The Interplay Between Bank Credit & Economic Growth

Which Borrowing Sector is More Conductive to Growth?

March 2019

منتدى الاستراتيجيات الأردني
JORDAN STRATEGY FORUM

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The Jordan Strategy Forum (JSF) is a not-for-profit organization, which represents a group of Jordanian private sector companies that are active in corporate and social responsibility (CSR) and in promoting Jordan's economic growth. JSF's members are active private sector institutions, who demonstrate a genuine will to be part of a dialogue on economic and social issues that concern Jordanian citizens. The Jordan Strategy Forum promotes a strong Jordanian private sector that is profitable, employs Jordanians, pays taxes and supports comprehensive economic growth in Jordan.

The JSF also offers a rare opportunity and space for the private sector to have evidence-based debate with the public sector and decision-makers with the aim to increase awareness, strengthening the future of the Jordanian economy and applying best practices.

For more information about the Jordan Strategy Forum, please visit our website at www.jsf.org or contact us via email at info@jsf.org. Please visit our Facebook page at Facebook.com/JordanStrategyForumJSF or our Twitter account @JSFJordan for continuous updates aboutJordan Strategy Forum.

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1. Introduction

The subject matter of **"FINANCIAL DEVELOPMENT"** has always caught the attention of academic researchers, as well as think tanks, central banks, and international organization such as the World Bank, International Monetary Fund (IMF), and the World Economic Forum (WEF). This interest is due to the socio-economic implications of financial development. The following quotations from the World Bank and the WEF could not have expressed the importance of financial development any better.

"Capital markets are becoming essential to financing infrastructure such as roads, power plants, schools, hospitals and houses and to help manage unforeseeable risk" (World Bank).

"Resilient, transparent and smooth-functioning financial systems and capital markets contribute to financial stability, job growth and poverty alleviation" (World Bank).

"A large body of economic literature supports the premise that, in addition to many other important factors, the performance and long-term economic growth and welfare of a country are related to its degree of financial development" (WEF).

As one might expect, a good measurement of financial development is important in, not only assessing the development of the financial sector, but also in understanding the impact of financial development on, for example, economic growth. However, and in practice, it is not an easy task to measure financial development. Indeed, any measure should include a multitude of dimensions. This is why the World Bank has developed the **"GLOBAL FINANCIAL DEVELOPMENT DATABASE".** This database includes a comprehensive framework to measure financial development around the world.

The World Bank's framework identifies four sets of variables that characterize a well-functioning financial system: (1) Financial Depth, (2) Financial Access, (3) Financial Efficiency, and (4)

Financial Stability. These four dimensions are then measured for both financial institutions (banks) and financial markets (stock markets) as follows:

FINANCIAL INSTITUTIONS:

1. Financial Depth. This includes measures like private to sector credit to GDP, pension fund assets to GDP ratio, mutual fund assets to GDP, and bank deposits to GDP ratio.
2. Financial Access. This includes measures like number of bank accounts per thousand adults, and number of bank branches per 100,000 adults.
3. Financial Efficiency. This includes measures like bank net interest margin, profitability of banks (return on assets and on equity), and overhead costs to total assets ratio.
4. Financial Stability. This includes measures like capital adequacy ratio, and risk-adjusted capital adequacy ratio.

FINANCIAL MARKETS:

1. Financial Depth. This includes measures like stock market capitalization to GDP ratio, stocks traded to GDP ratio, and public debt securities to GDP ratio.
2. Financial Access. This includes measures like ratio of new corporate bond issues to GDP ratio, percent of market capitalization outside of the top 10 largest companies.
3. Financial Efficiency. This includes measures like stock market turnover ratio (trading volume divided by market capitalization).
4. Financial Stability. This includes measures like stock market volatility (standard deviation of stock price index), and price to earnings ratio.

As stated above, financial development has always caught the attention of academic researchers, as well as think tanks, central banks, and international organization such as the World Bank, International Monetary Fund (IMF), and the World Economic Forum (WEF). One of the issues that has resulted in the publication of numerous research papers policy

papers, reports, as well policy briefs is the **IMPACT OF BANK CREDIT (as one measure of financial development) ON REAL GDP GROWTH.**

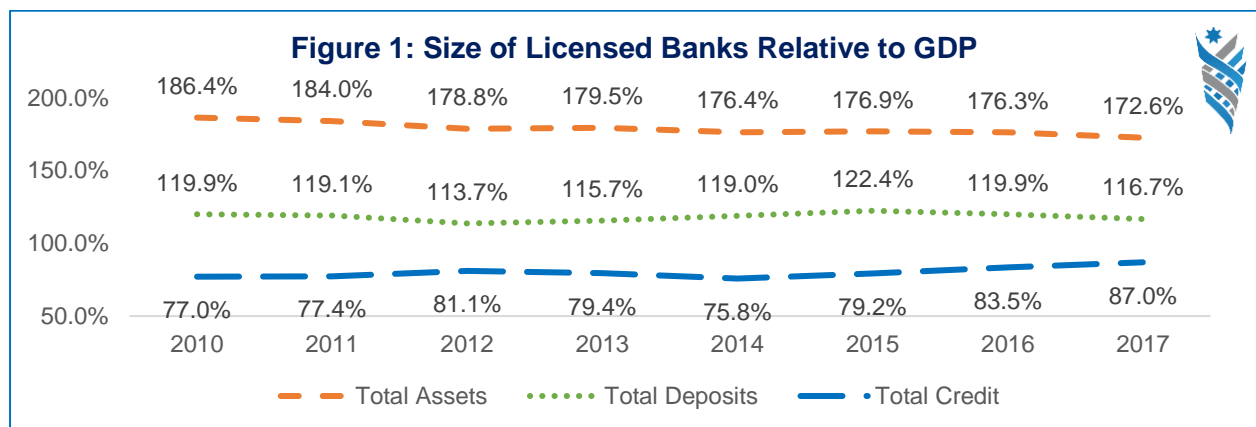Within the context of the above-mentioned observations and comments, the Jordan Strategy Forum (JSF) seeks, in this policy paper, to provide answers to two main questions:

