Finance and Firm's Growth:
Panel Evidence from Selected OPEC Members

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The roles of finance on economic growth have been examined extensively at macro level. In general, findings emphasized on the significant role of finance in generating long-run economic growth. However, little attention has been given to investigate the role of finance at micro level, particularly the role of internal and external finance upon firms' growth. Most of the previous studies focused on the developed countries database. However, the current study concentrated on the financial development and firms' growth in Organization of Petroleum Exporting Countries (OPEC) as the developing countries. OPEC members have different economic atmosphere that is oil-oriented and having high GDP per capita but low degree of financial development is the common feature of them. This study aims to investigate the role of financial development and other important factors on firm growth. The GMM is employed for sample of four OPEC members (Saudi Arabia, UAE, Qatar and Kuwait) during 2000-2011. The paper findings represent positive effect of internal finance using elevating cash flow but the negative impact of external finance by means of leveraging on the firms' growth. Moreover, firms' growth is accelerated by reducing the cost of doing business in such countries.

Key Words: Access to Financing; Firm Growth; Financial Constraint

JEL Classification: G00; G30

1. Introduction

Identification of the most influential factors on firm growth and local-regional features that effect on such issue are still in the core of financial debates. How firms can move toward the alternative sources of finance depends very much on the level of financial development of the countries in which the firms are located (Rajan 1998, Demirguc-Kunt 1998, Beck

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2005b, a, Aghion 2007). The role of finance in economic growth has been examined extensively, and findings revealed the significant function of finance in generating the long-run economic growth. Previous literature in this regard could generally be classified into two strands. The first one focused on the relationship between finance and growth at the macro level, and mostly narrowed on the developed countries database. A number of studies as far back as Schumpete (1911), Hicks (1969), Goldsmith (1969), McKinnon (1973), Gurley(1973), among others, emphasized the positive influence of the development of the financial sector on economic growth. Demirguc-Kunt (1998) and Beck (2005a) state that financial development eases the obstacles that firms face and helps them to grow faster and it improves macroeconomic performance. The second strand of research that is related to investigate the role of finance at the micro level[2]. Financial development facilitates new sources of external finance (e.g. leveraging from the debt market or issuing more shares) for firms and could affect firms' growth. While Brito and Mello (1995) and Beck (2006), among others, state that the relationship between external finance and firms' growth is direct, Jensen (1976) Stulz (1990a), Demirguc-Kunt (1998), Beck (2005b), and Aghion (2007) disagree on this role and emphasize that there is no direct effect between external finance and firm's growth.

Most of the studies that investigated the finance-growth nexus have focused on the macro level study; and in particular have used the developed countries database. In general, most of them have concluded that financial development has a positive effect on economic growth. However, little attention has been given to examine finance-growth nexus at firm-level data. The notable point of the present study is focusing on the financial development and firm growth within a group of net oil exporting countries so-called OPEC. Such countries have a different economic and financial structure that urges policy makers and academicians to consider these countries. The economies of OPEC members have heavily relied on the exports of oil, where the revenue from the production of oil and gas stands for a very significant portion of their GDP. The OPEC community is now considering reducing the dependency on oil and petroleum products and on moving the economy toward the more diversified activities where other sectors of the economy could significantly contribute in economic growth (The Economist, 2010). For

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[2] See, Brito and Mello (1995), Beck (2006)

example, the developments of the financial markets are seen as the foundation of diversification program in OPEC and are closely associated with the objective of diversifying economic activity (Kern 2010; Oxford Economics 2013). Development of financial markets results in the firm's more access to internal and external financial resources. The firms' decision about their financial structure (i.e. decision over the internal and external sources of their finance) is closely associated with how developed the financial markets that the firms face to. Firms have more access to the external finance in more developed economics, while in the financially less developed economies the firms should rely mainly on their internal sources (such as cash flow or level of depreciation in balance sheet). While studying the effect of financial development and the impact of internal and external financial resources on firm growth has drawn a lot of attention in recent years, there has not been a consensus among the academicians as well as practitioners on their findings (Demirgüç-Kunt and Maksimovic 2002). Therefore, analyzing and examining the extent to which internal and external finances are stimuli to firm growth is the prime motivation of this study. Further, the heterogeneous impacts of such internal and external financing on firms within different countries and industries are yet to be investigated that is another objective of current study. Moreover, most of the OPEC members including Saudi Arabia, UAE, Kuwait, Qatar, and Iran are corporations of international compliance with global regulatory and supranational cooperation which requires them to restructure their regulatory environment and also liberalize their financial markets (IMF). Regulatory framework in OPEC countries, the business environment that each firm faces in such countries and the extent to which firms could operate their business activities are stringent barriers for firms in OPEC countries as compared to the world on average. Business environment shows the ability to start business and opportunity for growth in a given economy. To author best knowledge, the literature gaps in investigating the impact of the business regulatory barriers on the firm's growth. It is not clear to what extent the liberalization of the regulatory environment cold impact on the firm's growth. Another contribution of present study is investigating the impact of finance on firm growth while controlling business environment.

