Financial development and economic growth: Empirical evidence from the Gulf Cooperation Council countries

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Abstract: This paper studies the link between financial development and economic growth in a panel of 3 Gulf Cooperation Council (GCC) countries, namely, Oman, Qatar and United Arab Emirates from 2008 to 2021. Using the Generalized Method of Moment (GMM) estimator for linear dynamic panel data models, we show a positive relation between financial development and economic growth in GCC countries. These results recommend the need to promote the financial reforms and increase the efficiency of the financial systems of these countries to stimulate savings and investment and, therefore, economic growth in the selected countries.

1. Introduction

The Gulf Cooperation Council (GCC) countries are unique in that they are oil producers with high income levels but are developing countries. According to Samargandi et al. (2014), financial development and economic growth are principally different in resource-rich countries. Theoretically, they are expected to be affected by the natural resource curse (Sachs and Warner, 1995). The performance of macroeconomic policies depends on the development of financial system. An efficient financial system is a crucial factor in offsetting the resource curse by channelling oil revenues into productive investment (Law and Moradbeigi, 2017). In this context, governance and institutions of all types, including financial institutions, play an essential role (Shadrokh and Zamanzadeh, 2017).

The GCC countries are heavily dependent on oil and gas exports to drive economic growth. These countries have qualified high economic growth rates. Oil rents have provided adequate liquidity to the economy. All countries are financially wealthy. They have a well-developed financial system (Hamdi et al., 2014). The financial system is dominated by fully capitalized banks and is profitable. Retail banking is very profitable. Oil revenues provide adequate liquidity to the economy, providing funding for infrastructure, manufacturing, and the private sector (Muhammad et al., 2016). But as a precautionary measure, Abundant funding can contribute to inefficient allocation of resources towards low-yield investments and trigger short boom-bust cycles, which would slow down economic growth (Botev et al., 2019).

Given the increasing importance of financial development on economic growth, this study considers the estimation of dynamic panel model using the Arellano and Bover (1995) system GMM estimator and investigates the impact of financial development on real GDP growth in 3 GCC countries namely, Oman, Qatar and United Arab Emirates from 2008 to 2021. Our study, based on endogenous growth theory, argues that there is a positive link among financial development and real GDP growth of selected countries.

Consequently, this article contributes to the empirical literature on finance–growth nexus in three ways. First, this study examines the dynamic interrelationship among financial development and economic growth in GCC countries. Second, this study uses more new information and could expose recent developments in the association among financial development and real GDP growth. As such, the findings of this study could have more reference value for policy makers in the region. Third, GCC governments have expressed many policies to stimulate financial development, but an underdeveloped financial system will affect the application effect of these policies. For all these reasons, the study of the finance-growth nexus constitutes a very factual value.

This paper is ordered as follows. Section 2 analyses some of the voluminous existing literature. Section 3 defines the data and empirical methodology. The empirical findings are presented in Section 4. Finally, Section 5 draws conclusions and the main contributions of the study.

2.   Literature review

Through the mobilization of savings, efficient allocation of resources, management control, risk management and the provision of trade-facilitating services, financial development can stimulate economic growth. Since the 19th century, many authors have defended the idea of the beneficial effect of financial development on the economy. Since the 19th century, numerous authors have defended the idea of the beneficial impact of financial development on economic growth. Schumpeter (1911) pointed out that banking sector play a pivotal role in economic growth to the extent that they improve innovation through the financial services they provide.

For their part, McKinnon (1973) and Shaw (1973) studied the impacts of government intervention on the development of the financial system. They confirmed that government restrictions on the banking system hamper financial development and, consequently, decrease economic growth. Endogenous growth models have reached similar results by modelling the services offered by the financial sector to the real sector. Indeed, in these models, financial intermediation can exert a positive impact on total factor productivity. Especially, financial intermediaries can promote the efficiency of resource allocation through their capacity to collect and analyse information on the innovative entrepreneurial activity (King and Levine (1993), and therefore to finance the most profitable projects. If financial intermediaries allow efficient risk pooling, portfolio diversification can promote specialization and, therefore, increased productivity (Saint-Paul, 1992).

