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IMPACT OF PRIVATE SECTOR CREDIT ON REAL GROSS DOMESTIC PRODUCTION IN JORDAN: USING THE ARDL MODEL

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Abstract

In view of the expanding body of literature on the enhancement of credit facilities and economic growth, the goal of this study was to investigate the effect of private sector credit on economic growth. The necessity to prevent estimate bias from possible model misspecification motivated this research. We accomplished this by using quarterly time-series data to expand the dataset. In order to achieve more satisfying results, the study looks further into the short- and long-term dynamics between real GDP growth and private sector credit in Jordan while also taking into account other important factors like gross fixed capital, government spending, and the prime lending rate. According to the publication, the research employed the Error Correction Term Approach (ECT) and Autoregressive Distributed Lag (ARDL) techniques. Real GDP and all other independent variables were shown to have long-term causal links since the ECT's sign was found to be significant and negatively skewed. The long-run connection's estimated coefficients showed a sizable influence on the rise in real gross domestic output. Variable "private credit" had a large positive impact on real GDP growth over the research period. This result can be explained by the crucial role that commercial banks play in fostering economic development. But as time went on, the mobile "gross fixed capital" had a fundamentally detrimental effect on GDP expansion. These results demonstrate that output is affected by shocks to the expansion of private sector credit beyond the first three quarters. According to the projected coefficient, a unit increase in private credit would result in a $0.002 gain in real GDP in the fourth quarter. Furthermore, it was established that rising gross fixed capital formation benefited real GDP. On how increasing government expenditure would immediately affect society, similar findings have been made. However, as indicated by the significant and negative coefficient, a rise in the prime lending rate has a negative impact on real GDP.

Keywords: *Private sector credit; Gross Domestic Production; Jordan; ARDL*

Introduction

Economic research frequently discusses how important banking and financing institutions are to fostering development, particularly in nations trying to catch up to developed nations. In comparison to banking institutions in developing nations, the latter have achieved optimal levels of allocating savings toward predetermined investments.

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Deposits from financial institutions are essential for financing loans for consumption and investment, which in turn stimulates the economy and raises Jordan's GDP growth. These deposits are also crucial tools that the central bank uses to work with fiscal officials to identify the best monetary policy to impact the economy, address challenges or shocks, and boost economic growth. Additionally, the credit sector serves as a middleman, guiding money toward worthwhile investments in the productive sector and promoting consumption in Jordan's private and investment sectors.

Real growth, or the yearly relative increase in real GDP, is a common way to gauge economic expansion. Real GDP is the total amount of goods and services produced within an economy over a certain time period and valued at prices from the base year. Economists prefer long-term real GDP estimates. It stands for both the expansion of the economy's productive capacity as well as the improvement in meeting the expanding demand for products and services. It also serves as a signpost for a variety of other things, such a growth in output, technological advancements that boost productivity, and the formation of new markets as a result of various production techniques. Increasing production processes, expanding development, and promoting production innovation all require access to credit facilities.

In addition to economists' written works, empirical investigations and research have demonstrated the positive impacts of efficient credit availability on economic growth and development. They have shown a connection between monetary development, the expansion of the credit system, and consistent economic growth. A full and trustworthy financial system provides adequate investment money to finance programs that maintain economic stability, encourage economic growth, and permit a variety of economic activity across all facets of society. As a result, massive projects' productive capacity are expanded and economic development is pushed to new heights. Additionally, an environment that is conducive to the formation of new firms is developed. By boosting their ability to export, replacing imported goods, generating jobs, and decreasing unemployment rates, these advances can benefit developing countries (Levine, 1997).

Since the 1980s, international organizations have made great efforts to persuade developing countries to build and extend their banking systems. Experimental research has shown a positive relationship between private sector credit and economic development.

In 2019, the banking sector distributed 26 billion dinars, or 89% of production, to facilities serving both the public and private sectors. The assets held by the Jordanian banking sector at the end of 2019 represented more than 170% of the GDP of the nation, while deposits represented 72% of the nation's output.

The study demonstrates the critical part that credit facilities play in fostering economic expansion. The following is a distribution of the services Jordanian banks provided to the private sector: 3.1% went to the industrial sector, 1.3% to construction, and 8.2% to business. The remaining percentages were divided between the other sectors (7.25% of the total facilities) and the individual

sector (1.25%).

