

# Financial Stability and Economic Performance in OPEC Countries: An Approach to Co- integration Methods

Rezvan Torabi<sup>1</sup>

Department of Economics, Dehaghan Branch, Islamic Azad University,  
Dehaghan, Isfahan, Iran

Mahmoud Eshraghi

Department of Economics, Dehaghan Branch, Islamic Azad University,  
Dehaghan, Isfahan, Iran

Elham Nagheli

Department of Economics, Khomeinishahr Branch, Islamic Azad University,  
Khomeinishahr, Isfahan, Iran

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## Abstract

Providing stable conditions in various sectors of economy is one of the most important factors that is required for moving toward sustainable growth and holistic development in a country. One of the major prerequisites of economic stability and exiting the economic crises is financial stability. In economic literature, it is always emphasized on establishment of stability and sustainable growth via financial development. However, financial development requires financial tools such as an efficient banking system whose efficiency is possible through competitiveness and financial liberalization. The present study explores financial stability and economic performance in OPEC countries during the time period 2000-2013. It is applicable from objective aspect and descriptive-analytical from methodological aspect. It explores the relationship between financial sector and economic performance using the generalized method of moments (GMM) following Creel et al. (2014). The results disclosed that the effect of independent variable of financial stability on the dependent variable of economic performance (economic growth) in OPEC countries is positive and significant. This showed that increasing of financial stability and departing from financial crises decreases the investment risk and it is increased when transaction costs, production, and economic growth are increased in these countries. Likewise, the results demonstrated that the effect of the independent variable of

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<sup>1</sup> Corresponding author's email: [torabi.economic@gmail.com](mailto:torabi.economic@gmail.com)

financial liberalization on the dependent variable of economic performance (economic growth) in OPEC countries is positive and significant. This indicated that increasing of financial liberalization and improvement of financial transactions among countries will decrease the investment risk and it is increased when transaction costs, production, and economic growth are increased.

**Keywords:** Economic Growth, Financial Development, Trade, Financial Stability, Generalized Method of Moments.

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## Introduction

Financial stability is usually defined with its opposite like health. As it has been stated, a healthy person is the one whose health is not threatened by any disease and is not subjected to suffer from a serious disease potentially. Financial stability is applied to a situation where systematic financial crises do not threaten the stability of macro economy.

Financial crises are as old as financial markets but crises of the last decade in the 20<sup>th</sup> century have common exceptional characteristics. Attraction of foreign capital by local banks, giving loans to domestic firms in terms of national currency, currency mismatch in banks' balance sheet, inflexibility of the currency regime with capital inflow and outflow, sudden decrease of value of national currency due to sudden outflow of paper capital, sudden increase of debt of resident banks and firms to non-resident people and institutions in terms of national currency, failure of public trust and people's rush to withdraw their deposits in banks and financial institutions which are exposed to bankruptcy or crisis, intensification of crisis in the above institutions because of inability in satisfying the depositors' request, decreasing of stock value of indebted institutions in the stock market, transmission of crisis from the financial sector to the real sector, inability of institutions and corporations in the real sector for repayment of their liabilities to the banks, accumulation of non-performing loans in the balance sheet of banks and financial institutions are realities that have been occurred more or less in recent 10 to 15 years. Although all these realities may not conform to all countries or some of them may have been occurred with intensification and mitigation but the above-mentioned events are different episodes of a story which have been repeated many times during the 15 recent years in different countries.

Problems of financial institutions, however, are the indispensable part of life and joy of financial activities. Some financial institutions develop and some are exposed to a crisis and suffer from bankruptcy. It is noteworthy that the financial problem of an institution will not threaten financial stability of a country even though it is led to bankruptcy if the supervisory authority has the required dominance to predict critical situation of the above institutions; transfer of crisis from the institution which suffers a crisis to other institutions can be prevented and prohibited; scale of the institution which suffers a crisis does not affect the performance of financial market; and finally remedial strategies are predicted to realize financial commitments of the institution which suffers a crisis to depositors and creditors.

This study is organized as below. The first section deals with statement of the problem and the research literature. Then, the statistical population, the research model and variables are addressed. In the next section, model estimation will be proposed and conclusion and suggestions are presented in the last section.

