank credits is found insignificant and not economically meaningful. The problem requires further investigation while considering the use of credits obtained from both bank and non-bank credits. If credits are used to finance the purchase of imported products, it will not have a substantial contribution to the non-oil sector of Azerbaijan economy. Research findings can be useful to comprehend the role of financial intermediaries in the non-oil sector and make further amendments to banking policy.

**Keywords:** Financial intermediaries; bank credits; non-bank credits; Azerbaijan economy.

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## INTRODUCTION

The notion of the financial market is a newer concept than the other elements of the financial system and is interpreted differently in different literature. Its main role in the economy is to redistribute financial resources. Thus, the formation of financial resources, their more efficient distribution and targeted use are regularly managed by the financial market. Analyzing the financial intermediaries in Azerbaijan can improve the economy overall.

The problem is that the most of budget of Azerbaijan depends on the revenues coming from the oil sectors. Therefore learning the structure of financial intermediaries at the national level can improve non-oil sectors in the country, especially service sectors.

A financial market is a form of market where financial resources act like commodities. In other words, the financial market is a market that distributes cash among economic entities. Its main purpose is to ensure efficient mobilization of funds and their transfer to those in need of financial resources. There is a special role of financial intermediaries in the implementation of the financial and economic functions of the state. So to develop the performance of non-oil sectors and to improve the role of financial intermediaries in the economy, and eventually improve non-oil GDP.

The financial market is a financial institution that allows saving depositors to provide funds directly to borrowers. One of the key factors in the emergence of the financial market is the uneven distribution of financial resources. This is because, during this division, there is an excess of financial resources on the part of enterprises and the lack of financial resources on the other. At the same time, the financial market acts as an important form of securing the movement of financial resources from one enterprise to another. Thus, the financial market plays a role in facilitating the flow of funds to those in need.

With regards to credits and economic development, Babalola and Akpansung (2011) assessed the bank credit impact on financial development on account of Nigeria, utilizing Two-Stage Least Squares (TLS) to the information ranging from 1970 to 2008. The outcomes show a positive effect of private area credit on financial development. Iqbal et al. (2012) examined the effect of private saving and private credits on monetary development in Pakistan using the Autoregressive Distributed Lag model (ADRL) technique to the information spanning from 1993 to 2007. They tracked down a positive and measurably huge impact of credits on financial development. The connection between bank credits and monetary development was likewise researched by Gozgor and Gozgor (2013) for 20 Latin American nations. They utilized the board co-combination method for observational investigation. The outcomes affirmed the presence of a since quite a while ago run connection between factors. Also, the utilized board causality test closed unidirectional causality running from homegrown credits to monetary development.

Ben et al. (2014) contemplated the connection between homegrown credits and financial development in Tunisia utilizing the ADRL technique. They uncovered a positive and huge impact of bank credit on monetary development. Their outcomes presumed that a 1% expansion in the private credit brought about a 3.36% increment in genuine GDP per capita.

These days, the effect of credits on financial development is one of the interesting issues. The few hypothetical and exact examinations committed to the investigation of the effect of credits on financial development are being researched nowadays. These related examinations are looked into, and it was recognized that while a portion of the investigations shows a positive connection

between monetary development and credits in certain nations, there are a few nations where there is even negative or no huge nexus between the demonstrated factors.

On account of Azerbaijan, Mukhtarov et al. (2019) analyzed the impact of the bank advances on the non-oil GDP by utilizing CCR, DOLS, FMOLS strategies to the information crossing from 2005 to 2019. The aftereffects of the study uncovered that the bank credits and the swapping scale altogether affect the non-oil GDP in the long haul for Azerbaijan. Another exploration was committed to the effect of credits on the GDP in Brazil's economy. Patricia and Benjamin (2008) led the VECM model to the month to month information going from January 1995 to July 2007. They tracked down that monetary improvement has a critical part in financial development. Also, Tutar and Unluleblebiji (2014) led research on the connection between financial development, and the credits conceded too little and medium organizations in Turkey by utilizing month to month information time of December 2006 – June 2011. The Granger causality and Johansen tests were utilized in the exploration. The consequence of the researchers reasoned that the credits conceded too little and medium business have a constructive outcome on monetary development in Turkey.