However, other authors doubt the positive role of the financial system in real GDP growth. Robinson (1952) claimed that financial development follows economic growth. These theoretical oppositions are found in Patrick (1966) who proposed to distinguish financial development "initiated by supply" from financial development "induced by demand".

Models based on the theory of endogenous growth allow us to formulate the interactions between financial factors and economic growth by reintroducing the essential role of financial intermediation in promoting the allocation of resource. In these models, the financial system as a whole (banks, financial intermediaries, stock and bond markets, etc.) makes it possible to build up a stock of financial resources

from the from the contribution of savers, which is likely to lead significant transaction costs. The financial system allows agents to be brought together, and information to be collected, analysed, and transmitted at a lower cost. An efficiently functioning financial system directs available resources toward the most profitable projects likely to rise productivity and, therefore, economic growth; it reduces the costs of premature liquidation and thus mitigate liquidity risk, allowing physical and human capital accumulation, factors of economic growth. The financial system allows for a diversification of technological risk and makes investment specialization more attractive, thus helping an increase in the marginal productivity of capital. (See, among others, De Gregorio, 1996; Pagano, 1993; Roubini and Sala-I-Martin, 1992).

Previous researches have attempted to examine the finance-growth linkage for the GCC countries. For example, Darrat et al. (2005) integrated two GCC countries, namely, Saudi Arabia and the United Arab Emirates from 1964 to 1993. For Saudi Arabia, they found bidirectional causality among financial development and economic growth. Meanwhile, for the UAE, there was a weak association among financial development and economic growth. In similar study, Sbeiti et al. (2013) showed that financial development contributes positively *to* economic growth over the period 1975–2003 (excluding Qatar). Alike findings were confirmed for 1980–2005 by Hassan et al. (2011) and for 1975–2012 by Muhammad et al. (2016). For their part, Law and Moradbeigi (2017) pointed out that the link between oil resource abundance and financial development had a positive and statistically significant *impact on* real GDP growth in 63 oil-producing countries over the period 1980-2010. As for Hamdi et al. (2014), they found the existence of *a* two-way causality among financial development and real GDP growth over the period 1980–2012.

For his part, Duasa (2014) did not identified a causal connection among financial development and economic growth from 1960 to 2005 in three GCC countries, namely, Bahrain, Kuwait, and Saudi Arabia. In an associated study on the GCC countries (excluding Oman), Grassa and Gazdar (2014) showed that over the period 1996-2011, financial development has no statistically significant effect on economic growth. They also distinguished among conventional banking and Islamic banking. They showed that the former had no significant impact on real GDP growth. On the other hand, the last has a significantly positive impact on real GDP growth.

As for Hamadi and Bassil (2015), they investigated the effect of stock markets and banks on economic growth in 13 Middle East and North Africa countries from 1988 to 2009. They pointed out that stock markets and banks enhance positively economic growth in the region only during periods of stability.

For their part, Muhammad et al. (2016) argued that financial development impacts positively economic growth in all GCC countries from 1975 to 2012. They also indicated that FDI, private investment and oil production affect positively economic growth. They advised that policy makers in the GCC countries would reinforce the solidity and security of the financial system to promote their intermediation process, so that the mobilization of local financial resources is rapid enough to effectively allocate them to different capital needs, with appropriate monitoring, diversification and risk management. All these actions would finally help achieve the essential objective of promoting productivity in the private sector in each country of the GCC.

For their part, Yahyaoui and Al Saggaf (2019) studied the connexion among financial development, quality of institutions and economic growth in six Arab Gulf countries from 1995 to 2012. They pointed out that the institutional quality is the channel of transmission from the financial sphere to the real sphere. Thus, the financial system cannot improve economic growth if it is not accompanied by a "strong institutional framework" existing by better bureaucracy, fight against corruption and solid legal and operational framework.