## Literature review

There are different viewpoints about financing and economic performance as well as some contradictions which began at the beginning of the 20<sup>th</sup> century (Ange, 2008). These can be mentioned briefly as follows. Adherents of the positive role of financial development state that development of financial sector is resulted in better allocation of resources, increasing of savings, decreasing of risk and facilitation of transactions. The financial sector acts as a facilitator for the economy and ensures that the resources have been allocated more efficiently and more innovative firms will be appeared. On the other hand, adherents of the negative role of development of financial sector believe that the stock market has a destabilizing effect on the economy and financial liberalization is led to financial crisis. According to these scholars, explaining the relationship between financing and economic growth has been exaggerative (Roderick & Subramanian, 2009; Stiglitz, 2000). De Gregorio and Guidotti (1995) claim that there is a fragile and even a very weak relationship between financial development and economic growth in developed countries and it shows that if a country has reached a certain level of economic wealth, development of the financial sector has only a marginal role in investment productivity. This role can facilitate the economic growth which is generally disregarded. Due to the existing risk, the banking and financial group needs the intervention of public authorities. Fragility of the financial sector can spread rapidly to financial and non-financial corporations and then to the whole economy. The debt crisis in 2008 in the US is a good example of degree of integration and pervasion in financial markets. Several empirical studies have explored these problems. However, the relationship between financial development and economic growth has been considered positive until recently (Biomann et al., 2013).

In a survey entitled "financial stability and economic performance", Creel et al. (2014) established a relationship between economic performance and financial stability in EU countries. The findings of this survey showed that financial stability will have a negative effect on economic growth.

In a study entitled "financial stability, competition, and productivity in banking in Latin America and Caribbean", Kasman and Carvall (2014) explored this issue using a sample consisted of 272 commercial banks in 15 countries in Latin America during the time period 2001-2008. The obtained findings revealed that the quite life hypothesis was confirmed in the study. Moreover, according to the results, higher competition among the banks is resulted in more stability. It seems that banks can reach productivity, leverage and the ability to earn an income via the market power. The problem of representation and risk taking may be increased simultaneous with the increased size of banks and the related complexities and even it may be led to inefficiency in production and bankruptcy.

Zhao et al. (2014) explored the effect of the recent economic crisis on financial performance of multi-national companies in a study. According to the findings, the multi-

national companies under study increased their sale from about 529.63 million dollars in 1999 to 1544.82 million dollars in 2012 in Asia and from 16.88 million dollars to about 247.74 million dollars in China. Generally, it can be observed that companies which had employed policies and actions such as strategic displacement of sale to other parts of the world including Asia and China accepted fewer negative effects of the economic crisis in comparison with similar domestic companies.

Calmes and Theoret (2013) investigated market-oriented banking, financial stability, and macro-prudential indicators of leverage in a survey. They presented a new group of indicators associated with leverage in order to complete the macro-prudential framework that was proposed in Basel III. They were in terms of financial stability. Given the new sources of liquidity which are produced by activities beyond the balance sheet, time-varying indicators were considered to take into account the dynamism of leverage. The findings in this study show that market-oriented banks have higher effectiveness on leverage during their development period.

### **Research model**

The dependent variable was economic performance. In this study, economic growth was employed as economic performance.

The independent variables were as below:

*Financial stability:* Variables such as change in liabilities of the Central Bank to properties, changes in domestic credits via banks, the interest rate of long-term deposits, consumer's price index, inflation rate, changes in liquidity to gross domestic product, changes in bank assets to gross domestic product, and changes in net assets of the Central Bank to gross domestic product are used to measure this index (Sotudehnia & Abedi, 2013). In this study, changes in liquidity to gross domestic product were used to calculate financial stability.

*Financial liberalization:* Net capital inflow was used in this study as the index of financial liberalization.

*Degree of trade openness:* The index of sum of export and import to gross domestic product was used in the present study.

*Inflation, labor force and physical capital:* It was a real variable and was extracted from the World Bank website for each country and each year.

*Exchange rate fluctuations:* Standard deviation of foreign exchange rate was used to calculate exchange rate fluctuations.

