

## Financial Development, Economic Growth and Investment Efficiency In election among countries member of OIC (1980- 2008)

<sup>1</sup>Shahryar Zaroki, <sup>3</sup>Hamidreza Alipour and <sup>2</sup>Masoumeh Moshtaghi

<sup>1,2</sup>Department of Economic Sciences, Islamic Azad University, Qaemshahr Branch Iran

<sup>3</sup>Assistant Professor, Islamic Azad University, Rasht Branch, Iran

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**Abstract:** In this research, the effect of financial development on economic growth and investment efficiency for election among countries that are members of organization of Islamic conference such as Iran is examined. The method of research is based on panel data econometrical during the period of 1980- 2008 and by applying eight criterions of financial development in three groups of patterns, the effect of financial development and government size, human capital, the inflation and economic growth and investment efficiency are estimated. The financial development effect is estimated in the first pattern, that the results show negative effect and significant effect of financial development on economic growth. Also the government size and inflation has negative effects, and the human capital, investment and openness has positive effect on growth. In the second pattern, the results show that by internring the interaction effect of investment rate and financial development, the interaction term has negative and also insignificant effect on economic growth. In the last section, in order to cover the third goal, three efficiency criterion (as the dependent variable) has been used, that two first criterions are the estimating criterions and the third criterion is the average product of capital. The results of pattern estimating through using the first criterion show that the financial development does not have significant effect on investment efficiency, but by considering the third criterion, the results show that, all the financial development criterions has significant and positive effect on investment efficiency. Also the government size and inflation and openness have negative effect on investment efficiency.

**Key word:** financial development, economic growth, investment efficiency, OIC, Panel data.

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### INTRODUCTION

The economic growth has been one of the economist's disturbances during the recent decades. The first economic growth theories which were presented by Harood(1939) and Domar(1946), simply shows that how saving can determines the economic growth rate and since saving is one of the main resources for investment finance in economy, this pattern emphasizes on the investment role in economic growth.

From the middle of 1950 decade to end of 1960's one the most important topics of discussion for economists, has been the economic growth. From the end of 1980's the introducing of new theory about endogenous growth by Romer(1988) and its application by other economists such as Lucas (1988), Levin and Renelt (1992), Alesina and Perotti in 1990,s in which the emphasize is on some determining factors in growth such as research and development, technological improvement, human capital and even the diseconomy factors, leads to the fact that once again the economic growth topic, was considered as one of the most important topics of discussion for economists.

It has to be mentioned that, before the neoclassical growth theory, Bagehot (1873) for the first time express the role of financial institution on economic growth in 1873. Then Schumpeter considered the role of financial intermediates in the centre of economic development.

According to the finance-led growth hypothesis, financial development affects investment in two ways. Firstly, a better developed financial sector may raise the investment rate by pooling and risk sharing. This is the so-called volume channel. Secondly, the efficiency channel hypothesis states that financial development may increase the efficiency of investment by directing the funds to the most productive uses

Some analyzers such as McKinnon (1973), Shaw (1973), King and Levine (1993), Levin and Zervose (1996), believe that, the financial development can increase the economic growth.

In such view it is considered that, financial development is the main engine of economic growth and the policy makers should pay attention to establish and promote financial institutions for real improvement in

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**Corresponding Author:** Shahryar Zaroki, Department of Economic Sciences, Islamic Azad University, Qaemshahr Branch Iran

E-mail: Drbehdad\_66@yahoo.com

economy. In this group, some economists such as Hicks and Schumpeter also emphasize on financial market development.

As a whole, we can find out the connection between financial development and economic growth is one of the significant topics in economy and many studies have been allocated to this topic (not only in terms of theory but also experimental) with different aspects.

All the developing countries in the world have effective investment, hoping to achieve better standards of life annually. According to world bank data, the developing countries allocated almost 6% and 4.6% of GNP for research and development and education, and almost 22% of GNP for investment. So, we can find out that the developing countries selected growth strategy caused by investment, and this strategy is in the same direction as those that international organization such as world trade organization (WTO) and Asia Development Bank have introduced as a vital part of economic growth.

