The Impact of Banking Sector on Economic Growth: Empirical Analysis from Palestinian Economy

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ABSTRACT

This study attempts to investigate the impact of the Palestinian banking sector on economic growth that was measured by the gross domestic product (GDP) during the period (2005–2017). The researcher chose bank's credit as an explanatory variable which is measured by six independent variables namely direct credit facilities, ındirect credit facilities, loans to deposits, deposits (DTGDP) average ınterest rates (AIR) and Banks Investments in local financial securities (DTGDP). These variables are indicators of banking sector and affect the economic growth. The data was collected from the audited annual reports of the sample banks, the palestinian monetary authority's annual reports and Association of Banks in Palestine. These variables had been used as a percentage of RGDP. The findings and analysis revealed that there is weak relationship between the economic growth and the banking sector.

Keywords: Gross Domestic Product, Banking Sector, Palestine
JEL Classifications: G20, G21

1. INTRODUCTION

Economic growth can be considered as one of the most important aspects and significant targets of the overall or macroeconomic strategy. It "in some way" enhances the elevation process of individual's expectations for living standards and welfare, as well as accomplishing the most crucial goal, the economic development (Gujarat, 2004). Econometrists and experts in such fields define the concept of economic growth from various points of views. A number of them see that it is the increase in the domestic income or the rise in the volume of the production of goods and services by a specific country over a determined timeframe (Case and Fair, 2010).

Generally speaking, economic growth is defined as an expansion in total national product "output." As a result, gross domestic product (GDP) is the major indicator of economic growth and overall development (Case and Fair, 2010). It is perfectly clear that countries that have great monetary and financial system tend to build up its economic development all more rapidly (Zhao, 2017).

The banking sector plays a positive role in the development of the economy of any country as a whole. In the developing countries, banks are the main source of credit in the domestic markets due to the capital market weakness and limitation, and the lack of the ability to provide adequate sources of financing to investors (Saci et al., 2009). Banks are very important institution and serve as backbone to the financial sector, which play a crucial role in developing the different economic sectors, the stream of money is managed and controlled, investment opportunities are utilized and channels of funds goes to productive and profitable projects.

Against this background and problem formulation, the major research question is the following:

Does palestinian banking sector in practice promotes economic growth?

This study attempts to find out the relationship between the banking sector and the economic growth and development through four major variables which interact together and lead into a significant effect on the overall economic system.

The dynamic role of the banking sector and its vital function will be explained in this study using variables that represent the major business of banks that contribute to accomplishing the overall macroeconomic strategy and raising economic growth rates.

2. LITERATURE REVIEW

Many researchers have been interested in studying the relationship between the banking sector and economic growth. Generally speaking, Banks considered as the most important financial intermediary within the economy as it links surplus and deficit economic units together.

The relation between the banking sector and the economic growth is an argued topic, according to Goldsmith (1969) that the size of banking sector is linked with the supply and quality of financial intermediation and his analysis on 35 sample countries proved a positive correlation between the banking sector and economic growth. Also McKinnon (1973) and Shaw (1973) seek for that relation, and they found that the banking sector affect the economic growth clearly.

Identifying the possible channels of influencing the financial system to the economic growth is an important tool to determine the role of financial system, since the question now is turned to what the causality of the financial system to the economic growth? rather if the financial system affect the economic growth.

Yusuf (2010) entitled the role of banking system in financing the economic growth in Syria the problem of the study was to answer whether there is a relationship between the banking system and economic trends, the importance of this study lies in determining the reality of the Syrian banking sector and its ability to respond to the economic developments in Syria and also determining the size of bank credit in Syria, there is a strong relationship between bank deposits and local cash equivalents, in addition, the study recommended improving credit facilities as a percentage of deposits to enable them to finance economic growth.