Autoregressive Distributed Lag Bounds Testing (ARDLBT) approach to co-integration developed by Pesaran et al. (2001) is employed to estimate long-run associations. In contrast to alternatives, the ARDLBT method has some advantages, including easy applicability in small samples using Ordinary Least Squares (OLS), no endogeneity problem with both  $I(1)$  and  $I(0)$  series or a mixture of them, and simultaneous estimation of long-run and short-run coefficients (Pesaran et al. 2001, Oteng et al. 2006, Muhammad and Umer, 2010). Because of the small number of findings and the ADF unit test results, ARDLBT is also a more appropriate method for this study.

While discussing the role of financial intermediaries in the Azerbaijan economy, the “before-during-and-after the oil boom” approach will be used, in line with Aliyev (2014), Dehning, Aliyev and Nadirov (2016), Aliyev and Gasimov (2018). In this context, 2000-2005, 2005-2015 and after 2015 will be considered as “before oil boom”, “oil boom”, and “after oil boom”, respectively. Simultaneously, currency devaluations of 2015 will be considered as key events affecting the performance of financial intermediaries.

## **1. PERFORMANCE OF BANKING SECTOR BEFORE-AND-AFTER DEVALUATION**

Most types of financial intermediation are created in developed countries. Although each type of financial intermediaries has its own scope and scope of service, there is fierce competition between them. The role of financial intermediaries in the country's economy and fund flow is both absolute but also varies considerably in a relative sense. Banks that are already historically ancient financial intermediaries give their money to other financial institutions. Pension funds and interactions within financial assets the share of funds is growing. This process is mainly related to the process of disinfection. Banks are increasingly being pushed out of the capital market by investment institutions (Mammadzade, 2019).

The banking system is organized in two stages. The center of the country's banking system acts as a “Bank of Banks” and has many economic functions. First of all, the Central Bank is the last resort. To him, by law regulates the banking system using the right granted to them by the economy indirectly determines the acceptance of loans and deposits. Central Banks cash in

circulation is the issuer of money, and the money in the hands of the monetary base that forms the basis of the money supply to the economy defines policy with tools.

The banking system of the Azerbaijan Republic consists of the financial market supervisory authority, the Central Bank of the Azerbaijan Republic (hereinafter referred to as the text and credit organizations. The Central Bank is the central bank of the state, and its activity is regulated by the Constitution of the Azerbaijan Republic, "Law of the Azerbaijan Republic".

**Table 1:** The structure of credit investments in the economy by credit organizations  
(at the end of the period)

Year	Total cedits	State banks		Commercial banks						Non-bank credit organizations	
				Total		Banks with foreign capital		Banks with 100% foreign capital			
		mln. AZN	percent. %	mln. AZN	percent. %	mln. AZN	percent. %	mln. AZN	percent. %	mln. AZN	percent. %
2005	1441.0	748.3	51.9	653.1	45.3	263.5	18.3	25.9	1.8	39.6	2.7
2006	2362.7	1068.3	45.2	1229.7	52.0	545.8	23.1	55.8	2.4	64.7	2.7
2007	4681.8	1990.7	42.5	2563.0	54.7	1437.6	30.7	216.2	4.6	128.1	2.7
2008	7191.3	3027.5	42.1	3989.0	55.5	2024.9	28.2	379.9	5.3	174.8	2.4
2009	8407.5	3911.7	46.5	4318.7	51.4	2074.4	24.7	386.6	4.6	177.0	2.1
2010	9163.4	3901.9	42.6	5069.9	55.3	2306.3	25.2	464.2	5.1	191.6	2.1
2011	9850.3	3300.0	33.5	6298.8	63.9	3002.0	30.5	586.2	6.0	251.5	2.6
2012	12243.7	4137.1	33.8	7785.5	63.6	3394.0	27.7	759.3	6.2	321.1	2.6
2013	15422.9	5300.4	34.4	9689.4	62.8	4612.5	29.9	1034.7	6.7	433.1	2.8
2014	18542.6	6143.8	33.1	11873.6	64.0	5580.1	30.1	1388.6	7.5	525.2	2.8
2015	21730.4	7289.3	33.6	13875.2	63.8	6394.1	29.4	1564.5	7.2	566.0	2.6
2016	16444.6	5749.2	35.0	10222.0	62.2	4328.8	26.3	1248.8	7.6	473.4	2.9
2017	11757.8	1916.2	16.3	9421.4	80.1	3456.3	29.4	1063.6	9.0	420.2	3.6
2018	13020.3	2098.4	16.1	10529.8	80.9	3349.5	25.7	1071.3	8.2	392.0	3.0
2019	15298.2	2561.5	16.7	12339.4	80.7	3655.8	23.9	1107.4	7.2	397.2	2.6
2020	14530.4	2776.5	19.1	11380.5	78.3	3112.3	21.4	968.2	6.7	373.4	2.6