The purpose of this research is that, by entering the interaction between financial development index and investment, it is examined whether investment in financial section can be an effective factor for specifying the production growth?

This hypothesis, that financial development has positive effect on investment rate was presented by King Levine for the first time.

One of the other purposes in this research is studying whether financial development has positive effect on investment efficiency or not?

### **2- the Background of Research:**

- Murend and Eng (1994) also have done some researches related to the relation between financial development and economic growth. They have collected information from the examinations by using unit root test and cointegration in its own model framework, and they used the seasonal data from Singapore during 1979 to 1990 that results refers to causality of financial development to economic growth.

- One of the researches which are based on panel's data is the Ram1999 study for some developed and developing countries, in which the bank section index has been used as financial development index. He understood that in some countries, the bank section development and economic growth are related to each other and in some other countries, there is not any relation.

- The Rousseau and Vuthi Padadom (2005) study increased for Asian countries during 1950 to 2000. The result shows that, financial development is the main factor in increasing investment and the effect of financial development on production is weak.

Habibullah and Eng (2006) examined the relation between financial developing countries of Asian developing countries during 1990-1998, by applying panel data and generalization of entropies method. Based on this study, the results show that, the financial development leads to increase the economic growth.

- Suleiman and Amer (2007) examined the relation between financial development and economic growth in Egypt, by using self regression during 1960 to 2001. The results gained through this study show that, there is a bilateral relation between financial development and economic growth in Egypt. They also proved that, financial development through increasing the resources for investment and increasing investment efficiency leads to economic growth in this country.

### **3- Methods of Collecting Data and Elements:**

The Favorable patterns of covering the three purposes are: first; studying the financial development effect on economic growth, second; studying the effect of financial development on investment and economic growth. Third; the effect of financial development on investment efficiency are presented in parts 3-1 and 3-2, 3-3.

In all the patterns eight criterion of financial development has been used which are the money resources ratio or Bank liquid reserve to bank assets (BLRBA), The domestic credit provided by banking sector (DCPB), The domestic credit to private sector, The Quasi money 5- The Quasi-liquid liabilities (QLL), The deposit money bank asset (DMBA), The liquid liabilities (LL), The private credit by deposit money bank (PCDMB). Also, based on the existing data in period time 1980 to 2008, 19 members of Islamic conference organization are studied, that they include five Asian countries (Indonesia, Iran, Pakistan, Turkey and Malaysia) eight African countries (Uganda, Togo, Senegal, Cameroon, Gabon, Gambia, Mauritania, Nigeria) and six Arabic countries (Jordan, Algeria, Syria, Saudi Arabia, Maraca, Egypt).

#### **3-1- The First Pattern:**

In this part, this equation is presented to study the effect of financial development on economic growth:

$$g_{it} = \alpha_i + \beta(FD)_{it} + \gamma(Controls)_{it} + \varepsilon_{it} \quad (1)$$

$$i=1... 28 \quad t=1... 19$$

i and t represent the country and year. g is growth rate of real gross domestic product per capita, FD is the financial development index and controls are control variables . If  $\beta$  comes out positive and significant, it will provide support for the finance-led growth hypothesis in a sense that the degree of financial development is positively associated with the rate of economic growth.

### **3-2- Second Pattern:**

In order to examine the effect of investment beside financial development and their transition effect on economic growth, the below pattern is presented.

$$g_i = \alpha_i + \beta_1 I_{it} + \beta_2 FD_{it} + \beta_3 (I \times FD)_{it} + \gamma(controls)_{it} + \varepsilon_{it} \quad (2)$$

$$i=1... 28 \quad t=1... 19$$

g is the growth rate of output per capita in real terms.  $\alpha$  is a country dummy that capture the country-specific effects. Investment rate (I) is the log of the value of the share of gross fixed capital formation in GDP. Similarly, the log of the financial development indicator (FD) is used to represent the degree of financial development. It should be mentioned that, the control variables are almost the same as first pattern explained before.

### **3-3- Third Pattern:**

Investment leads to improvement in production growth in two ways. First, the increase in investment can leads to more capital and it is possible to produce more products. It obvious that, this change is possible through capital capacity, due to sharing of descending output law cannot support a constant production growth rate. However, investment produces or creates external positive effects.

