The Financial Development And Economic Growth Nexus: The Role Of Saudi Arabian Financial Institutions

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Abstract—This study examines the relationship between financial development, financial institution quality and economic growth in Saudi Arabia. Specifically, we try to determine the effect of the first two variables on economic growth. To this end, we use a dynamic panel approach along with the GMM method to examine data covering the 1990-2017 period. To measure financial development, we opted for a number of proxies; Liquid Liabilities (LIQ), Private Credit of banks, other financial institutions and the Central Bank (ASS). Financial institution quality is measured through socioeconomic conditions, investment profile, law and order, corruption, external conflict and democratic accountability. The results validate the relationship that economic growth is affected by financial development in Saudi Arabia. The results also point to a significant and a positive relationship between financial institution quality and economic growth. Therefore, we recommend that Saudi authorities should consider boosting more financial and banking development that started three decades ago. Equally important is to promote the task of financial institutions so as to be able to secure better savings/investments and ensure long-term economic growth.

Keys Words—Financial Development, Economic Growth, Institutions, GMM, Saudi Arabia.

JEL Classification: C23, F43, F65.

I. INTRODUCTION

World economies have grown very aware of the need for a robust financial sector. Indeed, it is believed that a strong financial sector will likely to leverage the necessary efficient investments and acute intermediation mechanisms that will seal up financing and the sector's performance. A robust financial sector makes available a panoply of benefits for the economy ranging from accumulating savings, investment appraisal, risk management and pricing, payment clearances, trading between monetary policy and money supply to credit profusion. Such functions bear on the importance of developing the financial sector to ensure a sustainable economic growth.

Aware of the role of financial intermediation and liquidity in boosting economic activity, researchers diverted their attention to studying how financial development and economic growth link to each other. For the last two decades, this line of research was able to delineate the theoretical and practical underpinnings of this relationship. However, some

studies have gone a step further and set a goal to determine the causal nature of that relationship. In this regard, researchers like Bagehot, (1873), Schumpeter, (1911), Mckinnon (1973), Shaw (1973) and Spellman, (1982) succeeded in unveiling the fact that a well-developed financial sector may help to accumulate capital and hence improve economic growth. However, other authors believe the reverse is true. For instance, Robinson (1952) and Garley & Shaw (1955) gathered evidence indicating that a growing economy leads to financial development, which in turn accumulates wealth. In the same line of thinking, Patrick (1966) sets a condition for this causality relationship. The author believes that the causality relationship between the financial sector and economic growth is only observable during the earlier stages of financial development. Overall, the debate on the nature of this relationship still shows mixed results.

From a micro perspective, there are authors who examined the role of financial institutions in this relationship. Levine (1997) and Song & Thakor (2010) contested this trade-off between banks and markets. For them, the issue is about developing well-functioning banks and financial markets and not sacrificing one over the other, as these two compete but they complement each other. In this regard, the contribution of banks and stock markets are very well documented in the literature. The belief is that the contributions of these two differently bear on time and economic growth stages. Also, the literature highlighted the role of banks and stock markets. Some studies pointed to the significant role of banks in promoting stock markets, while others pointed to the other extreme. The remaining fact however is that these effects bear on the type of economy under investigation. Indeed, the contribution of banks to economic growth is observable in low economic growth countries as these economies rely on financing from banks. However, the reverse trend is true for high economic growth countries, which rely on the stock markets for financing.

In this study, our contribution to the finance/economics interface is twofold. we were able to delineate the interaction between institutional environment and financial development and its effect on economic growth. We weighted this relationship on institutional quality. To this end, we made recourse to six proxies representing

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institutional environment. The proxies are socioeconomic conditions, investment profile, law and order, corruption, external conflicts and democratic accountability. Our second contribution is our focus. It consists in narrowing down our study to examine how financial development, institutional quality and economic growth in Saudi Arabia link to each other.

