

THE RELATIONSHIP BETWEEN FINANCIAL DEVELOPMENT AND ECONOMIC GROWTH IN QATAR

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ABSTRACT

The relationship between financial development and economic growth has attracted a great deal of attention among economists and policy makers alike. The economy of Qatar did not receive much attention in the empirical literature. This study attempts at filling this gap in economic literature, and examines the causal relationship between financial development and economic growth in Qatar for the period 1980-2012. Annual data were used, and the unit root properties of the data set are tested using Augmented Dickey-Fuller (ADF) test. Variables were found to be stationary at first difference. This was followed by Johansen cointegration technique to test the long-run relationship between variables. Three proxies for financial development were specified. Those were the ratio of broad money (M2) to Gross Domestic Product (GDP), the ratio of total bank deposits to GDP and the ratio of total credit to private sector to GDP. Economic growth was found to be cointegrated with the three proxies for financial development. Granger causality test was performed, and results suggest that causality runs from economic growth to financial development in Qatar.

Keywords: Economic growth, Financial development, Qatar

INTRODUCTION

The relationship between financial development and economic growth has received a great deal of attention in economic literature. The debate on this relationship dates long back, and has received significant attention in both theoretical and empirical literature in recent years. The views on the role of financial development in enhancing economic growth vary in economic literature. There is a strong view that suggests a positive link between financial development and economic growth. Financial development in this view causes economic growth. Another direction in economic research supports the hypothesis that growth in real output creates its demand for financial services, and hence the causality runs from growth to financial development. Other research took more of

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neutral position and suggests that financial development does not necessarily causes economic growth (Ahmed, 2010).

This study aims at empirically investigate the relationship between financial development and economic growth for Qatar economy using cointegration and Granger causality methodology. To the best of author's knowledge, there is no study in the empirical literature that examined this topic for Qatar. Previous studies on this topic has included Qatar within a group of countries, such as Middle East North Africa (MENA) region (Al-Malkawi and Abdullah, 2011), Middle East countries (Eslamloueyan and Sakhaei, 2011), and a large group of developing countries (Al-Yousif, 2002). Our study differ than those in the literature, that it devotes the whole study on Qatar economy. The period of our study is the longest on Qatar in the literature, and we use more measures of financial development variable than those previously published work. Therefore, it is of importance to test this relationship in this point in time to fill the gap in the literature on Qatar.

This paper is structured as follow: Section two gives an overview of the financial sector in Qatar and its development over recent history. Section three reviews the relevant literature on the relationship between financial development and economic growth, and gives special attention on studies of the Gulf and Arab countries. Section four explains the methodology utilized in this paper. Section five defines the variables used in the model, and provides a discussion of model results. The paper concludes with a summary of the findings in section six.

Overview of the financial sector in Qatar

Financial and banking sector in Qatar has been greatly influenced by the economic situation of the country. Prior to commercial oil production in 1949, banks were not in existence in Qatar. The Indian rupee followed by the Gulf rupee was the currency in circulation in the whole Gulf region. The first introduction of a national currency was in 1966. Qatar and Dubai riyal (QDR) was the first national currency, and was introduced in September 1966 with the same value of the Gulf rupee before its devaluation. First commercial bank to operate in Qatar was the Eastern Bank a branch of the British Chartered Bank opened in 1950 few months after the commencement of oil export. As oil production increased new banks were introduced to Qatar. The British Bank of the Middle East opened a branch in 1954 and the Ottoman Bank (Grindlays Bank) in 1956. The numbers of banks operating in Qatar increased, but it is not until 1965 when a national bank was established. Qatar National Bank with its shares equally divided between the government and the private sector was the first national bank. Qatar attained independence from Britain in September 1971. Crucial changes took place in both economic and politics. Qatar Monetary Agency (QMA) was established in 1973, with responsibilities of a central bank. Issuing the currency, convertibility of currency, supervising banking sector and monitoring domestic credits were some of the functions of QMA. Qatar and Dubai riyal was withdrawn and Qatar riyal (QR) was introduced, with a value that is determined by the value of special drawing rights of the International Monetary

Fund (IMF). Fixed interest rate policy was adopted by QMA. The rate remained fixed during the period 1979-1990, between 5-7% for long term deposits and 7-9% for credit facilities to be charged by banks. The number of banks operating in Qatar since the establishment of QMA has increased. Branches of banks operating in the region were also established in Qatar. Of those were Oman Bank Limited (now called Al Mashreq Bank) and Pariba Bank of France. More local banks also came to existence; Qatar Commercial Bank, Doha Bank and Al Ahli Bank were established in the years 1975, 1979 and 1984 respectively. Islamic banks also came into existence in early 1980s. Qatar Islamic Bank was established in 1983 as the first Islamic bank in Qatar. This was followed by Qatar International Islamic Bank in 1991.