Dynamic panel data (GMM) was the estimation method.

### **Statistical population**

The data related to independent, dependent and control variables were analyzed for OPEC countries during the time period 2000-2013.

Table 1. Names of OPEC countries

Iran	Iraq	Saudi Arabia	Kuwait	Venezuela	Qatar
Libya	United Arab Emirates	Algeria	Nigeria	Angola	Ecuador

### Model estimation

Stationary of the research variables was explored using Levin-Lin-Chu test.

Table 2. Results of stationary test of the variables

Variable	Symbol	The intercept			To intercept and process		
		Lynn Levine's test Cho	Prob	Result	Lynn Levine's test Cho	Prob	Result
Economic Growth	Y	-4.14386	0.0000	I(0)	-2.40861	0.0080	I(0)
Financial stability	X1	-2.35507	0.0477	I(0)	-15.9095	0.0000	I(0)
Financial liberalization	X2	-6.71975	0.0000	I(0)	-6.33751	0.0000	I(0)
Inflation	X3	-4.22658	0.0000	I(0)	-7.76599	0.0000	I(0)
Openness	X4	-3.79469	0.0001	I(0)	-2.91968	0.0018	I(0)
exchange rate	X5	-4.43461	0.0000	I(0)	-8.51415	0.0000	I(0)
work force	X6	-46.9396	0.0000	I(0)	-14.2239	0.0000	I(0)

Stationary of the variables was explored via intercept and trend. As it is observed, stationary of all variables is confirmed.

The model was estimated by means of generalized method of moments (GMM).

Table 3. Results of regression estimation through GMM (dependent variable: economic growth)

Variable	Symbol	Coefficient	Standard deviation	Statistics t	Prob
Lag of Economic growth	Y(-1)	0.045120	0.018923	2.384388	0.0329
Financial stability	X1	0.542739	0.215627	2.517023	0.0287
Financial liberalization	X2	0.262932	0.036653	7.173453	0.0000
Inflation	X3	-0.471890	0.185041	-2.550185	0.0270
Openness	X4	0.215307	0.103855	2.073254	0.0418
exchange rate	X5	-0.182282	0.040594	-4.490399	0.0000
work force	X6	0.719455	0.136614	5.266334	0.0006
$R^2: 0.52$			DW: 2.007		
			Sargan statistics: 32.24		

Given the value of coefficient of determination, the model's goodness is suitable and variables show explanatory power of the model that is equal to 52 percent. It is appropriate considering that panel data method has been employed. Signs of coefficients are based on the proposed principles in Chapter 2 and also they show effectiveness of all variables and their significance. As it can be observed in Table 3, signs of all estimated variables are consistent with the theoretical principles. In order to explore validity of the estimation results, Sargan test is employed which has chi-square distribution and degree of freedom  $(k-m)$ .  $M$  is the number of estimated parameters and  $k$  shows rank of the tool which is a standard test for estimation via GMM. Sargan statistic is equal to 32.24. Testing the null hypothesis rejects correlation of residues and instrumental variables. Thus, validity of results for interpretation is approved.

In interpreting the Sargan statistic, it can be stated that correlation among the estimation residues that can be led to bias in estimated coefficients is rejected in this test. Indeed, this test explores the relationship between estimation residues and examines the problem of auto-correlation as one of the classic probable problems of regression. Finally, existence of this auto-correlation is rejected.

The results are as below:

According to the obtained results, the effect of the independent variable of economic growth on the dependent variable of economic performance (economic growth) in OPEC countries is positive and significant with one interval and is equal to 0.04.

Also the results reveal that the effect of the independent variable of financial stability on the dependent variable of economic performance (economic growth) in OPEC countries is positive and significant with one interval and is equal to 0.54.

Moreover, the effect of the independent variable of financial liberalization on the dependent variable of economic performance (economic growth) in OPEC countries is positive and significant with one interval and is equal to 0.26.

The results show that the effect of the control variable of degree of trade openness on the dependent variable of economic performance (economic growth) in OPEC countries is positive and significant with one interval and is equal to 0.21.