Overall, this study aims to examine the effect of internal and external sources of finances as well as the effect of business environment on firm`s growth in selected OPEC countries (Qatar, Saudi Arabia. Kuwait and United Arab Emirate) capturing the heterogeneity effects of size on firm

growth. For this purpose, the recent econometric technique namely the Generalize Method of Moments Estimator (GMM) is employed.

2. Stylized Facts about the OPEC Members

OPEC comprises 12 members including Iran, Iraq, Kuwait, Saudi Arabia, Venezuela, Qatar, Gabon Libya, the United Arab Emirates, Algeria, Nigeria, and Ecuador. Among the 12 members of OPEC community, Qatar, Saudi Arabia, Kuwait and United Arab Emirate have demonstrated the highest value of GDP and oil export per capita (Based on Word Development Indicators). Over the period of 2000 to 2011, firms within OPEC community have achieved very high growth rates in terms of total assets. The firms average assets growth was 14 percent, per annual within the period of 2000 to 2011 as shown in Table 1. However, the rate of growth varies between countries, where Qatari's followed by UAE's firms demonstrated the highest growth rates.

Table 1: Firm growth indicators in selected OPEC members (2000-2011)
(growth rate, %)

Countries	Indicator	Firms at aggregate level
Kuwait	Total asset	12.4
Saudi Arabia	Total asset	10.9
Qatar	Total asset	24
UAE	Total asset	18.3
Selected OPEC	Total asset	14

Source: Thompson Financial DataStream (2012)
*Non- Financial Listed companies are included.

Table 2 indicates the growth of cash flow and leverage variable for non-financial listed firms for the selected OPEC countries.

Table 2: Performance indicators of firms in selected OPEC (2000-2011)
(growth rate)

Country	Indicators (%)	Firms
Kuwait	Cash flow	4.8
	Leverage	7.9
Saudi Arabia	Cash flow	13.3
	Leverage	2
Qatar	Cash flow	7.8
	Leverage	13.5
UAE	Cash flow	12.4
	Leverage	5.8
Selected OPEC	Cash flow	9.4
	Leverage	6.1

Source: Thompson Financial DataStream (2012)
*Non- Financial Listed companies are included.

Having taken into consideration the difference between the levels of
financial development of the related countries, it requires to investigate
the linkages between economic growth and financial constraints.
Considering the ratio of domestic credit plus stock market capitalization
to GDP, as an indicator of financial development, OPEC countries have
shown less developed financial markets 102%, compared to the world on
average 233%. However, within the selected OPEC countries Kuwait
followed by Qatar demonstrated to have the more developed financial
markets than the other two countries (See Table 3).

Table 3: The ratio of domestic credit plus stock market capitalization to
GDP in Selected OPEC countries and the world on average

Country	2007	2008	2009	2010	2011
Qatar	56	111	140	167	142
Kuwait	100	135	169	162	107
UAE	36	98	119	127	107
Saudi Arabia	59	92	137	78	55
Selected OPEC	62	109	141	133	102
The World in aggregate	230	186	221	255	233

Source: Word Development Indicator, Word Bank (2012)

There is no consensus of view on the linkage between company financing and the firm's growth. Are these two features related? And if so, what is the nature of the link that connects them? Investigating such issues constitutes the motivations of this paper.

3. Methodology and Data

In order to study the impact of financial development on the firm growth the following model represented by equation 1 is developed.

$$g_{it} = \beta_0 + \beta_1 g_{it-1} + \beta_2 \left(CF/A \right)_{it} + \beta_3 LE_{it} + \beta_4 Q_{it} + \beta_5 Age_{it} + \beta_6 CODB_{jt} + \beta_7 EG_{it} +$$
$$\sum_{j=1}^{3} \beta_{7+j} CSC_j + \sum_{k=1}^{2} \beta_{10+k} ISC_k + \gamma_i + \varepsilon_{it}$$