\*The reduction in credit investments is related to the revoked banks.

Note: Indicators are calculated according to the International Monetary Fund's "Money and Financial Statistics" methodology.

Source: Central Bank of the Republic of Azerbaijan, [www.cbar.az](http://www.cbar.az) (31.12.2020)

This Law and other normative legal acts adopted in accordance with them, as well as international agreements to which the Republic of Azerbaijan is a party, regulate the activities of credit institutions in the Republic of Azerbaijan. Laws of the Republic of Azerbaijan "On Organizations" and "On Credit Unions", other normative legal acts of the Republic of Azerbaijan, financial market supervisory authority and normative acts of the Central Bank adopted in accordance with them, as well as international agreements to which the Republic of Azerbaijan is a party.

According to Table 1, this is a table about market participants. As became clear from the table, the number of state banks was the same from 2018 to 2019. The number of commercial banks has decreased from 28 to 24. As it is mentioned, the reduction observed in bank indicators is related to revoke of licenses of banks.

## 2. PERFORMANCE OF NON-BANK FINANCIAL INTERMEDIARIES (NBCI) BEFORE-AND-AFTER DEVALUATION

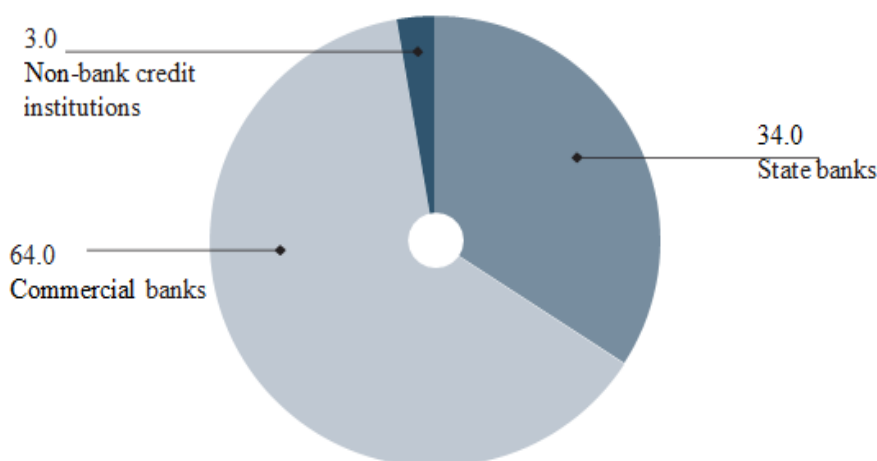
NBCIs are one of the non-bank financial institutions (organizations). One of the main roles of these organizations in the financial system is to support socio-economic development. Thus, research on the economy and financial system of some countries gives grounds to say so.

Loans issued by NBCI can be secured by movable and immovable property, guarantee, surety, mortgage deposit. And it can also be provided by other methods in accordance with the legislation (Law of the Republic of Azerbaijan "On Non-Bank Credit Institutions", [www.e-qanun.az](http://www.e-qanun.az), 2018).

NBCIs that have placed a collateral deposit in their accounts may not lend or provide other financial services at the expense of those funds. According to the Rules of Prudential Regulation of NBCIs, the minimum requirements for the authorized capital of these organizations are as follows:

- For commercial NBCIs - 300 (three hundred) thousand manats;
- For non-commercial NBCIs - 30 (thirty) thousand manats.