To examine the effect of credit facilities on economic growth in Jordan, the study analysed quarterly data for the period from 2004–2020, focusing on gross domestic product and credit facilities provided by Jordanian banks to the individual, industrial, construction, and commercial sectors.

Furthermore, this study revealed that Jordanian banks offer relatively limited financial facilities in the market compared to the size of their deposits. The rate of credit facilities relative to total deposits in Jordan exceeds 5%, indicating that deposits in Jordanian dinars constitute 3.1% of the total deposits, while deposits in foreign currencies account for 8.5%.

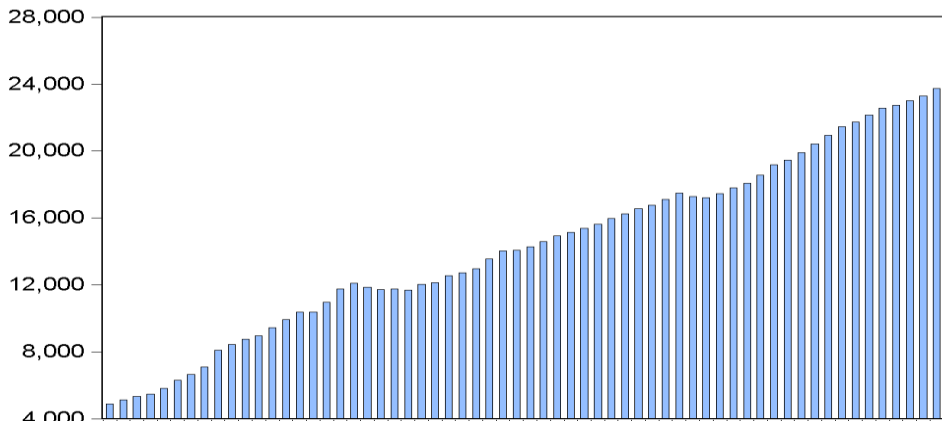

Figure 1 Credit Facilities Offered to the Private Sector by Licensed Banks

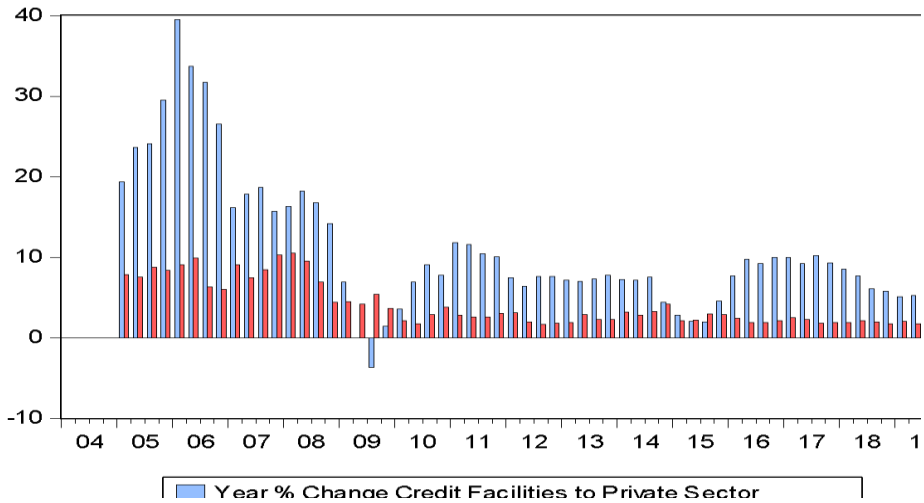

Figure 2 Real Gross Domestic Product and Credit to the Private Sector (% Growth)

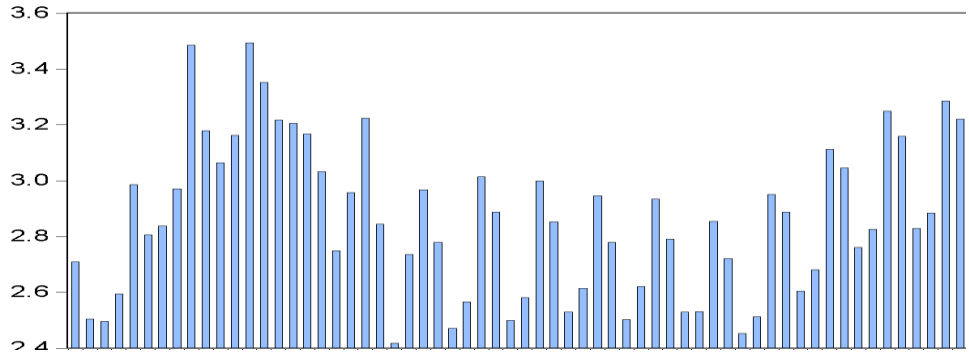

Figure 3 shows the credit to the private sector as a percentage of GDP.