In 1993 Qatar Central Bank (QCB) replaced Qatar Monetary Agency. The new law authorized QCB among its other functions, to issue currency and to act as a state bank. New era in the development of financial and banking sector in Qatar has taken place (Qatar Central Bank 2002). QCB adopted a policy of freeing interest rate in the market. At the beginning of August 1995 interest rate on credit was freed. This step was followed by partial freeing of interest rate on deposits for more than one year maturity. This policy was credited by the increase of the long-term deposits in banks which was needed to face the increase of government and public sector borrowing from local market. More new banks were chartered in Qatar. Qatar International Bank, Alrayan Bank, Alkhaliji Bank and Barwa Bank were established with national capital. Qatar Development Bank as specialized bank in financing industrial and housing project was also chartered. The total banks operating in Qatar has increased to eighteen banks, eleven of them are locally owned, and seven were branches for foreign banks. Four of the eleven national banks are Islamic banks. Total bank's capital reached ninety eight billion QR, with total assets of 650 billion QR by end of year 2011.

LITERATURE REVIEW

The relationship between financial development and economic growth received a great deal of attention in the literature. So many empirical studies were devoted to investigate this relationship. According to economists of all persuasions, financial conditions may affect the rate of economic growth. The McKinnon-Sho school predicts that financial liberalization exerts a positive effect on the rate of economic growth (Fry, 1988). The role of financial sector in economic development has attracted and received increased attention from both researchers and policy makers. Views were not always in agreement. The direction and existence of causality between financial development and economic growth is the subject of extensive debate. While some studies have found the existence of bi-directional causality between financial development and economic growth (Al-Yousif, 2002, Akinlo and Egbetunde, 2010; Eslamloueyan and Sakhaei, 2011) other studies found one-way causality, from financial development to economic growth (Abu-Bader and Abu-Qarn 2008a,b; Eita

and Jordaan, 2010; Al-Naif, 2012) and from economic growth to financial development causality (Adamopoulos, 2010; Ndlovu, 2013).

Chimobi (2010) tested the causal relationship between financial development, trade openness and economic growth in Nigeria. Annual data for the period 1970-2005 were used and the methods of cointegration and Granger causality were applied. Augmented Dickey-Fuller test was performed on time series to find stationarity properties of variables. Variables were found to be stationary when differenced, and no cointegration between variables was found when Johansen method of cointegration was used. Therefore no long-run relationship exists between financial development, trade openness and economic growth for the period of study. Granger causality test revealed that economic growth Granger cause financial development and the reverse. Three proxies for financial development were specified. They were private credit to GDP, domestic credit to GDP and M2 to GDP. Real per capita GDP represented economic growth variable. Ndlovu, (2013) investigated the relationship between financial development and economic growth in Zimbabwe. Three proxies for financial development were specified. Domestic credit to private sector, stock market capitalization ratio to GDP and liquid liabilities to GDP ratio were use with real GDP per capita for economic growth variables. Using Multivariate Granger causality, the study found unidirectional causality from economic growth to financial development. Ozturk, (2008) in a paper investigated the causality between financial development defined as credit to private sector and economic growth in Turkey for the period 1975-2005. A vector autoregressive framework based on cointegration and error-correction representation was performed. No cointegration between variables was found, and causality was found to run from economic growth to financial development.

Perera and Paudel (2009) examined the causal relationship between financial development and economic growth in Sri Lanka. Annual data for the period 1955-2005 were used, and six proxies for financial development were specified. Five of the six proxies were found to be cointegrated with economic growth, and hence an error correction model was estimated to explore the dynamic of Granger causality. The findings suggest two-way causality between broad money and economic growth, and the causality run from economic development to three proxies of financial development. Narrow money, total credit and private sector credit to total domestic credit. The paper did not find for the view that financial development causes economic growth. Wadud, (2009) in a paper studied the long-run relationship between financial development and economic growth for three South Asian countries for the period 1976-2008. The study applied multivariate cointegration technique proposed by Johansen. The long-run equilibrium relationship between the variables was tested and an error correction model examined the short-run dynamics between financial development and economic growth. Financial development was proxied as the ratio of M2 to real GDP, and economic growth was measured as real per capita GDP. The paper found that there is a long-run relationship between financial development and economic growth in India, Bangladesh and Pakistan. Granger causality based on error correction model found the causality