Eq.1

In Eq.1 the dependent variable is the firm growth (g_{it}) which is calculated as follows:

$$g_{it} = d \ln \left(A_{it} \right)$$

Eq.2

Referring to A_{it} as firms' total assets, this study utilizes the lagged values of the dependent variable g_{it-1} as a predetermined explanatory variable. (CF/A) as an indicator of internal finance is the ratio of cash flow over total asset. Leverage (LE) is the ratio of long-term debt to total asset. Tobin's Q has been a ratio of market capitalization to booking value of total equity. Age refers to firms' age. CODB as an indicator for business environments is an index of 10 factors. EG denotes the economic growth. CSC and ISC are country (Qatar, Saudi Arabia and UAE) and industry (primary, secondary, tertiary) dummies, respectively. γ refers to the firm's fixed effects, and ε is a random disturbance. There are two fundamental concerns regarding to Eq.1, which are fixed effects and possible endogeneity problem for obtaining consistent estimators. Regarding to the first problem, Arellano and Bond (1991) suggested removing fixed effects by transforming the model. This transformation can be done by means of taking the first difference or orthogonal deviation. The orthogonal deviation has an advantage in unbalanced panel because it can consider missing data and sample size as well. The generalized method of moments (GMM) is adopted to estimate Eq.1 which has been developed for a dynamic panel by (Holtz-Eakin, 1988; Arellano & Bond, 1991; Arellano & Bover 1995). This estimator would be controlling for unobserved firm-specific fixed effects and endogeneity.

The employed instruments depend on the assumption that has been made whether or not the variables are endogenous, exogenous or predetermined.

The structure of the employed dataset allows using panel data methodology for proposed research. Since the number of cross sections in the collected dataset is far higher than the number of time series observations, then the structure of panel will be so-called "small T, large N" (Arellano & Bond, 1991). Further, model specification has a linear functional form where the dependent variable (firms' growth) is explained by its own lag. Such modeling structure suggests the use of General Method of Moment (GMM) technique developed and extended by Holtz-Eakin (1988), Arellano and Bond (1991), Arellano and Bover (1995).The Arellano-Bover (1995)/Blundell-Bond (1998) estimator that is employed assumes uses of the first differences of instrumenting variables which is uncorrelated with the fixed effects. This is an important improvement of the original Arellano-Bond model since it allows the introduction of more instruments. Moreover, the methodology offers forward orthogonal deviations, as an alternative to differentiation. The advantage with forward orthogonal deviations is that it preserves sample size in our unbalanced sample which includes a gap. In this paper we employ the asymptotically more efficient two-step system GMM estimator augmented with a finite-sample correction to the two-step covariance matrix derived by Windmeijer (2005) in order to correct downward biased standard errors. The GMM-estimator should correct simultaneity bias coming from the endogeneity of variables and the presence of correlated firm-specific effects. GMM analysis enables us to control firm heterogeneity, and also to reduce collinearity between the variables that have been contemplated (Arellano & Bond 1991). Also, this technique would enable us to eradicate the biases which are potential in the estimates of results regarding correlation between the two of the unobservable individual effects and also the explanatory variables.

4. Results and Discussions

The estimated results for non-financial listed firms in the four OPEC members (Saudi Arabia, Kuwait, Qatar, UAE) over the period of 2000-2011 are shown in table 4. Column 1 in Table 4 shows the impact of the independent variables including the lagged form of cash flow, Tobin's Q, leverage, cost of doing business, economic growth, age, dummy variables

indicating primary and secondary and tertiary industries, then dummy variables for countries on the firms' growth. It should be noted that in the first column, the interaction of explanatory variables with each of dummy variables are not included in the right hand side variables. Similar to column 1, in column 2, the impact of the right hand side variable on firm growth is investigated. However, in this column, the interactions of explanatory variables with industry dummy variables are included in the model while the country and industry dummy variables are not included in the model due to VIF results. Compared to column 2, in column 3, the interaction of explanatory variables with country dummy variables is included in the model while the interaction of variables with industry dummy variables is removed. In Column 4, the impact of the right hand side variables including the lagged dependent variables (Lagged firm growth), cash flow, Tobin's Q, leverage, cost of doing business, economic growth, age, the interaction of explanatory variables with country dummy variables, and the interaction of explanatory variables with industry dummy variables are entered into the model. Furthermore, by using VIF analysis, those interaction variables that caused collinearity problem are removed from the right hand side. Column 5 is the same as column 4 except that those non-significant interactions which are removed from the analysis step by step start from the most insignificant coefficient. It should be noted that the values of coefficients shown in Column 5 are used to interpret the results. The value of coefficient in Column 4 is not for interpretation of result but it is used as a step to choose the right hand side variables that should be used in Column 5. Further, one should look at the value of coefficients in column 1 through 3 to check for the robustness of results in Column 5.Considering column 5 of Table 4, the result shows that the lagged dependent variable is significant in all models which justify the use of dynamic model. Moreover, the significant coefficient of LDV in Columns 1 to 3 also shows that the result is robust regardless of the inclusion of new information, namely interactive variables.