1. **What is the impact of bank credit on real economic growth in Jordan?**
2. **What is the impact of the sectoral distribution of bank credit on real economic growth?**
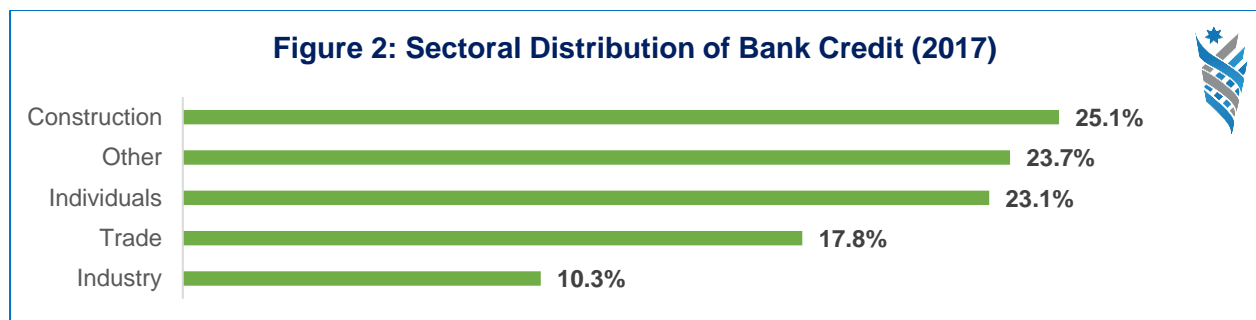
2. The Jordanian Banking Sector: Some Basin Observations

No one should underestimate the economic role of the Jordanian banking sector. This opinion is based on several observations. These are outlined below.
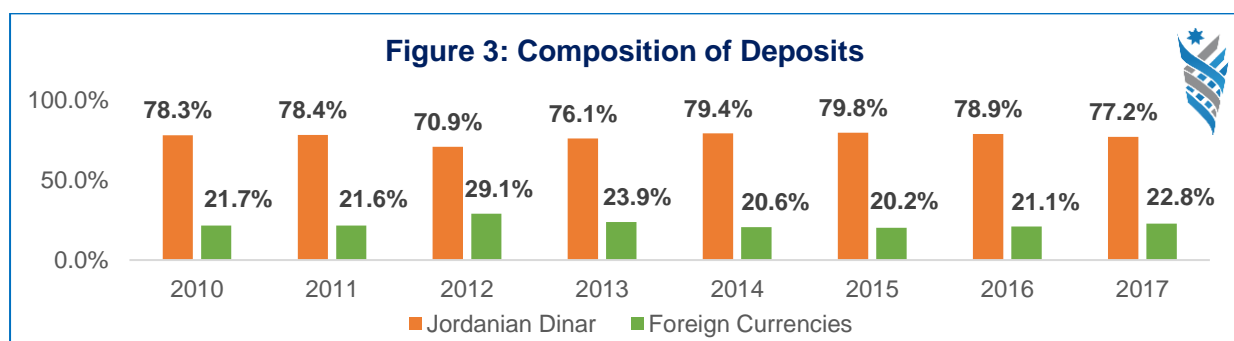
1. The total assets of the licensed banks are more than 170% of GDP (Figure 1). This ratio is larger than that in, for example, Poland (60%), Saudi Arabia (95%), and comparable to the 190% in Japan (World Bank database). Total deposits and total credit facilities have also surpassed the 100% and 80% of GDP respectively by the end of 2017.

Figure 1: Size of Licensed Banks Relative to GDP

Year	Total Assets	Total Deposits	Total Credit
2010	186.4%	119.9%	77.0%
2011	184.0%	119.1%	77.4%
2012	178.8%	113.7%	81.1%
2013	179.5%	115.7%	79.4%
2014	176.4%	119.0%	75.8%
2015	176.9%	122.4%	79.2%
2016	176.3%	119.9%	83.5%
2017	172.6%	116.7%	87.0%

2. The construction, individuals (retail), general trade, and the industrial sectors account for the largest shares in terms of their respective credit allocation. For example, 23.1% of total banks' credit facilities are allocated to the retail end of the market (Figure 2).

Figure 2: Sectoral Distribution of Bank Credit (2017)

Sector	Share
Construction	25.1%
Other	23.7%
Individuals	23.1%
Trade	17.8%
Industry	10.3%

3. In 2017, these deposits constituted about 23% of total deposits. Since 2010, this percentage has been relatively intact, except in 2012.

Figure 3: Composition of Deposits

Year	Jordanian Dinar	Foreign Currencies
2010	78.3%	21.7%
2011	78.4%	21.6%
2012	70.9%	29.1%
2013	76.1%	23.9%
2014	79.4%	20.6%
2015	79.8%	20.2%
2016	78.9%	21.1%
2017	77.2%	22.8%

4. As expected, and due to the extra risk factors in lending in foreign currencies, licensed Jordanian banks lend much lower proportions of their deposits in foreign currencies than of their local currency deposits (Figure 4).

