



## EVALUATION OF THE EFFECT OF LIQUIDITY GROWTH ON SAVING RATE IN THE DEVELOPING COUNTRIES

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### ABSTRACT

*The role of savings in determining economic growth and investment is among issues that have always been considered in the formulation of policy and economic theories. This fact has been accepted that it is a quite necessary action to put aside a part of production i.e. to create saving to be converted in to production capital for maintaining the level of existing welfare and also achieving a higher level of welfare. The aim of the present study is to evaluate the role of liquidity growth on saving rates in 11 developing countries (Ecuador, Venezuela, Colombia, Armenia, Brazil, Iran, Azerbaijan, Turkey, Tunisia, China and Thailand) within the period 2001-2010. In this paper, the software EVIEWS and panel data analysis were used to evaluate the effect of liquidity growth on savings rates. Present study demonstrates the undeniable role of economic growth on saving, because the estimations results indicate that although both variables of liquidity ratio and economic growth have significant and positive effect on saving, but economic growth is more effective which is fully reasonable.*

**Keywords:** Savings, Liquidity, Economic growth, Developing countries, Investment, GDP.

**Classification:** E21, E22, E51, E43, E23.

### 1. INTRODUCTION

Nowadays, the governments for the welfare of their nations require accumulation of capital and capital accumulation is considered as the prerequisite for sustained economic growth in long term period; existence of saving is the requirement of investment in every economy.

In economic growth theories, it is often argued that the increase in the level of savings in the countries will facilitate the investment process. Natural consequence of this process is the increase in the level of investment that will enhance the productivity and economic growth.

Unfortunately, the developing countries formerly due to the instability of economy and the lack of diversified financial institutions, the savings instead of being absorbed by productive financial institutions with long-term horizon found their way to noneconomic activities. Principally, in developing countries, the rate of private savings is very low because the real per capita income in these countries is very minimal and the final desire toward high consumption is very high; also, richer classes rarely put their savings in suitable and productive economic channels. Therefore, the higher rate of saving is an important goal of macro-economy of modern developing countries. In this study, in order to investigate the effect of liquidity on the saving rates in the developing countries, firstly, the theoretical foundations and the research background are studied and then EViews software is used to study the effect of desired variables on savings and for estimating a model of one-way panel data tests analyses is used.

## 2. RESEARCH BACKGROUND

Based on the International Monetary Fund studies on 85 developing countries based on Panel data method, national net savings rate has a positive relationship with economic growth and a negative relationship with inflation rate, the ratio of liquidity to GDP, the ratio of Urbanism and foreign debts crisis.

Craigwell and Rock (2004) in their studies showed that saving positively depends on revenue growth and lower dependency load; and negatively depends on real interest rate. Uremadu (2007) in an article investigated the main factors affecting the savings of Nigeria. His studies show that GDP growth, per capita income, pseudo-money, and payment coefficient of loan installment has a positive effect; and real interest rate and domestic inflation rate has a negative effect on savings Bebezuk and Musalem (2006) based on a sample including 48 developing countries within the period 1980 -2004 concluded that the dependency rate during oldness period and urbanism have negative correlation with saving. Whereas GDP growth rate, inflation rate, business conditions have had a positive effect on national saving. Woonam (1990), in their study in South Korea, found that economic growth performance, is the main factor of a rapid increase in the savings rate and the inflation rate is not so effective.

Jappelli and Pagano (1994) carried out an experimental research on saving, growth and limitation of liquidity; they performed regression analysis for 22 Organization for States Economic Cooperation and Development from 1960 to 1987 and found that high rates of savings due to the limited liquidity leads to higher economic growth.

Aghion *et al.* (2006) argued that higher domestic saving in poorer countries provides much more help to economic growth comparing to relatively richer countries. Karami (2008) studied the effect of liquidity growth on national savings rate of Iran, concluded that the effect of economic growth on savings rate is positive both in short term and long term periods; and the effect of liquidity growth on national savings rate is negative in short term period, and is positive, in a long term period. Rashidi (1997) in his study, showed that that increase in disposable income, per-capita income, balance of payments and real interest rate depends positively on revenue growth; and the

lower dependency load depends negatively on real interest rate. Komeijani and Teimour (1993) performed a study regarding the investigation of saving behavior in Iran and showed national saving rate has a positive relationship with the growth of per-capita GDP and the ratio of employed population to the total population and has a negative relationship with the ratio of services sector value added to per-capita GDP and inflation rate. Mohan (2006) paid attention to the relationship between domestic saving and economic growth in various economies with different income levels so and found that in many developing countries (Pakistan, Mexico, and India) economic growth causes the growth in internal savings; while, in developed countries (United States of America), saving growth leads to economic growth. Schmith (1994) in their research shows that income and wealth in the form of private savings to play the main role. The main limitations of borrowing factors determinants of household savings, and it seems that consumers in addition to the limitation of domestic liquidity in the case of the use of foreign savings have also faced with limitations.