As for Wesiah and Onyekwere (2021), they studied the association between financial development and real, GDP growth in the Kingdom of Saudi Arabia using quarterly data from 1963q1 to 2015q1. They confirmed that financial development and economic growth exert mutual influence, that is, causality goes both ways, which is consistent with the feedback hypothesis in the literature which says that financial development and economic growth show a two-way causal association in Saudi Arabia.

For his part, Al-Jarallah (2022) showed that financial development and natural resource rents exert a positive effect on total factor productivity in GCC countries from 1984 to 2019. Likewise, he found that promoting trade openness benefits total factor productivity. Nevertheless, growing corruption and

population declines productivity. Furthermore, he asserted that it is important to improve trade and financial openness in foreign countries and to effectively use natural resource rents for real GDP growth. Moreover, Haque et al (2022) studied the link among financial development and economic growth by considering the institutional quality of countries with substantial oil rents in six GCC countries from 2000 to 2019. They showed that economic growth contributes positively to the financial development of GCC countries and not vice versa. They also confirmed that low quality of institutions limits the influence of oil rents to financial development. They argued that in countries that accumulate oil rents, the institutional quality wants to be enhanced to advance the source of financial development.

For their part, Riache et al. (2024) examined factors influencing economic growth in GCC nations from 2001 to 2021. They pointed out that financial development, proxied by domestic credit to private sector by banks (% of GDP), influence positively real GDP growth. They argued that it is imperative to implement policies that fortify the banking industry, expand corporate credit availability, and stimulate private sector investment to promote economic growth in the region.

More recently, Abd and Debs (2024) studied the effect of financial market depth on achieving economic growth in the GCC countries over the period 2000-2019. They pointed out that there was a significant positive influence of financial market depth on economic growth. Their result corroborates with the leading supply theory, which suggested that the financial system influences economic growth in developing countries, where the presence of financial institutions and financial intermediaries has a significant influence on enhancing economic growth. They recommended that efforts be made to develop, deepen and liberalize them, as well as to attract more technologies because of their positive influence on economic growth.

Given that the above findings on the finance-growth link are mixed both for the GCC countries as a whole and for any particular GCC country, there is a need for a more systematic econometric study to examine the validity of the claim that financial development improves real GDP growth in the region.

3. Data and Empirical Methodology

3.1 Data

This study examines a sample of 3 GCC countries, namely, Oman, Qatar, and the United Arab Emirates. The choice of study period and countries is based on availability of data. The panel covers the period 2008-2021.

The key variable of interest (financial development) and other control variables are attained from the World Development Indicators (2024) published by the World Bank. In this study, we use domestic credit extended to the private sector by banks (% of GDP), which allows to measure the degree of intermediation carried out by the banking sector to the public and private sectors. We use this proxy because the private sector is considered the source of economic growth in many developing countries like those in GCC (Obeng-Amponsah et al., 2019).

The dependent variable is economic growth, proxied by the growth rate of real GDP per capita at 2015 prices in US dollars. Our baseline model contains the explanatory variables shared to most growth regressions showed in the literature:

• Initial GDP per capita (log): log of real GDP per capita. A negative coefficient is expected, signifying the existence of conditional convergence among countries (La Porta et al., 1998).

• The rate of inflation: Inflation is measured by the consumer price index, which measures the overall change in the prices of goods and services included in household consumption. Inflation has negative impacts on household purchasing power and economic growth. If prices increase faster than wages, this leads to a decrease in the quantity of goods and services that a household can buy. Inflation can also decrease the competitiveness of an economy and and eventually lead to a decline in exports. Moreover, inflation hits the savings we have built up over time and decreases their value and purchasing power. All of these effects risk leading to a decrease in economic activity, a decrease in investment and consequently in real GDP growth (Elder, 2004).