Accumulation of capital makes it possible that the workers have opportunity for education by the time working, and this leads to increase the efficiency in production process. In other words, when the investment rate increases, the education during work rate also increases for people and this is the second way of effecting investment on long time growth. Investment increases the whole efficiency in production process. So, any change in economic environment which decrease the speed of external effects of investment (second channel) and prevent investment from reaching to its best possible application (first channel), leads to decrease in capital benefiting.

The literature typically defines (aggregate) investment efficiency as a ratio of the output to the capital stock — or some minor variation of this ratio. The most commonly used measure is the so-called incremental capital output ratio, generally known as ICOR, which looks at the units of capital needed to increase the output level by one unit. It is essentially the inverse of the marginal product of capital. For instance, Jun (2003) uses this measure to analyze the investment-growth nexus between 1978 and 2000 for China. Odedokun (1996) adapts a slightly different version of this ratio and uses a change in output divided by a change in capital stock to examine the effects of development banking activities on resource allocation in less developed countries.

This ratio can be modified to reflect the belief of the researcher about what the capital accumulation is thought to achieve. For example, Toh et al (2002) replace the aggregate output measure with estimated total factor productivity to examine whether the capital is efficiently utilized in Singapore compared to other Asian countries.

In order to investigate whether investment is an effective tool for promoting growth and whether it seems failure to affect growth can be attributed to other macroeconomic variables.

A direct testable implication of this is that when investment rate rises by a certain percentage point, there will be a corresponding change in the growth rate of the economy. However, whether the aggregate investment is efficient in achieving this goal depends, to a large degree, on the macroeconomic environment. Thus, as this macroeconomic environment changes over time and across countries, a given unit of investment will produce dissimilar result in terms of output growth. Given that the efforts of developing countries to achieve a higher standard of living by focusing on investment have been, thus far, unsuccessful, and that this failure may be attributed to the inefficient manner in which the funds were allocated, identifying those elements of the macroeconomic environment that affect the efficiency of investment has important policy implications.

To this end, we estimate the following:

$$\frac{\Delta y_{it}}{\Delta y_{it-1}} = \alpha_i + \beta_{it} \ln \left( \frac{I_{it}}{I_{it-1}} \right) + \varepsilon_{it} \quad (3)$$

Where  $y$  is the output and  $I$  is the investment rate.  $\alpha_i$  is a dummy variable that captures country-specific unobserved effect.  $\beta_i$  is an elasticity. It measures the extent of the change in growth rates in response to a change in investment rate in country  $i$ . If investment is made efficiently over time, perhaps due to the presence of a better developed financial sector, a rise in investment rate of a given unit will result in a bigger change in the growth rate of the economy.

A possible objection to this interpretation is that a lower value of  $\beta$  may represent not inefficient investment but the possibility that agents are looking at a longer horizon than the next year. To incorporate this possibility,  $\beta_i$  is estimated for 10-year horizon in this paper. Therefore, one can think of  $\beta_i$  as a long-run trend relationship between investment rate and output growth rate. This is an advantage over the conventional measure of the investment efficiency that is measured on a yearly basis and, thus, does not reflect the possible long-run horizon investment decisions.

Before we proceed, a warning is in order. The  $\beta_i$  in this study should not be interpreted strictly as measuring the causal effect of investment on output growth. Rather, given the evidence that investment that is adjusted for its allocative quality is a significant determinant of output growth, the emphasis is on providing an explanation as to why the output growth seems to respond to investment better in some countries than in others. In addition to this measure, I also use the ratio of the real GDP to the capital stock.

This is essentially the approximation of the marginal product of capital assuming that the income shares of the factors of production are constant. The advantage of this measure over the marginal product of capital as a measure of investment efficiency is that it does not require any functional assumptions. In this study, this more conventional measure is used for comparability and completeness.

By controlling the macroeconomic environment with these variables, in the next section, it will be tasted whether the financial development indexes interfere effectively in specifying investment efficiency or not?