Then, the remaining of this paper is structured as follows. In section two, we review the relevant literature on financial development, institutional quality and economic growth. In section three, we define our research hypotheses, models and their respective variables. In section four, we detail our research methodology, sample and the study period. In section five, we discuss our results and we conclude in section six.

II. LITERATURE REVIEW

Several studies explored the relationship between financial development and economic growth. However, their results were not conclusive to either side of the relationship. For instance, King and Levine (1993) examined this relationship on a sample of 77 countries observed over the 1960-1989 period and found a statistically significant positive relationship between financial development and growth in real per capita GDP, real per capita capital stock and total productivity, respectively.

Similarly, Beck and Levine (2004) examined a sample of 40 countries observed over the 1976-1998 period, using the GMM method and averaged non-overlapping five year's data. They found that banking and stock market development positively affected economic growth. With similar research aims, using banking and stock market development indicators, Guru & Yadav (2019) studied a sample of emerging countries of Brazil, Russia, India, China and South (BRICS) during the 1993-2014 period. Although the authors found significant differences between the studied economies, yet they leveraged evidence indicating that banking and stock market development indicators complement each other in influencing economic growth. As for Škare et al (2019), they examined the same in Poland using time series data. They proved financial development affects economic growth in Poland. Their results though highlight the fact that when using the share of households and companies in total credits, the VECM shows a statistically significant and a larger long-run relationship.

However, other studies found different results when using different proxies. Studies that used the share of total private credit in GDP or the value/ volume of total credits ratio mis-weight the impact of financial development on economic growth. For instance, in order to determine which causes the financial development or economic growth, Ben Abdelaziz & Ben Abdelaziz (2019) examined a sample of 13 MENA countries observed during the 1980-2015 period.

Their results point to a positive relationship between money in its broader meaning and GDP per capita. Equally, the authors found a positive relationship between trade index and GDP per capita. Similarly, Hamdi (2013) found financial development causes economic growth in a sample of Gulf Cooperation Council (GCC) countries (Bahrain, Oman, Kuwait, Qatar, United Arab Emirates and Saudi Arabia) observed over the 1980–2012 period. In a similar vein, using the auto-regressive distributed lag approach to co-integration analysis, Fahsi & Chibi (2019) studied the same relationship in Algeria over the 1980–2017 period. The authors estimated models which included real GDP per capita as the dependent variable and broad money and domestic credit to private sector as independent variables representing financial development proxies. The authors conclude to a non-significant relationship between financial development and economic growth in sharp contrast to findings on oil-dependent countries.

In the context of Saudi Arabia, there are few studies that inspected the same relationship. For example, Albatel (2000), found out that oil returns were the driving force behind promoting the private financial sector. Ibrahim (2013), using the fully modified ordinary least squares (FMOLS) method on data covering the 1989-2008 period, found that in the long-run credits to the private sector significantly and positively affect economic growth, while in the short-run, this effect is negative and insignificant. Interestingly, the long-run effect of stock market index is positive, yet insignificant, while the short-run effect is unexpected and insignificant. As for Samargandi et al (2014), they were able to set apart the effects of financial development on oil and non-oil sectors in Saudi Arabia. Specifically, they found that financial development positively influences the growth of non-oil sectors and negatively and insignificantly influences the growth of oil sectors. Similarly, Rehman (2018) used the Vector Auto Regression (VAR) model to examine data covering the 1985-2016 period in Saudi Arabia. The authors found evidence pointing to a bi-directional cause-effect link between financial development and economic growth. Specifically, they found that stock market development, operationalized by the stock market capitalization to GDP ratio, leads to banking development.

III. MODEL AND HYPOTHESES

In what follows, we estimate the link binding financial development and economic growth in the context of Saudi Arabia in a sample observed over the 1990-2017 period in view of testing the following research hypotheses:

H1. Financial development contributes to the economic growth of Saudi Arabia.

H2. Banking development positively effects economic growth of Saudi Arabia.

