

Table 3: Johansen Cointegration Test Results for Credit Volume and Petroleum Sector GDP

Trace Test	Eigenvalue Statistic	Trace Test	5% Critical Value	Probability
None	0.224755	62.43826	15.49471	0.0000
At Most	0.095331	17.63283	3.841466	0.0000
Maximum Eigen Value Testi	Eigenvalue Statistic	Max-Eigen test	5% Critical Value	Probability
None	0.224755	44.80542	14.26460	0.0000
At Most	0.095331	17.63283	3.841466	0.0000

With a closer look at Table 3, it becomes clear there is a cointegration equation between the oil sector GDP variables indicating loan volume and economic growth that is significant at the 5 percent

level for both Trace and Maximum Eigen values. This conclusion indicates a long-term link between loan volume and the oil sector's GDP, which reflects economic growth over a period of time.

Table 4: Johansen Cointegration Test Results for Credit Volume and Money Supply

Trace Test	Eigenvalue Statistic	Trace Test	5% Critical Value	Probability
None	0.169303	36.15068	15.49471	0.0000
At Most	0.019715	3.504456	3.841466	0.0612
Maximum Eigen Value Testi	Eigenvalue Statistic	Max-Eigen test	5% Critical Value	Probability
None	0.169303	32.64622	14.26460	0.0000
At Most	0.019715	3.504456	3.841466	0.0612

With a closer look at Table 4, it becomes clear that there is a cointegrated relationship between loan volume and money supply at the 5% level of significance for both the Trace and Maximum Eigen values. This finding demonstrates a long-run link between loan volume and money supply in

the economy. Because the two models under consideration have a cointegration connection, the FMOLS and DOLS tests are used to estimate the long-term coefficients. The results of the FMOLS and DOLS tests are shown in Table 4.

Table 5: FMOLS and DOLS Test Results

	$m2_{it} = \alpha + \beta_1 KHit + \epsilon_{it}$ $GDPNO_{it} = \alpha + \beta_1 KHit + \epsilon_{it}$ $GDPOIL_{it} = \alpha + \beta_1 KHit + \epsilon_{it}$		
	Katsayı	t-istatistiği	Olasılık Değeri
FMOLS LOGTL → LOGM2	1.078183	10.85771	0.0000
DOLS TL → M2	1.022554	13.68927	0.0000
FMOLS TL → GDPNO	0.873358	9.266807	0.0000
DOLS TL → GDPNO	0.913190	6.380874	0.0000
FMOLS TL → GDPNOIL	0.444243	4.502559	0.0000
DOLS TL → GDPNOIL	0.439953	3.217111	0.0015

Table 5 shows the findings of the FMOLS and DOLS tests, which show that a rise in

credit volume has a beneficial effect on money supply and economic growth.

According to the FMOLS test, if the domestic credit volume grows by one percent, the money supply increases by one-hundred-and-eighth a percent (1.022554 percent according to DOLS). According to the FMOLS test, a one percent increase in domestic loan volume enhances economic growth by 0.873358 percent, while a ten percent rise in household loan volume raises economic growth by ten percent (0.91319 percent according to DOLS). According to

the FMOLS test, a 1 percent increase in domestic loan volume enhances economic growth by 0.444243 percent from the standpoint of economic growth (0.439953 percent according to DOLS).

The Granger causality test was used to determine if the FMOLS and DOLS tests were consistent. The findings of the Granger causality test are shown in Table 6.

Table 6: Granger Causality Test Results

	Number of Observations	Probability value
LOGTL → LOGM2	180	0.2622
LOGM2 → LOGTL	180	0.2917
LOGTL → GDPNO	180	0.4989
GDPNO → LOGTL	180	0.7415
TL → GDPNOIL	180	0.6317
GDPNOIL → TL	180	0.0000

According to the Granger causality test results in Table 6, no causal relationship was found between money supply and credit volume, between credit volume and non-oil GDP, and between money supply and oil and non-oil sector GDP. Therefore, a unidirectional causality was found between the money supply and the domestic credit volume. When we look at the situation in terms of oil sector GDP and economic growth, there is a causality relationship at the level of 1% significance from economic growth to domestic credit volume; It was not possible to establish a causal association between domestic loan volume and economic growth in this study. As a result, the relationship between economic growth and domestic credit volume has been established unidirectional. The demand tracking theory, which was explored in the paper, was confirmed by this outcome. The demand tracking hypothesis is appropriate because of the unidirectional connection that exists between economic growth and financial development.

