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THE EFFECT OF FINANCIAL DEVELOPMENT ON DOMESTIC SAVING IN IRAN

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ABSTRACT

This study has been dealt with the study of the role of financial development on domestic saving in Iran. For this purpose, it is used two indexes of shares and credits to Gross Domestic Production (GDP) as financial development index. Other independent variables in this research are such as: the ratio of investment to GDP, the ratio of domestic credit to GDP, the ratio of total exports and imports to GDP, the ratio of working population to total population, and inflation rate which has been dealt with to study the short term and long term effects and ECM for period of the years 1982 to 2012 with using of ARDL method and the results are as follow: the ratio of investment to GDP on the ratio of domestic saving to GDP have been positive and it shows with increase investment and consequently production, the income population will be increased and as a result, saving ratio will increase. Also, the results indicate that the ratio of domestic credit to GDP on the ratio of domestic saving to GDP are positive and it shows with increase in domestic credit, production and income will be increased and on the other hand, with increase in income, a part of the money will be spent on increasing the saving ratio. The results show that shares index as an index for financial development also increases the saving. Shares index as an index for financial development is formed a part of income for population and its increase will be coincided with the increase in revenue and consequently saving. The ratio of total exports and imports to GDP causes to increase the demand in society and therefore, national income will increase and consequently leads to increase the saving in society. The increase in ratio of working population to total population also causes to increase production and national income in society which finally increase the saving ratio in society. The effect of inflation rate variable on

saving is negative and significant which shows, whatever inflation increases, the cost of saving opportunities will be increased and this issue causes to reduce the saving ratio in society. According to correction error coefficient in ECM model, we can express that the speed of adjustment towards equilibrium and long term is high. Such that every year almost 0/78 imbalances errors adjusted and the amount of short term towards to amount of equilibrium and its long term.

Keywords: Saving, Financial Development, Shares Index

INTRODUCTION

Since saving and investment are two key variables of macro with the base of microeconomic which have the important role in economic growth, fix inflation rate, and improve the occupation in developing countries. Therefore, in order to increase in attracting capitals and providing investment in country, it is required to establish the necessary infrastructure that based on this, expanding the financial development is one of the most important aspects in increasing the amount of income and finally savings of society. This market is divided into two parts which are known as capital market and money market that capital market contains shares market and money market contains liquidity and domestic credit that in this research, it is used from two indexes of shares market and domestic credit as an index for financial development. The development in these sectors will cause peoples' saving in these sectors have found direction and lead to increase in investment and ultimately

economic growth in country. In developing and developed countries, inadequate domestic supply considers as a common problem for investment ultimately economic growth. Therefore, the foreign capitals flow encourages entering in these types of countries to use to overcome on the limitation of domestic source problem. Although, international capital flows can complete domestic savings, however, due to the volatile nature of these international capital flows, we cannot consider them as a continuous flow. Therefore, as a result, domestic saving considers an important source for investment in developed countries (**Khasnobis and Maverotas, 2008**). On the other hand, financial development in country can be effective on the amount of saving which this study is going to deals with this issue.

Theoretical framework

The relationship between financial development and saving

Different strategies of financial development are important because each of them can have different outcome on economic growth of the country. Although in all states, financial development is along with bigger economic growth, the countries are always looking for ways to achieve greater growth. This difference in developing countries consistent with the empirical literature related to economic growth and financial development, especially with researches those express that shares market leads to more economic growth. However, the important variable that can explain the difference between different growth rates which is created by financial development impact, is saving rate. The literature related to this issue shows that concurrent with the financial development in one country, the country which has higher saving rate, experiences more growth and the country which has lower saving rate, experiences lower growth rate.

Understanding the relationship between financial development and saving rate is also important for investment. **Aiyagari (1994)** has shown that in economics which are not developed in terms of finance, the optimal tax on capital income should be positive which is in contrast with the tax on zero income in log term (**Kruger, 2010**).