H3. Financial Institutions quality has a positive effect on the economic growth of Saudi Arabia.

To test our hypotheses, we estimate the following model:

$$GDP_{it} = \alpha GDP_{it-1} + \beta_0 FD_{it} + \beta_1 X_{it} + \varepsilon_{it}$$

Where:

GDP: is the logarithm of real GDP per capita.

FD: is the measure of financial development. In this study, we retain 3 indicators namely Liquid liabilities (LIQ), Private credit by deposit money of banks and other financial institutions (CRE) and the Central bank's assets (ASS).

Liquid liabilities (LIQ): is the liquid liabilities to GDP ratio, calculated using the following deflation method: $\{(0.5) * [Ft/P_{et} + Ft-1/P_{et-1}] / [GDPt/P_{at}]$ where F is liquid liabilities, P_e is end-of period CPI, and P_a is average annual CPI.

Private credit by deposit money of banks and other financial institutions (CRE): Private credit by deposit money of banks and other financial institutions to GDP, calculated using the following deflation method: $\{(0.5) * [Ft/P_{et} + Ft-1/P_{et-1}] / [GDPt/P_{at}]$ where F is credit to the private sector, P_e is end-of period CPI, and P_a is average annual CPI.

Central bank assets (ASS): Claims on domestic real nonfinancial sector by the Central Bank as a share of GDP, calculated using the following deflation method: $\{(0.5) * [Ft/P_{et} + Ft-1/P_{et-1}] / [GDPt/P_{at}]$ where F is Central Bank claims, P_e is end-of period CPI, and P_a is average annual CPI.

X: is the vector of independent variables (inflation, trade, government size and population).

INF: The share of inflation as a percentage of GDP

GOV: The share of government expenditure as a percentage of nominal GDP.

TRA: Trade openness (Export + Import)/ nominal GDP.

POP: Population as a percentage of GDP

To measure financial institutions quality (INS), we use 6 measures. These are socioeconomic conditions, investment profile, law and order, corruption, external conflicts and democratic accountability. & is the error term.

Law and order is a measure of the law and order tradition of a country. It ranges from 6, strong law and order tradition, to 1, weak law and order tradition. The corruption index ranges from 0 (high level of corruption) to 4 (low level). Socioeconomic conditions represent socioeconomic pressures that could limit government's actions or fuel social dissatisfaction. The assigned risk score is the sum of three subcomponents, each with a maximum score of four points and a minimum score of 0 points. A score of 4 points represents Very Low Risk and a score of 0 points is Very High Risk. Investment profile assesses the factors affecting investment risk that is not covered by other political,

economic and financial risk components. The assigned risk score is the sum of three subcomponents, each with a maximum score of four points and a minimum score of 0 points. A score of 4 points denotes Very Low Risk and a score of 0 points is Very High Risk. External conflicts assess both of the risk for the government resulting from foreign action. This risk score ranges from non-violent external pressure (diplomatic pressures, withholding of aid, trade restrictions, territorial disputes, sanctions, etc) to violent external pressure (cross-border conflicts to all-out war). The assigned risk score is the sum of three subcomponents, each with a maximum score of four points and a minimum score of 0 points. A score of 4 points represents Very Low Risk and a score of 0 points denotes Very High Risk. Democratic accountability measures how the government is responsive to its people in the following way; the less responsive it is, the more likely it is that the government will fall, peacefully in a democratic society, but possibly violently in a non-democratic one.

IV. METHODOLOGY AND DATA

Because the Blundell and Bond's (1998) estimator shows econometric superiority over that of Arellano and Bond (1991), we use a dynamic panel under the General Method of Moments (GMM) method. This latter additionally assumes no correlation between the first differences of instrumenting variables and the fixed effects. The method consists in estimating two equations, an original equation and a transformed equation also known as "system GMM". The data, covering a window of 27 years stretching from 1990 to 2017, is collected from the Saudi Arabian General Authority for Statistics and the World Development Indicators (2018). Variables representing financial development are taken from the Bankscope database (2018) and the annual reports of a sample of 12 highly capitalized banks in Saudi Arabia, shown in Table 1 below. Variables representing institutional quality are taken from the International Country Risk Guide Database (ICRG) for the 2000-2017 period.