Figure 4: Credit to Deposit Ratios in Jordan

	2000	2005	2010	2015	2016	2017
Local Currency	78.7%	82.3%	72.4%	70.3%	77.7%	86.3%
Foreign Currencies	18.9%	18.0%	34.8%	42.9%	39.2%	34.4%
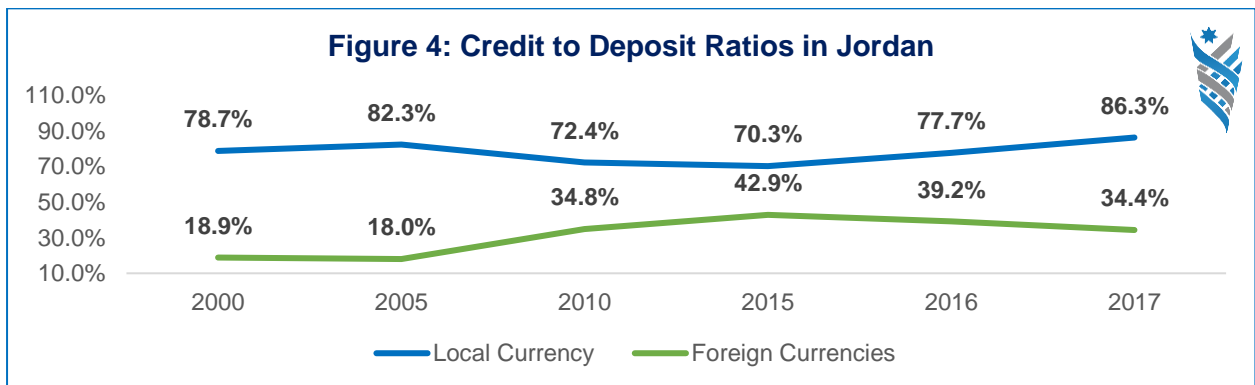
5. In 2017, Jordanian banks' credit to the private sector was equivalent to 72% of GDP (Figure 5). While this proportion is higher than that in several countries, it is much lower than in the USA (190 percent), Japan (162 percent), and in the UAE (80.6 percent).

Figure 5: Domestic Credit to Private Sector (% GDP)

Country	% GDP
USA	190.2%
Japan	161.9%
China	155.1%
UK	134.4%
Chile	110.8%
Tunisia	82.0%
UAE	80.6%
Jordan	72.7%
Oman	70.7%
Morocco	63.8%
Poland	53.6%
Indonesia	39.1%
Libya	27.4%
Zambia	15.5%
Chad	9.5%
Afghanistan	3.7%
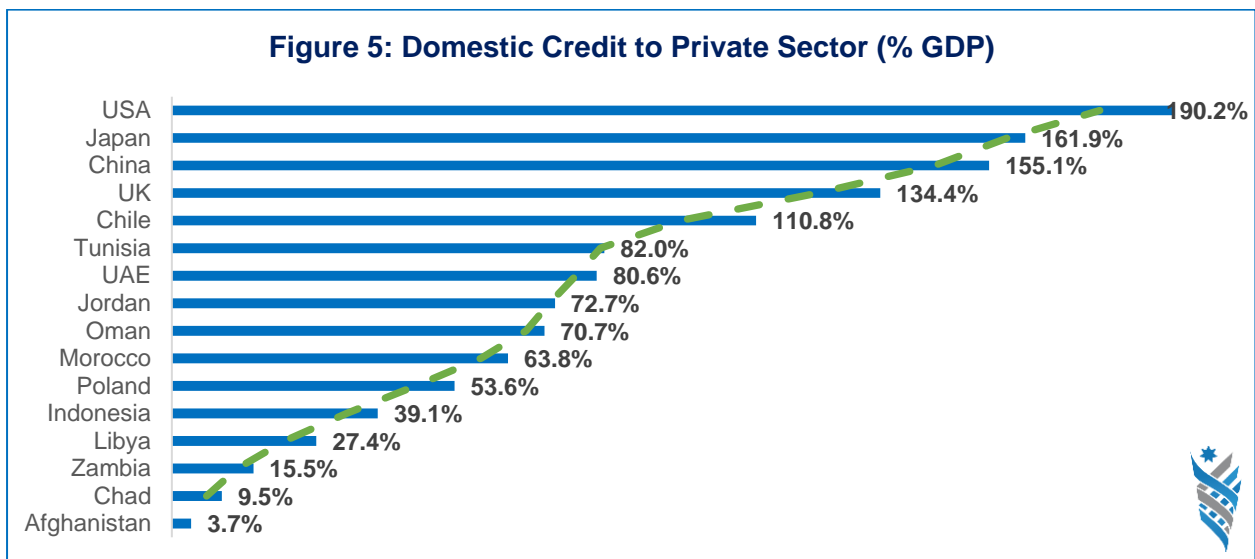
6. Relative to their total deposits, Jordanian banks provide the national economy with lower credit. The mean ratios of bank credit to bank deposits (2015-2017) in Oman, Tunisia, and Saudi Arabia are equal to 126.0%, 132.8%, and 134.9% respectively (Figure 6). Similarly, the Jordanian ratio (72.4%) is much lower than those which prevail in, for example, Denmark (320%), Sweden (200%), Portugal (152%), and in Indonesia (93%). It is only banks in Palestine, Algeria, Egypt, Lebanon, Ghana, and Japan that lend less!