Consistent with the theory, the coefficient of LDV is positive (0.069), indicating that the firm growth of the last year is stimulus to growth in the current year. Cash flow to total asset is also significantly positive with the value of 1.279 which indicates the influences of internal finance. Particularly, increase in cash flow as it is expected increases the firm growth in all columns. Additionally, its interaction with UAE (-0.521), Saudi Arabia (-0.573), and Qatar (-0.630) is also significant which

indicates the country-specific heterogeneities regarding internal financing. Leverage as an external source of financing from debt markets is significant and negative in all scenarios demonstrating the robustness of the results with the value of -0.154 in Column 5. Its interaction with UAE (0.120), Saudi Arabia (0.156), and Qatar (0.168) is also significant which indicates the country-specific heterogeneities regarding external financing from debt market. Thus, higher leverage has different influences on countries as UAE suffers but Saudi Arabia and Qatar benefit. The findings are consistent with previous studies as they have found that leverage could have a positive (Demirguc-Kunt and Maksimovic (1998), Beck, Demirguc-Kunt and Maksimovic (2005) Aghion, Fally and Scarpetta (2007)) or negative impact (lang et al (1996), Aivazian et al. (2005), Firth et al. (2008). The coefficient of "the market cap over installation cost" also known as Tobins` Q requires more attention. While Tobins` Q is significantly positive in the base model, it is insignificant in Column 5 after including interactions. Particularly, its interaction with Qatar (0.037) and secondary industry (0.011) is significant, which highlights country- and industry-level heterogeneities. In general, the findings highlighted the significant impact of financing on firms' growth, though the influence varies across countries. Firms in Qatar can benefit from all sources of financing, while UAE and Saudi Arabia could only benefit from internal financing.

Cost of doing business as an environmental variable is not significant at 10 percent in the base model, but it is significant at 1 percent in the final model (-0.001) after including a dummy interactive variable for Qatar (-0.004) which is also significant at 1 percent. As expected, the coefficient of CODB is negative which indicates reducing cost of doing business; hence improving business environments increases firms' total asset growth (Beck 2006). Age is not significant in either base model or final one (Gelancey, 1998; Davidsson, 2002), but its interaction with Qatar (-0.002) is significant at 1 percent. Therefore, older firms generally do not significantly suffer from lower growth; however, they would be exposed to lower growth in Qatar which might be due to better business environments and access to various sources of financing. As another country-specific variable, economic growth (0.003) is significant at 1 percent without any interactions in the final model. It indicates that better economic and country-specific conditions lead to firms' higher growth in all the selected countries of the sample. The diagnostic tests indicate that

the estimated model is valid. Particularly, 151 instruments have dealt with endogeneity problem as Hansen test is 0.406 and AR (2) is 0.825. Moreover, the number of groups (216) outnumbers instruments.