At the end also, understanding the relationship between financial development and saving rate itself is important. The saving rate in developing Asian countries has attracted the attention of academics as well as politicians. The saving rate in the Asian emerging countries can lead to decrease real debt rate in all around the world and it leads to escalate the unreal price of assets in developed countries and even causes to occur the financial crisis similar to recent financial crisis. An acceptable explanation in this field is an accepted international literature (as an example: **Caballero, Farhi, and Gourinchas, 2008; Mendoza, Quadrini and Rios-Rull, 2009; Song, Kjetil, and Fabrizio, 2011; Wen, 2011**) that expresses high saving rate leads to a lack of financial development in the countries. Nevertheless, Wei and Zhang (2011) recently they have been stated that in these countries, financial development is happened but the amount of saving is also increasing. The continuous increase in the saving rate and financial development led that **Wei and Zhang (2011)** were concluded that other factors like gender imbalance has caused a high rate of saving in this country. If the relationship between financial development and the saving rate is uniform, it will be valid with apart of criticism of Wei and Zhang. However, if the relationship

between saving and financial development considers as nonlinear, with regard to the amount of financial development in these countries might lead to force people to save more from obtained income and have more frugality.

The relationship between saving and investment

The study of the relationship between national saving and domestic investment is more explaining in the behavior of external sector of the economy rather than considering it in analysis of domestic economy. **Fledeshtain and Harioka (1980)** in analysis the behavior of saving and investment identified the manner of the relationship between these two as an index for measuring the degree of capital mobility among countries. They mentioned that in the absence of barriers in them movement of capital among countries, the national saving of any country can choose the most profitable project in all around the world and moves toward it. As result of that, the non-aligned and heterogeneous process between saving and investment inside the economy will be experienced. **Absfeld (1986)** in a study knows the study of relationship between saving and investment as a method for dynamic analyzing of the balance of payments and understanding the economy

reaction in the face of obstacles in external sector of economy.

Although, verities of experimental studies confirmed above findings, different interpretations of the relationship between these two variables be seen in the literature relating to international economics. A group of exports believe that assuming complete capital mobility, several factors create uniform and consistent motion between national saving and domestic investment. **Summers (1988)** population growth and change in productivity, **Weng (1990)** goods and non-commercial factors and **Lichman (1991)** interest rate and governmental costs understand some of these factors.

The important point in this regard is the role of economic size in a country in creating the relationship between saving and investment in that country. Theoretically, exogenous changes in national saving in a large economy, can affect the international interest rate and thus domestic investment and finally, it causes to appear the uniform and consistent motion between saving and investment. **Backster and Croseeni (1993)** in their studies have been emphasized on the importance of the relationship between economic size and the behavior of saving and investment. Also, the results of Lichman studies confirmed obtained relationship and

shows that in big economic, positive relationship between saving and investment is more substantial.

Despite different opinions about the analysis of relationship between saving and investment, there are almost dominant themes that experts agree about it and they consider addressing the issue as the fundamental issue within international economy. Among these, we can mention the following fields:

1. Government adherence from budget limitation period can cause the uniform and consistent growth of saving and investment.
2. Complete capital mobility among countries intensifies the gap between national saving and domestic investment.

Nowadays, the relationship between saving and investment remains as a mystery, because this issue has posed at the beginning of the year 1980. In the experimental aspects, many authors have reached to solidarity by cross-sectional model or through time series view. The works and studies those have used cross-sectional, are countless, however, there is no any solidarity in their results. For instance, **Narayan (2010)** could not prove evidence from panel co integration between saving and investment in the country of G7. Authors have interpreted the results with the intention

that the stimulating investment is high, because there is no long time relationship between saving and capital. On the other hand, **Coakley et al (2004)** observed the high mobility of capital in 12 countries member in OECD during the period 1980-2000. Sectional studies also indicated that the mobility of capital among developed countries is a new phenomenon which is started at year 1990 that is estimated by Tamazian and Kumar for 13 countries member in OECD during the years 1960-2007 with using of GMM estimation model. Other related studies in this field contain the studies of **Pelgrin and Schich (2008)**, **Krol (1996) and Jansen (2000)** that the model with fix effects in 21 countries member in OECD employed and have shown that the mobility of capital is increased in year 1990. The time series view has done the collective views fundamentally. **Seminally and Miller (1998)** have used collective techniques for investigating the relationship between saving and capital in America. All these studies have proved a collective and combined relationship between capital and saving. The studies which have not shown the interrelationships between saving and capital include the **Sarno and Taylor (1998)** in England during 1994 to 1995 and **Schmidt (2003)** in Australia.