**Figure 1:** Structure of credit investment by credit organizations, in percent (31.12.2015)



*Source:* Central Bank of the Republic of Azerbaijan, [www.cbar.az](http://www.cbar.az) (31.12.2015)

In addition, the capital and assets of NBCIs are relatively small compared to banks. The figure shows some of the NBCI statistics for 2003-2015. Thus, the total capital of NBCIs as of 2014 amounted to 89.03 mln. AZN and assets 650.6 mln. AZN. As of that date, compared to banks, NBCIs have about 2.6% of the bank's capital and 2.1% of their assets. In 2015, there was a significant increase in the assets of NBCIs. The reason for this was the strengthening of the IBA. Thus, due to the measures of the IBA restructuring plan, the bank's troubled assets were transferred to the management of "Agrarkredit" NBCI CJSC.

NBCI can provide secured and unsecured loans. NBCIs licensed to issue loans can also carry out the following activities: leasing, insurance agent services, promissory note registration, guarantee issuance, factoring, forfeiting, technical and management services to borrowers, as well as financial advisory services (Non-bank Law of the Republic of Azerbaijan "On credit organizations", [www.e-qanun.az](http://www.e-qanun.az), 2018).

**Table 2:** Statistics of non-bank credit institutions

Year	Total credits	Non-bank credit institutions	
		mln. manat	percent, %
2005	1441.0	39.6	2.7
2006	2362.7	64.7	2.7
2007	4681.8	128.1	2.7
2008	7191.3	174.8	2.4
2009	8407.5	177.0	2.1
2010	9163.4	191.6	2.1
2011	9850.3	251.5	2.6
2012	12243.7	321.1	2.6
2013	15422.9	433.1	2.8
2014	18542.6	525.2	2.8
2015	21730.4	566.0	2.6
2016	16444.6	473.4	2.9
2017	11757.8	420.2	3.6
2018	13020.3	392.0	3.0

*Source:* Central Bank of the Republic of Azerbaijan (<https://www.cbar.az/page-40/statistics-bulletin>)

### 3. DATA AND METHODOLOGY

#### 3.1. Variables and descriptive statistics

All the data available herein are yearly-based and cover the period 2000–2020, totalling an overall to 21 observations. Basic definitions of variables are given below:

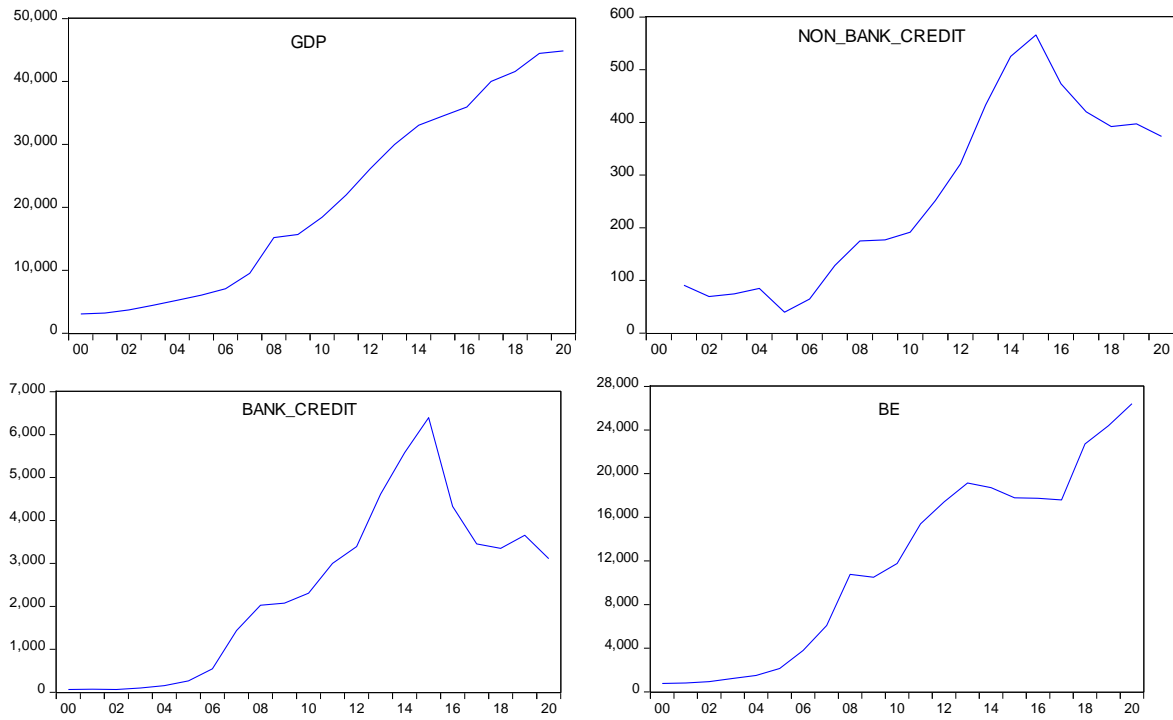
*Non-Oil Real GDP (gdp)* is the dependent variable, measured in a million AZN, demonstrates the sum of value added produced in the non-oil economy. We have the data from the monthly Statistical Bulletins (SB), compiled and issued by the Central Bank of Azerbaijan (CBAR), and converted them to a yearly basis.

