

The Role of Agricultural Bank in Supporting Small and Medium Projects to Alleviate Poverty in Babil Governorate (2005-2022)

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Abstract: The research aims to shed light on the Cooperative Agricultural Bank as an independent variable and its impact on dependent variables represented by small and medium projects, as an applied research at the Agricultural Bank/Branch of Babil, based on the data provided by the bank during the research period. The research seeks to provide a clear picture of the reality and role of the agricultural bank in the province and how it supports agricultural projects through the loan stages that the bank went through during the research period. The importance of the research lies in analyzing the role of specialized banks in Iraq (the Agricultural Bank in Babil) in financing small and medium projects that contribute to solving economic and social problems, notably the problem of poverty resulting from low income and unemployment facing the province, and improving the individual's living standard, especially if appropriate support is provided and financing obstacles are addressed.

The research problem revolves around whether there is a role for the Agricultural Bank - Babil Branch in supporting small and medium projects, under the hypothesis that the Agricultural Bank - Babil Branch has a positive role in supporting small and medium projects in the province. The research reached several conclusions, the most important of which was the presence of a weak causal relationship between the independent variable (loans to small farmers) provided by the Agricultural Bank/Babil Branch and the dependent variables represented by the number of small and medium projects. Also, no causal relationship was found between the independent variable (livestock loans) and the dependent variables, as well as (orchard establishment loans). Based on the findings, the research hypothesis, which states that the Agricultural Bank - Babil Branch had a positive role in supporting small and medium projects in the province and alleviating poverty, was rejected. As for the most prominent recommendations, they include the Agricultural Bank establishing a proper and effective mechanism for disbursing loan amounts by dividing them into several stages that align with the stages of establishing, developing, or operating agricultural projects or developing livestock, thus ensuring that the borrower implements the developmental projects to which those loans were directed.

Keywords: Specialized banks, Agricultural Bank, Small and medium projects, Poverty

Introduction: It is well known that specialized banking institutions play a crucial role in solving the problems faced by economic sectors by providing them with financial support. This necessitates the development of these institutions and providing them with the necessary funds allocated from the state's general budget. The Cooperative Agricultural Bank is one of these institutions funded by the government and provides the necessary loans for agricultural projects during the stage at which the agricultural project reaches establishment, completion, or operation. Securing the necessary funds for agricultural producers is of utmost importance because they often lack the capital needed to invest in agricultural production due to the conditions of this sector, which suffers from problems, foremost

among them being seasonal production followed by seasonal income, and thus their limited savings in completing projects to their fullest extent. "Agricultural Initiative" loans occupied a wide area during the research period, providing another opportunity for farmers to improve their livelihoods after the stagnation experienced by the agricultural sector in previous years.

Research Problem: Is there a role for the Agricultural Bank - Babil Branch in supporting and financing small and medium projects in the province? And has it managed to alleviate poverty among farmers?

Research Objective: To highlight the importance of the role of the Agricultural Bank/Babil Branch in supporting small and medium projects and its positive effects on the economic reality of the province, by demonstrating the impact of the loans granted on the number of such projects and on alleviating poverty in the province.

Research Hypothesis: The research is based on the hypothesis that "the Agricultural Bank - Babil Branch has a positive role in supporting small and medium projects in the province".

Research Significance: The significance of the research lies in analyzing the role of the Agricultural Bank - Babil Branch in financing small and medium projects that contribute to solving economic and social problems, notably unemployment facing the province.

Research Methodology: The analytical-measurement methodology was adopted, utilizing data on the volume of loans granted by the Agricultural Bank - Babil Branch in various details during the research period, as well as indicating the number of small and medium projects funded by it.

Research Structure: For the purpose of accepting or rejecting the research hypothesis, it has been divided into three sections. The first section includes the theoretical and conceptual framework of specialized banks and small and medium projects. The second section is dedicated to the analytical aspect of the research variables and analyzing the reality of agricultural initiative loans with the preparation of the projects funded through two axes: the first (Small Farmers Fund) and the second (Livestock Fund). The third section is dedicated to measuring and analyzing the impact of loans (Agricultural Initiative) granted by the Agricultural Bank - Babil Branch on the number of small and medium projects for both the Small Farmers Fund and the Livestock Fund.

First Section: Specialized Banks and Small and Medium Enterprises (SMEs)

1- Specialized Banks: Specialized banks are a type of financial institution that focuses on financing specific economic sectors and deals with specific categories. They provide credit facilities with favorable terms to support sectors that are pillars of the national economy, such as agriculture, industry, housing, services, and small craftsmen.

One of the functions of specialized banks is to establish or participate in the establishment of Secondly: Small and Medium Enterprises (SMEs)

1. Concept: Small enterprises in Iraq are defined as independent establishments in ownership and management, holding a limited share in the market. They are family-linked companies, where the head of the family, who is the owner of the project, participates with relatives and friends who work together for its success. Management is informal, and directives are mostly oral without the need for extensive documentation, as defined by the Central Statistical Organization as establishments where less than (10) workers are employed, and the value of machinery and equipment is less than (100,000) Iraqi dinars.