Table 1. List of the largest banks in Saudi Arabia

Rank	Company	Total assets (SAR b, March 2017)	Total assets (US\$b, March 2017)
1	National Commercial Bank (NCB)	448.717	121.470
2	Al Rajhi Bank	337.230	91.290
3	Samba Financial Group	231.935	62.780
4	Riyad Bank	216.323	58.560
5	Banque Saudi Fransi	204.358	55.320
6	Saudi British Bank (SABB)	185.264	50.150
7	Arab National Bank	168.427	45.590
8	Alinma Bank	105.256	28.058
9	Alawwal Bank	100.369	27.170
10	Saudi Investment Bank (SAIB)	97.546	26.410
11	Islamic Development Bank (IDB) *	96.110	25.624
12	Bank AlJazira	65.114	17.630

Source: The Saudi Arabian Monetary Authority (SAMA)

V. MAIN RESULTS AND INTERPRETATIONS

The results are reported in Tables 2, 3 and 4. Table 2 presents the results of the impact of financial development variables on economic growth of Saudi Arabia. We retain the Private Credit (CRE) variable as a proxy to financial development. We exclusively consider the banking sector as representative of financial development. CRE has a positive and a significant effect on Saudi Arabia's economic growth in all regressions, indicating that finance and economic growth positively link to each other. The twelve national Saudi banks play a crucial role in boosting the economy by financing investment and sectors with a high added economic value. These results are consistent with the findings of Levine et al. (2000), Beck & Levine (2004) and Rousseau & Wachtel (2000). At this level, Alghfais (2016), from the SAMA Financial Sector Development Department, concludes to the positive and significant impact of financial development on the total economic growth of the non-oil sector and the economic growth of the non-oil public and private sector.

Barajas et al. (2013) and Samarandi et al. (2014) found that financial development has a negative but insignificant impact on economic growth in oil-rich economies and the Middle East and North Africa (MENA). Taken separately, the financial institutions variables allow us to consider six different models. Five of the six models show a positive and a significant correlation between financial institutions and economic growth. Financial institutions contribute positively and significantly to the economy, except the (EXT) variable. Although (EXT) has a positive impact on economic growth, it is not significant. This finding confirms that a robust institutional background allow financial operators to fully play their role in promoting economic growth. These results also allow us to conclude that under-developed or poorly-functioning institutions provoke some loss percentage points in economic growth. (Al-Malkawi et al. 2012).

As for the control variables, the inflation variable (INF) positively but insignificantly affects economic growth. This result can be explained by the efforts of national banks to provide financing to the economy which led to better economic growth points, yet to more inflation. This latter provoked a decrease in the purchasing power of Saudi consumers. Similarly, the trade variable (TRA) positively but insignificantly affects on economic growth. This finding confirms the theoretical expectations that the contributions of exports and imports to GDP tend to stimulate economic growth. Government expenses (GOV) support global demand and provides a wide market for the private and public production sectors. This explains the positive coefficient of the (GOV) variable. Finally, unlike in the theory, the population variable (POP) reveals a negative and a significant impact on economic growth.

Tables 3 and 4 show respectively the impact of financial development as measured by Central bank assets (ASS) and Liquid liabilities (LIQ) on economic growth. In line with Albatel (2000) who, in Saudi Arabia, support a positive correlation, statistically significant at the 1% level, between the real money balances and the growth of the real non-oil sector. For the three financial development indicators, they are found to be positively correlated with the overall GDP growth rate. We join the findings of Ibrahim (2013) which indicate a positive effect on economic growth in the long run, but insignificant and negative in the short run.