Table 4: The Determinants of Firms' Asset Growth: System GMM Results

	1 (Base)	2 (Industry)	3 (Country)	4 (Final-VIF)	5 (Final-VIF-Step)
Firm's growth$_{i,t-1}$	0.067*** (0.025)	0.070*** (0.025)	0.052** (0.025)	0.061** (0.026)	0.069*** (0.025)
$Cash\ flow/\ total\ asset_{i,t}$	1.216*** (0.083)	1.334*** (0.120)	1.303*** (0.113)	1.286*** (0.138)	1.279*** (0.107)
Tobins`Q$_{i,t}$	0.012*** (0.004)	0.013 (0.009)	0.011** (0.005)	0.012 (0.009)	0.005 (0.005)
Leverage$_{i,t}$	-0.195*** (0.057)	-0.198*** (0.071)	-0.161*** (0.057)	-0.141** (0.065)	-0.154*** (0.052)
Cost of Doing Business$_{i,t}$	-0.001 (4.226x10^{-04})	9.930x10^{-05} (2.629x10^{-04})	-0.001*** (3.742x10^{-04})	-0.001 (4.061x10^{-04})	-0.001*** (3.304x10^{-04})
Economic Growth$_{i,t}$	0.003*** (0.001)	0.003*** (0.001)	0.003*** (0.001)	0.004*** (0.001)	0.003*** (0.001)
$Age_{i,t}$	-2.294x10^{-04} (3.694x10^{-04})	-2.312x10^{-04} (0.001)	-2.388x10^{-04} (4.540x10^{-04})	-3.252x10^{-04} (0.001)	-2.175x10^{-04} (3.401x10^{-04})
IND1: Dummy Variable for Primary industries	-0.015 (0.014)	-	-	-	-
IND2: Dummy Variable for Secondary industries	0.032*** (0.012)	-	-	-	-
UAE	0.045** (0.022)	-	-	-	-
Saudi Arabia	0.052 (0.032)	-	-	-	-
Qatar	0.019 (0.023)	-	-	-	-
$Cash\ flow/\ total\ asset_{i,t} * UAE$	-	-	-0.504** (0.230)	-0.301 (0.236)	-0.521** (0.259)
$Cash\ flow/\ total\ asset_{i,t} * Saudi\ Arabia$	-	-	-0.633*** (0.136)	-0.453*** (0.158)	-0.573*** (0.145)
$Cash\ flow/\ total\ asset_{i,t} * Qatar$	-	-	-0.628*** (0.220)	-0.584** (0.267)	-0.630*** (0.213)
$Cash\ flow/\ total\ asset_{i,t} * IND1$	-	-0.404*** (0.155)		-0.108 (0.185)	
$Cash\ flow/\ total\ asset_{i,t} * IND2$	-	-0.475*** (0.164)		-0.190 (0.168)	
Tobins`Q$_{i,t} * UAE$	-	-	-0.003 (0.006)	-0.008 (0.006)	-
Tobins`Q$_{i,t} * Saudi\ Arabia$	-	-	-	-	-
Tobins`Q$_{i,t} * Qatar$	-	-	0.040*** (0.010)	0.031 (0.019)	0.037*** (0.011)
Tobins`Q$_{i,t_{i,t}} * IND1$	-	-0.008 (0.011)		-0.008 (0.010)	-
Tobins`Q$_{i,t} * IND2$	-	0.003 (0.010)		0.005 (0.009)	0.011*** (0.004)
Leverage$_{i,t} * UAE$	-	-	0.166** (0.080)	0.145** (0.076)	0.120*** (0.042)
Leverage$_{i,t} * Saudi\ Arabia$	-	-	0.171*** (0.064)	0.179*** (0.063)	0.156*** (0.060)

Leverage$_{i,t}$ * Qatar	-	-	0.152*** (0.053)	0.150* (0.080)	0.168*** (0.051)
Leverage$_{i,t}$ * IND1	-	0.170*** (0.066)	-	0.002 (0.062)	-
Leverage$_{i,t}$ * IND2	-	0.094 (0.064)	-	-0.004 (0.057)	-
Cost of Doing Business$_{i,t}$ * UAE	-		-1.879x10^{-04} (0.001)	2.233x10^{-04} (0.001)	-
Cost of Doing Business$_{i,t}$ * Saudi Arabia	-	-	-	-	-
Cost of Doing Business$_{i,t}$ * Qatar	-	-	-0.004*** (0.001)	-0.003** (0.002)	-0.004*** (0.001)
Cost of Doing Business$_{i,t}$ * IND1	-	-0.001 (3.996x10^{-04})	-	-4.905x10^{-04} (4.134x10^{-04})	-
Cost of Doing Business$_{i,t}$ * IND2	-	-1.140x10^{-04} (3.545x10^{-04})	-	-1.500x10^{-04} (3.828x10^{-04})	-
Economic Growth*UAE	-	-	-0.006*** (0.002)	-0.006*** (0.002)	-
Economic Growth* Saudi Arabia	-	-	-0.003 (0.002)	-0.002 (0.002)	-
Economic Growth* Qatar	-	-	-	-	-
Economic Growth*IND1	-	-0.003 (0.002)	-	-0.002 (0.002)	-
Economic Growth* IND2	-	0.001 (0.002)	-	3.657x10^{-04} (0.002)	-
Age*UAE	-	-	3.126x10^{-04} (0.001)	1.490x10^{-05} (0.001)	-
Age*Saudi Arabia	-	-	4.759x10^{-04} (0.001)	-2.010x10^{-04} (0.001)	-
Age*Qatar	-	-	-0.002*** (0.001)	-0.002*** (0.001)	-0.002*** (0.001)
Age*IND1	-	-0.001 (0.001)	-	0.001 (0.001)	-
Age*IND2	-	-4.466x10^{-04} (0.001)	-	2.766x10^{-04} (0.001)	-
UAE*IND1	-	-	-	-	-
Saudi Arabia*IND1	-	-	-	-	-
Qatar*IND1	-	-	-	-	-
UAE*IND2	-	-	-	-	-
Saudi Arabia*IND2	-	-	-	-	-
Qatar*IND2	-	-	-	-	-
Constant	0.101*** (0.028)	0.096*** (0.025)	0.096*** (0.026)	0.081*** (0.024)	0.094*** (0.024)
Number of Instruments:	146	153	156	168	151
Number of Groups:	216	216	216	216	216
AR(1)	0.000	0.000	0.000	0.000	0.000
AR (2)	0.936	0.988	0.985	0.851	0.825
Hansen test	0.512	0.591	0.342	0.325	0.406

* Significance at the 10% level.
** Significance at the 5% level.
*** Significance at the 1% level.