The study of Aloqool et al. (2014) entitled financial banking development and economic growth. The study tests the relationship between the services provided by the banks and the economic growth in Jordan from 1980 to 2012. The study also examined the relationship between the gross financing and the total savings and growth, the study confirmed the relationship between total funding and GDP, in addition, the study examined the relationship between deposits and GDP and reached a confirmation of the positive relation between the increase in deposits and growth in GDP.

Hicks (1969) emphasize that financial institutions help the economic growth, despite their focus on capital formation and maximizing the wealth of owners. The capital formation of financial institutions is influenced by the structuring of savings for the production of capital. Liquidity is very important in high-yield projects, it is under a long-term financial commitment, financial institutions such as banks and others are required to provide liquidity to help these companies and large enterprises to control and enhance liquidity to enable them to continue and grow.

Khan (2000) found that the banking sector has main seven functions, Firstly, making a transaction costs related to external finance for both households and companies reduced, by mobilizing savings by pooling households' savings and making them available for lending. The process is clear and has an ease of cooperation, such that firms save money by going directly to the financial institution. In same manner, savers are concerned only on save their money in the financial institution, which means it is not important who will borrow their money there.

The modern empirical literature in this area has developed since the 1990s, following King and Levine's (1993), cross-country study using data for 80 countries. The study analyses the effect of financial sector development on growth in real per capita GDP, with four indicators: The amount of liquid liabilities divided by GDP, the importance of commercial banks in relation to the central bank when allocating credit, the ratio of credit allocated to private enterprises to total domestic credit, and credit to private sector divided by GDP. After controlling for other factors affecting economic growth King and Levine (1993) find a strong positive relation between each of the financial development indicators and economic growth.

3. RESEARCH METHODOLOGY

This study aimed to investigate the impact of the Palestinian banking sector on economic growth that was measured by the GDP during the period 2005–2017. The researcher chose bank's credit as an explanatory variable which is measured by six independent variables namely direct credit facilities (DCF), ındirect credit facilities (ICF), loans to deposits (LTD), deposits (DTGDP) average ınterest rates (AIR) and Banks Investments in local financial securities (BI). These variables are indicators of banking sector and affect the economic growth.

According to literature review mentioned above, the researcher used the following ratios to measure both dependent and independent variables as shown in Table 1.

3.1. GDP

"GDP, is the market value of the goods and services produced by labor and property" (Case and Fair, 2010). The researcher used the ratio of RGDP2-RGDP1\RGDP1. The ratio measures the change of real GDP (RGDP) year by year from 2005 to 2017.

The GDP increased significantly from the beginning of 2005–2017; the rise in GDP was almost 67% as shown in Table 2. Given the direct impact of the banking sector on GDP, The other side of the impact will be the impact of economic growth on the banking

activity and its growth, especially in the growth of the credit portfolio, which constitutes the most important part of the assets.

3.2. DCF

"A direct credit facility includes the facilities used and declared within the budget" (Klein et al., 2002). The researcher used the ratio of DCF/real GDP to measure the effect of DCF granted by the banking sector on economic growth (Tables 3-8).

3.3. ICF

"An indirect credit could be defined and explained as a facility which is provided by the bank as documentary credit and exports guarantees and other indirect facilities" (Klein et al., 2002). The researchers used the ratio of in DCF/real GDP (ICF\RGDP) to measure the effect of this variable on economic growth. In 2017, ICF accounted for nearly 23 percent of the banks' credit portfolio, at about $ 1904 millionin 2017 (Palestinian Monetary Authority [PMA], 2017).