running from financial development to economic growth, and not the reverse. The results suggest that higher financial development leads to higher economic growth for India, Bangladesh and Pakistan. Shahbaz *et al.* (2008) developed an empirical model using time series approach to study the growth process in Pakistan. Quarterly data for the period 1991:1 to 2007:4 were used. A financial development proxy was used and defined as the credit to private sector's share of GDP. Financial sector's development was found to be an important factor in stimulating economic growth in the long-run.

There are several studies that have included results on Qatar economy. A leading paper by Al-Yousif (2002) examined the nature and direction of relationship between financial development and economic growth in 30 developing countries. Two proxies of financial development were specified. One is the ratio of M2 to GDP, and the second is the Currency to narrow money (M1) ratio. The paper found that economic growth Granger cause financial development in the case of Qatar. Eslamloueyan and Sakhaei (2011) used annual data for the period 1994-2008 to test the short run and long run causality between financial development and economic growth in the Middle East. Qatar data were included in this study. Using a panel data error correction models, they found bidirectional causality between financial development and economic growth in both the short-run and long-run. Al-Malkawi and Abdullah, (2011) on the other hand, have found a positive relationship between financial development and economic growth in thirteen MENA countries that included Qatar. Annual data for the period 1985-2005 were used. Al-Malkawi *et al.* (2012) found bidirectional causality between financial development and economic growth in the United Arab Emirates (UAE) for the period 1974-2008.

METHODOLOGY

Granger causality test developed by Granger (1969), and according to him a variable X is said to Granger cause a variable Y if past values of X can help predict Y . This paper applies the Granger causality test. A simple Granger causality test for testing causality between financial development (FD) and economic growth (EG) can be written as:

$$FD_t = \sum_{i=1}^n \alpha_i FD_{t-i} + \sum_{i=1}^n \beta_i GDP_{t-i} + \mu_t \quad (1)$$

$$GDP_t = \sum_{i=1}^n \eta_i GDP_{t-i} + \sum_{i=1}^n \theta_i FD_{t-i} + \tau_t \quad (2)$$

Where μ_t and τ_t are uncorrelated. The null hypothesis that are tested: $H_1: \beta_i = 0, i = 1, 2, \dots, n$, which means that economic growth does not Granger cause Financial development. $H_2: \theta_i = 0, i = 1, 2, \dots, n$, this hypothesis tests that financial development does not Granger cause economic growth. If the first hypothesis is rejected, it shows that economic growth Granger cause financial development. The rejection of the second hypothesis, then financial development Granger cause economic

growth. If both hypotheses are rejected, then there is bi-directional causality between financial development and economic growth. If none of the hypothesis rejected, then we conclude that the variables are independent of each other, and there is no Granger causality between the two variables. This simple test requires that all variables to be stationary. If the variables in question are not stationary, and become stationary when differenced, i.e. $I(1)$ and are cointegrated, then Granger causality is tested in the error-correction model and expressed as:

$$\Delta FD_t = \sum_{i=1}^n \alpha_i \Delta FD_{t-i} + \sum_{i=1}^n \beta_i \Delta GDP_{t-i} + \phi_1 \varepsilon_{1t-1} + \mu_t \quad (3)$$

$$\Delta GDP_t = \sum_{i=1}^n \eta_i \Delta GDP_{t-i} + \sum_{i=1}^n \theta_i \Delta FD_{t-i} + \phi_2 \varepsilon_{2t-1} + \tau_t \quad (4)$$

Where ε_{1t-1} and ε_{2t-1} are the lagged values of the error term from the cointegrating equations. The ΔFD and ΔGDP are differenced time-series. μ_t and τ_t are white noise error terms. The Augmented Dickey-Fuller (ADF) test is used to test the stationarity of the time series used in study. If the variables are $I(1)$, the next step is to test whether they are cointegrated. If the two variables were found to be cointegrated, we can say economically they have a long-run equilibrium relationship between them (Gujarati and Porter, 2009). The Johansen full information maximum likelihood test is applied in this study. It is modeled via vector autoregressive (VAR) framework:

$$\Delta Y_t = C + \sum_{i=1}^k \Gamma_i \Delta Y_{t-1} + \Pi Y_{t-1} + \eta_t \quad (5)$$