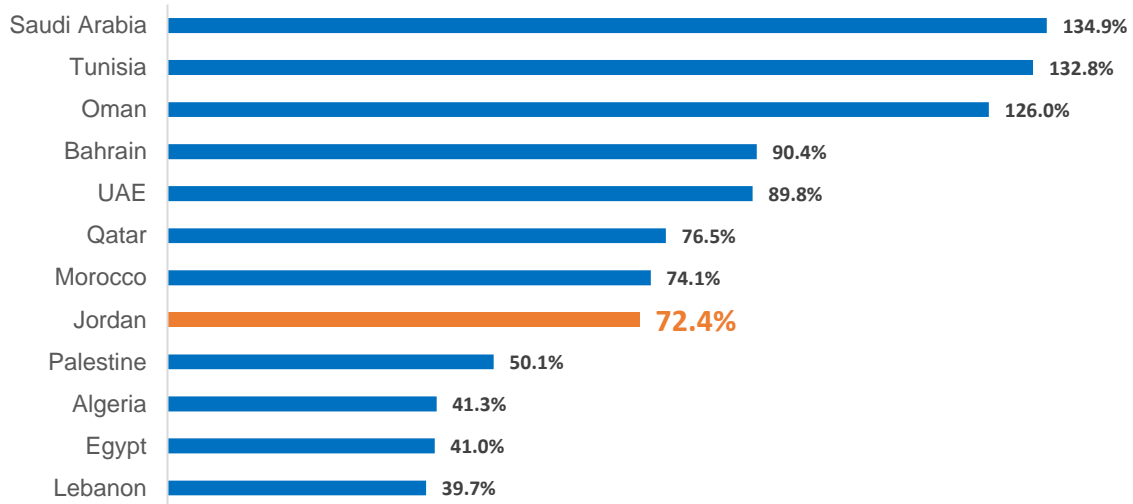## Figure 6: Bank Credit to Bank Deposits (Arab Region)

Country	Value
Saudi Arabia	134.9%
Tunisia	132.8%
Oman	126.0%
Bahrain	90.4%
UAE	89.8%
Qatar	76.5%
Morocco	74.1%
Jordan	72.4%
Palestine	50.1%
Algeria	41.3%
Egypt	41.0%
Lebanon	39.7%

Figure 7: Bank Credit to Bank Deposits (International)

Country	Value
Denmark	319.7%
Sweden	199.6%
Portugal	152.3%
Chile	150.0%
Finland	143.8%
Georgia	140.3%
Australia	131.6%
Turkey	128.7%
Spain	128.5%
France	122.0%
Brazil	116.1%
Russia	112.8%
Italy	112.1%
Singapore	105.4%
Croatia	102.5%
Switzerland	100.4%
Slovenia	98.7%
Germany	97.0%
Malaysia	96.6%
Poland	96.6%
Indonesia	93.2%
Kenya	88.5%
India	76.2%
Czech Rep.	74.2%
Jordan	72.4%
Ghana	70.7%
Japan	47.0%
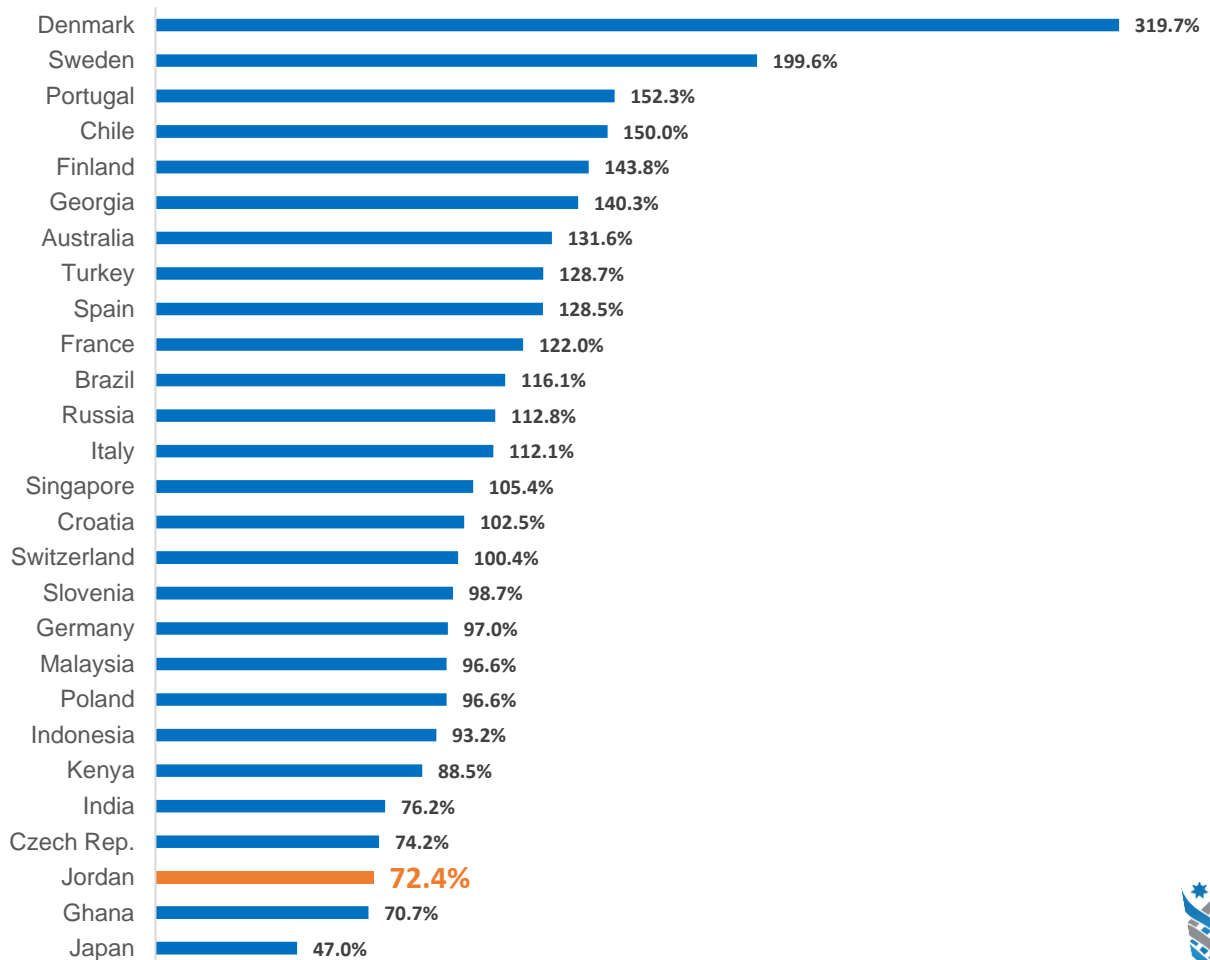
7. It is interesting to note that financial inclusion in Jordan is relatively low. For example, the prevailing proportion (42%) is much lower than those that exist in Denmark (100%), UAE (88%), and in Turkey (69%). However, the central bank of Jordan has adopted an initiative to enhance the degree of financial inclusion in Jordan and to raise awareness among people around this issue.

