

Testing the Granger Causality between the Dynamics of the Romanian Mutual Fund Market and the Economy

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Abstract: *The paper tests and evaluates the causality between the dynamics of the Romanian mutual fund market and the economy. Using the Granger causality test, a regression analysis has been developed on quarterly data during 1998Q2 – 2012Q2 for the Romanian economy. Based on this relationship, we can emphasize that the controversial debate upon the economic growth and the mutual fund market has become a complex research subject. Therefore, due to its complexity, the timeliness and the continuous growth of the investment funds area, this paper complements the existing literature by identifying the causal linkage between the mutual fund market and the economy. According to the results of the study, there is no reciprocal causality relationship between economic growth and the mutual fund investments development in Romania.*

Keywords: investment market, economic growth, causality, net total assets

JEL Classification: E22, G23, O11, O16

1. Introduction

Romanian mutual fund market has become more attractive for investors since the Romanian domestic funds are efficient competing in the European Common Market. Being considered a “saving service/product”, the mutual funds are directly connected to the savings process (Diaconita M., 2003:19). In order to promote the Romanian stock market, the collective and portfolio investments have significantly stimulated the savings. Therefore it is important to see the internal savings contribution on growing the stock market capitalization. All the elements comprised on the savings-investments circuit, present the interdependence between the stock market and economy development.

Evidencing the evolution of the economic growth and the mutual fund investments in Romania during the last 35 years, could be observed an oscillating fluctuation, with several syncope that might have a seasonal effect on the economy. Although, the mutual fund investments in Romania follow the economy's path but with a different rate of change or with some delays, except the year 2000 situation when the mutual fund market has been dropped-down by the FNI case (see Figure 1).

In order to see the mutual fund market contribution, Khorana et al (2005) reports the mutual fund industry's dimension to the GDP level. Following this model, we identify that the European mutual funds and specially the Romanian mutual funds have registered a spectacular growth during 2003-2009, with an average annual growth of 12.90% (Radu I., 2011: 25).

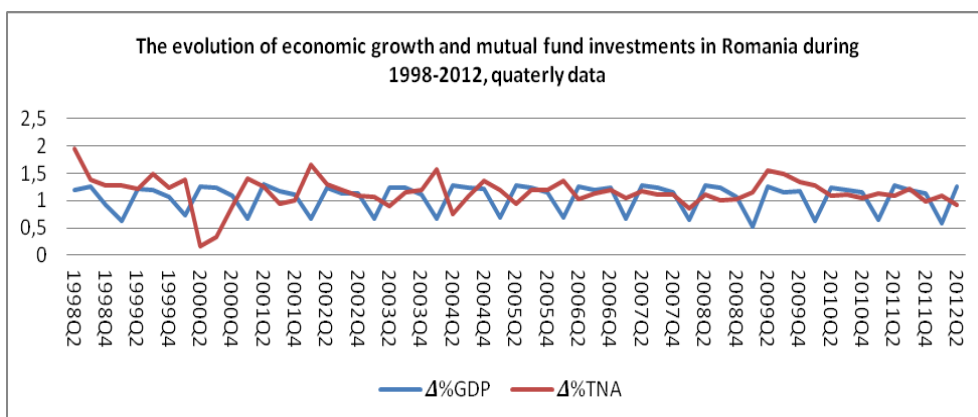


Fig. 1: Evolution of economic growth and mutual fund investments

Source: authors own calculation

The turnover of the capital raised and managed by these funds, assumes a special attention on the growth of the stock market liquidity through the significant share of the total assets managed in the capitalization value of the domestic stock market.

In the case of Romania, the growth could be explained by an exceeding collected capital (represented by the total net assets) in the domestic mutual funds with a growing rate of 39,1 times (+3910%) over the GDP's growing rate of only 53% for the entire analyzed period (2003-2009). For a more detailed situation, please follow Table 1.

We find that, while the share of total net assets managed by the investment funds in the amount of market capitalization increased significantly, today it is encompassing 11.27% of market capitalization. This is encouraging, since it is proving that these alternative investments are basic pieces of the capital market development and in increasing its liquidity.

Table 1 The evolution of the stock market capitalization in GDP and the rate of the total net assets of the Romanian mutual funds in the market capitalization between 2003/2011

Years	Rate of market capitalisation in GDP (Ci/GDP)	Annual growth of the rate Ci/GDP	Rate of the Total Net Assets of Mutual funds in the volume of the market capitalisation AT/Ci	Annual growth of the rate AT/Ci
2003	9,38%	-	0,52%	-
2004	15,61%	66,37%	0,61%	17,64%
2005	20,81%	33,31%	0,53%	-13,33%
2006	26,73%	28,43%	0,75%	42,30%
2007	26,54%	-0,72%	0,87%	15,22%
2008	9,96%	-62,48%	1,64%	88,66%
2009	18,82%	89,02%	3,74%	128,33%
2010	20,04%	6,45%	5,29%	41,45%
2011	11,79%	-41,16%	11,27%	112,99%

Source: Radu I., Sava C. (2012, p.1344)

Unlike the development of the stock market, the investment funds have attracted additional capital, amounting to manage 2388 million (approximately EUR 1.6 billion), i.e. up 39.4% over the volume of total assets in 2010, in a double volume compared to 2009 and almost seven times of the total net assets managed at the end of 2008 (Radu I., Sava C., 2012)

As a consequence, we address the following issues that have enhanced our interest for study:

- To address whether the mutual fund investments cause the economic growth in Romania.