As for financial institutions' quality, the related variables show a positive and a significant impact in all the regressions. The main indicators retained in our specifications of financial institutions' quality, namely socioeconomic conditions, investment profile, law and order, corruption, external conflicts and democratic accountability, show a positive and a significant coefficient with the economic growth variable. These results support the robustness of the positive and significant role played by Saudi Arabia's financial institutions. Whatever the financial development variable, financial institutions are found to boost Saudi Arabia's economy because of the high quality they enjoy. Importantly, no research examining the role of the financial institutional dimension compares with our findings in Saudi Arabia. However, some studies have been developed on the MENA region, of which we cite Cherif & Dreger's (2016). The study mainly found that the institutional environment is important in in both financial segments, and this is true when we control for standard macroeconomic indicators and fixed effects.

Table 2. The Financial development and economic growth nexus: The role of the Private credit (CRE)

	1	2	3	4	5	6
L.GDP	0.143 (2.72)**	0.145 (2.71)**	0.148 (0.70)	0.196 (3.75)***	0.048 (2.16)*	0.260 (2.92)**
CRE		1.084 (3.10)***	2.619 (2.22)**	1.702 (2.15)*	10.990 (2.68)***	5.970 (2.41)**
DEM	0.238 (2.17)*					
LAW		0.194 (2.18)**				
COR			0.236 (3.25)***			
EXT				1.508 (1.60)		
INV					2.052 (1.84)*	
SOC						3.079 (1.90)*
INF	0.048 (0.37)	0.062 (1.34)	0.054 (0.63)	-0.161 (0.84)	0.006 (0.14)	-0.116 (0.94)
TRA	0.055 (1.38)	0.061 (1.58)	0.058 (1.66)*	0.023 (0.43)	-0.009 (0.18)	-0.019 (0.38)
GOV	-0.002 (0.02)	-0.016 (0.08)	-0.003 (0.03)	-0.350 (1.08)	-0.578 (1.80)*	-0.804 (2.83)***
POP	-1.211 (2.64)***	-1.170 (3.57)***	-1.215 (2.82)***	-1.078 (2.31)**	0.113 (0.16)	-0.581 (0.79)
N	336	336	336	336	336	336
Wald test	165.65	58.99	63.89	117.84	83.68	36.31
P-value	0.000	0.000	0.000	0.000	0.000	0.000
AR(2) test	1.14	1.13	1.11	0.33	1.01	0.43
P-value	0.254	0.260	0.265	0.742	0.313	0.669
Sargan test	11.45	11.53	11.59	8.86	4.90	6.25

*, **, and *** indicate statistical significance at the 1%, 5%, and 10% levels. The numbers in parentheses are t-statistics

Table 3. The Financial development and economic growth nexus: The role of the Central bank assets (ASS)

	1	2	3	4	5	6
L.GDP	0.303 (2.73)**	0.369 (2.87)**	0.274 (1.99)*	0.315 (2.52)**	0.290 (1.91)*	0.554 (3.62)***
ASS	29.240 (1.87)*	27.214 (2.01)**	24.540 (3.18)***	10.698 (2.57)**	7.625 (2.74)**	4.342 (1.89)*
DEM	1.498 (2.62)**					
LAW		0.501 (1.92)*				
COR			0.328 (2.25)**			
EXT				0.979 (1.81)*		
INV					1.393 (2.58)**	
SOC						3.766 (2.24)***
INF	0.030 (0.30)	-0.049 (0.78)	-0.026 (0.37)	-0.072 (0.67)	0.023 (0.56)	-0.160 (1.34)
TRA	0.088 (0.88)	0.080 (0.80)	0.076 (0.76)	0.033 (0.33)	0.015 (0.15)	0.004 (0.04)

*, **, and *** indicate statistical significance at the 1%, 5%, and 10% levels. The numbers in parentheses are t-statistics

Table 4. The Financial development and economic growth nexus: The role of the Liquid liabilities (LIQ)