Figure 8: Financial Inclusion

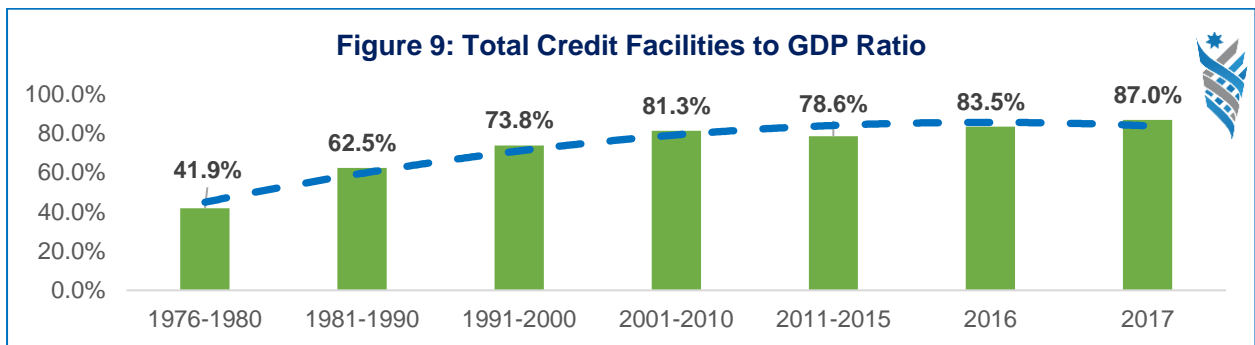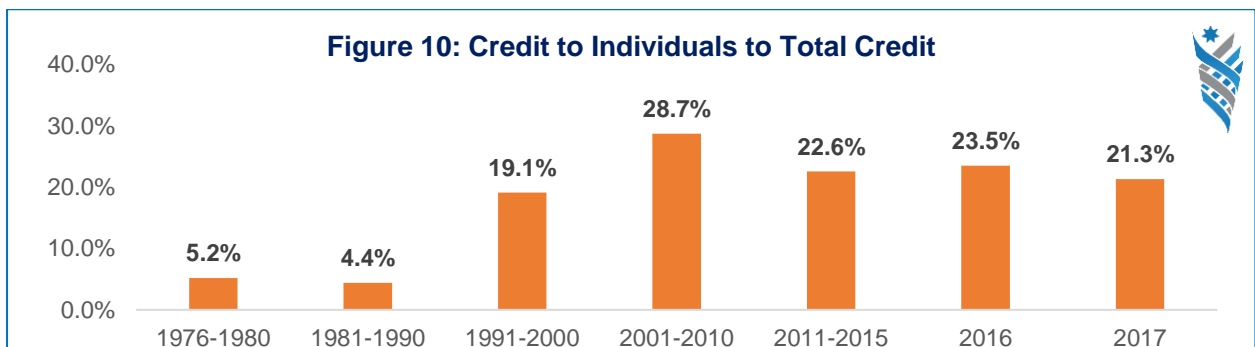| Country	Percentage
Denmark	100%
Germany	99%
UK	96%
USA	93%
UAE	88%
Bahrain	83%
China	80%
Chile	74%
Saudi Arabia	72%
Turkey	69%
Bangladesh	50%
Lebanon	45%
Jordan	42%
Tunisia	37%
Egypt	33%
Morocco	29%
Iraq	23%
Afghanistan	15%
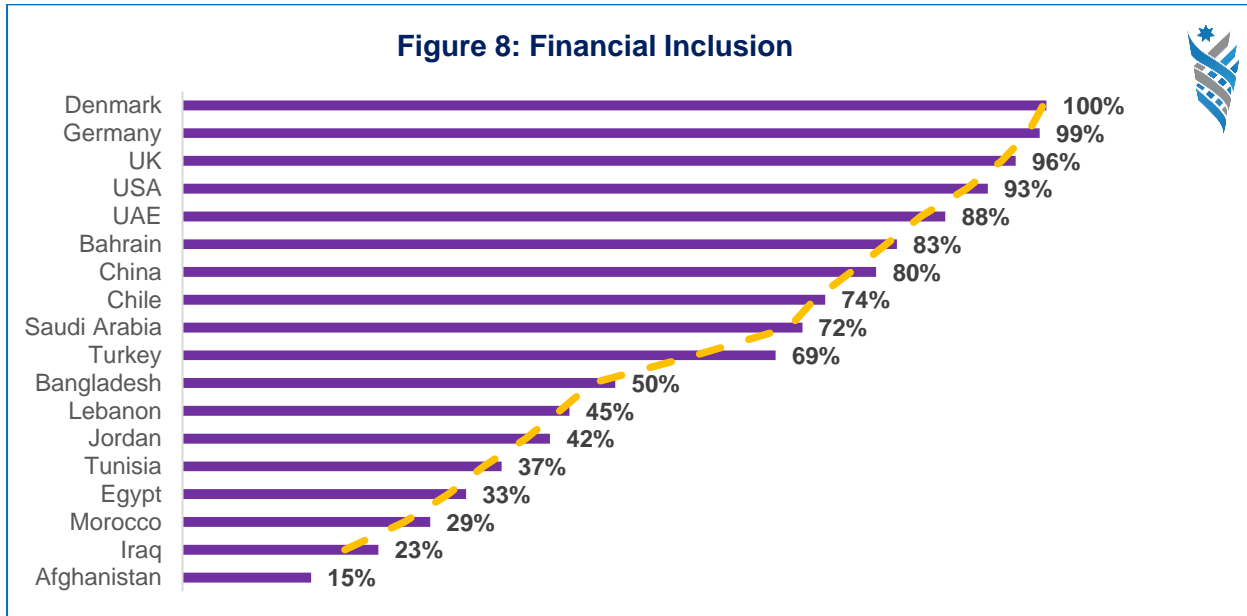
3. The Impact of Bank Credit on Real GDP