In order to examine this hypothesis that whether financial development affects on investment efficiency, the below equation is estimated:

$$InvestmentEfficiency_{it} = \alpha_i + \gamma (FD)_{it} + Z (Controls)_{it} + \varepsilon_{it} \quad (4)$$

$\alpha$  is the special effect of the phase. As mentioned above, the investment efficiency is estimated by  $\beta$  and the capital production average which is the ratio of production to the existing capital  $Y/K$ , is measured. Inflation, the government size and openness are interred in to pattern as control variables, we have explained about their effects on investment efficiency below this part.

A high rate of Inflation has taken away the efficiency of investment and decrease the investor's motivation. The high rate of Inflation may leads to investment of economic factors in cash and ingenerated assets which causes in efficiency in allocating the resources.

An unstable monetary policy, as an allocator of cash for investment opportunities, can prevent the effective function of financial section. In addition to this case, by more interfering of government in private market activities, specifying more resources by motives or political motivations is led, and less than by maximizing of value. As a result, the saving investment decisions are made when; the government share is bigger in economic activities.

#### **4- Estimation and Discussion:**

##### **4-1- Estimating the First Pattern and Presenting the Results:**

In the first section by estimating the equation (1), the effect of financial development economic growth has been studied and the results are the same as all studies which have been done for developing countries, and they represent negative effect (average-0.04) and significant financial development on economic growth. This effect is also the same for all financial development indexes. In terms of control variables effect on economic growth, in most cases the results are the same as what theoretically expected, in such way that, the government size, inflation and dependent variable delay has negative effect and human capital, investment and openness has positive effect on growth. It should be mentioned that, being negative the dependent variable index indicates on convergence of economic growth in these countries of selected member of Islamic conference. The results represent in table (4-1).

**Table 4-1:** The results of estimating the financial development effect on economic growth variables

variables	The Financial Development Indexes (FD)							
	BLRBA	DCPB	DCPS	DMBA	M2	PG	QLL	LL
FD	-0.012	-0.032*	-0.035*	-0.036**	-0.067*	-0.02	-0.089*	-0.043*
Government size	-0.157*	-0.15*	-0.169*	-0.169*	-0.16*	-0.167*	-0.193*	-0.165*
Human capital	0.544*	0.491*	0.544*	0.589*	0.691*	0.548*	0.799*	0.641*
Inflation	-0.024**	-0.025**	-0.026**	-0.026**	-0.028**	-0.024**	-0.027**	-0.026**
Investment	0.145*	0.138*	0.157*	0.141*	0.145*	0.147*	0.119*	0.149*
Openness	0.021	0.025***	0.029**	0.026***	0.028**	0.024***	0.026***	0.027**
Lag of RGDPPC	-0.001*	-0.001*	-0.001*	-0.001*	-0.001*	-0.001*	-0.001*	-0.001*
R <sup>2</sup>	0.21	0.23	0.22	0.22	0.23	0.21	0.24	0.22
$\bar{R}^2$	0.18	0.19	0.18	0.18	0.20	0.018	0.20	0.19
F statistical	5.68	6.1	5.93	5.84	6.4	5.73	6.44	5.98
method	F.E	F.E	F.E	F.E	F.E	F.E	F.E	F.E
Number of country	19	19	19	19	19	19	19	19
Number of period	29	29	29	29	29	29	29	29

Note: The dependent variable is the growth rate of real gross domestic product per capita (Rgdppcg). The share of Government Expenditure in GDP. The Human capital equal with average educational years for people over 25 years old age, openness equal with amount of export and import to GDP and investment is equal with creating internal constant gross capital. Symbols \*, \*\* and \*\*\* show the significant estimated parameter in level of 1, 5 and 10 percent.

**4-2- Estimating the Second Pattern and Presenting Results:**

In this part, by interring the interaction effect of financial development variable and Investment rate of equation (3) for 19 countries selected as members of Islamic conference are estimated.

For every financial development indexes, two scenarios are created, and the difference between the two scenarios is the interaction effect variable. The results of tables 4-2 and 4-3 show that, in the First scenario six indexes of, BLRBA, DCPB, DCPS M2, Qll has negative effect and the two indexes of DMBA and PC have positive effect on economic growth. The control variables in this scenario are favorable for all eight positions and have a good and significant stage.