6. Discussion

Because the issue of economic growth is getting more complicated in current reality, it is necessary to study the nature of

economic development throughout history. The investigation of economic growth variables, the most important of which are the rates of consumption and investment, is brought to the forefront (Khanlarzadeh, 2021). In Azerbaijan, the influence of loan volume on money supply has not been investigated, as can be observed from the examination of the literature on the subject. This makes the study important and contributes to the literature.

According to Granger causation:

Hypothesis 1: The hypothesis that there is no relationship between money supply and credit volume is accepted.

Hypothesis 2: The hypothesis that there is no relationship between credit volume and non-oil GDP was accepted.

Hypothesis 3: The hypothesis that there is no relationship between the money supply and the non-oil sector GDP is accepted.

Hypothesis 4: The hypothesis that there is no relationship between money supply and oil sector GDP is accepted.

Hypothesis 5: The hypothesis that there is no relationship between non-oil GDP and credit volume was accepted.

Hypothesis 6: The hypothesis that there is no relationship between oil sector GDP and credit volume is rejected. In other words, the oil sector affects the credit volume.

7. Conclusion

An analysis of the impact of loan volume on the money supply and economic development in Azerbaijan was conducted in this research. FMOLS and DOLS tests, which determine the coefficient of cointegration, causation, and connection, were performed on data including quarterly time series over 2006:M1-2021:M9. According to the conclusions of the research, a one-way causative link exists between the money supply and domestic credit volume and a one-way causal relationship between economic growth and domestic credit volume. This research provides evidence for the demand-following theory within the scope of the supply-following and demand-following hypotheses mentioned in the study. When one considers one-way causation, which runs from economic growth to financial development, the demand-following theory is correct. This finding demonstrates that economic expansion in the Azerbaijani economy increases the development of the financial sector and, as a result, the amount of credit extended. There was no evidence of a direct association between domestic loan volume and economic development. While doing so, researchers discovered that domestic credit volume, money supply, and economic growth all had a long-term cointegrated connection throughout time.

There is additional evidence for Granger causality findings from FMOLS and DOLS testing. As measured by the FMOLS test, a one-percent increase in domestic credit volume results in a 0.67 percent rise in the money supply. To put this in the framework of financial growth, according to FMOLS and DOLS, a rise in domestic credit volume of 1% raises economic growth by 0.22% (or 0.23%), respectively.

In future studies, the effect of the credit volume of state bank loans, commercial bank loans and non-bank financial institution loans on economic growth should be investigated separately. However, it would be more meaningful to investigate which bank loan affects which sector more.

Reference:

- [1]. Akbulaev, N., & Huseynova, A. (2019), February). Examining the Role of Credit Volume on Economic Growth: The Case of Azerbaijan. In 37th International Scientific Conference on Economic and Social Development—" Socio Economic Problems of Sustainable Development"-Baku (pp. 14-15).
- [2]. Akbulaev, N., & Tahirzade, L. (2021). FINANCIAL SUSTAINABILITY: THEORY AND AZERBAIJAN APPLICATION. Economic and Social Development: Book of Proceedings, 865-873.
- [3]. Akinlo, A. E., & Egbetunde, T. (2010). Financial development and economic growth: The experience Of 10 SubSaharan African Countries revisited. The Review of Finance and Banking, 02(1), .17-28.
- [4]. Alshammary, M. J. (2014). Financial development and economic growth in developing countries: Evidence from Saudi Arabia. Corporate Ownership & Control ,11(2),718-742.
- [5]. Arestis, P., Demetriades, P. O., & Luintel, K. B. (2001). Financial development and economic growth: The role of stock markets. Journal of Money, Credit and Banking, 33(1), 16–41.
- [6]. Bal, Oğuz (2012), "The Relationship between Exchange Rate, Deposit Rate, Inflation and Government Domestic Debt Securities: 1994-2008" Academic View Journal, Issue: 31, July-August 2012.
- [7]. Becsi, Zsolt and Wang, Ping (1997), "Financial Development and Growth" Federal Reserve Bank of Atlanta Economic Review, Fourth Quarter, Vol. 82, Iss. 4, p. 46-62.
- [8]. Cestepe, H. & Yıldırım, E. (2016). The relationship between financial development and economic growth in Turkey. International Journal of Management, Economics and Business, ICAFR 16 Special Issue, 12-26.
- [9]. Ceylan, S. & Durkaya, M. (2010). The relationship between credit utilization and economic growth in Turkey. Atatürk University Journal of Economics and Administrative Sciences, 24(2), .21-35.