Table 1: Summary of the independent variables employed in the study

Variable	Measurement	Description
DCF	DCF\RGDP	DCF
ICF	ICF\RGDP	ICF
LTD	Total loans\total deposits	LTD
Banks investments	Banks investments in local securities\RGDP	BI
Deposits	Deposits\RGDP	DTGDP
AIR	Interest rates\3	AIR

Table 2: The RGDP from 2005 to 2017 in USD millions

Years	RGDP	Change in RGDP
2005	4796.7	0.107
2006	4609.6	(−0.039)
2007	4913.4	0.065
2008	5212.1	0.060
2009	5663.6	0.086
2010	6122.3	0.080
2011	6882.3	0.124
2012	7314.8	0.062
2013	7477.0	0.022
2014	7463.4	(−0.0018)
2015	7719.3	0.034
2016	8037.0	0.041
2017	8442.7	0.050

Table 3: Real gross domestic product and direct credit in USD millions

Years	Direct facilities	RGDP	1\2
2005	1.741	4796.7	0.362
2006	1.843	4609.6	0.399
2007	1.705	4913.4	0.347
2008	1.828	5212.1	0.35
2009	2.234	5663.6	0.394
2010	2.886	6122.3	0.471
2011	3.551	6882.3	0.515
2012	4.199	7314.8	0.574
2013	4.480	7477	0.599
2014	4.895	7463.4	0.655
2015	5.825	7719.3	0.754
2016	6.872	8037	0.855
2017	8.028	8442.7	0.95

3.4. LTD

The loan-to-deposit ratio influences the effectiveness of the bank lending. Loan- deposit ratio is a useful instrument to determine bank liquidity, and by extension, it influences the profitability of the banks. The researcher used the ratio of loans/deposits to measure and evaluates how the volume of bank, s loans as a percentage from deposits affects GDP.

3.5. Banks Investments in Local Securities

Cash assets are designed to meet the financial firm's need for liquidity. Security holdings are a backup source of liquidity and include investments that provide a source of income. Investment

Table 4: Real GDP and indirect credit in USD millions

Years	ICF	RGDP	1\2
2005	379.8	4796.7	0.079
2006	498.5	4609.6	0.108
2007	548.4	4913.4	0.111
2008	606.3	5212.1	0.116
2009	679.1	5663.6	0.119
2010	767.4	6122.3	0.125
2011	797.5	6882.3	0.115
2012	854.9	7314.8	0.116
2013	981.3	7477	0.131
2014	1.190.80	7463.4	0.159
2015	1.160.50	7719.3	0.15
2016	1.338.70	8037	0.166
2017	1.904.70	8442.7	0.225

GDP: Gross domestic product

Table 5: Total loans and deposits in USD millions

Years	Loans	Deposits	1\2 (%)
2005	2,123.3	4.626	45.9
2006	2,343.1	4.677	50.1
2007	2,254.8	5.723	39.4
2008	2,434.2	6.290	38.7
2009	2,911.6	6.678	43.6
2010	3,654.8	7.223	50.6
2011	4,350.4	7.619	57.1
2012	5,055.5	8.207	61.6
2013	5,457.9	9.204	59.3
2014	6,087.6	9.663	63.0
2015	6,987.1	10.507	66.5
2016	8,209.0	11.744	69.9
2017	9,9363	13.109	75.8

Table 6: Real GDP and Investments in Local Securities in USD millions

Years	Investments in local securities	RGDP	1\2
2005	227.8	4796.7	0.047
2006	151.0	4609.6	0.032
2007	148.4	4913.4	0.030
2008	128.0	5212.1	0.024
2009	146.1	5663.6	0.025
2010	106.5	6122.3	0.017
2011	198.8	6882.3	0.028
2012	218.9	7314.8	0.029
2013	217.8	7477.0	0.029
2014	213.5	7463.4	0.028
2015	229.6	7719.3	0.029
2016	337.0	8037.0	0.041
2017	365.8	8442.7	0.043

GDP: Gross domestic product

Table 7: Deposits and real GDP in USD millions

Years	Deposits	RGDP	1\2
2005	4.626	4796.7	0.964
2006	4.677	4609.6	1.014
2007	5.723	4913.4	1.164
2008	6.290	5212.1	1.206
2009	6.678	5663.6	1.179
2010	7.223	6122.3	1.179
2011	7.619	6882.3	1.107
2012	8.207	7314.8	1.121
2013	9.204	7477.0	1.230
2014	9.663	7463.4	1.294
2015	10.507	7719.3	1.361
2016	11.744	8037.0	1.461
2017	13.109	8442.7	1.552