REVIEW OF EMPIRICAL LITERATURE

The effect of loan facilities on the Jordanian private sector has been investigated in a number of earlier experimental investigations. AlMajali (2014) and AlAthamneh (2014) investigated the macroeconomic implications of loan facilities in Jordan among them. Alaqoul (1993) examined how the Islamic Bank's services affected the Jordanian economy, while Sahrawi (2011) looked at how the expansion of the banking industry affected the country's economic growth.

AlMajali (2014) examined the impact of the banking sector on the Jordanian economy from 1980 to 2013. According to the study, there is a significant and favorable reciprocal link between the GDP and the banking credit services provided by commercial banks. Evident when taking into account the varied ways that different economic sectors contribute to GDP, both at the level of the Jordanian economy as a whole and within particular sectors.

In Jordan between 1975 and 2010, AlAthamneh (2014) looked at the macroeconomic effects of lending facilities. The findings demonstrated the crucial role that credit facilities play in determining short- and long-term output, income, employment, and capital accumulation. According to the study, the elasticity of loan facilities is positive and statistically significant at 0.16, and their average long-term impact on aggregate output is 1.4. A multiplier of 1.3 and a multiplier of 5.4, indicating their influence on boosting capital accumulation in the economy, were also found in the research to indicate an increasing effect of lending facilities on employment rates over time.

Alaqoul (1993) examined the distinct case of the Islamic bank and the influence of its facilities on the Jordanian economy. Considering that the Islamic bank is one of the largest commercial banks that operates under unique systems compared to other commercial banks, the study found that the facilities offered by the Islamic bank have a positive impact on Jordan's economic activity, particularly when presented in the form of purchases, or "Murabaha", subject to specific conditions.

In-depth research by King and Levine (1993) using information from 77 nations led to the

conclusion that the rise of the banking industry has the ability to stimulate long-term economic growth. Additionally, their study emphasized the beneficial and statistically significant effects of real per capita GDP growth and real per capita money growth rates.

The relationship between the impact of credit on economic growth and development has been the subject of several empirical studies in developing nations, with a particular emphasis on African nations. Despite using several statistical analysis approaches, Akpansung and Babalola (2012) used yearly data for the years 1970 to 2008 and found that private bank loans had a favorable impact on Nigeria's economic growth.

Emecheta and Ibe (2014) used the reduced vector autoregression approach to investigate the association between bank loans and economic growth in Nigeria from 1960 to 2011. In their investigation, they discovered a strong correlation between bank loans and economic expansion.

Using completely modified least squares, Ganiyu et al. (2017) empirically identified the regional factors and political context impacting the absorptive capacity of credit in the Nigerian economy from 1993: Q1 to 2013:Q4. Their studies showed that credit stimulates growth even in environments with weak infrastructure, monetary policy, trade openness, and investment climates. The examination of the composite local situation index showed that when local or domestic conditions were favorable, private sector credit enhanced economic growth. In 2013, the domestic economy's ability to absorb credit was assessed to be 29% of GDP.

Using sectoral panel data, Maureen (2012) studied the effects of private sector loans on economic performance in Kenya. According to the study, credit has a considerable and favorable influence on sectoral gross domestic product as assessed by real value added.

In Jordan, 180 credit officers from 13 conventional banks and 3 Islamic banks participated in a Daoud et al. (2016) analysis of their attitudes. Their research found substantial perceived variations in credit risk identification, assessment, knowledge of risk, and risk management practices between conventional banks and Islamic banks. According to the survey, respondents from conventional banks were more sensitive to systems for overall risk management control, but those from Islamic banks were more exacting in their methods for identifying, monitoring, and managing credit risk.

Uganda was the site of a research by Katusiime (2018) to look at the relationship between private sector credit and inflation volatility. The results showed that the nominal exchange rate, inflation, and delayed private sector loan growth had a considerable influence on that growth. However, it was shown that none of these factors—financial innovation, interest rates, or GDP growth—were significant predictors of private sector credit expansion.