Research model and research variables

The pattern has been used in this research is as below:

$$SAV/GDP = \alpha_0 + \alpha_1 K/GDP + \alpha_2 CR/GDP + \alpha_3 STO + \alpha_4 OP + \alpha_5 P/POP + \alpha_6 P + \varepsilon \quad (1)$$

Dependent variable: the ratio of domestic saving to GDP (SAV/GDP) as a dependent variable that is extracted from World Bank website.

Independent variables: the ratio of investment to GDP (K/GDP), the ratio of domestic credit to GDP as an index for financial development (CR/GDP), shares index as an index for financial development (STO), the ratio of total exports and imports to GDP (OP), the ratio of working population to total population (P/POP), inflation P that the its related statistics and information have extracted from World Bank website and Center Bank website.

Data analysis

The aim of this research is to study the presence or absence a relationship between each of independent variables on dependent variable. For investigating this relationship, the ARDL model and for processing information and summarization it, the Eviews software is used.

The study of stationary of research variables

Before estimating the model, it is required to test the stationary of all variables used in

estimations. Non-stationary variables as in the case of time series data and as the case of panel data causes the problem of false regression. But contrary to what is customary in the case of time series data, in the case of panel data cannot be utilized Dickey-Fuller test and Augmented Dickey-Fuller for stationary test, otherwise, it is required to test the stationary of the set of some variables.

The results are based on **Table 1**.

The results of stationary indicate that the research variables are stationary in level and some with one difference which the stationary variables with one difference inserted in pattern as differential and they are estimated. Then, the research results are reviewed.

The short time effects of model

With regard to the issue that time series variables in estimated model are stationary in different levels, the method of estimation is the autoregressive distributed lag model ARDL which is a part of explanatory model (**Table 2**).

Watson Doorbin statistic shows the absence of autocorrelation and determination coefficient shows the explanatory power of model in amount of 85 percent. The results are as below:

Saving with one lag has positive and significant effect on GDP. One percent change in amount of saving with one lag

causes 69 percent increase in amount of saving to GDP. One percent changes in the ratio of working population on total population causes the increase in amount of 1/50 in amount of saving to GDP. One percent changes in the ratio of working population to total population with one lag causes the increase in amount of 2/18 in amount of saving to GDP. One percent changes in the ratio of total exports and imports to GDP causes the increase in amount of 0/20 in amount of saving to GDP. One percent changes in the ratio of investment to GDP causes the increase in amount of 0/006 in amount of saving to GDP. One percent changes in shares index as an index for financial development causes the increase in amount of 0/57 in amount of saving to GDP. One percent changes in the ratio of domestic credit to GDP causes the increase in amount of 0/009 in amount of saving to GDP. One percent changes in GDP causes the increase in amount of 0/10 in amount of saving to GDP. One percent changes in inflation rate causes the decrease in amount of 0/47 in amount of saving to GDP.

Long time effects of model

One percent changes in the ratio of working population on total population causes the increase in amount of 0/78 in amount of saving to GDP. One percent changes in the

ratio of total exports and imports to GDP causes the increase in amount of 1/84 in amount of saving to GDP. One percent changes in the ratio of investment to GDP causes the increase in amount of 2/91 in amount of saving to GDP. One percent changes in shares index as an index for financial development causes the increase in amount of 0/33 in amount of saving to GDP. One percent changes in the ratio of domestic credit to GDP causes the increase in amount of 0/65 in amount of saving to GDP. One percent changes in GDP causes the increase in amount of 0/15 in amount of saving to GDP. One percent changes in inflation rate causes the decrease in amount of 0/12 in amount of saving to GDP. The ratio of domestic credit to GDP as an index for financial development has more effect to compare with shares index and among the used variables, the attention to variable of the ratio of domestic credit to GDP should be more for investigating the financial development index. Therefore, the policymaking of the countries should be toward to increase the ability in financial development system based on the significant and positive effect of these variables (**Table 3**).