7. Conclusion and Policy Implications

The importance of finance on economic growth has been extensively pointed out by various researchers using macro level study. In general, findings have supported the finance-led growth hypothesis in which more finance is associated with more growth in the long run. However, little attention has been given to investigating the role of finance at firm level, particularly the role of internal and external finance upon firm's growth for the case of Organization of Petroleum Exporting Countries (OPEC). Thus, this paper contributes to the empirical debates on the literature of finance-growth nexus by analyzing the impact of finance on firms' growth in OPEC members, using a comprehensive and robust model which considers various business environments and possible sources of heterogeneities. The justifications for the selection of firms in the selected OPEC members (Saudi Arabia, United Arab Emirates, Kuwait and Qatar) can be explained with three reasons as follow; high GDP per capita relative to world, low financial development and a highly dependent economy on oil revenue. In fact, these countries are fast-growing with high GDP per capita and still have great potentials in boosting firms' growth and stock markets, in which they can attract financial resources and investors, and subsequently can improve the level of financial development. Therefore, the aim of this paper has three aspects. First, this study examines the impact of financial variables such as cash flow, leverage and stock market on firm's growth. Second, this study assesses the impact of business environments on firm growth. Third, this study explores the heterogeneity effects of country and industry specific variables on the firm growth in the selected OPEC members (Qatar, Saudi Arabia, Kuwait, and United Arab Emirate) during 2000-2011. The baseline model of the determinants of the firm growth has been estimated using General Method of Moment (GMM) method. Several interesting findings are emerged from this study:

i) Our finding suggests that internal finance (such as cash flow) positively affects the firm growth, implying that for the financially constrained firms the ability to generate high cash flow streams may play a significant role in financing their spectacular growth rates. Since cash flow ratio increases the firm growth, policies which enhance the firms' cash flow could lead to firm growth. High cash flow would result from Just-In-Time (JIT) manufacturing, less dividend payment, considering the higher depreciation rate, buying the inputs by credit while pre-selling the

outputs, decreasing the amount of receivables, and other methods of managing our financial resources.

ii) The coefficient of Tobin's Q is significant when this variable interacts with secondary industry dummy as well as when is it interacts with the dummy variable for Qatar. In other words, in secondary industries and/ or in Qatar, firms characterized by high market capitalization to installation cost display high growth, suggesting that developing stock market (such as easing the process of foreign portfolio investment, promoting the new means of finance, decreasing transaction costs in capital market, decreasing interest rate, and empowering the financial institutions and so forth) may be key in explaining how firms are enabled to grow in secondary industries of all countries and in all industries in Qatar. Firms are also suggested to raise equity capital by issuing new shares because financing through stock market exposes firms to higher growth.

iii) The coefficient associated with the leverage variable (long-term debt to total asset) is negative and precisely determined for all scenarios indicating that firms characterized by high leverage ratio display low growth. However, its interaction with countries is positive and significant indicating that only UAE suffers from this source of financing. Therefore, a proper tax must be imposed on the financial cost.

iv) The impact of cost of doing business on firm growth is significantly negative. Such finding suggests that easing the regulatory environment enhances the degree of competitiveness among the firms in a given industry, and thus increases the firm growth. Therefore, regulators and policy makers in both government and parliament can help firms by reducing the cost of doing business.

v) Moreover, the coefficient of economic growth has always a positive coefficient, which is statistically significant for all firms suggesting that policies which stimulate the overall demand in economy encourage the growth of firms.

vi) The significant interactive variables imply heterogeneities across countries and industries. For example, the variable of age is insignificant, but its interaction with the country dummy is significant. To give another example, the coefficient of Tobin's Q is significant only when this

variable interacts with secondary industry dummy as well as when is it interacts with the dummy variable for Qatar. Such results indicate that in order to promote the firm growth in OPEC members one should consider the heterogeneity impact of similar policies. Furthermore, a model excluding the interactive variable would disregard any relationship between variables of interest and firm's growth, while it is an inaccurate conclusion. Future studies might dismantle the total asset into fixed and non-fixed assets as indicators of firms' growth in order to find out the impact of leverage on each of them. This is because the leverage might have a different impact on fixed and non-fixed assets. Further, the future studies are warranted to break down the cost of doing business indicator and estimate the impact of those indicators on firms' growth.