**Table 4-2:** estimated financial development effect results (four first indexes) on economic growth with attention to interaction term variables

variables	Financial Development Indexes (FD)							
	BLRBA		DCPB		DCPS		DMBA	
	Scen. 1	Scen. 2	Scen. 1	Scen. 2	Scen. 1	Scen. 2	Scen. 1	Scen. 2
FD	-0.014**	-0.064	-0.009**	-0.032	-0.003	-0.01	0.016**	0.093**
Investment Rate	2.51*	2.22*	2.41*	2.14*	2.58*	2.54*	2.77*	3.49*
Interaction term	....	0.017	....	0.007	....	0.002	....	-2.51
Government Size	-0.103*	-0.1*	-0.108*	-0.104*	-0.109*	-0.107*	-0.099*	-0.104*
Human capital	2.6*	2.55*	2.41*	2.45*	2.52*	2.54*	2.61*	2.53*
Inflation	-0.032*	-0.032*	-0.033*	-0.033*	-0.033*	-0.033*	-0.032*	-0.31*
Openness	-0.037*	0.036*	0.036*	0.035*	0.037*	0.037*	0.037*	0.038*
Lag of RGDPPC	-6.58*	-6.48*	-6.15*	-6.08*	-6.32*	-6.3*	-7.09*	-7.17*
R <sup>2</sup>	0.42	0.42	0.39	0.39	0.40	0.40	0.40	0.40
$\bar{R}^2$	0.39	0.39	0.36	0.36	0.37	0.37	0.37	0.37
F statistic	15.3	14.65	13.35	12.81	14.05	13.49	13.87	13.31
Method	F.E	F.E	F.E	F.E	F.E	F.E	F.E	F.E
Number of country	19	19	19	19	19	19	19	19
Number of period	29	29	29	29	29	29	29	29

Note: The dependent variable is the growth rate of real gross domestic product per capita (Rgdppcg). Investment Rate, Human capital and Lag of RGDPPC as logarithm inters the pattern. The interaction term is gained by multiplying Investment rate by financial development index. Symbols \*, \*\* and \*\*\* show the significant estimated parameter in level of 1, 5 and 10 percent.

From the first scenario to the second scenario by interring the interaction effect to pattern, in addition to lack of significant Variable (10 percent level), in all eight states, the size, symbol and significant indexes estimated of control Variables, they almost stay without change. But most of the financial development indexes changed their symbols and they are not significant even on 10 percent level.

**Table 3-4:** The estimated financial development effect results (Four second indexes) on economic growth with attention to interaction term other Financial Development Indexes (FD)

Variables	LL		M2		PC		QLL	
	Scen. 1	Scen. 2	Scen. 1	Scen. 2	Scen. 1	Scen. 2	Scen. 1	Scen. 2
FD	-0.013*	0.042	-0.048*	-0.031	0.081	0.071	-0.042*	0.001
Investment Rate	2.54*	3.24*	2.33*	2.61*	2.58*	2.97*	2.11*	2.48*
Interaction term	.....	-1.77	.....	-0.005	.....	-1.99	.....	-0.02
Government Size	-0.11*	-0.11*	-0.11*	-0.115*	-0.106*	-0.108*	-0.127*	-0.13*
Human capital	2.61*	2.55*	2.62*	2.61*	2.56*	2.46*	2.77*	2.75*
Inflation	-0.033*	-0.031*	-0.036*	-0.035*	-0.033*	-0.032*	-0.034*	-0.033*
Openness	0.037*	0.037*	0.037*	0.036*	0.037*	0.037*	0.037*	0.038*
Lag of RGDPPC	-6.03*	-6.21*	-4.98*	-5.08*	-6.71*	-6.7*	-5.38*	-5.49*
R <sup>2</sup>	0.42	0.42	0.43	0.43	0.39	0.39	0.39	0.40
$\bar{R}^2$	0.39	0.39	0.41	0.41	0.36	0.36	0.37	0.37
F statistic	14.92	14.35	16.11	15.45	13.58	13.07	13.66	13.19
Method of Estimate	F.E	F.E	F.E	F.E	F.E	F.E	F.E	F.E
Number of country	19	19	19	19	19	19	19	19
Number of period	29	29	29	29	29	29	29	29

Note: The dependent variable is the growth rate of real gross domestic product per capita (Rgdppcg). Investment Rate, Human capital and Lag of RGDPPC as logarithm enters the pattern. The interaction term is gained by multiplying Investment rate by financial development index. Symbols \*, \*\* and \*\*\* show the significant estimated parameter in level of 1, 5 and 10 percent.