Using autoregressive distributed lag (ARDL) models, Osman (2014) investigated the connection between Saudi Arabia's private sector and economic development from 1974 to 2012. The GDP, private sector credit, deposits in commercial banks, government expenditure, the rate of inflation, and the open economy were among the many variables considered in the research. The study found

that there is both a short-term and long-term link between private sector lending and economic growth. The estimated long- and short-term elasticity of the GDP to private sector loans are 0.054 and 0.068, respectively.

Timsina (2014) focused on Nepal, an East Asian country, and investigated how supply-side economic theory affected the impacts of commercial bank loans on the growth of the private sector economy. The Error Correction Model and the co-integration method were used in the study between 1975 and 2013. The results demonstrated that although bank loans to the private sector had adverse short-term effects on Nepal's economic growth, they have favorable long-term implications. The analysis finds that an increase in private sector lending of one percentage point leads to an increase in real GDP of 0.40 percentage point.

In Romania, Duican and Pop (2015) sought to examine how loans and economic development interacted between 2005 and 2014. The study's findings suggested that credits had a substantial impact on how Romania's gross domestic product has changed over time.

In order to determine whether or not the impact of credit on economic activity is significant in generating economic growth, Armeanu et al. (2015) state that the time periods considered for the analysis are brief; the economic acts under which the crediting processes developed are diverse; and the economy is based on external shocks and factors, which are challenging to account for in the model. The literature does not adequately address these issues since these issues are not all the same. They begin by identifying the elements that make up Romania's GDP breakdown, establish a connection between the breakdown and the credits given to specific, legal components, evaluate how the credits impact economic activity, and finally ascertain the apparent impact on the GDP.

In order to prove that bank credits have a bigger influence on industrial production in subsectors than loan rates, Hacievliyagil and HalilEksi (2019) employed the Toda Yamamoto causality test and the autoregressive distributed lag (ARDL) bound co-integration test. The results demonstrated that, with the exception of machinery, an increase in bank credit results in higher industrial production across all subsectors. The link between the importance of bank loans for industrial output and different degrees of causation, starting with loan interest rates and ending with industrial production, is equally complicated.

In order to determine the long-run and short-run dynamics among the variables, Awad and AlKaraki (2019) looked at the effect of bank lending on economic development in Palestine using the Johansen co-integration, VAR model, and VEC model. The factors were shown to have both a strong short-run association and a long-run relationship. A one-way causal relationship between GDP and bank lending was also discovered by the study, with the low contribution of bank lending to GDP being attributed to banks' reluctance to lend to the manufacturing sector due to its high degree of risk.

Their research's major finding is that economic development drives bank lending, not the other way around.

METHODOLOGY

With quarterly data spanning the first quarters of 2004 and 2020, this study focuses on the following variables: Gross domestic product (GDP) at constant prices is used in Jordan as a measure of world economic activity. Gross fixed capital creation is also included, together with current government expenditure, interest rates on loans and advances, and credit facilities made available to the private sector by approved institutions. The monthly Statistical Bulletin of the Central Bank of Jordan provided the information for these variables.

This essay's main goal is to examine two significant elements and how they relate to total economic activity. Recent research has frequently recommended the first variable, commercial banks' credits offered to the private sector (CPS). CPS examines how much of the financial needs of the banking industry are covered by the private sector, which has a direct impact on investment and economic expansion. Gross fixed capital creation (K), the second fundamental component, is essential for generating capital and allocating it toward economic development and productive activities. According to Kemal, Abdul Qayyum, and Hanif (2007), King and Levine (1993), Levine (1997), Kemal and Abdul Qayyum and Hanif (2012), and Al-Malkawi et al. (2012), it also illustrates the financial capacity and scale of the financial intermediary sector.

To investigate the relationship between loan facilities supplied by authorized banks to the private sector and overall economic activity in Jordan, we model output as a function of four independent variables as follows:

$$LGDP_t = f(LCPS_t, LK_t, LR_t) \quad (1)$$

Where LGDP is the logarithm of gross domestic product at constant prices, LCPS is the logarithm of credit to the private sector, and LK is the logarithm of gross fixed capital formation; The logarithms LG and LR indicate current government expenditure and loan and advance interest rates, respectively.