GDP: Gross domestic product

Table 8: The AIR on JOD, USD and NIS

Years	JOD (%)	USD (%)	NIS (%)	Sum\3 (%)
2005	9.1	7.8	13.2	10.04
2006	9.2	8.0	12.7	9.96
2007	9.0	7.5	12.0	9.52
2008	7.5	6.2	11.0	8.21
2009	7.5	6.3	10.9	8.27
2010	7.6	6.8	11.7	8.70
2011	8.1	7.0	11.3	8.79
2012	6.5	6.2	9.2	7.30
2013	7.5	6.4	9.4	7.76
2014	7.2	6.1	9.1	7.45
2015	6.9	5.9	7.8	6.89
2016	6.3	5.9	6.9	6.38
2017	6.6	5.8	7.1	6.50

AIR: Average interest rates

in local securities helps government and corporations to raise their financing needs which may affect economic growth at the country level. The researchers used the ratio of Investment in local securities/real GDP to measure the effect of this variable on economic growth.

3.6. Deposits
Through the intermediation role of the banking sector in any economy, deposits play a crucial role in developing the economic system, banks usually obtain those amounts from depositors and lend them to the needy units and investors, which leads to the creation on new investment projects, increasing the number of working units within the society and as a consequence a tangible growth would take place in that economy. The ratio of deposits/GDP has been used to measure the effect of this variable on economic growth.

3.7. AIR
Since palestine has no official currency, the AIR on credit on the three currencies used in Palestine (USD dollar, Jordanian dinar [JOD] and Israeli shekel [NIS]) have been used. The ratio of AIR/GDP has been used to measure the effect of this variable on economic growth.

3.8. Sample Population and Participants
Palestinian banking sector has been chosen for the purpose of this study. In other words, twelve commercial banks and three Islamic banks comprised the study sample. The necessary data were

collected from each bank's annual audited financial statements, the Association of Banks in Palestine and from PMA's Annual Reports, for sake of comparison. Those data covered 2005–2017, and were used to do the regression analysis.

3.9. Data Collection
The secondary data used for the study were from annual reports for the selected banks. The study necessitates looking into financial statements and notes to financial statements in the annual reports of the sample banks. In Palestine, banks must submit their annual reports to the PMA, so it's easy to get all annual reports of selected banks from the PMA and online.

3.10. Data Analyzing Instruments
The analysis and the results of our study are based on using statistical analysis applications "E-VIEWS as well as Excel descriptive Statistics".

3.11. Applied Regression Model
In the light of the elements and the dimensions of the problem, the researcher build study model on the basis of the relationship between the independent variables of banking sector (expressed in terms of DCF, ICF, LTD, deposits [DTGDP] AIR and Banks Investments in local financial securities [DTGDP]). These variables are indicators of banking sector and affect the economic growth, on the one hand and the dependent variable (GDP) on the other hand. The researcher used multiple regression model with one dependent and six independent variables in this study.

3.12. Regression Analysis Explained and Hypothesis Development
The regression analysis was conducted to find out the following:

The relationship between Palestinian banking sector and economic growth in 15 banks: The researcher used 13 years period (2005–2017).

In the light of study objectives, the present study sought to test the following hypotheses;

H_1: There is a significant correlation between the DCF and RGDP
H_2: There is a significant correlation between the ICF and RGDP
H_3: There is a significant correlation between LTD ratio and RGDP
H_4: There is a significant correlation between deposits and RGDP
H_5: There is a significant correlation between AIR and RGDP
H_6: There is a significant correlation between banks investments and RGDP

Based on that and in the light of the elements and the dimensions of the problem the researcher employed the multivariate regression model (presented below) to highlight the relationship between the independent variables on the one hand and the dependent variable (GDP) on the other hand.