- [10]. Forbes Magazine (2017), July 2017, No:07.
- [11]. Göçer, İ., Mercan, M., & Bölükbaş, M. (2015). The effects of banking sector loans on employment and economic growth: Co-integration analysis with multiple structural breaks for the Turkish economy. Hacettepe University Faculty of Economics and Administrative Sciences Journal, 33(2), 65-84.
- [12]. Gul, E. & Ekinci, A. (2006). The causality relationship between inflation and exchange rate in Turkey: 1984-2003. Anadolu University Journal of Social Sciences Institute, (6), 91-105.
- [13]. Jalilian, H. & Kirkpatrick, C. (2002). Financial development and poverty reduction in developing countries. International Journal of Finance and Economics, 7, 97-108.
- [14]. Kamaci, Ahmet, M. Said Ceyhan, and Mehmet AkifPece. "IMPACT OF LOAN VOLUME ON MONEY SUPPLY AND ECONOMIC GROWTH." International Journal of Management, Economics and Business 13.13 (2017): 400-409.
- [15]. Karaman, A. C. (2020). *Kredihacmininmakroekonomikgöstergelerüzerindekietkisi* (Master's thesis, HasanKalyoncuÜniversitesi).
- [16]. Karamelikli, H. & Keskingöz, H. (2017). The effect of financial development components on economic growth: The case of Turkey. Journal of Human and Social Sciences Research, 6(1), 683-701.
- [17]. Khanlarzadeh, S. M. (2019). Innovative processes as a factor of economic development. Economic and Social Development: Book of Proceedings, 444-450.
- [18]. Khanlarzadeh, S. M. (2020). Economic Growth And Sosial Progress As Fundamental Indicators Of A Developing Society. Economic and Social Development: Book of Proceedings, 2, 339-346.
- [19]. Khanlarzadeh, S. M. (2021). 606 Social And Environmental Innovations As Factors Of Sustainable Development Of Economic Systems. Economic and Social Development: Book of Proceedings, 606-611.
- [20]. King, R. G. & Levine, R. (1993). Finance and growth, schumperer might be right. Quarterly Journal of Economics, 108(3), August, 717-737.
- [21]. Luintel, K. B. & Khan, M. (1999). A quantitative reassessment of the finance–growth nexus: Evidence from a multivariate VAR. Journal of Development Economics, 60(1999), 381–405.
- [22]. Ozcan, B. & Ari, A. (2011). An empirical analysis of the relationship between financial development and economic growth: The case of Turkey. Business and Economics Research Journal, 2(1), 121-142.
- [23]. Patrick, H. T. (1966). Financial development and economic growth in underdeveloped countries. economic development and cultural change, 14(2), 174-189.
- [24]. Pehlivan, P., Demirlioğlu, L., & Yurtseven, H. (2017). Analysis of the relationship between banking activities and economic growth in Turkey. V. Anadolu International Conference in Economics, May 11-13, 2017, Eskişehir, Turkey.
- [25]. Shan, J. & Jianhong, Q. (2006). Does financial development 'lead' economic growth? the case of China. Annuals of Economics and Finance, 1.197-216.
- [26]. Snow, M. & Pentecost, E. J. (2000). Financial development and economic growth in Turkey: Further evidence on the causality issue. Loughborough University Economic Research Paper No. 00/27.
- [27]. Tuna, K. & Bektaş, H. (2013). Examining the role of credit volume on economic growth: The case of Turkey. Journal of Financial Research and Studies, 5(9), 139-150.
- [28]. Türedi, S. and Berber, M. (2010). The relationship between financial development, trade openness and economic growth: An analysis on Turkey. Journal of Erciyes University Faculty of Economics and Administrative Sciences, 35 (January-July), 301-316.
- [29]. Turgut, A. & Ertay, H. İ. (2016). The effect of banking sector on economic growth: causality analysis on turkey. Aksaray University Journal of the Faculty of

Economics and Administrative Sciences, 8 (4), 114-128.

- [30]. Umit, A. O. (2016). Relationships between trade openness, credit volume and economic growth in Turkey: Time series analysis with multiple structural breaks. ÇankırıKaratekin University, Economics and Administrative SciencesFaculty Journal, 6(1), 471-499.
- [31]. Vurur, N. S. & Özen, E. (2013). Examination of the relationship between deposit bank loans and economic growth in Turkey. Uşak University Journal of Social Sciences, 6(3), 117-131.