In order to examine the connection between commercial bank loans to the private sector and economic development, this study use the ARDL bound testing methodology. Pesaran and others created and launched the ARDL-bound test. The ARDL technique was chosen for this study because it may be used even when the variables are integrated in distinct sequences. Additionally, it permits limitations testing, making it appropriate for the current study and investigations with a small sample number. The ARDL technique provides simultaneous estimate of the model's long-run and short-run coefficients, as shown in all four Pesaran studies: Pesaran and Shin (1998), Pesaran et al. (1996), Pesaran (1997), and Pesaran et al. (2001).

The ARDL model can be specified as:

$$\Delta LGDP_t = \beta_0 + \sum_{i=1}^{n} \beta_{1i}\, \Delta LGDP_{t-i} + \sum_{i=0}^{m} \beta_{2i}\, \Delta LCPS_{t-i} + \sum_{i=0}^{l} \beta_{3i}\, \Delta LK_{t-i} + \sum_{i=0}^{o} \beta_{4i}\, \Delta LR_{t-i} + u_2 \quad \ldots . (2)$$

In this equation, LGDP stands for gross domestic product (GDP) at constant prices, LCPS for credit to the private sector, Lk for gross fixed capital formation, LG for current government expenditures, and LR for interest rates on loans and advances. The slope parameters (i=1,2,...,4) and the constant parameter (i=0) must be approximated. It is an error term with a zero mean and constant variance that is identically and independently distributed. The Wald test (F-statistic) was then used to determine the nature of the variables' long-term connection.

SIMULATIVE RESULTS

Test of the Unit Root

We used the Augmented Dickey-Fuller (ADF) unit root test on the study variables to examine the estimated results for the ARDL model in order to get around the issue of spurious regression. On the basis of the non-stationarity null hypothesis, the ADF test was performed on each variable. If the null hypothesis is accepted, then sufficient differencing is necessary to achieve stationarity.

Table 1 displays the outcomes of the Augmented Dickey-Fuller unit root test for the variables under investigation. All variables are integrated at level 1 (0), demonstrating stationarity, with the exception of fixed capital output and interest rates on loans and advances. However, fixed capital output and interest rates on loans and advances must initially diverge since they are integrated at 1 (1) before stationarity can be attained. When certain variables are stationary at level while others are stationary at the initial difference is one of the crucial criteria for adopting the ARDL model. The researcher is unable to apply the Johansen co-integration model in this situation. The ARDL limits testing method, however, is asserted to be applicable regardless of whether the variables are I(0) or I(1).

Table 1: Results of Unit Root Test (Augmented Dickey-Fuller)

Variables	Level		First deference		Decision
	ADF	P.P	ADF*	P.P	
LGDP	-3.09	-3.21	-	-	I(0)
LCPS	-3.36	-3.26	-	-	I(0)
LK	-2.25	-2.84	-3.84	-4.03	I(1)
LG	-4.09	-3.66	-	-	I(0)
LR	-1.71	-1.651	-4.361	-3.34	I(1)

Co-Integration Test (Bounds Test)

Applying the ARDL bound testing strategy to test the existence of a long-run connection with

GDP as the dependent variable comes after doing the unit root test. According to Pesaran et al. (2001), the estimated F-statistics in Table 2 are discovered to be over the top and lower ranges of critical values. The estimated F-statistics are 6.94, and at a significance level of 1%, the upper critical bound is 3.03 and the upper bound is 4.06. This suggests that there was a long-term association between the LGDP, LCPS, LK, LG, and LR in Jordan from 2004: Q1 to 2020: Q1.

Table 2: Bounds Test Results

F-Statistics	**Significance level**	**Bound Critical Values**	
		I(0)	**I(1)**
6.94	1%	3.03	4.06
	5%	3.47	4.57
	10%	3.89	5.07

Long- and short-run estimates

The ARDL approach's next stage is using the General- to-Specific technique to estimate the long-run and short-run connections. This entails subtracting the non-significant coefficients from the model and calculating the ideal lag selection using the Akaike information criterion (AIC) and Hannan-Quinn information criteria (HQ). According to Tables (3) and (4), the ARDL (3,3,0,0,0) was shown to be the best choice for a lag.