The following mathematical equation illustrates the model:
$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \varepsilon$$

Where
Y: Real GDP

X_1: DCF
X_2: ICF
X_3: LTD
X_4: Banks investments in local securities
X_5: Deposits to GDP
X_6: AIR

The regression equation will be as follow:
$$Y = \alpha + \beta_1.DCF + \beta_2.ICF + \beta_3.LTD + \beta_4.BI + \beta_5.DTGDP + \beta_6.AIR + \varepsilon$$

4. EMPIRICAL RESULTS

In this section, the researcher presents the results of the regression model that measure the independent variables of banking sector (expressed in terms of DCF, ICF, LTD, Deposits, (DTGDP), Banks Investments in local financial securities (BI), AIR and the dependent variable (GDP). We analyzed the results, to accept or reject the hypothesis related to the effects of independent variables on dependent variable.

4.1. Multiple Linear Regression Analysis
One of the functions of multiple linear regression that examines the strength of the relationship between independent variables and dependent variable, In addition to that it works on framing this relationship in a mathematical model used for prediction (Gujarati, 2004).

The equation below, referred to the linear regression equation of dependent (GDP) and independent variables based on the regression analysis:

log (RGDP) = 3.2+0.51 log (DCF)+0.21 log (ICF)-1.4 (LTD)+0.46 log (BI)-1.79 (DTGDP)+0.10 (AIR).

Probability = (0.3962) (0.5368) (0.3332) (0.046) (0.0106) (0.9889)

Table 9 shows a high level of explanation and significance of impact for the explanatory variables. The structural parameter estimates obtained implies 97.9% of GDP is explained by selected variables. The coefficient of determination (R2) indicates that 98% of variation in Palestinian economic growth is estimated by the variation of banking indicators. Moreover, F test is 46.6 and the Probability of F test value 0.000 is less than the significant of 5% level. In addition, Durbin – Watson is closed to the rule of thumb 1.7 and this means that there is no autocorrelation problem among the research variables. The result confirmed that estimated model is significant and very well fit.

4.1.1. The relationship between DCF and GDP
Table 9 showed that DCF affected GDP positively. The elasticity between the DCF and GDP is positive elasticity and that's mean if the direct facilities increase by 1% the GDP will increase by 0.51%. Looking at the probability of the variable (DCF), it's greater than 5%, then we accept the null hypothesis and reject the alternative hypothesis:
- H_0: DCF equal zero (accept)
- H_1: DCF does not equal zero (reject).

Looking at the collected data about the DCF trend we found that it's keep increasing during the period 2005–2017. By 64% confidence level we can't decide if the direct facilities affect the GDP.
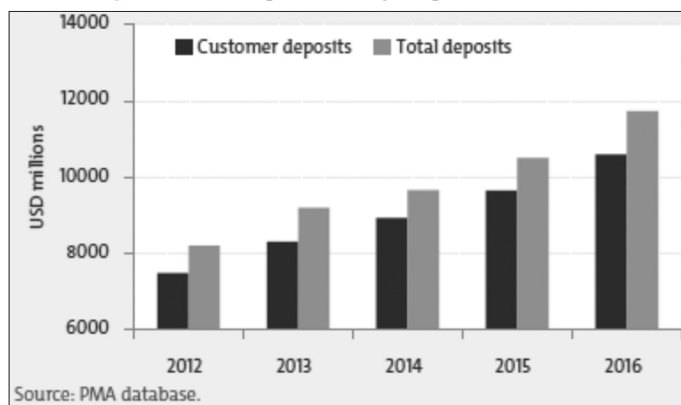
4.1.2. The Relationship between ICF and GDP
The results presented in Table 9 indicate that the ICF was positively related to GDP, the profitability measure. The β coefficient was 0.21 which indicates that the effect of ICF on GDP was strong. This indicates that one unit increases in ICF will increase GDP by 0.21% units, holding the rest of variables constant.