To examine the impact of bank credit on economic growth in Jordan, we use annual data (1976-2017) of real GDP (RGDP), and total credit facilities, credit facilities to each of the individual (retail), industrial, construction, and the trade sector. For the technical reader, we outline the basic model, used techniques, and the detailed results in Appendix A.

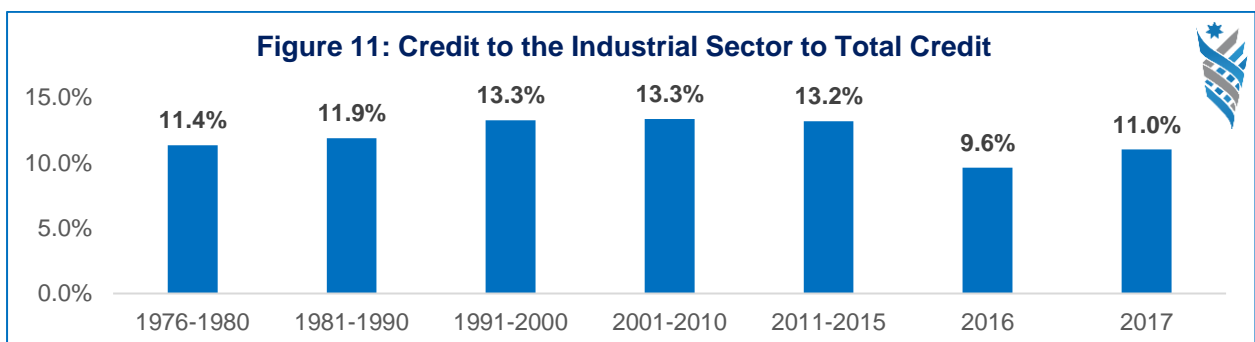**Based on the data about credit facilities, the following observations are outlined:**

1. Over time, total credit facilities to GDP ratio reflect an upward trend. This ratio has increased from 41.9% of GDP in 1976-1980 to 87.0% by the end of 2017 (Figure 9).
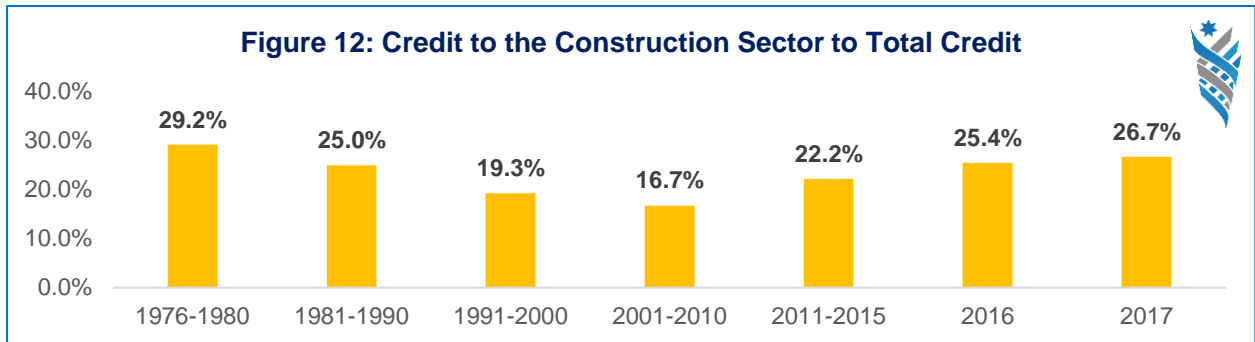
Figure 9: Total Credit Facilities to GDP Ratio

Period	Ratio
1976-1980	41.9%
1981-1990	62.5%
1991-2000	73.8%
2001-2010	81.3%
2011-2015	78.6%
2016	83.5%
2017	87.0%

2. Over time, credit to individuals reflect an increasing proportion of total credit. In 2017, 21.3% of total credit was provided to individuals (Figure 10).

Figure 10: Credit to Individuals to Total Credit

Period	Ratio
1976-1980	5.2%
1981-1990	4.4%
1991-2000	19.1%
2001-2010	28.7%
2011-2015	22.6%
2016	23.5%
2017	21.3%