2. Characteristics and Features of Small and Medium Enterprises:

A. Ease of Establishment: This is reflected in the relatively low capital required to establish them, as they rely on attracting savings to achieve benefits that meet local needs in various economic activities.

B. Personal Character: Small projects are characterized by their personal nature and are effectively managed by their owners. They rely on internal sources to finance their capital for growth.

C. The entrepreneurial spirit of owners of small and medium enterprises makes them pioneers in the field they operate in, and they are most prepared to confront financial risks and personal responsibilities.

The second section : analyzes the reality of agricultural initiative loans and the preparation of small and medium projects funded by the Agricultural Initiative Funds in Babil Province

Table (1) demonstrates that during the period (2008-2011)

Year	Loan Amount (million IQD)	Change Rate (%)	Number of Small Projects	Change Rate (%)	Number of Medium Projects	Change Rate (%)
2008	26.8	-	1	-	0	-
2009	131.3	388	8	700	6	-
2010	323.7	146	13	62.5	9	50
2011	12.4	-96	19	46.15	14	55.55
2012	206.7	16553	27	42.10	18	28.57

2013	226.1	9	26	-3.70	17	-5.55
2014	233.8	3	25	-3.84	14	-17.64
2015	241.8	3	28	12	11	-21.42
2016	243.8	0.0	35	25	21	90.90
2017	245.8	0.8	35	0	21	0
2018	245.8	0.0	35	0	21	0
2019	245.8	0.0	35	0	21	0
2020	245.8	0.0	35	0	21	0

Agricultural Initiative Funds

The agricultural initiative relies on specialized credit activity through the effective role of the government, and the bank relies on an efficient system known as the specialized lending funds system. Through these funds, loans are granted according to programs and plans determined by the Ministry of Agriculture and funded by the Ministry of Finance to improve living standards and reduce poverty. These funds include:

Firstly: Small Farmers Fund

Table (1) demonstrates that during the period (2008-2011), the amounts of loans provided by the bank increased significantly. The change rates were (388.899%, 146.412%) respectively for the years 2009 and 2010. However, the loan amount decreased in 2011 with a change rate of (-96.166%). As a result of these increases in loan amounts since the inception of the initiative, there was a corresponding increase in the number of small projects. The change rates for the number of small projects during that period were (700%, 62.5%) for the years 2009 and 2010 respectively. Despite the decrease in the loan volume granted in 2011, there was no decrease in the number of small projects that year, recording a change rate of (46.15%). This can be attributed to the fact that these projects had reached completion stages close to finalization, in addition to the availability of financial liquidity from previous years.

Table (1): Number of Projects Funded by Small Farmers Loans for the Period (2008-2020)

- Source: Cooperative Agricultural Bank / Babil.
- Change rates calculated by the researcher.

During the period from 2012 to 2015, the amounts of loans granted to small farmers continued to increase as shown in the table above. The increase was significant in 2012 due to the larger loan size compared to 2011. As a result of this increase in loan amounts, there was also an increase in the number of small projects funded by these loans during the period. The change rates were (42.10%, -3.70%, -3.84%, and 12%) respectively. However, there was a decline in the number of projects in the years 2013 and 2014, with very few increases observed, only one project each year. However, the number of projects increased to 28 in 2015, with a change rate of 12% compared to 2013 and 2014. These two years witnessed military operations in Iraq due to the terrorist attacks by ISIS.

Finally, during the period from 2016 to 2020, it is observed that the loan amounts increased at a slower rate compared to the initial stages of the initiative until the loan amount stabilized in 2017, with no further increase in subsequent years. The change rates for that period were (0.826%, 0.820%, 0%, 0%, and 0%) respectively. This is attributed to the decreased interest in loan applications for small projects, resulting in a stabilization in their numbers. The change rate was around 25% in 2016, while it was 0% for the following years due to the consistent number of projects.

During the period from 2008 to 2011, there was an increase in the amounts of loans provided by the bank, with change rates reaching (%388.899, 146.412%) for the years 2009 and 2010 respectively. However, there was a decline in loan amounts in 2011, with a change rate of (-96.166%). Despite the decrease in the loan amount in 2011, there was no decrease in the number of medium-sized projects funded that year. The change rates for medium-sized project numbers during this period were (50%, 55.5%) for the years 2010 and 2011 respectively.

In the period from 2012 to 2015, loan amounts continued to increase significantly, with change rates for that period being (16553.818%, 9.385%, 3.441%, 3.420%) respectively. Despite the increase in loan amounts, there was a decrease in the growth rate of the number of medium-sized projects funded by those loans. Although the number of projects started to increase in 2012 due to the increase in loan volume, the growth rate gradually decreased afterward. The change rates were (28.57%, -5.55%, 17.64%, 21.42%) respectively. This decline in demand for loans might be due to security concerns in the country.

In the most recent period (2016-2020), loan growth was minimal until the loan amount stabilized in 2017, with no further increase in subsequent years. The change rates for that period were (0.826%, 0.820%, 0%, 0%, 0%) respectively, due to the decreased interest in loan applications for medium-sized projects. Additionally, there was stability in the number of medium-sized projects, with a change rate of 90.90% in 2016 and 0% for the remaining years due to the consistent number of projects.