Where, Y_t is a vector of non-stationary variables, Γ and Π are the coefficient matrices, k denotes the lag length and C is a constant. The information in the coefficient matrix between the levels of the Π is decomposed as $\Pi = \alpha\beta$ where the relevant elements α matrix are adjustment coefficients and the β matrix contains cointegrating vectors. This approach is capable of determining the number of cointegrating vectors for any given number of nonstationary series of the same order. It allows feedback effects among the variables under investigation. The procedure is based on likelihood ratio (LR) test to determine the number of cointegrating vectors in the regression. Johansen technique enables to test for the existence of non-unique cointegration relationships. Two tests statistics are suggested to determine the number of Cointegrating vectors based on likelihood ratio test (LR); the trace test and maximum eigenvalues test Statistics. The trace test (λ_{trace}) is defined as:

$$\lambda_{\text{trace}} = -T \sum_{i=r+1}^n \log(1 - \hat{\lambda}_i) \quad (6)$$

Where T is the number of unusable observations, and $\hat{\lambda}$ is the estimated values of the eigenvalues and n is the number of separate series to be analyzed. The null hypothesis is that the number of cointegration vectors is $\leq r$ where $r = 0, 1, \text{ or } 2$ against the alternative hypothesis that the number of cointegration vectors = r . The maximum eigenvalues test (λ_{max}) is defined as:

$$\lambda_{\max} = -T \log(1 - \hat{\lambda}_{r+1}) \quad (7)$$

Which test the null hypothesis that the number of cointegrating vectors = r against the alternative that there are $r+1$ cointegrating vectors, the null hypothesis, $r = 0$ is tested against the alternative that $r = 1$, and $r = 0$ is tested against the alternative $r = 2$. The λ_{\max} test has the sharper alternative hypothesis. It is usually preferred for trying to get the number of cointegrating vectors (Enders, 2010).

Data and Model Results

Annual data in this study covers the period from 1980-2012. The study uses three proxies for financial development variable. The first proxy is the inverse of broad money velocity, which is the ratio of M2 to GDP. The second proxy is the ratio of total bank deposits to GDP and the third is total credit extended to private sector to GDP. The ratio of broad money, M2 to GDP is the most commonly used proxy of financial development in the literature (see Eita and Jordaan, 2010; Al-Naif, 2012; Abu-Bader and Abu-Qarn, 2008a, b; Akino and Egbetunde, 2010). A higher M2/GDP ratio indicates larger financial sector and intermediation (Eita and Jordaan, 2010). The ratio of total bank deposit to GDP is also used in empirical studies as a measure of financial development is also used in the literature as a measure of financial development (Eita and Jordaan, 2010; Pera and Paudel, 2009; Al-Naif, 2012). This measure of financial development is used to provide information about allocation of financial assets. Total bank credit extended to private sector is also used as a measure of financial development (Abu-Bader and Abu-Qarn, 2008b; Shahbaz *et al.* 2008; Bhunia, 2012; Adamopoulos, 2010; Shahbaz and Malik 2011; Sunde, 2010) this proxy is used to assess the allocation of financial asset were previous two proxies cannot provide. For economic growth variable, real GDP is used. The data is sourced from various issues of Qatar Central Bank annual report, and Qatar Statistics Authority reports. LM2Y is log of M2/GDP, LTBDY is log of Total Bank Deposit/GDP, LTCPSY is log of Total Credit to Private Sector/GDP and Δ is first difference operator. Numbers between parenthesis are lag length using Schwarz Info criterion automatic maximum lag=4.

The data are tested for unit root using ADF test. Table-1 shows that all variables are non-stationary in level, and stationary in first difference. Since all variables are $I(1)$, the next step is to test for cointegration. Johansen's method of cointegration is applied. The lag length was set based on the Akaike information criterion, final prediction error and Schwartz information criterion. Cointegration results are depicted in Table-2, Table-3 and Table-4. Tables-2, 3 and 4 show that there is one cointegrating vector between real GDP and each measure of financial development. Since there is cointegration, the direction of causality is tested. Causality test results are presented in table (5). The χ^2 (Wald Test) of the explanatory variables in the VAR system indicates the short-run causal effect, and the direction of causality (Eita and Jordaan, 2010). Results in Table-5 show that the causality runs from economic growth to financial development in two out of the three

proxies of financial development. Real GDP was found to Granger because M2/GDP and total credit to private sector to GDP. Our results are consistent with earlier findings by Al-Yousef, (2002).