*Credits by Banks (bank\_credit)* is the first main independent variable, measured in a million AZN. Credit is a customer's right to purchase products or services before making a deposit, depending on the expectation the payment will be made later. In terms of credits by banks, we only consider credits given by banks and the related data is taken from yearly Statistical Bulletins (SB), compiled and issued by the Central Bank of Azerbaijan (CBAR).

*Credits by Non-bank organizations (non\_bank\_credit)* is the second main independent variable, measured in a million AZN, a non-banking financial institution (NBFI) or non-bank financial corporation (NBFC) is a financial institution that does not hold a full banking license and is not controlled by a national or international banking regulator. In terms of credits by non-banks, the related data is taken from yearly Statistical Bulletins (SB), compiled and issued by the Central Bank of Azerbaijan (CBAR).

*Budget expenditures (BE)*, measured in a million AZN, a budget is a microeconomic idea that shows the trade-off made when one product is exchanged for another. In terms of the end result of this trade-off—a surplus budget means profits are anticipated. A balanced budget means revenues are expected to equal expenses, and a deficit budget means expenses will exceed revenues. We have the data from the yearly Statistical Bulletins (SB), compiled and issued by the Central Bank of Azerbaijan (CBAR).

Figure 2 presents the dynamics of all variables during the investigated period.

**Figure 2:** Time profile of variables

Source: Author's own creation

**Table 3:** Statistic indicators of measured variables

	GDP	BE	BANK_CREDIT	NON_BANK_CREDIT
Mean	21151.16	11791.46	2380.271	262.4150
Median	18442.70	11765.90	2306.300	221.5500
Maximum	44862.10	26417.10	6394.100	566.0000
Minimum	3055.800	763.8000	63.30000	39.60000
Std. Dev.	15235.02	8700.188	1949.437	173.3532
Skewness	0.224083	0.015596	0.312214	0.241002
Kurtosis	1.536602	1.613757	2.108642	1.622333
Observations	21	21	21	20

Source: E-views estimation output

Primary descriptive statistics of variables are tabulated in Table 3.

### 3.2. Econometric model

The baseline long-run econometric model of the research is as follows:

$$\log(GDP)_t = \beta_0 + \beta_1 * \log(BankCredit)_t + \beta_2 * \log(NonBankCredit)_t + \beta_3 * \log(BE)_t + u_t$$

Here,  $\beta$ s display regression coefficients while  $t$  denote the time.  $u$  is the error term that covers all unobservable factors.

## 4. EMPIRICAL RESULTS

### 4.1. Unit root test results

Table 4 reports ADF unit root test results with-and-without trend.