Table (2) illustrates the number of projects funded by the Livestock Wealth Fund for the period (2008-2020):

Year	Loan Amount (Million Dinars)	Change Rate (%)	Number of Small Projects	Change Rate (%)	Number of Medium Projects	Change Rate (%)
2008	309.4	-	38	-	22	-
2009	1133.4	266.311	33	-13.15	19	-13.63
2010	1393.0	22.903	40	21.21	21	10.52
2011	2217.6	59.193	42	5	23	9.52
2012	2596.9	17.101	40	-4.76	18	-21.73
2013	3371.6	29.834	37	-7.50	16	-11.11
2014	3946.6	17.053	45	21.62	20	25
2015	4357.9	10.420	47	4.44	17	-15
2016	4399.6	0.956	49	4.25	22	29.41
2017	4441.2	0.947	50	2.04	21	-4.54
2018	4441.2	0	48	-4	23	9.52
2019	4482.9	0.938	47	-2.08	27	17.39
2020	4482.9	0	49	4.25	26	-3.70

Source: Cooperative Agricultural Bank Data / Babylon. Change rates calculated by the researcher.

The data in Table (2) indicates continuous growth in the amounts provided by the Livestock Wealth Fund since the initiation of the agricultural initiative granted by the Iraqi government. The change rates were (266.311%, 22.903%, 59.193%) for the years 2009, 2010, and 2011 respectively. However, there was a decline in the number of small projects in 2009 due to insufficient funding at the beginning of the period, resulting in a change rate of (-13.15%). Nevertheless, the number began to increase again, with change rates of (21.21%, 5%) for the years 2010 and 2011 respectively.

The growth continued during the period from 2012 to 2015 in loan amounts, with change rates being (17.101%, 29.834%, 17.053%, 10.420%) respectively. However, the number of projects varied. In 2012 and 2013, there was a decrease (-4.76%, -7.50%) respectively, followed by an increase again due to continuous funding by the bank for the years 2014 and 2015, with change rates of (21.62%, 4.44%) respectively.

In the recent period from 2016 to 2020, there was a slight increase in loan amounts compared to previous years. The growth was minimal in 2016 and 2017, after which the loan amount stabilized in 2018, then slightly increased in 2019, and returned to stability in 2020. The change rates for that period were (0.956%, 0.947%, 0%, 0.938%, 0%) respectively for the years 2016, 2017, 2018, 2019, and 2020. As a result, there was instability in the number of small projects, ranging from increases to decreases. The change rates were (4.25%, 2.04%, -4%, -2.08%, 4.25%) respectively for the mentioned period.

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Through Table (2), we find that the period from 2008 to 2011 witnessed significant growth in the amounts provided by the Livestock Wealth Fund, with change rates of (266.311%, 22.903%, 59.193%) for the years 2009, 2010, and 2011 respectively. This was accompanied by good growth in the number of medium projects during the same period, except for 2009, which recorded a negative change rate of (-13.63%), followed by an increase in the number for 2010 and 2011, with change rates of (10.52%, 9.52%) respectively.

The growth continued during the period from 2012 to 2015, with change rates being (17.101%, 29.834%, 17.053%, 10.420%) respectively. However, there was a decline in the number of medium projects at the beginning and end of that period, with change rates of (-21.73%, -11.11%, 25%, 15%) for the years (2012, 2013, 2014, 2015) respectively. The year 2014 witnessed a good start for medium projects as they supported military operations in the province, with the bank continuing to finance them and facilitate loan conditions to meet all the province's needs at that time.

Looking at the data from 2016 to 2020, we find that the increase in loans began to decrease gradually until it remained constant in 2020, with change rates of (0.956%, 0.947%, 0%, 0.938%, 0%) respectively. Conversely, there was instability in the growth of medium projects, with change rates of (29.41%, 4.54%, 9.52%, 17.39%, -3.70%) respectively for the years (2016, 2017, 2018, 2019, 2020). The number of projects fluctuated between increases and decreases, stabilizing negatively in 2020, possibly due to insufficient loan amounts to complete the projects.

Section III: Measurement and Analysis of the Impact of Agricultural Initiative Loans Provided by the Agricultural Bank, Babil Branch, on the Number of Small and Medium Projects

Firstly: Measurement and Analysis of the Impact of Small Farmers' Loans

Stability Analysis: From Table (2-3), it can be observed that the independent variable (SFL) stabilized at the first difference with a presence of a constant and a general trend at a significance level of (1%). Additionally, from Table (3-3), it is noted that the dependent variable (NSP1) also stabilized at the first difference with no constant and no general trend at a significance level of (1%). Furthermore, from Table (4-3), it is observed that the dependent variable (NAP2) stabilized at the second difference with only a constant presence and at a significance level of (1%).