**4-3- Estimating the Third Pattern and Presenting Results:**

In the final section, of this research, we studied the effect of financial development on Investment efficiency.

As it was expressed, three criterion of Investment efficiency are used  $\hat{\beta}_{GDP}$ ,  $\hat{\beta}_{IVA}$  and  $y/k$ . At first, we estimate the two criterion of  $\hat{\beta}_{GDP}$  and  $\hat{\beta}_{IVA}$  from equation (3), for all the countries separately in three period of time 1980-1989, 1990-1999 and 2000-2008 by using the least square or ordinary squares (OLS), (ordinary least square). That  $\hat{\beta}_i$  is estimation for every country with attention to every one of the periods in table (4-4), has been mentioned.

**Table 4-4:** The Investment efficiency criterion, with attention to dependent Variables of RGDPPC and RIVAPC

countries	1980-1989		1990-1999		2000-2008	
	$\hat{\beta}_{GDP}$	$\hat{\beta}_{IVA}$	$\hat{\beta}_{GDP}$	$\hat{\beta}_{IVA}$	$\hat{\beta}_{GDP}$	$\hat{\beta}_{IVA}$
Algeria	-33.2	-135.7	-13.25	-46.561	9.6	-7.82
Cameron	0.58	2.9	1.91	-2.87	4.186	8.07
Egypt	-8.71	24.28	4.468	18.16	5.314	13.44
Gabon	-3.96	-18.5	-14.121	-10.93	-19.24	-16.17
Gambia	174.46	7.3	174.46	7.29	2.413	18.26
Indonesia	-33/41	14.7	-11.62	-8.15	-7.97	7.916
Iran	-42.402	-11.6	9.12	-5.35	0.003	0.005
Jordan	-9.46	18.1	-4.029	28.06	-10.53	-38.461
Malaysia	4.27	7.2	4.479	5.96	7.188	10.937
Mauritania	8.81	-10.5	-28.51	-2.01	9.333	75.726
Maraca	-19.5	14.2	-4.34	-5.066	223.872	-25.98
Nigeria	-11.79	3.4	11.14	7.166	7.518	6.353
Pakistan	6.62	-16.5	-29.078	10.14	-6.493	-19.26
Saudi Arabia	-27.91	25.62	-10.34	11.57	62.4	4.671
Senegal	-5.97	11.52	103.89	14.55	6.309	-3.27
Syria	50.195	3.21	6.029	12.79	-15.87	3.258
Togo	-1.67	-48.66	-3.678	-0.686	39.91	-8.315
Turkey	-2	-0.00023	13.149	47.81	-0.7	2.251
Uganda	-7.59	3.368	-30.79	4.27	-5.08	-7.4

It has to be mentioned that, the two parameters of estimation  $\hat{\beta}_{GDP}$  and  $\hat{\beta}_{IVA}$  even in 10% percent level is not significant, for most of the countries. The low course duration (10 years) is one of the reasons.

By estimating the two above criterions and using the third investment efficiency criterion (the average product of capital), we have examined the effect of eight financial development indexes on this criterion separately. In such a way that, Variables such as the government size, Inflation and openness have been used as effective control Variables on investment efficiency to estimate the relation (4), and the results have been shown in tables 4-5-,4-6, and 4-7.

Considering  $\hat{\beta}_{GDP}$  as investment efficiency index, the table (4-5) results show that, six indexes have positive effect (average 0.27) and two indexes of financial development have negative effect (-0.15) on investment efficiency, and all the control Variables have almost negative effect on investment efficiency, which are not the same as what we expect.

Also, all the estimation parameters, even in 10% percent level are not significant, and the reason is that, the dependant Variable is not exact or the investment efficiency criterion (due to low course duration for estimating).