The estimation of ECM model

The presence of integration among the collection of economic variables prepares the

statistical base of using of error correction models. The main reason for reputation of error correction model is that it connects the short time fluctuations of variables to the amount of long time equilibrium. In fact, these models are a kind of partial adjustment models that with inserting the waste stationary from a long time relationship in them, the effective force and the speed of approaching to amount of long time equilibrium is measured (Tashkini, 2005). The combination of long time information and short time adjustment mechanism is used in vector error correction model. On the other words, short time fluctuation of one variable is related to its long time amount. In this model, the residual terms of the convergence equation are used as a variable and its coefficient considers as short time adjustment. The estimation of short time subordinate of error correction model is as follow that we put the error terms related to long time co integration regression with one lag time as an explanatory variable beside the first difference of model variables and we estimate the model coefficients with using of OLS.

The amount of these coefficients is located between zero and one and the relationships between short term fluctuations and the long time amount are a variable (Shirin Bakhsh and Khoonsari, 2005). This coefficient shows that in each period how many percent of the imbalance of dependent variable is adjusted and approach toward the long time relationship. The results of estimation research model are presented in Table 4.

These models have been increasingly popular in experimental works. The main reason of reputation of ECM models is that it is connected the short time fluctuations of variables to the amount of long time equilibrium. The coefficient of error correction model is -0/78 which is significant in term of statistical, because the amount of probability is 0/05. With regard to coefficient of error correction in ECM model we can express the speed of adjustment is high toward to equilibrium and long time amount. In a way that every year, almost 0/78 imbalance error has been adjusted and the short time amount is going toward its equilibrium and long time amount.

Table 1: The results of variables stationary

Results	Probability	ADF(t-Statistic)	Variable
stationary -I(1)	0/0023	-5/19	dK/GDP
I(1) -stationary	0/0228	-2/30	dCR/GDP
I(1) -stationary	0/0005	-4/76	dSTO
I(0) -stationary	0/0624	-2/85	OP
I(1) -stationary	0/0019	-3/31	dP/POP
I(1) -stationary	0/0011	21/2-	P

Source: research calculation

Table 2: The results of short time effects of model

Probability	Statistic t	Coefficients	Variables
0/003	3/52	0/69	<i>Saving with one lag</i>
0/034	2/30	1/50	The ratio of working population to total population
0/006	3/10	2/18	The ratio of working population to total population with one lag
0/078	1/87	0/20	The ratio of total exports and imports to GDP
0/94	0/06	0/006	The ratio of investment to GDP
0/68	0/41	0/57	Shares index as an index for financial development
0/27	1/13	0/009	The ratio of domestic credit to GDP
0/004	3/33	0/10	Gross Domestic Production (GDP)
0/001	-3/88	-0/47	Inflation rate
R² :0/85			
DW-statistic:		2/52	

Source: research calculations

Table 3: The results of long time effects of model

Probability	Statistic t	Coefficients	Variables
0/05	2/14	0/78	The ratio of working population to total population
0/005	3/42	1/84	The ratio of total exports and imports to GDP
0/021	2/62	2/91	The ratio of investment to GDP
0/004	3/50	0/33	Shares index as an index for financial development
0/000	5/21	0/65	The ratio of domestic credit to GDP as an index for financial development
0/011	2/95	0/15	Gross Domestic Production (GDP)
0/004	-3/45	-0/12	Inflation rate

Source: research calculations

Table 4: The results of ECM model

Probability	Statistic t	Coefficients	Variables
0/03	2/30	1/50	dPOP
0/07	1/87	0/20	dOP
0/94	0/06	0/006	dS
0/68	0/41	0/57	dB
0/27	1/13	0/009	dTT
0/004	3/33	0/10	dGDP
0/001	-3/88	-0/47	dP
0/05	-2/14	-0/78	ecm(-1)
R² :0/76			
DW-statistic:		2/32	
			Source: research calculations

CONCLUSION

Saving with one lag has positive and significant effect on GDP. One percent change in amount of saving with one lag causes 69 percent increase in amount of

saving to GDP. One percent changes in the ratio of working population on total population causes the increase in amount of 1/50 in amount of saving to GDP. One percent changes in the ratio of working

population to total population with one lag causes the increase in amount of 2/18 in amount of saving to GDP. One percent changes in the ratio of total exports and imports to GDP causes the increase in amount of 0/20 in amount of saving to GDP. One percent changes in the ratio of investment to GDP causes the increase in amount of 0/006 in amount of saving to GDP. One percent changes in shares index as an index for financial development causes the increase in amount of 0/57 in amount of saving to GDP. One percent changes in the ratio of domestic credit to GDP causes the increase in amount of 0/009 in amount of saving to GDP. One percent changes in GDP causes the increase in amount of 0/10 in amount of saving to GDP. One percent changes in inflation rate causes the decrease in amount of 0/47 in amount of saving to GDP.