Table (2-3): Results of the Augmented Dickey-Fuller Test for the Stability of the Independent Variable (SFL)

Null Hypothesis: D(SFL) has a unit root				
Exogenous: Constant, Linear Trend				
Lag Length: 3 (Automatic - based on SIC, maxlag=9)				
Prob.*	t-Statistic			
0.0107	-4.158696	Augmented Dickey-Fuller test statistic		
	-4.186481	1% level	Test critical values:	
	-3.518090	5% level		
	-3.189732	10% level		

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(SFL,2(

Method: Least Squares

Date: 07/13/22 Time: 14:32

Sample (adjusted): 2009Q3 2020Q1

Included observations: 43 after adjustments

	Variable	Coefficient	Std. Error	t-Statistic	Prob .
D(SFL(-1))	-0.631124	0.151760	4.158696-	0.0002	
D(SFL(-1),2)	0.309920	0.154873	2.001129	0.0528	
D(SFL(-2),2)	0.309820	0.154863	2.000604	0.0528	
D(SFL(-3),2)	0.309721	0.154854	2.000078	0.0529	
C	93651472	43566392	2.149627	0.0382	
@TREND("2008Q1")	-2223882.	.1365270	1.628896-	0.1118	
R-squared	0.318820	Mean dependent var		.1118450-	
Adjusted R-squared	0.226768	S.D. dependent var		1.18E+08	
S.E. of regression	1.04E+08	Akaike info criterion		39.87900	
Sum squared resid	3.97E+17	Schwarz criterion		40.12474	
Log likelihood	851.3984-	Hannan-Quinn criter.		39.96962	
F-statistic	3.463498	Durbin-Watson stat		1.757373	
Prob(F-statistic)	0.011466				

Table (3-3): Results of the Augmented Dickey-Fuller Test for the Stability of the Independent Variable (NSP1)

Null Hypothesis: D(NSP1) has a unit root

Exogenous: None

Lag Length: 0 (Automatic - based on SIC, maxlag=9)

	t-Statistic	Prob*.
Augmented Dickey-Fuller test statistic	1.975113-	0.0471
Test critical values:	%1level 2.616203-	
%5level	1.948140-	
%10level	1.612320-	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(NSP1,2)

Method: Least Squares

Date: 07/13/22 Time: 14:35

Sample (adjusted): 2008Q4 2020Q1

Included observations: 46 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob .
D(NSP1(-1))	-0.124014	0.062788	1.975113-	0.0544
R-squared	0.074006			Mean dependent var 0.038043-
Adjusted R-squared	0.074006		S.D. dependent var 0.485819	
S.E. of regression	0.467497		Akaike info criterion 1.338652	
Sum squared resid	9.834907		Schwarz criterion 1.378405	
Log likelihood	29.78899-		Hannan-Quinn criter. 1.353544	
Durbin-Watson stat	1.920565			

Table (4-3): Results of the Augmented Dickey-Fuller Test for the Stability of the Independent Variable (NAP2)

Null Hypothesis: D(NAP2,2) has a unit root

Exogenous: None

Lag Length: 0 (Automatic - based on SIC, maxlag=9)

	t-Statistic	Prob*.
Augmented Dickey-Fuller test statistic	6.633250-	0.0000
Test critical values:	%1level 2.617364-	
%5level	1.948313-	
%10level	1.612229-	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(NAP2,3)

Method: Least Squares

Date: 07/14/22 Time: 15:12

Sample (adjusted): 2009Q1 2020Q1

Included observations: 45 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob .
D(NAP2(-1),2)	-1.000000	0.150756	6.633250-	0.0000
R-squared	0.500000			Mean dependent var 0.000000
Adjusted R-squared	0.500000		S.D. dependent var 0.941469	
S.E. of regression	0.665719		Akaike info criterion 2.046073	
Sum squared resid	19.50000		Schwarz criterion 2.086222	
Log likelihood	45.03665-		Hannan-Quinn criter. 2.061040	
Durbin-Watson stat	2.000000			

1. Joint Integration Test: From Table (5-3), we notice the presence of three cointegrating vectors in the Trace test, as well as two cointegrating vectors in the Maximum Eigenvalue test. This indicates the existence of a long-term cointegrating relationship between the variables of the standard model.

Table (5-3): Results of the Johansen Cointegration Test.

Date: 07/13/22 Time: 14:43

Sample (adjusted): 2008Q4 2020Q1

Included observations: 46 after adjustments

Trend assumption: Linear deterministic trend

Series: NAP2 NSP1 SFL

Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)					
Prob.**	0.05		Trace		Hypothesized
	Critical Value		Statistic	Eigenvalue	No. of CE(s)
	0.0001	29.79707	49.09993	0.517145	None *
	0.0481	15.49471	15.61011	0.194474	At most 1 *
	0.0173	3.841466	5.662164	0.115816	At most 2 *

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Prob.**	0.05 Critical Value	Max-Eigen Statistic	Eigenvalue	Hypothesized No. of CE(s)
0.0006	21.13162	33.48982	0.517145	None *
0.2154	14.26460	9.947949	0.194474	At most 1
0.0173	3.841466	5.662164	0.115816	At most 2 *

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

2. Determination of the Optimal Lag Length for the Standard Model: From Table (6-3), we observe that the optimal lag length for the standard model is two time lags according to the Schwarz criterion (SC), the Akaike criterion (AIC), and the Hannan-Quinn criterion (HQ).

Table (6-3): Determination of the Optimal Lag Length for the Standard Model.