Table 3: Estimated Long-Run Coefficients using ARDL Model

Co-integrating Form			
Variable	**Coefficient**	**Std.Error**	***p*-value**
DLGDP(-1)	0.028615	0.024723	1.157416
DLCPS(-1)	0.357098	0.054280	6.578811
DLK(-1)	0.075248	0.040627	1.852185
DLR(-1)	-0.172378	0.081577	-2.113074

Table 3 shows that CPS, K, R, and GDP have a long-term causal connection since the error correction term (ECT) has a negative and significant sign. This could mean that equilibrium has returned. Granger (1987) proposed that if the ECT had a positive sign, the system in the model would be moving away from equilibrium. The independent factors have a considerable impact on the LGDP, according to the long-run association coefficients that were calculated. It is noteworthy that CPS contributes to economic progress and development by having a sizable and appreciably positive effect on GDP growth. However, K has a substantial, long-term detrimental influence on GDP growth.

Short-term Evaluation

The short-run dynamics calculated using the ARDL framework are also shown in equation (2). The findings from Table (4) demonstrate that the GDP is positively and significantly inelastic to changes in CPS, with an estimated GDP gain of just 36% for every 1% increase in CPS. Additionally, it

should be emphasized that the GDP growth is greatly influenced positively by the LCPS coefficients. The coefficient's sign is consistent with hypothesized results and findings from comparable research that employed other modeling techniques, including Oluitan (2010), Abu-Bader and Abu-Qarn (2008), Rajan and Zingales (1998), and Guiso et al. (2004), among others.

Table 4: Short-Run Representation for the ARDL Model

Variable	Coefficient	Std.Error	t-Statistic	p-value
D (LGDP (-1))	0.421975	0.101377	4.162435	0.0001
D(LGDP (-2))	-0.510994	0.114177	-4.475451	0.0000
D(LCPS)	-0.056669	0.047306	-1.197916	0.2366
D(LCPS (-1))	0.321464	0.074591	4.309692	0.0001
D(LCPS (-2))	-0.212006	0.049684	-4.267108	0.0001
D(LG)	0.008245	0.006948	1.186678	0.2410
D(LK)	0.021683	0.012667	1.711787	0.0931
D(LR)	-0.049671	0.024279	-2.045853	0.0460
D(@TREND())	-0.000503	0.000281	-1.789914	0.0795
CointEq(-1)	-0.288149	0.045680	-6.308001	0.0000

A rise in gross fixed capital formation (LK), a proxy for investment, had a beneficial impact on production as well since the coefficient was positive. Additionally, increasing government expenditure results in a short-term increase in output. The coefficient was negative (-0.049) and significant, showing that output was negatively impacted by an increase in the prime lending rate. According to the obtained adjusted R2 of 55.02%, which was reasonably high, the model adequately accounts for around 55.0% of the variation in output. The coefficient of the error correction term was discovered to be negative and significant at a 0.5% level, further demonstrating the variables' long-term co-integration.

Diagnostic test

Diagnostic tests were used in the study to assess the model's dependability. Serial correlation, ARCH effects, White heteroskedasticity, and residual term normality were all investigated using the Lagrange Multiplier (LM) test. Table (4) presents the findings of these diagnostic tests and demonstrates that the short-run model appears to pass them all. Serial correlation, white heteroskedasticity, or autoregressive conditional heteroskedasticity are not supported. The model's precise formulation and utility are shown by the uniformly distributed residuals.

Table 5: Diagnostic Test

	Co-efficient	p-value
Serial correlation LM =	1.895409	0.1613
Heteroskedasticity(Obs*R-squared)	18.11878	0.0789
ARCH Test	0.001	0.97
Normality Test	0.62	0.6345

The Stability Test (CUSUM)

The stability of the estimations was assessed using the CUSUM test. The cumulative sum of recursive residuals (CUSUM) investigates the parameter stability by plotting recursively updated test statistics over time to search for any significant breakdowns in the statistics. Figure 1's representation of the test's outcomes demonstrates that all estimated model coefficients are constant over time so long as they remain below the 5% critical bounds. These results enable us to consider this model to be stable. This test ought to be employed, according to Brown, Durbin, and Evans (1975).