References

Aghion, P., Fally, T. and Scarpetta. 2007. "Credit constraints as a barrier to the entry and post-entry growth of firms." *Economic Policy* no. 52 (22):731-79.

Ahn, S., et al. (2006). "Leverage and investment in diversified firms." Journal of Financial Economics 79(2): 317-337.

Aivazian, V. A., et al. (2005). "The impact of leverage on firm investment: Canadian evidence." Journal of corporate finance 11(1): 277-291.

Arellano, Manuel, and Stephen Bond. 1991. "Some Tests of Specification for Panel Data: MonteCarlo Evidence and an Application to Employment Equations." *The Review of Economic Studies* no. 58 (2):277-297. doi: 10.2307/2297968.

Arellano, Manuel, and Olympia Bover. 1995. "Another look at the instrumental variable estimation of error-components models." *Journal of Econometrics* no. 68 (1):29-51. doi: http://dx.doi.org/10.1016/0304-4076(94)01642-D.

Beck, T., Demirguc-Kunt, A. and Maksimovic, V. 2005a. "Financial and legal constraints to firm growth: Does firm size matter?" *Journal of Finance* no. 1:137-77.

Beck, T., Demirguc-Kunt, A. and Maksimovic, V. 2006. "The determinants of Financial Obstacles." *journal of International Money and Finance* no. 25:932-952.

Beck, T., Demirguc-Kunt, A., Laeven, L. and Levine, R. 2005b. "Finance,firm size, and growth." *Policy Research Working Paper Series 3485 The World Bank.*

Blundell, Richard, and Stephen Bond. 1998. "Initial conditions and moment restrictions in dynamic panel data models." *Journal of Econometrics* no. 87 (1):115-143. doi: http://dx.doi.org/10.1016/S0304-4076(98)00009-8.

Brito, Paulo, and António S. Mello. 1995. "Financial constraints and firm post-entry performance." *International Journal of Industrial Organization* no. 13 (4):543-565. doi: http://dx.doi.org/10.1016/0167-7187(95)00504-8.

Carpenter, Robert and Petersen, Bruce. 2002. "Is the growth of small firms constrained by internal finance?" *Review of Economics and Statistics* no. 2 (84):298-309.

Chen.K, Babb, EM and Schrader, L.F. . 1985. "Growth of Large cooperative and propretary firm in US food sectore." *Agribusiness* no. 2 (1):201-210.

Davidsson.P, Kirchhoff.B, Hatemi.J, Gustavsson.H. 2002. "Emperical Analysis of business Growth Factores Using Swedish Data " *Journal of Small Business Managment* no. 40 (4):332-349.

Davis, StevenJ, John Haltiwanger, and Scott Schuh. 1996. "Small business and job creation: Dissecting the myth and reassessing the facts." *Small Business Economics* no. 8 (4):297-315. doi: 10.1007/BF00393278.

Demirguc-Kunt, A., Maksimovic, V.,. 1998. "Law, Finance, and Firm Growth." *Journal of Finance* no. 6 (53):2107-2137.

Evans, David S. 1987a. "Tests of Alternative Theories of Firm Growth." *Journal of Political Economy* no. 4 (95):657-674.

Evans, David S. 1987b. "The Relationship Between Firm Growth, Size, and Age: Estimates for 100 Manufacturing Industries." *The Journal of Industrial Economics* no. 35 (4):567-581. doi: 10.2307/2098588.

Fulton.M, Fulton.J, Clark.S, Parliament.C,. 1995. "Cooperative Growth: Is It Constrained? ." *Agribusiness* no. 3 (11):245-261.

Gelancey.K. 1998. "Determinants of growth and profitability in small entrepreneurial firms." *International Journal of Entrepreurial Behaviour & Research* no. 4 (1):18-27.

Goldsmith, R.W. 1969. "Financial Structure and Development." *Yale University Press, New Haven and London*.

Guariglia, Alessandra, Xiaoxuan Liu, and Lina Song. 2011. "Internal finance and growth: Microeconometric evidence on Chinese firms." *Journal of Development Economics* no. 96 (1):79-94. doi: http://dx.doi.org/ 10.1016/ j.jdeveco.2010.07.003.

Gurley, J.G., Shaw, E.S. 1973. "Financial aspects of economic development. ." *The American Economic Review* no. 4 (45):515-538.

Hicks, J 1969. "A Theory of Economic History." *Oxford: Clarendon Press*.