VAR Lag Order Selection Criteria						
Endogenous variables: NAP2 NSP1 SFL						
Exogenous variables: C						
Date: 07/13/22 Time: 14:45						
Sample: 2008Q1 2020Q4						
Included observations: 44						
HQ	SC	AIC	FPE	LR	LogL	Lag
53.21488	53.29142	53.16977	2.48e+19	NA	-1166.735	0
42.76412	43.07026	42.58366	6.27e+14	439.8079	-924.8405	1
41.58611*	42.12187*	41.27032*	1.70e+14*	63.72996*	-886.9471	2
41.87587	42.64123	41.42474	2.01e+14	8.658923	-881.3442	3
42.14835	43.14332	41.56188	2.38e+14	8.430463	-875.3613	4

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

3. Personal Tests

A. Autocorrelation Test: From Table (7-3), we observe that the test statistic (LM) has a p-value of 0.5700, which is greater than 0.05. This indicates that the standard model is free from the problem of autocorrelation among the variables of the standard model.

Table (7-3): LM Test for Autocorrelation.

VAR Residual Serial Correlation LM Tests
 Null Hypothesis: no serial correlation at lag order h
 Date: 07/13/22 Time: 14:47
 Sample: 2008Q1 2020Q4
 Included observations: 46

Prob	LM-Stat	Lags
0.5700	7.647276	1
0.9335	3.639268	2

Probs from chi-square with 9 df.

B. Heteroscedasticity Test: From Table (8-3), we observe that the p-value is 0.0000, which is less than 0.05. This indicates that the standard model is free from the problem of heteroscedasticity.

Table (8-3): Heteroscedasticity Test.

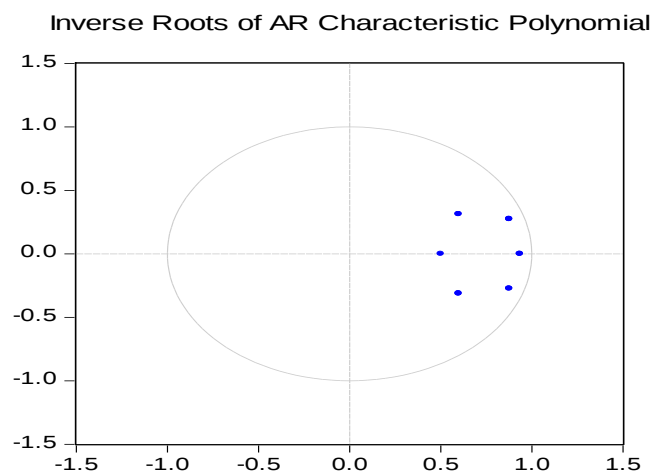
VAR Residual Heteroskedasticity Tests: No Cross Terms (only levels and squares)

Date: 07/13/22 Time: 14:48
 Sample: 2008Q1 2020Q4
 Included observations: 46

Joint test:					
Prob.		Df		Chi-sq	
0.0000		72		169.4796	
Individual components:					
Prob.	Chi-sq(12)	Prob.	F(12,33)	R-squared	Dependent
0.0002	37.48861	0.0000	12.11243	0.814970	res1*res1
0.0001	38.55463	0.0000	14.24043	0.838144	res2*res2
0.0012	32.47961	0.0000	6.606239	0.706078	res3*res3
0.0038	29.06769	0.0002	4.720923	0.631906	res2*res1
0.0157	24.82242	0.0038	3.223298	0.539618	res3*res1
0.0002	37.76749	0.0000	12.61591	0.821032	res3*res2

C. Overall Model Stability Test: From Figure (1-3), we observe that all roots lie within the unit circle, indicating the stability of the standard model as a whole.

Figure (1-3): Overall Model Stability Test.



4. Toda-Yamamoto Causality Test

A. Statistical Analysis: From Table (9-3), we observe that the independent variable (SFL), representing loans for small farmers, causes the dependent variable (NAP2), representing the number of medium projects, as the p-value is 0.0001, which is less than 0.05. Additionally, we notice that the independent variable (SFL) causes the dependent variable (NSP1), representing the number of small projects, as the p-value is 0.0074, also less than 0.05.

B. Economic Analysis: From Table (9-3), we note that loans for small farmers provided by the Agricultural Bank, Babil Branch, have directly and inversely affected the increase in the number of medium and small projects in Babil Governorate. This aligns with economic theory logic, as these loans are specialized and target a specific economic sector (the agricultural sector) by a specialized bank (the Agricultural Bank) with generally suitable conditions, administrative facilitations, and easy guarantees. All these factors stimulate owners of small and medium projects in the agricultural sector to open such projects in Babil Governorate rapidly.

Table (9-3): Toda-Yamamoto Causality Test.