• The size of government is estimated in terms of government spending as a share of GDP. Government spending can improve economic growth, by growing the marginal productivity of public and private factors of production. Increased government spending can be an effective tool for job creation, higher

profitability and improved investment through the multiplier effect on total demand. Government spending on research and development, for example, can increases productivity gains and economic growth (Poku et al. 2022).

• Total natural resources rents (% of GDP): Total natural resources rents are the sum of oil rents, natural gas rents, coal rents (hard and soft), mineral rents, and forest rents. Natural resources rents measure the extent to which the economy relies on natural resources to create income. The influence of natural resources to economic growth has significant implications for economic development. Revenues from natural resources such as fossil fuels and minerals account for a significant share of GDP in different countries. Natural resources give rise to economic rents because they are not produced; since their supply is relatively fixed, they generally generate returns that exceed their cost of production (Koirala and Pradhan, 2019).

The expanded model will also contain the next institutional variable:

- The Index of Economic Freedom, created by the Fraser Institute, measures the degree of economic freedom present in five main areas: (1) size of government; (2) legal system and property rights; (3) sound money; (4) freedom to trade internationally; and (5) regulation. According to the study by Doucouliagos and Ulubasoglu (2006), who reviewed empirical studies using this Fraser Institute indicator, greater economic freedom improves economic growth. This index is taken from (Gwartney et al. 2024).

3.2 Empirical Methodology

The objective of our empirical study is to survey whether financial development (FD) plays a vital role in promoting economic growth in GCC countries. In this article, we draw inspiration from the growth model developed by Muhammad et al. (2016). This study estimated the following model:

$$\text{GDP}_{i,t} = \alpha_0 + \alpha_1 \text{GDP}_{i,t-1} + \alpha_2 \text{FD} + \beta' X_{i,t} + \lambda' W_{i,t} + \mu_t + \eta_i + \varepsilon_{i,t} \tag{1}$$

where $GDP_{i,t-1}$ denotes the (logarithm of) level of GDP per capita of country i at the end of period t, FD is a proxy which measures the financial development, $X_{i,t}$ is a vector of economic factors of economic growth including: inflation rate and government spending, and $W_{i,t}$ is an institutional variable (the index of economic freedom); μ_t is a time specific effect, η_i is an unobserved country-specific fixed effect and $\varepsilon_{i,t}$ is the error term.

Eq. (1) can be otherwise written with the economic growth as dependent variable as:

$$\text{Growth}_{i,t} = \text{GDP}_{i,t} - \text{GDP}_{i,t-1} = \alpha_0 + (\alpha_1 - 1)\text{GDP}_{i,t-1} + \alpha_2 \text{FD} + \beta' X_{i,t}$$
$$+\lambda' W_{i,t} + \mu_t + \eta_i + \varepsilon_{i,t} \tag{2}$$

where ($\alpha_1 - 1$) is the convergence coefficient.

The subject model, knows both a problem of endogeneity of the variables, and a correlation among the delayed endogenous variable and the residuals. Indeed, any convergence model is dynamic and, as a result, it introduces an additional endogeneity within the explanatory variables.

In general, dynamic models are examined in first differences by the method generalized moments (GMM). In this framework of analysis, Anderson and Hsiao (1982) suggested to use the lagged first differences of the endogenous variable as instruments. Arellano and Bond (1991) added to this list of instruments the lags of the endogenous variable by showing their orthogonality to the residuals.

It must be said that there are two kinds of GMM estimators, which are applicable to dynamic panels. These are the first difference GMM estimator (Arellano and Bond, 1991) and the system GMM estimator (Blundell and Bond, 1998), which is only an improved version of the first. As its name indicates, the first difference GMM estimator consists of estimating the equation of the model in first difference, in order to control the effect specific to the statistical unit or individual. This latter method is the one used

in the most recent applied works on the association between financial development and economic growth, notably those of Levine et al. (2000); it is on the results of this second method that we principally base our conclusions.