**Table 4-5:** estimating the effect of financial development on investment efficiency with attention to  $\hat{\beta}_{GDP}$  index

Variables	Financial Development Indexes (FD)							
	BLRBA	DCPB	DCPS	DMBA	LL	M2	PC	QLL
FD	0.174	0.165	-0.011	0.35	0.28	0.166	0.46	-0.28
Government Size	-0.11	-0.04	-0.05	-0.01	-0.12	-0.1	-0.06	-0.06
Inflation	-0.21	-0.20	-0.20	-0.11	-0.12	-0.18	-0.09	-0.17
Openness	-0.01	-0.09	-0.01	-0.079	-0.1	-0.09	-0.09	0.11
R <sup>2</sup>	0.009	0.02	0.006	0.05	0.04	0.01	0.07	0.02
F statistic	0.12	0.26	0.082	0.75	0.56	0.20	0.98	0.30
method	pooling	pooling	pooling	pooling	pooling	pooling	pooling	pooling
Number of countries	19	19	19	19	19	19	19	19
Number of period	6	6	6	6	6	6	6	6

Note: The dependent Variable is  $\hat{\beta}_{GDP}$ . None of the estimating parameters, even in 10% percent level are significant.

The relation (4) once again was estimated for  $\hat{\beta}_{IVA}$  as investment efficiency index and the results show that, in most of the cases, the financial development indexes have positive effect (almost average 0.17) and half of the others have negative effect (average -0.35) on investment efficiency.

Also, the government size and openness has positive effect (average -0.85 and 0.37) and Inflation has negative effect (-0.46) on investment efficiency.

It has to be mentioned that, the same as previous index, all the estimating parameters, even in 10% percent level are not significant.

**Table 4-6:** estimating financial development effect on investment efficiency with attention to  $\hat{\beta}_{IVA}$  index

Variables	Financial Development Indexes(FD)							
	BLRBA	DCPB	DCPS	DMBA	LL	M2	PC	QLL
FD	0.22	-0.37	0.24	0.29	-0.23	-0.52	0.13	0.097
Government Size	0.241	0.89	0.92	0.88	0.97	1.07	0.92	0.93
Inflation	-0.57	-0.41	-0.40	-0.49	-0.48	-0.49	-0.38	-0.43
Openness	0.45	0.46	0.2	0.36	0.37	0.54	0.29	0.26
R <sup>2</sup>	0.04	0.02	0.01	0.01	0.01	0.02	0.01	0.01
F statistic	0.50	0.20	0.15	0.17	0.16	0.21	0.15	0.15
Method	pooling	pooling	pooling	pooling	pooling	pooling	pooling	pooling
Number of countries	19	19	19	19	19	19	19	19
Number of period	6	6	6	6	6	6	6	6

Note: The dependant Variable is  $\hat{\beta}_{IVA}$ . None of the estimated parameters, even in 10% percent level are significant.

Since, it may possible that, the estimating parameters is not significant due to incorrect investment efficiency indexes ( $\hat{\beta}_{IVA}$  and  $\hat{\beta}_{GDP}$ ), we used another investment efficiency index which is not estimating and it is gained through production ratio to the existing capital ( $Y/k$ ). The results which are in table 4-7, show that, almost all estimating parameters have good significant stage and all the financial development indexes have positive effect on investment efficiency and on average if it increases one unite in financial development indexes, the investment increases 0.02 units.

Also, the government size and Inflation have positive effect (0.26 and 0.43) and openness has negative effect (on average 0.006) on investment efficiency.

**Table 4-7:** The financial development effect on investment efficiency with attention average product of capital

Variables	Financial Development Indexes(FD)							
	BLRBA	DCPB	DCPS	DMBA	LL	M2	PC	QLL
FD	0.01*	-0.003***	0.003	0.038	0.076*	0.007*	0.0198	0.007**
Government Size	0.037*	0.041*	0.043*	0.044*	0.045*	0.044*	0.043*	0.047*
Inflation	0.026*	0.026*	0.026*	0.026*	0.026*	0.026*	0.026*	0.026*
Openness	-0.004**	-0.006*	-0.006*	-0.006*	-0.007*	-0.007*	-0.006*	-0.007*
$R^2$	0.332	0.32	0.32	0.314	0.322	0.32	0.312	0.32
$\bar{R}^2$	0.327	0.31	0.31	0.308	0.317	0.31	0.306	0.31
F statistics	60.74	56.15	55.75	55.93	57.99	57.29	55.36	56.65
Method	R.E.	R.E.	R.E.	R.E.	R.E.	R.E.	R.E.	R.E.
Number of countries	17	17	17	17	17	17	17	17
Number of course	29	29	29	29	29	29	29	29