VEC Granger Causality/Block Exogeneity Wald Tests

Date: 07/13/22 Time: 14:51

Sample: 2008Q1 2020Q4

Included observations: 45

Dependent variable: D(NAP2)			
Prob.	Df	Chi-sq	Excluded
0.0000	2	20.39870	D(NSP1)
0.0001	2	18.66789	D(SFL)
0.0003	4	21.24311	All

Dependent variable: D(NSP1)			
Prob.	Df	Chi-sq	Excluded
0.0477	2	6.085544	D(NAP2)
0.0074	2	9.799412	D(SFL)
0.0423	4	9.893583	All

Dependent variable: D(SFL)			
Prob.	Df	Chi-sq	Excluded

0.9984	2	0.003110	D(NAP2)
0.9305	2	0.143960	D(NSP1)
0.9676	4	0.558090	All

Secondly: Measurement and Analysis of the Impact of Livestock Loans Provided by the Agricultural Bank, Babil Branch, on the Number of Small and Medium Projects

1. Stability Analysis:

From Table (10-3), we observe that the independent variable (APL) stabilized at the second difference with only a constant presence and at a significance level of (1%). Additionally, from Table (11-3), it is noted that the dependent variable (NSP3) stabilized at the first difference with no constant and no general trend at a significance level of (1%). Furthermore, from Table (12-3), it is observed that the dependent variable (NAP4) stabilized at the second difference with only a constant presence and at a significance level of (1%).

Table (10-3): Results of the Augmented Dickey-Fuller Test for the Stability of the Independent Variable (APL)
Get smarter responses, upload files and images, and more.

Null Hypothesis: D(APL,2) has a unit root

Exogenous: Constant

Lag Length: 3 (Automatic - based on SIC, maxlag=9)

Prob.*	t-Statistic		
0.0000	-8.035817	Augmented Dickey-Fuller test statistic	
	-3.596616	1% level	Test critical values:
	-2.933158	5% level	
	-2.604867	10% level	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(APL,3)

Method: Least Squares

Date: 07/13/22 Time: 14:58

Sample (adjusted): 2009Q4 2020Q1

Included observations: 42 after adjustments

Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.0000	-8.035817	0.206098	-1.656168	D(APL(-1),2)
0.0005	3.799448	0.171279	0.650767	D(APL(-1),3)
0.0000	4.593793	0.138920	0.638169	D(APL(-2),3)
0.0000	6.409967	0.097594	0.625572	D(APL(-3),3)
0.2796	-1.097250	4183570.	-4590423.	C
0.000000	Mean dependent var		0.763530	R-squared
51871286	S.D. dependent var		0.737966	Adjusted R-squared
37.13849	Akaike info criterion		26552525	S.E. of regression
37.34536	Schwarz criterion		2.61E+16	Sum squared resid
37.21432	Hannan-Quinn criter.		-774.9083	Log likelihood
2.054738	Durbin-Watson stat		29.86706	F-statistic
			0.000000	Prob(F-statistic)

Apologies for the oversight. Here's the translation for your request:

Table (11-3): Results of the Augmented Dickey-Fuller Test for the Stability of the Dependent Variable (NSP3)

Null Hypothesis: D(NSP3) has a unit root

Exogenous: None

Lag Length: 0 (Automatic - based on SIC, maxlag=9)

Prob.*	t-Statistic			
0.0053	-2.852989	Augmented Dickey-Fuller test statistic		
	-2.616203	1% level	Test critical values:	
	-1.948140	5% level		
	-1.612320	10% level		

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(NSP3,2)
 Method: Least Squares
 Date: 07/13/22 Time: 14:59
 Sample (adjusted): 2008Q4 2020Q1
 Included observations: 46 after adjustments

Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.0065	-2.852989	0.101505	-0.289593	D(NSP3(-1))
0.038043	Mean dependent var		0.150681	R-squared
0.709004	S.D. dependent var		0.150681	Adjusted R-squared
2.008269	Akaike info criterion		0.653408	S.E. of regression
2.048022	Schwarz criterion		19.21239	Sum squared resid
2.023161	Hannan-Quinn criter.		-45.19019	Log likelihood
			1.776843	Durbin-Watson stat

It seems there's a discrepancy in the table number you provided. It appears you mentioned "Table (21-3)" for the stability test of the dependent variable (NAP4), but previously, you mentioned up to "Table (12-3)" for the stability tests. Could you confirm the correct table number or provide additional context?

Null Hypothesis: D(NAP4,2) has a unit root

Exogenous: Constant

Lag Length: 7 (Automatic - based on SIC, maxlag=9)

Prob.*	t-Statistic			
0.0000	-5.809238	Augmented Dickey-Fuller test statistic		
	-3.615588	1% level	Test critical values:	
	-2.941145	5% level		
	-2.609066	10% level		

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation
 Dependent Variable: D(NAP4,3)
 Method: Least Squares
 Date: 07/13/22 Time: 15:01
 Sample (adjusted): 2010Q4 2020Q1
 Included observations: 38 after adjustments

Prob.	t-Statistic	Std. Error	Coefficient	Variable
0.0000	-5.809238	0.477784	-2.775563	D(NAP4(-1),2)

0.0003	4.111438	0.432026	1.776246	D(NAP4(-1),3)
0.0001	4.599508	0.386076	1.775759	D(NAP4(-2),3)
0.0000	5.317208	0.333873	1.775272	D(NAP4(-3),3)
0.0162	2.552981	0.266759	0.681031	D(NAP4(-4),3)
0.0055	3.001241	0.226890	0.680952	D(NAP4(-5),3)
0.0010	3.670167	0.184992	0.678951	D(NAP4(-6),3)
0.0000	5.176528	0.130773	0.676949	D(NAP4(-7),3)
0.8105	0.242007	0.070695	0.017109	C
0.000000	Mean dependent var	0.845830	R-squared	
0.974333	S.D. dependent var	0.803300	Adjusted R-squared	
1.363190	Akaike info criterion	0.432125	S.E. of regression	
1.751039	Schwarz criterion	5.415227	Sum squared resid	
1.501184	Hannan-Quinn criter.	-16.90061	Log likelihood	
2.005428	Durbin-Watson stat	19.88798	F-statistic	
		0.000000	Prob(F-statistic)	

2. Joint Integration Test: From Table (13-3), we observe the presence of one cointegrating vector in the Trace test, as well as one cointegrating vector in the Maximum Eigenvalue test. This indicates the existence of a long-term cointegrating relationship between the variables of the standard model.