Schmith (1994) in his research shows that income and wealth play the main role in formation of private savings. The borrowing limitations are also among main determinant factors of household savings; and it seems that consumers in addition to domestic liquidity limitation are also facing with limitations regarding the use of foreign savings.

### 3. THEORETICAL PRINCIPLES ON SAVINGS AND ECONOMIC GROWTH

In economic texts savings has been defined in various forms. Generally speaking, savings is to postpone consumption from present time to future, or it is a part of the income that is not spent on current costs. In other words, refraining from spending a part of income and ignoring the immediate pleasures and conveniences are called savings. Saving is the prerequisite for investment, which in turn will bring about increases in production and higher economic growth.

In Keynes's consumption theory, consumption is defined as a direct function of the income level; the Keynesian savings function can be immediately developed from Keynes's consumption function, in which with an increase in income level, savings level will also increase; in other words, the savings is positively correlated with income.

$$Y = c + s$$

$$C = a + by$$

$$S = y - c \quad s = -a + (1-b)y$$

Savings comes either from internal sources or external sources. The theories of saving from Classicists up to Keynesians and from Keynesians to Modigliani are mainly related to private sector's mechanism. According to classical view, savings is transformed in to investments by invisible hands and existence of saving is the necessary and sufficient condition for creation of investments. Smith refers to the concentration of capital as a prerequisite for economic development. Therefore, solving the problem of economic development depends on the ability of people to make more savings and more investment in the country. According to neo-classical growth theory presented by Solow (1956) and Romer (1986) increased savings rates will lead economy to a higher elevation growth path. Solow (1956) in its growth model noted that in

developing countries in comparison with developed countries will acquire faster growth and achieving such increase will be through increasing savings and investment levels. He believed that increasing the access to savings and investment. This means that the high savings rates in developing countries may stimulate the economic growth.

Based on Keynes theory, either of savers and investors makes savings and investment because of different factors. In his opinion, saving is a direct function of national income and investment is an indirect function of interest rate. One of the most important theories for explaining savings is the life cycle theory, which initially was presented by Brumberg and Modigliani and then it was completed by Modigliani and Ando. According to this theory, for an individual consumer, in order to maintain stable process for consumption during his life periods, he converts his income differences into savings. Analysis of this cycle, show that savings rate is positively correlated with economic growth. Thus, if income growth of one country is faster than the income of another, this will cause higher ration of savings in that country.

#### 4. ESTIMATION OF MODEL

According to the research goal regarding the evaluation of the effects of liquidity growth on savings rate in developing countries, the following model has been presented to test above cases:

$$SGDP = a mGDP + b \text{ growth} + u$$

SGDP: The ratio of gross domestic savings to GDP

mGDP: Ratio of Liquidity to GDP

Before estimating the model parameters should ensure if the variables are stationary or non-stationary. In all stationary tests the null hypothesis of non-stationary of data is analyzed and in case of rejecting the null hypothesis, the stationary of variable will be proved. In most panel data models, the best stationary test is the: Levin, Lin and Chu test that we have used in this study.

**Table-1.** Levin, Lin and Chu stationary test

SGDP	-3/16	0/0008	fully Stationary
mGDP	-8/03	0/000	Fully Stationary
Growth	-2/48	0/0064	fully viable

Source: the research findings

The Results of the tests were taken, all the data in this study are quite stationary, and there would be no need to make them stationary.