	1	2	3	4	5	6
L.GDP	0.141 (1.71)*	0.142 (2.66)**	0.146 (0.69)	0.194 (1.86)*	0.054 (0.19)	0.249 (2.93)***
LIQ	0.832 (2.14)**	1.483 (1.85)*	1.202 (1.94)*	1.200 (3.23)***	0.540 (0.09)	2.559 (1.89)*
DEM	0.279 (1.96)*					
LAW		0.327 (2.28)**				
COR			0.294 (3.34)***			
EXT				1.196 (1.34)		
INV					1.972 (2.11)**	
SOC						3.054 (1.76)*
INF	0.044 (0.35)	0.077 (1.44)	0.049 (0.70)	-0.096 (0.63)	0.016 (0.47)	-0.128 (1.11)
TRA	0.047 (2.19)**	0.055 (1.72)*	0.046 (1.81)*	0.004 (0.11)	-0.029 (0.70)	-0.015 (0.49)
GOV	-0.020 (0.35)	0.036 (0.19)	-0.032 (0.42)	-0.356 (1.19)	-0.616 (1.84)*	-0.776 (1.78)*
POP	-1.250 (2.32)**	-1.314 (2.32)**	-1.270 (2.32)**	-0.970 (2.24)**	0.078 (0.09)	-0.752 (1.00)
N	336	336	336	336	336	336
Wald test	385.75	103.62	195.49	175.49	154.54	29.80
P-value	0.000	0.000	0.000	0.000	0.000	0.000
AR(2) test	-1.20	1.15	1.18	0.73	1.16	0.45
P-value	0.230	0.249	0.240	0.463	0.246	0.653
Sargan test	11.35	11.40	11.48	9.85	5.11	6.18
P-value	0.685	0.658	0.648	0.773	0.984	0.962

*, **, and *** indicate statistical significance at the 1%, 5%, and 10% levels. The numbers in parentheses are t-statistics

VI. CONCLUSION

The aim of this paper is first to investigate the effect of financial development on economic growth in Saudi Arabia. Second, it examines how the institutional conditions affect financial development and assesses Albatel, A.H, (2000). "Financial Development and Economic Growth in Saudi Arabia", Journal of Economics and Administrative Sciences, No.16, pp.162-188.

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Spellman, L. J. (1982), "The Depository Firm and Industry: Theory, History, and Regulation", Academic Press, Inc. its impact on economic growth. Institutional conditions indicators are taken from the International Country Risk Guide, while financial development variables are collected from Bankscope (2018) and SAMA annual reports. Macroeconomic variables are collected from the Saudi Arabian General Authority for Statistics and the World Bank Development Indicators (2018).

Using the Generalized Method of Moments (GMM) with a dynamic panel framework, this paper selected different measures of financial development. These are namely Liquid liabilities (LIQ), Private credit by deposit money of banks and other financial institutions (CRE) and Central bank's assets (ASS). For financial institutions' quality, our proxies are socioeconomic conditions, investment profile, law and order, corruption, external conflicts and democratic accountability. Examining the (1990-2017) period, our findings strongly support the hypothesis that financial development leads to growth in Saudi Arabia. Moreover, the results support a positive and a significant relationship between financial institutions' quality and growth.

To the best of our knowledge, our main contribution to the existing literature is that this paper is the first to focus on Saudi Arabia. We empirically examined how financial development affects economic growth taking into account financial institutions' quality. Moreover, this study is the first to use Central Bank's Assets variable as a proxy to Saudi Arabia's financial development and to explore the determinants of financial institutions in Saudi Arabia.

Our results could be of great interest for policymakers since the financial sector could play a crucial role in spurring

the savings/investment link and consequently economic growth. Despite the efforts launched in the country since the last three decades, the relevant authorities in Saudi Arabia should consider financial reforms in order to boost forward the financial sector, particularly the banking sphere, and consequently economic growth. In addition, our findings point to a dire need for institutional financial reforms in order to improve the performance of financial institutions.

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