System GMM estimations allows not only to take into account the heterogeneity of countries but likewise to address the problem of the endogeneity of variables, which essentially arises when examining the association among financial development and economic growth. The first authors who were interested in this relationship highlighted the two-way causality (Patrick, 1966) between the two forms of development, if only because the increase in income is accompanied by a growth in savings and therefore acquisitions of financial assets. Work on the theory of endogenous growth has further reinforced the idea of double causality. The sharing of risks that financial intermediation allows and which promotes investment in new technologies involves costs and itself implies a certain level of product per capita (Greenwood and Jovanovic, 1990).

The procedure of Arellano and Bond (1991) involves of rewriting the original equation in first differences, which eliminates individual fixed effects, and then using their own lagged levels as instruments for the differenced series. This method improves on the instrumental variable estimation of Anderson and Hsiao (1982) by mentioning to a set of orthogonality conditions defining optimal GMM estimators. It also resolves the difficult choice regarding the list of instruments.

However, it has been revealed that this first version omits a set of orthogonality conditions that can be showed by considering a system consisting of two equations. Arellano and Bover (1995) and Blundell and Bond (1998) presented the GMM method in system. This method consists of combining for each period the equation in first difference with that in level. In the equation in first difference, the predetermined variables are instrumented by their values in level lagged by at least one period. On the other hand, in the equation in level, the predetermined variables are instrumented by their first differences. The system of equations thus obtained is estimated simultaneously, using the GMM. Blundell and Bond (1998) tested this method using Monte Carlo simulations. They showed that the system GMM estimator is more efficient than the difference GMM estimator (Arellano and Bond, 1991) which only uses the moment conditions of the first difference equation with lagged variables as instruments.

Furthermore, two main tests are related with the GMM system method:

- The model over-identification test (Hansen-test), through which the validity of the instruments used is verified, in the sense that they must be correlated with the instrumented variables and not with the error term (Hansen and Singleton, 1982).

- The Arellano and Bond (1991) error autocorrelation test (AR2), which tests the first-order serial correlation of the residuals in level, by testing the second-order serial correlation of the errors in difference, given that the error terms expressed in first difference are correlated in first order, by the construction of the GMM system estimator.

Our findings confirm that there is no serial correlation, and the instruments employed are also valid. The results of the estimation are exposed in Table (1).

4. Empirical results

At the level of table (1), the results clearly show that the coefficient of the financial development variable is positive and statistically significant at the 1% threshold, which advocates that the financial development, proxied by domestic credit extended to the private sector by banks (% of GDP), play *a* vital role in economic growth in the GCC countries. The result means that, a 1% increase in financial development will lead to 0.851% increase in real GDP growth. This result can be partly explicated by the competitive and innovative nature of the financial systems of the selected countries. Our findings corroborate the predictions of the supply-side hypothesis, endogenous growth models, and the findings of some empirical studies such as those of Muhammad et al. (2016), Al-Jarallah (2022) and Riache et al. (2024).

Table 1. Financial development and economic growth (2008-2021)

Variable	
Initial GDP per capita	-0.408**
	(-2.564)
Financial development	0.851***
	(3.08)
Inflation	-0.325***
	(-2.372)
Government spending	0.678***
	(2.89)
Total natural resources rents	0.467***
	(3.156)
Index of economic freedom	0.065**
	(2.4)
Constant	74.86*
	(2.065)
R-squared	0.65
AR(2) test (p-value)	0.531
Sargan test (p-value)	0.562

Note: AR(2) is a test of second order residual serial correlation while the J-test is the Sargan over-identification test. The t-statistics is in parentheses. *, and *** indicate a statistical significance at 10% and 1% levels, respectively.

The coefficient of initial per capita GDP is negative and statistically significant at 5 percent level, which means that the conditional convergence hypothesis is verified: holding constant the additional factors of growth, countries with lower GDP per capita tend to grow more quickly. The initial position of the economy is therefore a central factor in economic growth, as documented by neoclassical theory. This finding is reliable with preceding studies (see, for example, Barro and Sala-i-Martin, 1995; Gapinski, 1996).