**Table 4:** Unit Root Tests Results

	Variable	ADF			
		Level I(0)	k	First difference I(1)	k
Intercept	GDP	0.9902	0	-3.3969*	0
	BE	0.3479	0	-2.1238***	0
	Bank_Credit	-1.2101	0	-0.8365**	0
	Non_Bank_credit	-1.6599	1	-2.1673***	1
Trend and Intercept	GDP	-2.8048	0	-3.2881*	0
	BE	-3.5279	0	-3.4806**	0
	Bank_Credit	-2.8285	0	-2.8958**	0
	Non_Bank_credit	-3.1640	1	-3.1479***	1

**Notes:** ADF denote the Augmented Dickey-Fuller, Maximum lag order is set to 10, and optimal lag order (k) is selected based on the Schwarz Information Criterion (SIC) in the ADF test; \*\*\*, \*\*, and \* indicate the rejection of the null hypotheses at 1%, 5%, and 10% levels of significance, respectively. The critical values for the ADF are taken from MacKinnon (1996), whereas the ones for the Estimation period: 2000-2020

All variables are not stationary at Level. But at the first difference, all variables are stationary. Therefore, all variables are I (1). Because the ARDLBT approach can be estimated by using a combination of I (0) and I(1) variables, we can proceed with the analysis to the next estimation stage.

#### 4.2. ARDLBT outputs

In the research, we have four independent variables. Note that we coded non-oil GDP, credits by banks, credits by non-banks and budget expenditures as GDP, Bank\_Credit, Non-Bank\_credit and BE, respectively.

Table 5 presents the conditional error correction regression equation. Based on this equation, we can test the existence of long-run association or cointegration relationship in the model by using the Bounds test.

**Table 5:** Conditional Error Correction Regression

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.352822	0.278437	4.858628	0.0007
LOG(GDP(-1))*	-0.484395	0.091129	-5.315471	0.0003
LOG(BANK_CREDIT)**	-0.026348	0.039642	-0.664635	0.5213
LOG(BE(-1))	0.254368	0.091129	2.791306	0.0191
LOG(NON_BANK_CREDIT(-1))	0.244100	0.054893	4.446803	0.0012
DLOG(GDP(-1))	-0.280918	0.165752	-1.694809	0.1210
DLOG(BE)	0.546347	0.098051	5.572086	0.0002
DLOG(BE(-1))	0.153755	0.107668	1.428045	0.1838
DLOG(NON_BANK_CREDIT)	0.056607	0.047956	1.180397	0.2652

\* p-value incompatible with t-Bounds distribution.

\*\* Variable interpreted as  $Z = Z(-1) + D(Z)$ .

**Source:** E-views estimation output



According to table 6, there is a cointegration relationship in the model. Calculated F-statistic is greater than the upper bound of the critical value. Even in a small sample with 30 observation, the upper bound of the critical value at a 1% level of significance is significantly lower than the estimated F-statistics value. Therefore, we can conclude that according to bounds test results, there is a long-run relationship or cointegration in the estimated model.

The next stage is to calculate the long-run equation:

$$\text{Log}(GDP)_t = 2.793 - 0.054 * \text{log}(\text{BankCredit})_t + 0.504 * \text{log}(\text{NonBankCredit})_t + 0.525 * \text{log}(\text{BE})_t$$

The probability of **BankCredit** variable's coefficient is **0.5031**, which is greater than 10%. Therefore, we fail to reject the null hypothesis of "no long-run impact". It means that there is no significant long-run impact of bank credits over non-oil GDP. Regarding non-bank credits, the coefficient's probability (**0.0012**) is less than 1% means that the long-run relationship between non-bank credits and non-oil GDP is positive and statistically significant. The coefficient of the control variable (BE) is also positive and statistically significant at a 1% significance level (**0.0015**).

**Table 6:** Testing for existence of the long-run association

F-Bounds Test		Null Hypothesis: No levels relationship		
Test Statistic	Value	Signif.	I(0)	I(1)
		Asymptotic: n=1000		
F-statistic	9.275552	10%	2.37	3.2
k	3	5%	2.79	3.67
		2.5%	3.15	4.08
		1%	3.65	4.66
		Finite Sample: n=35		
Actual Sample Size	19	10%	2.618	3.532
		5%	3.164	4.194
		1%	4.428	5.816
		Finite Sample: n=30		
		10%	2.676	3.586
		5%	3.272	4.306
		1%	4.614	5.966

*Source: E-views estimation output*

According to residual diagnostics test results, estimated model has no serial correlation and heteroscedasticity problems. Meanwhile, residuals are normally distributed. Therefore, research findings can be considered reliable enough to be used for policy purposes.