Jensen, M.C and Meckling, W.H. 1976. "Theory of the firm: Managerial behavior, agency costs, and ownership structure." *Journal of Financial Economics* no. 3:305-360.

Jensen, M. C. 1986. "Agency Cost of Free Cash Flow, Corporate Finance, and Takeovers. ." The American Economic Review, no. 76: 323-329.

JOHNSON, J. G. Y. (2010). The role of financial development in total factor productivity: Evidence from listed firms in China, Oklahoma State University.

Kumar, M.S. 1985. "Growth, acquisition activity and firm size: evidence from the United Kingdom." *Journal of Industrial Economic* no. 3 (33):327-338.

Lang, L., Ofek, E. and Stulz, R. M. 1996. "Leverage, Investment, and Firm Growth." Journal of Financial Economics no. 40:3-29.

Lakonishok, J., Shleifer, A. & Vishny, R. W. 1993"Contrarian Investment, Extrapolation, And Risk." *Nber Working Paper Series. Cambridge: National Bureau Of Economic Research.*

Lau.CM, Tse. DK, Zhou N. 2002. "Institutional forces and organizational culture in china: effect on change schemas, firm commmitment and jop satisfaction " *J Int Bus Stud* no. 3 (33):533-550.

McKinnon, R.I. 1973. "Money and Capital in Economic Development." *Brookings Institution, Washington*.

McConnell, J. J. and Servaes, H. 1995. "Equity Ownership and the Two Faces of Debt." Journal of Financial Economics no. 3: 131-157.

Oliveira, B. and Fortunato.A 2006. "Firm growth and liquidity constraints: a dynamic analysis." *small Business Economics* no. 2 (27):139-156.

Rahaman, Mohammad M. 2011. "Access to financing and firm growth." *Journal of Banking & Finance* no. 35 (3):709-723. doi: http://dx.doi.org/10.1016/ j.jbankfin.2010.09.005.

Rajan, R., Zingales, L. 1998. "Finance Dependence and Growth." *American Economic Review* no. 3 (88):559-586.

Robinson. J, and Bennett.R. 2000. "SME growth: The relationship with business advice and external collaboration " *Small Business Economics* no. 15 (15):193-208.

Schiffer.M, and Weder.B. 2001. "Firm Size and the Business Enviroment: Wordwide Survey Result." *International Finance corporation*.

Schumpete. 1911. "The Theory of Economic Development; an Inquiry into Profits,
Capital, Credit, Interest, and the Business Cycle, Translated by Opie." *R. Harvard University Press, Cambridge, p.*

Stulz, R. M. 1990. " Managerial Discretion and Optimal Financing Policies." *Journal of Financial Economics* no. 26:3-27.

Wagner.J. 1992. "Firm Size, Firm Growth, and Persistence of Chance: Testing Gibrat`s Law with Establishment Data from Lower Saxony, 1978-1989." *Journal of Small Business Economics* 125-131.

Windmeijer, Frank. 2005. "A finite sample correction for the variance of linear efficient two-step GMM estimators." *Journal of Econometrics* no. 126 (1):25-51. doi: http://dx.doi.org/10.1016/j.jeconom.2004.02.005.

Appendix A:

Firm's Growth (g_{it}): Total asset is used to measure firms' growth calculated as: $g_{it} = \Delta\big(\ln(A_t)\big)$ where A refers to total asset. This measured is used in the study of Rahaman (2011). Moreover, following Rahaman (2011) this study uses the lagged value of dependent variable (g_{it-1}) as a predetermined explanatory variable.

Cash Flow ratio (CF/A): The ratio of cash flow (net income plus depreciation) over total asset (the sum of the firm's fixed and current assets, where fixed assets include tangible fixed assets, intangible fixed assets, and other fixed assets; and current assets include inventories, accounts receivable, and other current assets). The ratio of cash flow over total asset is represented as an indicator of Internal Finance

Leverage (TL/A): Financial leverage (LE) which is an indicator of external finance is the ratio of total liability (TL) over total asset (A). Total liabilities is defined as the sum of current liabilities and non-current liabilities, where current liabilities include bank loans, accounts payable, and other current liabilities; and non-current liabilities include long-term debt and other non-current liabilities.

Tobin's Q: Tobin's Q as an indicator of external finance is measured as the ratio of market capitalization to book the value of total equity.

Age: The number of years since the company has initiated his business activity.

Cost of Doing Business: Cost of Doing Business (CODB) is an indicator of ease of doing business which ranks economies from 1 to 185, with the first place being the best. The index averages the countries percentile ranking over 10 topics covered I the World Bank's Doing Business. The ranking on each topic is the simple average of the percentile rankings on its component indicators.