**Table-2.** Initial estimates of model

Variable	Coefficient	Standard Deviation	Statistic- t	Significance
C	21/03	2/46	8/54	0/000
MGDP	0/03	0/02	1/5	0/13

GROWTH	0/87	0/22	3/87	0/0002
determination coefficient	0/14	Durbin-Watson stat	0/16	

Source: the research findings

The following table shows the initial estimation of the model:

It can be seen that the intercept and economic growth are significant, but liquidity is not significant; and 14 % of the changes of the dependent variable (sGDP) is explained by the independent variables that is very low. Whereas in this, the effect of liquidity growth on savings rate in 11 developing countries (Ecuador, Venezuela, Colombia, Armenia, Brazil, Iran, Azerbaijan, Turkey, Tunisia, China and Thailand) within the period of time from 2001 to 2010 have been studied, thereupon, we must prove the integration pattern (Pooling) through using Limer test against the fixed effects mode, where the null hypothesis is the sameness of the intercept which is the very aggregation model and the opposite hypothesis is the panel model.

The test is summarized in the table below:

**Table-3.** F Limer test result

Cross-section F	38.463812	(96 10)	0/000
Cross-section Chi-square	38.463812	10	0/000

Source: The Research Findings

Therefore, according to the results of the above table, the null hypothesis is rejected and we should use the panel model. In continuation, in order to determine the use of fixed or random effects, the Hausmann test is used. Based on this test, the independence of the disorder component of intercept and explanatory variables are tested.

**Table-4.** Hausman test result

	Sq. Statistic	Chi-Sq.	Prob.
Cross-section random	3.125233	2	0.2096

Source: The Research Findings

The null hypothesis of this test is using random effects which is certified here . Therefore, we conclude that we must use random effects.

**Table-5.** Random effects model

variable	coefficient	Std. Error	statistic t	Prob.
c	21.03481	1.490875	14.10904	0.0000
MGDP	0.038733	0.014089	2.749110	0.0070
GROWTH	0.874026	0.014089	5.524550	0.0000

Source: the research findings

As you can see all the variables in the model are significant because t statistics for all variables are above 2. The above model lacks autocorrelation because both residual lags are not significant.

**Table-6.** Estimation results

C	24.33137	1.527762	15.92615	0.0000
MGDP	0.25804	0.009399	2.745569	0.0074
GROWTH	0.701544	0.153121	4.581632	0.0000
RESID01(-1)	11.89946	2.131464	5.582766	0.0000
RESID02(-2)	2.575256	2.375053	1.084294	0.2814

**Source:** the research findings

Using Pagan Godfrey Perivash test, the F-statistic equals to 0.08 which is not significant. This test regress the square of the residual term on independent variables models and in case of significance of F statistic for all regression, the result is that in non-identical variance model we have residual term; but here the existence of non-identical variance is rejected.

Thus, the final estimates are faced with the following equation:

$$SGDP = 21/03 C + 0/03 MGDP + 0/87 GROWTH + U$$

As you can see ratio of liquidity has a significant effect with positive coefficient as much as 3 percent on ratio of savings to GDP; i.e. if the liquidity ratio to GDP increases by one unit, the ratio of savings to GDP increase three percent. Economic growth by a factor of 0.87 has a significant and positive impact on the ratio of savings to GDP i.e. if economic growth increases by 1 unit, the ratio of savings to GDP increases by 0.87. Both variables of liquidity and economic growth have positive and significant impact on savings but economic growth has a greater impact, which is quite reasonable

## 5. CONCLUSION

Whereas the developing countries, due to foreign capital transfers, confront with numerous problems, and savings behavior and effective factors on volume and rate of savings in these countries must be studied carefully. All the theory and theorists believe that this applies to the development of specialists of capital and investment play a major role in the development of countries. All development theorists and practitioners of development believe that capital or investment plays an important role in the development of the countries; thereupon, shortage of capital and low levels of investment in developing countries is the main cause for retardation of these countries; and the prerequisite for investment in any economy, is the existence of savings. A high savings rate in a country increases the amount of available credible capital that ultimately will lead to higher economic growth. (Stern, 1991). What was achieved in this research indicate that both independent variables of liquidity to GDP ratio, and the economic growth ratio have a positive effect on the ratio of gross national savings to GDP. Hence, Governments can provide grounds for higher economic growth which in turn create higher national savings rate by reforming the structure of their economies. Reforming the pattern of households' savings in developing countries,

encouraging people to make more savings, reforming the structure of capital market (causing the absorption of liquidity from society and consequent injection thereof to production sector) are all solutions that can improve savings rate in developing countries. As Lin (1992) showed, economic development of a country mainly depends on the ability of mobilization of required savings to provide financing capital to improve the productivity of a nation.

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