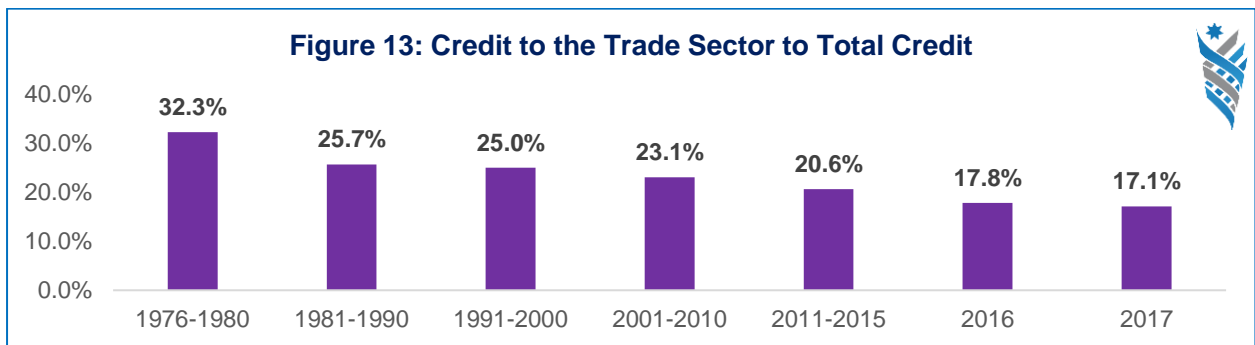**3.** Over time, credit to the industrial sector has not reflected any significant changes. Indeed, during the period 1976-2017, this borrowed around 11% to 13% of total credit (Figure 11).
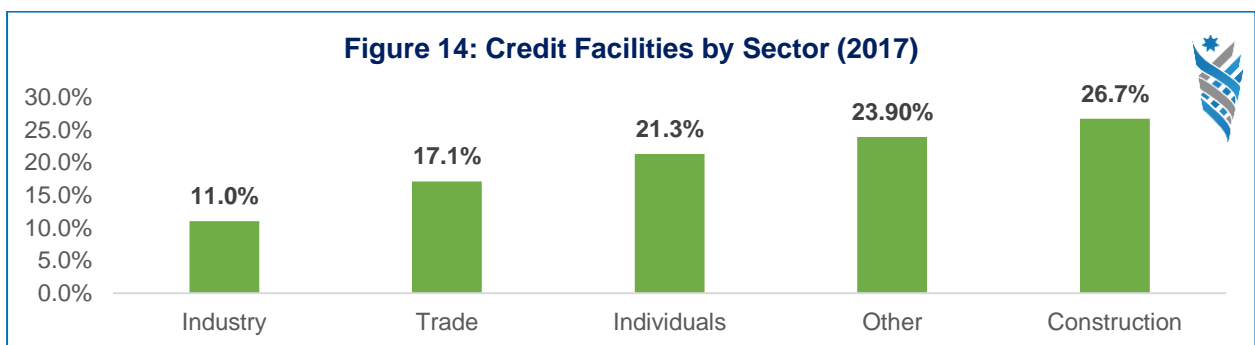
Figure 11: Credit to the Industrial Sector to Total Credit

Period	Ratio
1976-1980	11.4%
1981-1990	11.9%
1991-2000	13.3%
2001-2010	13.3%
2011-2015	13.2%
2016	9.6%
2017	11.0%

4. Credit to the construction sector was at its lowest during the period 1001-2010. Since then, credit to this sector constitutes around 26% of total credit (Figure 12).

Figure 12: Credit to the Construction Sector to Total Credit

Period	Percentage
1976-1980	29.2%
1981-1990	25.0%
1991-2000	19.3%
2001-2010	16.7%
2011-2015	22.2%
2016	25.4%
2017	26.7%

5. Over time, credit to the trade sector reflects a downward trend. In 2017, credit to this sector constituted about 17% of total credit (Figure 13).

Figure 13: Credit to the Trade Sector to Total Credit

Period	Percentage
1976-1980	32.3%
1981-1990	25.7%
1991-2000	25.0%
2001-2010	23.1%
2011-2015	20.6%
2016	17.8%
2017	17.1%

6. In 2017, the construction sector was the largest borrower from licensed banks in Jordan (Figure 14).

Figure 14: Credit Facilities by Sector (2017)

Sector	Percentage
Industry	11.0%
Trade	17.1%
Individuals	21.3%
Other	23.90%
Construction	26.7%

Based on our statistical analyses, the results could not be more than encouraging.

A. The impact of total credit facilities on real economic growth is positive. When total credit increases, real GDP increases. The long-run elasticity is equal to +0.79. This means that when credit increases by, for example, 1%, real GDP increases by 0.79%!

B. The impact of credit to individuals on real economic growth is positive. When credit to individuals increases, real GDP increases. The long-run elasticity is equal to +0.26. This means that when credit to individuals increases by, for example, 1%, real GDP increases by 0.26%!

C. The impact of credit to the industrial sector on real economic growth is positive. When total credit to industry increases, real GDP increases. The long-run elasticity is equal to +0.71. This means that when credit increases by, for example, 1%, real GDP increases by 0.71%!

D. The impact of credit to the construction sector on real economic growth is positive. When total credit increases, real GDP increases. The long-run elasticity is equal to +0.68. This means that when credit increases by, for example, 1%, real GDP increases by 0.68%!

E. The impact of credit to the trade sector on real economic growth is positive. When total credit increases, real GDP increases. The long-run elasticity is equal to +0.85. This means that when credit to trade increases by, for example, 1%, real GDP increases by 0.85%!

F. The relationships between total credit facilities, and credit to each of the four sector (individual, industrial, construction, and trade) and real economic growth are stable in the long-run

G. Total credit facilities, credit to individuals, credit to industry, credit to construction, credit to trade all reflect increasing power in explaining the variability (changes) of real GDP over time.

H. Overall, the impact of credit to the trade sector was the highest on economic growth, followed by the credit to the industrial sector.

The Interplay Between Bank Credit and Economic Growth
Which Borrowing Sector is More Conductive to Growth?

The Positive Imapct on GDP
If Bank Credit increases by 1% for some sectors

GDP +0.79% — Total Credit Facilities
GDP +0.26% — Individuals
GDP +0.71% — Industrial Sector
GDP +0.68% — Construction Sector
GDP +0.85% — Trade Sector

Bank Credit Promotes Economic Growth in Jordan

Date: March 2019
Source: JSF Study "The Interplay Between Bank Credit and Economic Growth : Which Borrowing Sector is More Conductiveto Growth?"