The coefficient of the inflation rate has a negative sign and is then statistically significant at 5 percent level, signifying that a high inflation rate will have an adverse impact on economic growth. The result shows that a 1% increase in inflation would decrease real GDP growth by 0.325%. This clearly supports the works of Aydin et al. (2016). This finding suggests that inflation harms the economic growth. Indeed, inflation decreases the purchasing power of money, thus discouraging investment, which could have encouraged growth prospects of the economy.

Similarly, government spending also positively impacts economic growth. The finding confirms that a 1% increase in government spending would rise real GDP by 0.058%. This result verifies that obtained by Poku et al. (2022) and Asiri (2024). Our results advocate that an increase in government spending in GCC countries stimulates immediate production, consumption and investment in the economy and leads to a short-run rise in real GDP growth, thus confirming the Keynesian theory of public spending.

On the other hand, total natural resources rents, which is measured as a percentage of GDP, is also significant, at 1 percent level, in explaining the economic growth in GCC countries. The positive sign on this variable suggests that the higher the natural resources rent, the higher economic growth. The results show that for every 1% change in the natural resources rent, the economic growth will increase by 0.467% suggesting total natural resources rents also have an important effect on economic growth. These results are consistent with the natural resource blessing hypothesis that the abundance of natural resources aids economies overcome obstacles to economic growth. This result is consistent with the findings of Ben-Salha et al. (2021) who confirmed that natural resources rent significantly enhanced economic growth.

Institutional quality, represented by the index of economic freedom, tends to be positively related with economic growth in the GCC countries. The result confirms that a 1% increase in economic freedom would enhance real GDP by 0.065%. This is therefore consistent with the work done by Doucouliagos and Ulubasoglu (2006) and Dkhili and Ben Dhiab, (2018) who argued that economic freedom is vital for real GDP growth. This result recommends that higher levels of institutional quality is related with

higher growth rates. Institutions offer incentives and sanctions which, in turn, play a crucial role and pave the way for rapid economic growth. Quality of institutions can affect the country's economic growth through appropriate allocation of resources which is linked to the provision of public goods and services. High institutional quality also generates a business-friendly environment that is highly conducive to foreign investment.

5. Conclusion

The relationship among financial development and real GDP growth has long continued a subject of important discussion in the literature. This is why these study purposes to re-study the role of development of financial systems and real GDP growth in 3 GCC countries, namely, Oman, Qatar and United Arab Emirates from 2008 to 2021.

From the empirical study, we drew two crucial findings. On the one hand, the coefficient measuring the influence of financial development, proxied by domestic credit extended to the private sector by banks (% of GDP), on economic growth is positive and significant, which shows that financial development impacts economic growth in a positive way. Then, it turns out that the economic freedom index, total natural resources rents and government spending have a significant influence of economic growth. On the other hand, inflation affects economic growth negatively in the GCC countries

To fully understand the benefits of financial development, and promote strategic investments with a view to high economic growth, GCC countries must, however, continue their reform efforts on the financial level and establishing growth-enhancing financial systems. The findings advocate that the governments of the GCC countries have a major role to play in designing suitable fiscal and monetary policies to reap the full benefits of the positive link among financial development and economic growth. The key policy implication of this study requires that policy makers in GCC countries must fulfil an urgent but delicate mission, namely to stimulate investment and diversification of the private sector, in order to strengthen and sustain growth. In this regard, the diversification and transformation of the economy will require strong and dynamic financial sectors in order to guarantee the private sector access to sufficient financing. Furthermore, in GCC countries, financial sector policies should remain focused on mitigating macro-financial risks, such as those related to the increased participation of non-bank financial institutions and digital transformation. Measures should also aim to further develop financial markets, in particular to improve market efficiency. In particular, encouraging greater participation of institutional investors and strengthening financial integration by attracting a broader investor base and supporting non-resident participation could increase efficiency.

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