Table 1: Augmented dickey-fuller unit root test results

Variable	Constant	Constant and Trend	None
LRY	4.199 (0)	-0.603 (0)	5.349(0)
Δ LRY	-3.442 ** (0)	-5.767 *** (0)	-0.907(1)
LM2Y	-1.9299 (0)	-1.6123 (0)	-1.401(0)
Δ LM2Y	-5.061 *** (0)	-5.329 *** (0)	-5.006 *** (0)
LTBDY	-1.8111 (0)	-1.467 (0)	-1.663(0)
Δ LTBDY	-5.046 *** (0)	-5.352 *** (0)	-4.941 *** (0)
LTCPSY	-3.183 ** (1)	-3.585 ** (1)	-1.067(0)
Δ LTCPSY	-5.18 *** (1)	03.38 *** (1)	-5.042 *** (1)

Note: ** and *** are 5% and 1% level of significance respectively. LRY is log of real GDP,

Table 2: Johansen cointegration tests (lry, lm2y)

H ₀	H ₁	Test Statistics	0.05 critical value	Prob
Trace Statistics				
r=0	r=1	20.2129*	15.4947	0.0090
r=1	r=2	3.16239	3.84146	0.0753
Maximum Eigenvalue Statistics				
r=0	r>0	17.0505*	14.2646	0.0177
r≤0	r>0	3.16239	3.84146	0.0753

* Denotes rejection of the null hypothesis at 0.05 levels.

Table 3: Johansen cointegration test results (LRY, LTBDY)

H ₀	H ₁	Test Statistics	0.05 critical value	Prob
Trace Statistics				
r=0	r=1	20.4773*	15.4947	0.008
r=1	r=2	2.22894	3.84146	0.135
Maximum Eigenvalue Statistics				
r=0	r>0	18.2483*	14.2646	0.011
r≤0	r>0	2.22894	3.84146	0.135

* Denotes rejection of the null hypothesis at 0.05 levels.

Table 4: Johansen cointegration test results (LRY, LTCPSY)

H ₀	H ₁	Test Statistics	0.05 critical value	Prob
Trace Statistics				
r=0	r=1	26.5522*	15.4947	0.0007
r=1	r=2	3.42873	3.8414	0.0641
Maximum Eigenvalue Statistics				
r=0	r>0	23.12355*	14.2645	0.0016
r≤0	r>0	3.42873	3.8414	0.0641

* Denotes rejection of the null hypothesis at 0.05 levels.

Table 5: Granger causality test results

Null Hypothesis	Wald test/Chi-square	Conclusion
LM2Y does not Granger cause LRY	1.082(0.581)	Fail to reject H ₀ . No causality
LRY does not Granger cause LM2Y	4.85 (0.088)*	Reject H ₀ .
LTBDY does not Granger cause LRY	2.369(0.305)	Fail to reject H ₀ . No causality.
LRY does not Granger cause LTBDY	2.535(0.281)	Fail to reject H ₀ . No causality.
LTCPSY does not Granger cause LRY	0.925(0.629)	Fail to reject H ₀ . No causality.
LRY does not Granger cause LTCPSY	7.611(0.022)**	Reject H ₀ .

Note: * and ** significant at 10% and 5% level. Probabilities are in parenthesis.

CONCLUSION AND FUTURE RESEARCH

This study attempted at studying the relationship between financial development and economic growth in Qatar for the period 1980 - 2012. Three proxies were used for financial development variable. The first proxy is ratio of M2 to GDP. The second proxy is the ratio of total bank deposits to GDP and the third is total credit extended to private sector to GDP. Real GDP was used as economic growth variable. Data were tested for stationarity using Augmented Dickey-Fuller test, and all variables were found to be stationary after first differencing. Johansen cointegration test was performed, and variables were found to be cointegrated. The results of Granger causality tests indicate that economic growth Granger cause financial development.

One can interpret from this results that financial development is not a key economic development factor in Qatar. Improving the services provided by financial intermediaries such as banks and insurance companies, will lead to enhancing productivity and result in improving total factor productivity leading to higher rates of growth. Policies that improve economic growth, by fostering macroeconomic stability and increasing investment will also have an important effect on financial development. This study is based on available annual data, and chosen proxies for financial development. Quarterly data will enhance future studies with more observation and more degrees of freedom. More variables on financial development will most certainly improve results.

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