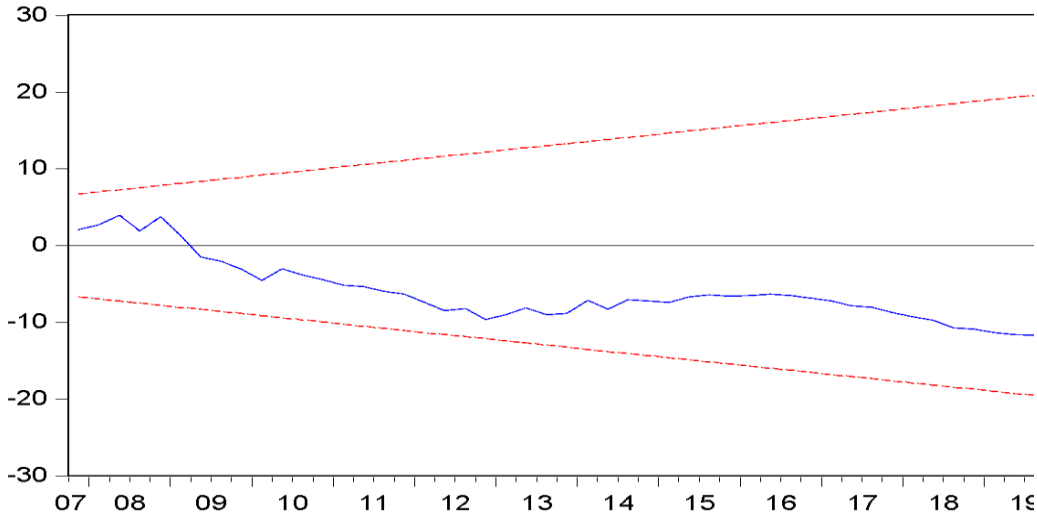

Figure 4 CUSUM Plots for Stability Test

CONCLUDING REMARKS

There is little empirical study that looks at the effects of private sector credit on economic growth in Jordan, despite the growing body of literature on the enhancement of credit facilities and economic growth.

With past studies that attempted to detect estimates and remove bias from them but usually fell into traps, there were issues that this study set out to remedy. The need to avoid estimation bias brought on by errors in the formulation of the potential model served as the driving force behind it. As a result, it attempted to review, using a cutting-edge convergence model, how private sector lending affected production. The increased quarterly time-series data examined the short- and long-term relationships between Jordanian production and private sector loans in order to obtain more gratifying results.

The results revealed a substantial and negative error correction term (ECT), indicating a long-run

causal link between CPS, K, G, and R and GDP as well as a return to equilibrium. On the other hand, a low value of (ECT) would indicate that the system is approaching equilibrium (Granger, 1987). The expansion of the Real Gross Domestic Product is significantly influenced by all independent variables, per the calculated coefficients of the long-term relationship.

The variable CPS across the research period had a significant positive influence on GDP growth because of the critical role that commercial banks play in promoting economic expansion. However, the variable K considerably had a negative influence on GDP growth during the course of the research period.

According to the findings, it takes three quarters for shocks to the increase of private sector credit to have an impact on production. A one-unit increase in CPS would result in a $0.002 increase in fourth-quarter production, according to the estimated coefficient. higher gross fixed capital creation has a favorable effect on production, while higher government expenditure momentarily increases output. A rise in the prime lending rate, however, has a detrimental effect on output because the coefficient was negative and substantial.

References

Abu-Bader, S., & Abu-Qarn, A.S. (2008). Financial development and economic growth: empirical evidence from six MENA countries. *Review of Development Economics*, *12*(4), pp.803–817

Akpansung, A. O., & Babalola, S. J. (2012). Banking sector credit and economic growth in Nigeria: An empirical investigation. *CBN Journal of Applied Statistics*, 2 (2):51–62

Al-Majali, A., (2014). The impact of bank credit to commercial banks on Jordanian economic growth during the period of (1980-2013). Mutah University, *unpublished thesis*, (2014)

Al-Malkawi, H., & Abdullah, N. (2011). Finance-growth nexus: evidence from a panel of MENA countries. *International Research Journal of Finance and Economics*, 63:129–139

Aloqoul, M. (1993). The role of the credit facilities granted by the Islamic Bank in the Jordanian economy, unpublished master thesis*, ALyarmouk University*, (1993.