Note: The dependant Variable is  $Y/K$ . None of the estimated parameters, even in 10% percent level are significant. Since, there is not capital Variable for countries like Gabon, Saudi Arabia, so there are 17 countries in the last final estimation. Symbols \*, \*\* and \*\*\* show the significant estimated parameter in level of 1, 5 and 10 percent.

**Summery, Results and Recommendation:**

1- In study of financial development effect on economic growth, the results is the same as most of the studies which have been done for developing countries, and show negative effect(-0.04) and significant financial development on economic growth. Also this effect is the same for all the financial development indexes. In relation with control Variables effect on economic growth the results is the expected theories, in such a way that, the size of the government, inflation and dependant Variable delay has negative effect and human capital, investment and openness has positive effect on growth. It has to be mentioned that, the state of being negative for dependant Variable index denotes the convergences of economic growth in this group of countries which are members of Islamic conference organization.

2- By entering the interaction financial development Variable effect and investment rate to the pattern, and establishing the two scenarios (interaction term in second scenario) for every financial development indexes, the results show that, in the first scenario, six indexes of BLBBA, DCPB, DCPS, LL, M2 and QLL have negative effect and the two indexes of DMBA and PCDMB have positive effect on economic growth.

The control Variables effect in this scenario is what; we expect for all eight states and have good and significant level. But from the first scenario to second scenario (which is along with entering of interaction term), most of the financial development indexes change their marks and even in the 10 percent level are not significant. This interaction effect is also meaningless in terms of statistic. So, we cannot have exact result from this factor effect on economic growth statistically.

3- In the final section of the chapter, in order to cover the third goal, we use three efficiency criterions (as dependent Variable), and the first two indexes are the estimated indexes ( $\hat{\beta}_{IVA}$  and  $\hat{\beta}_{GDP}$ ) and the third index is average product of capital. It has to be mentioned that, the first two indexes which are estimating indexes are significant even in 10 percent level and so, they are not very reliable.

By using the three mentioned indexes as dependant Variable, the related pattern was estimated and since, perhaps the estimating parameters are significant, due to incorrect investment efficiency criterion ( $\hat{\beta}_{IVA}$  and  $\hat{\beta}_{GDP}$ ). So, we used another investment efficiency which is not estimating and is gained through average product of capital ( $Y/K$ ).



The results show that, most of the estimating parameters have good level of meaningfulness and all the financial development indexes have positive effect (average 0.02) on investment efficiency and on average if financial development increases one unit, the investment efficiency increases about 0.02 units.

Also, the Government size and inflation have positive effect (on average 0.26 and 0.43) and openness has negative effect (average 0.006) on investment efficiency.

Generally, as a whole, the result gained by this study shows the negative effect of financial development on economic growth in countries that are members of Islamic conference organization. We can consider this result, due to decrease in investment efficiency through allocating of resources in countries that are members of Islamic conference organization.

Due to other countries experience and the results gained through this research, we can say that, the main channel in effectiveness of financial development on economic growth is done through increasing the investment efficiency, so, we can say that, the freeing of financial markets, weakness of financial system management, and lack of versatile financial market which have rules in countries of Islamic conference members, are the reasons for decreasing investment efficiency through unsaving allocating of resources in these countries.

As a result, we should say that, there should be more attention in these countries for developing and making sufficient financial markets and also allocating resources and increasing investment efficiency. Since, in most of the developing countries the central bank or government causes deviations in financial market operation and leads to disorder in financial intermediates operation, through interfering in determining benefit and allocating credit, so, it is recommended that, the financial and monetary policies should be adopted to decrease or eliminate the deviations in financial markets operation.

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