The ratio of domestic credit to GDP as an index for financial development has more effect to compare with shares index and among the used variables, the attention to variable of the ratio of domestic credit to GDP should be more for investigating the financial development index. Therefore, the policymaking of the countries should be toward to increase the ability in financial development system based on the significant and positive effect of these variables.

With regard to coefficient of error correction in ECM model we can express the speed of adjustment is high toward to equilibrium and long time amount. In a way that every year, almost 0/78 imbalance error has been adjusted and the short time amount is going toward its equilibrium and long time amount.

REFERENCES

- [1] Adedeji, O., Thornton, J., (2006), Saving, Investment and Capital Mobility in African Countries. *Journal of African Economies*, Vol.16, No. 3, PP.93-405.
- [2] Ang, J., (2007), Are Saving and Investment Cointegrated? The Case of Malaysia (1965-2003) *Applied Economics*, No.39, PP.2167-2174.
- [3] Assari, Abbas, Naseri, Alireza, Aghayi, Majid (2009), Financial Development and Economic Growth: The Comparison of oil countries listed in OPEC and non-oil developing countries with using of generalized method of moments (GMM), *economic investigations*, spring, pages141-161.
- [4] Dehmardeh, Nazar, Shokri, Zeinab (2010), The effect of financial development on income distribution in Iran, *Journal of researches and economic policies*, eighteenth year,

- number 54, summer in 2010, pages 147-170.
- [5] Gibson Chigumira and Nicholas Masiyandima (2003), "Did Financial Sector Reform Result in Increased Saving and Lending for the SMEs and the Poor", IFLIP Research Paper.
- [6] Goncalo Pina (2012) "financial reforms and growth: the role of savings", Santa Clara University, September 2012.
- [7] Guha-Khasnobis, B., Mavrotas, G., (2008). 'Financial Development, Institutions. Growth and Poverty Reduction'. Palgrave Macmillan, New York.
- [8] Mendoza, Enrique G., Vincenzo Quadrini and Jose-Victor Rois-Rull, Financial Integration, Financial Development, and Global Imbalances, Journal of Political Economy, June 2009, vol. 117, pp. 371-416.
- [9] Mohajeri, Parisa, Sholeh, Bagheri, Taghavi, Mahdi (2011), the study of structural failure presences in relationship among financial sector development and economic growth and extraction the optimal amount of offering banking facilities to private sector, researches of economic development and growth, number 4, pages 37-54.
- [10] Narayan, P. (2005b), The Saving and Investment Nexus for China: Evidence from Co-Integration Tests. Applied Economics, No.37, PP.1979-1990.
- [11] Narayan, P., Narayan, S., (2010), Testing For Capital Mobility: New Evidence from a Panel of G7 Countries. Research in International Business and Finance, No.24, PP.15-23.
- [12] Pira'i, Khosro, Keshavarzi, Muhammad, Arabi, Hossein (2013), The Determinants factors of private savings in Iran with emphasizing real currency rate and debt limitation, Journal of Strategic Policy and Macro. First year, number 1, spring 2013, pages 97- 143.
- [13] Song Zheng, Kjetil Storesletten and Fabrizio Zilibotti, 2011. "Growing Like China," American Economic Review, vol. 101, PP. 196-233.
- [14] Vaez, Mohammad, Mirfendereski, Mohammad meisam (2011), the effect of inflation rate on financial development in Iran and Middle Eastern Arabic countries, promotional scientific Journal,

number 26, Rahbord Yas, pages 31-47

- [15] Wen, Yi, 2009, Saving and growth under borrowing constraints: Explaining the high saving rate puzzle, Federal Reserve Bank of St. Louis Working Paper 2009-045C