## CONCLUSION

Studying the problems of development and improvement of banks' activity in the context of market relations is always relevant. In line with the requirements of the new economic environment, the continuous economic reforms require further improvement of banking

activities and their establishment on the basis of new principles. The reforms will create effective conditions for ensuring the stability and dynamic development of the banking system. As shown in the strategic roadmap for the development of financial services, the efficient operation of banks is essential to the stability of the banking system (Hasanov, 2011)

Finding the insignificant impact of bank credits over the non-oil sector is an important insight into the performance of the bank sector. Experience shows that international experience in the development of both the financial system as a whole and the financial market can help to overcome many problems in this area:

- There is a great need for the activity of investment banks in Azerbaijan. Investment banks are a key player in the developed financial markets, as they play an important role between the investor and the issuer, thus helping the investor achieve maximum returns. At the initial stage, it is possible to transfer this position to commercial banks in the country, and if successful, it will be possible to create separate investment banks.
- Regional coverage of financial intermediation services and access to such services should be expanded.
- It is advisable to take measures to ensure the transparency of financial reporting, which is the main information base in the financial market, with special emphasis on training in this area.
- The performance of non-bank institutions must be increased as the impact of credits by non-banks on non-oil GDP is greater than the impact of credits by banks. This difference is connected to the fact that most of the credits given by non-bank organizations are investment-related rather than consumption-related.

## REFERENCES

1. Akpansung, A. O., & Babalola, S. J. (2011). Banking sector credit and economic growth in Nigeria: An empirical investigation. *CBN Journal of Applied Statistics*, 2(2), 51-62.
2. Aliyev, K., & Gasimov, I. (2018). Fiscal policy implementation in Azerbaijan before, during and after the oil boom. *Contemporary Economics*, 12(1), 81-94.
3. Aliyev, K. (2014). WTO Membership and South Caucasus Economies. *Saarbrücken: LAP Lambert Academic Publishing*.
4. Jedidia, K. B., Boujelbene, T., & Helali, K. (2014). Financial development and economic growth: New evidence from Tunisia. *Journal of Policy Modeling*, 36(5), 883-898.
5. Dehning, B., Aliyev, K., & Nadirov, O. (2016). Modelling productivity of budget expenditure items before-and-after the oil boom in a resource rich country: Evidence from Azerbaijan. *International Journal of Economic Research*, 13(4), 1793-1806.
6. Gozgor, G., & Gozgor, K. (2013). The Relationship between Domestic Credit and Income: Evidence from Latin America. *Applied Econometrics and International Development*, 13(1), 89-98.
7. Hasanov, F., & Huseynov, F. (2013). Bank credits and non-oil economic growth: Evidence from Azerbaijan. *International Review of Economics & Finance*, 27, 597-610.
8. Iqbal, M. Z., Ahmad, N., & Hussain, Z. (2012). Impact of savings and credit on economic growth in Pakistan. *Pakistan Journal of Social Sciences (PJSS)*, 32(1), 39-48.
9. MacKinnon, J. G. (1996). Numerical distribution functions for unit root and cointegration tests. *Journal of Applied Econometrics*, 11(6), 601-618.
10. Mammadzade F. H. (2019). *Devalvasiyadan sonra Azərbaycanı bank sektorunun mənfəət analizi və makroiqtisadi göstəricilərin təsiri*. Bakı, 179 s.

11. Mukhtarov, S., Humbatova, S., & Seyfullayev, İ. (2019). The impact of bank credits on non-oil GDP: evidence from Azerbaijan. *Banks and Bank Systems*, 14(2), 120.
12. Oteng-Abayie, E.F. and Frimpong J.M. (2006). Bounds Testing Approach to Cointegration: An Examination of Foreign Direct Investment Trade and Growth Relationships, *American Journal of Applied Sciences*, 3(11), 2079-2085.
13. Pesaran, H. M. and Pesaran, B. (1997). *Working with Microfit 4.0: Interactive Econometric Analysis*. Oxford University Press, Oxford, UK.
14. Muhammad, S. D., & Umer, M. (2010). The bound testing approach for co-integration and causality between financial development and economic growth in case of Pakistan. *European Journal of Social Sciences*, 13(4), 525.