Table (13-3): Results of the Johansen Cointegration Test.

Date: 07/13/22 Time: 16:23

Sample (adjusted): 2008Q4 2020Q1

Included observations: 46 after adjustments

Trend assumption: Linear deterministic trend

Series: NAP4 NSP3 APL

Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

0.05 Critical Value	Trace Statistic	Eigenvalue	Hypothesized No. of CE(s)
29.79707	30.47204	0.328451	None*
15.49471	11.15629	0.153437	At most 1
3.841466	3.494045	0.073144	At most 2

Trace test indicates no cointegration at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

0.05 Critical Value	Max-Eigen Statistic	Eigenvalue	Hypothesized No. of CE(s)
21.13162	22.31575	0.328451	None*
14.26460	7.662243	0.153437	At most 1
3.841466	3.494045	0.073144	At most 2

Max-eigenvalue test indicates no cointegration at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

3. Determination of the Optimal Lag Length for the Standard Model:

From Table (14-3), we observe that the optimal lag length for the standard model is two time lags according to the Schwarz criterion (SC), the Akaike criterion (AIC), and the Hannan-Quinn criterion (HQ).

Table (14-3): Determination of the Optimal Lag Length for the Standard Model.

VAR Lag Order Selection Criteria						
Endogenous variables: NAP4 NSP3 APL						
Exogenous variables: C						
Date: 07/13/22 Time: 16:25						
Sample: 2008Q1 2020Q4						
Included observations: 44						
HQ	SC	AIC	FPE	LR	LogL	Lag
53.68700	53.76353	53.64188	3.97e+19	NA	-1177.121	0
43.23918	43.54533	43.05873	1.01e+15	439.6898	-935.2921	1
41.52202*	42.05777*	41.20623*	1.59e+14*	83.67898*	-885.5370	2
41.93211	42.69747	41.48097	2.13e+14	4.567681	-882.5814	3
42.20013	43.19510	41.61366	2.51e+14	8.568682	-876.5004	4

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: Hannan-Quinn information criterion

4. Personal Tests

A. Autocorrelation Test: From Table (15-3), we notice that the LM test yielded a p-value of 0.8438, which is greater than 0.05. This indicates that the standard model is free from the problem of autocorrelation among its variables.

Table (15-3): LM Test for Autocorrelation

VAR Residual Serial Correlation LM Tests

Null Hypothesis: no serial correlation at lag order h

Date: 07/13/22 Time: 16:26

Sample: 2008Q1 2020Q4

Included observations: 46

Prob	LM-Stat	Lags
0.8438	4.890428	1
0.9979	1.383496	2

Probs from chi-square with 9 df.

The sentence translates to: "In the test of homogeneity of variances, from Table (16-3), we observe that the p-value appeared as (0.0000), which is less than (0.05), indicating the absence of variance instability problem in the standard model.

Table (16-3) Homogeneity of Variances Test

VAR Residual Heteroskedasticity Tests: No Cross Terms (only levels and squares)

Date: 07/13/22 Time: 16:28

Sample: 2008Q1 2020Q4

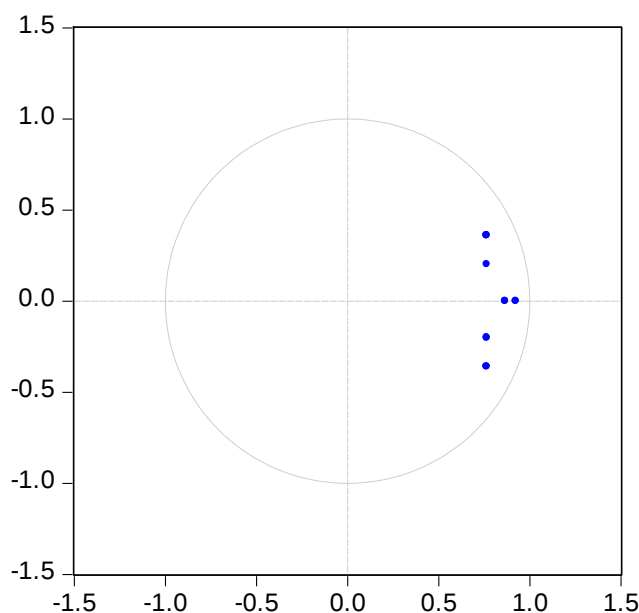
Included observations: 46

Joint test:		
Prob.	df	Chi-sq
0.0000	72	134.3152

Individual components:

Prob.	Chi-sq(12)	Prob.	F(12,33)	R-squared	Dependent
0.0557	20.65159	0.0332	2.240452	0.448948	res1*res1
0.0008	33.61017	0.0000	7.459990	0.730656	res2*res2
0.1128	18.09773	0.0931	1.783681	0.393429	res3*res3
0.0016	31.58223	0.0000	6.023897	0.686570	res2*res1
0.0315	22.58558	0.0132	2.652653	0.490991	res3*res1
0.0130	25.40996	0.0026	3.393748	0.552390	res3*res2

Inverse Roots of AR Characteristic Polynomial



The paragraph translates to:

"C- Overall Model Stability Test: From Figure (2-3), we observe that all roots fall within the unit circle, indicating the stability of the standard model as a whole. Figure (2-3) Overall Model Stability Test

Table 17-3: Results of Causal Test by Todai Yamamoto

a) Statistical Analysis: Through Table 17-3, we observe that the independent variable (APL), representing "Animal Wealth Loans," does not cause the dependent variable (NAP4), representing "Number of Medium Projects," as the P-value (0.3224) exceeds 0.05.

Similarly, from Table 17-3, we observe that the independent variable (APL) does not cause the dependent variable (NSP3), representing "Number of Small Projects," as the P-value (0.3385) exceeds 0.05.

b) Economic Analysis: We noticed from Table 17-3 that the loans provided by the Agricultural Bank/Branch of Babil did not directly or inversely affect the increase in the number of projects (medium and small) in Babil Province. This contradicts economic theory logic because these loans are specialized and target a specific economic sector (agricultural sector) by a specialized bank (Agricultural Bank) under mostly suitable conditions, administrative facilitations, easy guarantees, and interest-free terms. All these factors should stimulate small and medium project owners in the animal wealth sector to quickly establish such projects in Babil Province. However, the reality in Babil Province proves otherwise, as the loans were withdrawn from the Agricultural Bank under favorable conditions but did not go towards their intended purposes such as development, expansion, or establishment of animal wealth development projects

VEC Granger Causality/Block Exogeneity Wald Tests

Date: 07/14/22 Time: 16:30

Sample: 2008Q1 2020Q4

Included observations: 45

Dependent variable: D(APL)			
Prob.	df	Chi-sq	Excluded
0.6584	2	0.835866	D(NAP4)
0.2392	2	2.861321	D(NSP3)
0.5759	4	2.892650	All
Dependent variable: D(NAP4)			
Prob.	df	Chi-sq	Excluded
0.3224	2	2.263627	D(APL)
0.9030	2	0.203982	D(NSP3)
0.6370	4	2.542716	All
Dependent variable: D(NSP3)			
Prob.	df	Chi-sq	Excluded
0.3385	2	2.166305	D(APL)
0.6636	2	0.820266	D(NAP4)
0.4974	4	3.373165	All

Conclusions:

1. .Todai Yamamota causality was employed to measure and analyze the impact of agricultural initiative loans on the number of projects. This included "Small Farmers Loans" and "Animal Wealth Loans" as independent variables and "Small and Medium Projects" as dependent variables.
2. . A direct causal relationship was found between the independent variable "Small Farmers Loans," provided by the Agricultural Bank/Branch of Babil, and the dependent variables, small and medium projects.
3. .No causal relationship was found between the independent variable "Animal Wealth Loans," provided by the Agricultural Bank/Branch of Babil, and the dependent variables, small and medium projects.
4. .Based on the above, the research hypothesis stating "Specialized banks, such as the Agricultural Bank/Branch of Babil, play a positive role in supporting small and medium projects in the province" has been refuted.

Recommendations:

1. It's crucial for the Agricultural Bank to play a genuine and effective role in granting specialized loans by establishing a proper diagnostic mechanism to assess the actual need for these loans and the individuals who will receive them. This can be achieved through the selection of specialized committees in agriculture and animal wealth sectors to ensure that these specialized loans are directed towards their intended purposes.
2. The Agricultural Bank should establish an effective mechanism for disbursing these loans by dividing them into several stages aligned with the stages of establishing, developing, or operating agricultural projects or animal wealth development, thus ensuring that borrowers implement the developmental projects for which these loans are intended..

Margin Notes:

1. Michel Chartouni, "Concise Studies in Banking and Commerce," Modern Publishing House, Beirut, 2010, p. 103.
- 2Dr. Hussam Ali Dawood, "Principles of Macroeconomics," Al-Maseera Publishing and Distribution, Amman - Abdali, 4th edition, 2014, p. 228.
- 3Dr. Rabeh Khawani, Dr. Raziya Hassani, "Small and Medium Enterprises and Their Financing Problems," Itrak for Printing and Publishing, Egypt, 2008, p. 33.
4. Jihad Abdullah Afaneh, Qasim Musa Abu Eid, "Small Project Management," Amman, Jordan, Arabic edition, 2004, p. 13.
- 5Wolff, J. A. and pett, T. L , Small- firm performance : Modeling the role of the product and process improvements , Jourrnal of Small Business Management , 2006, P180.
- 6-Raymond,L.,& Bergeron,F, Enabling the business strategy of SMEs through e-business capabilities: A strategic alignment perspective . Industrial Management & Data System, 108(5),557-595, 2008, p(109-110).