The effect of the control variable of inflation on the dependent variable of economic performance (economic growth) in OPEC countries is negative and significant with one interval and is equal to 0.47.

The effect of the control variable of exchange rate fluctuations on the dependent variable of economic performance (economic growth) in OPEC countries is negative and significant with one interval and is equal to 0.18.

The effect of the control variable of labor force and physical capital on the dependent variable of economic performance (economic growth) in OPEC countries is positive and significant with one interval and is equal to 0.71.

Below, long-term relations between the variables are explored using Pedroni test.



Table 4. Pedroni test of the model

	Statistics	Prob
raho	3.749	0.000
Philips Perron	-12.508	0.000
Adjusted Dicky Phuler	-5.582	0.000

Given Table 4, rho statistic is equal to 3.7 with the significance level equal to 0.00, PP statistic is equal to 12.5 with the significance level equal to 0.00, and ADF statistic is equal to 5.5 with the significance level equal to 0.00; thus, the null hypothesis regarding existence of co-integration relation is not rejected. Similarly, ADF and rho statistics show that the null hypothesis (null hypothesis: there is no long term relationship between the variables and the alternative hypothesis: there is a long term relationship between variables) is rejected. Therefore, the results of Pedroni panel model confirm long term relationship between the research variables and hence, the model can be estimated through variables (without differentiating the variable) and without the spurious regression.

The research residue is tested in the following.

Table 5. Results of variance dissimilarity of residues

Null hypothesis and alternative hypothesis	F statistic	R <sup>2</sup> statistic	Probability	Test result
null hypothesis: variance similarity	0.052	0.053	0.81	The null hypothesis (variance similarity) is not rejected.
alternative hypothesis: variance dissimilarity				

Given Table 5, there is no variance dissimilarity despite the existence of structural differences in these countries.

Table 6. Auto-correlation test of residues

Null hypothesis and alternate hypothesis	F statistic	R <sup>2</sup> statistic	Probability	Test result
null hypothesis: lack of auto-correlation	0.0098	8.0109	0.92	The null hypothesis (lack of auto-correlation) is not rejected.
alternative hypothesis: auto-correlation				

Considering the results of Table 6 and *p* value, it is observed that *p* value is greater than 5%; thus, the null hypothesis is confirmed and existence of auto-correlation between variables is rejected.

### Conclusion and suggestions

The effect of the independent variable of economic growth on the dependent variable of economic performance (economic growth) in OPEC countries is positive and

significant with one interval. Therefore, it is suggested to macroeconomic managers in OPEC countries to follow policies which are based on paying attention to economic growth with one interval to enhance economic performance (economic growth).

Similarly, given the results that show the effect of the independent variable of financial stability on the dependent variable of economic performance (economic growth) in OPEC countries is positive and significant, it is suggested that macroeconomic managers in OPEC countries follow policies which increase financial stability to enhance economic performance (economic growth).

Considering the positive and significant effect of the independent variable of financial liberalization on the dependent variable of economic performance (economic growth) in OPEC countries, it is suggested to macroeconomic managers in OPEC countries to employ policies which increase financial liberalization to enhance economic performance (economic growth).

Given the positive and significant effect of the control variable of degree of trade openness on the dependent variable of economic performance (economic growth) in OPEC countries, it is suggested to macroeconomic managers in OPEC countries to employ policies which increase degree of trade openness to enhance economic performance (economic growth).

Given the negative and significant effect of the control variable of inflation on the dependent variable of economic performance (economic growth) in OPEC countries, it is suggested to macroeconomic managers in OPEC countries to employ policies which decrease and control inflation to enhance economic performance (economic growth).

In addition, considering the negative and significant effect of the control variable of exchange rate fluctuations on the dependent variable of economic performance (economic growth) in OPEC countries, it is suggested to macroeconomic managers in OPEC countries to employ policies which decrease exchange rate fluctuations to enhance economic performance (economic growth).

Likewise, considering the positive and significant effect of the control variable of labor force and physical capital on the dependent variable of economic performance (economic growth) in OPEC countries, it is suggested to macroeconomic managers in OPEC countries to employ policies which increase labor force and physical capital to enhance economic performance (economic growth).

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