the probability of this variable is >5%, therefore, we will accept the null hypothesis and reject the alternative one:

Table 9: Multiple linear regression matrixes

Dependent variable: LGDP				
Method: Least squares				
Sample (adjusted): 2005–2017				
Included observations: 13 after adjustments				
Variable	**Coefficient**	**Std. error**	**t-Stat**	**P**
C	3.289598	3.276255	1.004073	0.3541
DCF log (direct credit)	0.513834	0.562484	0.91351	0.3962
ICF log (ındirect credit)	0.219094	0.334511	0.654969	0.5368
LTD loan to deposits	−1.47273	1.399681	−1.05219	0.3332
BI log (investment)	0.464316	0.185133	2.508008	0.046
DTGDP deposits to GDP	−1.79436	0.490867	−3.65548	0.0106
AIR average interest rate	0.10418	7.184355	0.014501	0.9889
R-squared	0.979016			
Adjusted R-squared	0.958033			
S.E. of regression	0.094602			
Sum squared reside	0.053697			
Log likelihood	17.23453			
F-statistic	46.6562			
Prob (F-statistic)	0.00009			
Mean dependent var	9.026632			
S.D. dependent var	0.461791			
Akaike info criterion	−1.57454			
Schwarz criterion	−1.27034			
Hannan-Quinn criter.	−1.63707			
Durbin-Watson stat	1.698433			

Figure 1: Total deposits during the period 2012–2016

Source: PMA database.

- H_0: IDC equal zero (accept)
- H_1: IDC does not equal zero (reject).

4.1.3. The Relationship between LTD ratio and GDP
Table 9 showed that there a negative relationship between the two variables. The elasticity between the LTD and GDP equal (−1.47) and it's negatively affected GDP which means if LTD ratio increase by 1%, the GDP will decrease by 1.4%. Looking at the probability of the variable >5%, therefore, we can't reject the null hypothesis.
- H_0: LTD equal zero (accept)
- H_1: Ltd does not equal zero (reject).

We can't decide if LTD effect the GDP because the confidence level equal 66%.

4.1.4. The relationship between banks ınvestments in local securities and GDP
The results presented in Table 9 indicate that there is significant positive correlation between banks investments in local securities and GDP. The results indicate that if the bank's investments increase by 1% the GDP will increase by 0.46% and that's under the stability of other factors.

The probability of this variable is <5%, therefore, the null hypothesis will be rejected and accept the alternative one.
- H_0: BI equal zero (reject)
- H_1: BI does not equal zero (accept).

4.1.5. The relationship between deposits (DTGDP) and GDP
The regression results indicate a statistically significant at confidence level of 99%, the variable has a negative elasticity with GDP equals (−1.7), which means, if the (D\GDP) rise by 1%, the GDP will decrease by 1.7%. The probability of this variable <5%, therefore, the null hypothesis will be rejected and accept the alternative one.
- H_0: DTGDP equal zero (reject)
- H_1: DTGDP does not equal zero (accept) this result look at Figure 1 that showed significant increasing of deposits during the period (2012–2016).

4.1.6. The Relationship between AIR and GDP
The probability of this variable greater than 5%, and that's mean we can't reject the null hypothesis:

- H_0: Air equal zero (accept)
- H_1: Air does not equal zero (reject).

We can't decide if the air effect the GDP at confidence level (1.2%), with a positive elasticity (0.10%).

5. CONCLUSION

This study attempts to investigate the impact of the Palestinian banking sector on economic growth that was measured by the gross domestic product (GDP) during the period (2005–2017). Based on the above results, following are conclusions obtained from this study.

Banks credit whether direct or indirect has not much impact on the economic growth but it has showing the potential for growth in future. It should be mentioned that banks operate in Palestine concentrate on consumption credit to generate more profits rather than productive ones that build up sustainable economy.

According to the rest of variables it showed no impact on economic growth except banks investments in the domestic securities which had significant impact on GDP.

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