Amoo, G. B. A., Eboreime, M. I., Adamu, Y., & Belonwu, M. C. (2017). The impact of private sector credit on economic growth in Nigeria. CBN *Journal of Applied Statistics,* volume 8, No. 2 (December 2017)

Armeanu, D., Pascal, C., Poanta, D., Doia, C. (2015). The credit impact on the economic growth. *Theoretical and Applied Economics*, volume XXII (2015), No. 1(602), pp. 5–14

Athamneh, A. (2014). Macroeconomic impact of credit facilities in Jordan: An econometric analysis for the supply side. *King Khalid University, Journal for Humanities*, volume 23 (1), January (2014)

Awad. I., & Al karaka, M. (2019). The impact of bank lending on Palestine economic growth: an econometric analysis of time series data. *Financial Innovation,* volume 5, Article number: 14 (2019)

Brown, R.L., Durbin, J., & Evans, J.M. (1975). Techniques for testing the constancy of regression relationships over time. *Journal of the Royal Statistical Society: Series B (Methodological)*, *37*(2), pp.149–163.

Central Bank of Jordan (monthly Statistical Bulletin).

Demirguc-Kunt, A. & Levine R. (2008). Finance, financial sector policies, and long-run growth.

World Bank Policy Research Working Paper, No. 4469

Guiso, L., Sapienza, P., & Zingales, L. (2004). The role of social capital in financial development. *American economic review*, *94*(3), pp.526556

Hacievliyagi, N., HalilEksi, I. (2019). A micro based study on bank credit and economic growth: Manufacturing Sub-Sectors Analysis. South East European *Journal of Economics and Business,* Volume 14 (1), 2019, 72–91

Hussam A. D. T. M. Al-Fawwaz1, & Yaser, A. A. (2016). Credit risk management in Islamic and conventional banks in Jordan. *Jordan Journal of Business Administration*, 12(2), pp.289–305

Katusiime, L. (2018). Private sector credit and inflation volatility, economic research department. Bank of Uganda, Kampala 7120, *Uganda Economies* 2018, 6(2).

Kemal, A., Qayyum, A., & Hanif, M. (2007). Financial development and economic growth: evidence from a heterogeneous panel of high-income countries. *Lahore Journal of Economics*, 2007, volume 12, issue 1, 1–34

Levine, R. (1997). Financial development and economic growth: views and agenda. *Journal of Economic Literature* 35: 688–726

MacKinnon, J.G., (1996). Numerical distribution functions for unit root and cointegration tests. *Journal of applied econometrics*, *11*(6), pp.601–618

Olowofeso, E. O., Adeleke, A. O., Udoji, A. O. (2015). Impact of private sector credit on economic growth in Nigeria. *CBN Journal of Applied Statistics*, Volume 6 Number 2 (December 2015)

Oluitan, R., (2010). Bank credit and economic growth: The Nigerian experience. In *A Paper Presented at the 9th AFE Conference in Greece, July*

Osman, E., (2014). The impact of private sector credit on Saudi Arabia Economic Growth (GDP): An Econometrics model using (ARDL) Approach to Cointegration. *American International Journal of Social Science* Volume 3, Number 6; November (2014)

Pesaran, M., & Shin, Y. (1998). Generalized impulse response analysis in linear multivariate models. *Economics Letters*, 1998, volume 58, issue 1, 17–29

Pesaran, M., H. (1997). The role of economic theory in modelling the long run. *The Economic Journal*, *107*(440), pp.178–191.

Pesaran, M. H., Shin, Y., & Smith, R. J. (1996). Testing for the existence of a long-run relationship' *(No. 9622). Faculty of Economics, University of Cambridge.*

Pesaran, M. H., Shin, Y. & Smith, R. J. (2001). Bounds testing approaches to the analysis of level relationships. *Journal of applied econometrics*, *16*(3), pp.289–326

Rajan, R. G. & Zingales, L. (1998). Power in a theory of the firm. *The Quarterly Journal of Economics*, *113*(2), pp.387–432.

RalucaDuican, E. & Alina (2015), The implications of credit activity on economic growth in Romania. *Procedia Economics and Finance,* 30 (2015) 195–201

Sahrawi, J. (2011). The impact of the development of the financial market and the development of the banking system on economic growth Jordan case study (1979–2009), *Mutah University*, unpublished master thesis, (2011).

Timsina, N. (2014). Impact of bank credit on economic growth in Nepal. NRB Working Paper 22/2014, *Nepal Rastra Bank*, Research Department

Were. M. N. J., Rutto. N. (2012), Assessing the impact of private sector credit on economic performance, evidence from sectoral panel data. *International Journal of Economics and Finance*, Volume 4, No. 3; March (2012)