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4. Implications & Recommendations

A. Notwithstanding the fact that increasing the loan to deposit ratio entails extra risk on banks, all stakeholders must look into the ways and means to increase this proportion.

B. The fact that licensed banks hold a significant proportion of their deposits in the form of foreign exchange, and notwithstanding the fact that increasing credit in foreign exchange entails extra risk on banks, all stakeholders must look into the ways and means to increase this proportion.

C. Relevant stakeholders must look into the possibility of increasing bank lending to the industrial sector. Within this context, policy-makers should know the absorptive (borrowing) capacity of this sector. If they demand higher levels of credit and banks are not forthcoming, something must be done about it.

D. The fact that financial inclusion is still relatively low, increasing this proportion would only result in more lending to the various economic sectors. In turn, this should promote growth even further.

E. Despite the positive impact of the trade sector on GDP, the relevant stakeholders must take the indirect impact of it in consideration. For example, it may result in the increase of imports which will lead to increasing the Jordanian trade defect, and which also may in turn cause the reduction of foreign currency reserves in the central bank.

Appendix A

The Model:

The basic models specifying the impact of bank credit on real economic growth (real GDP) are expressed by:

1- $RGDP_t = \alpha_0 + \beta_1 TOTAL\ CREDIT_t + \varepsilon_t$

2- $RGDP_t = \alpha_0 + \beta_1 CREDIT\ to\ INDIVIDUALS_t + \varepsilon_t$

3- $RGDP_t = \alpha_0 + \beta_1 CREDIT\ to\ INDUSTRY_t + \varepsilon_t$

4- $RGDP_t = \alpha_0 + \beta_1 CREDIT\ to\ CONSTRUCTION_t + \varepsilon_t$

5- $RGDP_t = \alpha_0 + \beta_1 CREDIT\ to\ TRADE_t + \varepsilon_t$

all variables are in their natural logarithm form. The focus of the analysis is on the parameters β. If there is an impact of credit on economic growth, the terms β will have a positive sign ($\beta > 0$).

In such an exercise, the usual techniques are applied and these include, stationarity tests, co-integration, Vector Error Correction Model (VECM), and variance decomposition analysis.

The Results:

TABLE 1
Augmented Dickey-Fuller Unit Root Test

	Level	First-Difference
RGDP	7.795	-2.534*
CREDIT	1.872	-1.595**
INDIVIDUALS	2.998	-5.331*
INDUSTRY	6.677	2.165*-
COSNTRUCTION	2.308	-2.525*
TRADE	2.326	-2.086*

TABLE 2
Johansen Multivariate Co-Integration Test
REAL GDP & CREDIT

Hypothesized No. of CE(s)	Trace Statistic	P-Value	Max-Eigen Statistic	P-Value
None[*]	15.333	0.0152	12.091	0.0351
At most 1	3.242	0.085	3.242	0.0850

TABLE 3
Johansen Multivariate Co-Integration Test
RGDP & CREDIT to INDIVIDUALS

Hypothesized No. of CE(s)	Trace Statistic	P-Value	Max-Eigen Statistic	P-Value
None*	9.894	0.0251	8.976	0.0257
At most 1	0.918	0.391	0.918	0.3912

TABLE 4
Johansen Multivariate Co-Integration Test
RGDP & CREDIT to INDUSTRY

Hypothesized No. of CE(s)	Trace Statistic	P-Value	Max-Eigen Statistic	P-Value
None*	14.950	0.018	11.371	0.0471
At most 1	3.579	0.069	3.579	0.0694

TABLE 5
Johansen Multivariate Co-Integration Test
RGDP & CREDIT to CONSTRUCTION

Hypothesized No. of CE(s)	Trace Statistic	P-Value	Max-Eigen Statistic	P-Value
None*	13.703	0.029	11.269	0.0491
At most 1	2.434	0.140	2.435	0.142

TABLE 6
Johansen Multivariate Co-Integration Test
RGDP & CREDIT to TRADE

Hypothesized No. of CE(s)	Trace Statistic	P-Value	Max-Eigen Statistic	P-Value
None*	15.445	0.014	8.499	0.010
At most 1	6.945	0.002	6.945	0.145

TABLE 7
Long Run Relationships

Variable	Coefficients
TOTAL CREDIT	0.791*
CREDIT to INDIVIDUALS	0.259*
CREDIT to INDUSTRY	0.3713*
CREDIT to CONSTRUCTION	0.676*
CREDIT to TRADE	0.851*

TABLE 8
Estimates of VEC Model
(Error Correction Terms)

	Variable	Coefficient	t-statistic
TOTAL CREDIT	λe_{t-1}	-2.479	-2.963*
CREDIT to INDIVIDUALS	λe_{t-1}	-0.447	-2.194*
CREDIT to INDUSTRY	λe_{t-1}	-1.457	-2.664*
CREDIT to CONSTRUCTION	λe_{t-1}	-1.386	-2.777*
CREDIT to TRADE	λe_{t-1}	-4.719	-3.695*

TABLE 9
Variance Decomposition of Tax

Period	CREDIT	INDIVIDUALS	INDUSTRY	CONSTRUCTION	TRADE
1	0.000	0.000	0.000	0.000	0.000
2	20.450	8.507	15.723	21.313	50.259
3	27.816	8.005	16.749	22.002	62.226
4	30.691	8.256	14.793	22.789	66.355
5	31.797	9.171	14.602	21.194	67.942
6	32.117	9.405	14.936	19.972	68.579
7	32.132	9.597	14.916	18.846	68.839
8	32.034	9.828	14.860	18.193	68.946
9	31.908	9.963	14.905	17.802	68.989
10	31.788	10.070	14.945	17.637	69.007

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