- To identify whether there is a causal relationship between the mutual fund investments and economic growth in Romania.

Based on the above objectives, the following hypotheses are relevant for our study:

- H₁: An increase in mutual fund investments does not cause the economic growth in Romania.

- H₂: There is no causal relationship between the total net assets (TNA) and the economic growth in Romania.

The paper is organized as it follows. First part presents the main premises that have emphasized our research. Second part presents a brief literature review and extracts the studies that appreciate best the relationship between the analyzed variables. Section three is on the data and methodology used in the study, section four is on the empirical analysis and results using the R facility, while section five discusses the results and concludes the paper.

2. Literature review

Nevertheless, investors are interested in the structure of the GDP and in the extent of contributions for understanding the components of the growth factors [Babin, Donovan, 2000, p.18], as long as, the GDP defines the relationship between the vitality of the economy and the capital market [Babin, Donovan, 2000, p.19]. Therefore, the relationship between investments and economy (or economic growth) is wide studied in the development economics literature. Moudatsou A. and Kyrkilis D. (2009) suggest that “the investment-development path puts forward the idea that the outward and inward of investments of a country is systematically related to its economic development and relatively to the rest of the world”.

In contrast with the theoretical evidence, the empirical one shows mixed results about the relationship between investments and the economic growth. From the existing empirical evidence we identified several studies that comprise the investment-economy causality: Granger (1969, 1980, 1988), Toda Yamamoto et al (1994,1995), Swanson and Granger (1997), Bajo-Rubio O., Montero-Munoz M. (1999), Kholdy S., Sohrabian A.(2005), Bahadur G.C.S. and Neupane S.(2006), Frimpong J.M. and Oteng Abayie E.F. (2006), Afşar M.(2008), Moudatsou A. and Kyrkilis D. (2009), Samad A.(2009), AbuAl-Foul B.(2010), Shaikh F.M.(2010), Egbo O. et al. (2011) and Awe O.O.(2012).

Among the last decade studies, Kholdy S. and Sohrabian A.(2005) test the causality in a panel data model, using data from 1975 to 2002 for 25 countries. Their study investigates and reveals a bi-directional linkage between the financial markets, foreign direct investments and the economic growth. Moreover, they found that in the countries with low GDP per capita, the economic growth stimulates the financial development, and therefore, the direction of causality reverses for countries with higher GDP per capita. Also, they found a bi-directional causality between financial

markets and foreign direct investments in countries with relatively higher GDP per capita and more developed financial markets. However, their final results suggest that foreign direct investments can't induce economic growth.

Bahadur G.C.S. and Neupane S.(2006) draw attention to the stock market of Nepal since it plays a significant role in determining the economic growth and vice versa. Based on a time series data for the year 1988 to 2005 and following a rigorous econometric methodology. In order to test causality, the paper underpins three steps: first using the DF (Dickey Fuller) and ADF (Augmented Dickey Fuller) tests they analyze for stationarity, second step is testing for co-integration using the Engle-Granger test (1987) and third testing for causality on estimating the predictive content of one variable beyond that inherent in the explanatory variable itself.

Using a different procedure on testing the causality, the Toda-Yamamoto test, Frimpong J.M. and Oteng Abayie E.F. (2006) study enhances an analysis on Ghana's case showing a bi-variate causality between the investment inflows and the economic growth. Initially, they found no causality between foreign direct investments and growth for the total sample period (1970-2002) and the pre-SAP period. However, the foreign direct investments caused GDP growth during the post-SAP period (Note that SAP refers to the Structural Adjustment Programme implemented in 1983 on enhancing several economic reforms and policies).

The approach of Afşar M.(2008) finds no reciprocal causality relationship between economic growth and foreign direct investments in Turkey for the 1992-2006 time series. However, they observed one direction of causality - from investments to growth rate, while there is no causality relationship from growth rate to investments. In other words, foreign direct investments in Turkey is one of the factors affecting economic growth; however, the high or low economic growth rate does not have an effect on the presence of foreign direct investments in Turkey.

The Moudatsou A. and Kyrkilis D. (2009) paper stands out by addressing the causal-order between inward of foreign direct investments and economic growth using a panel data set for two different Economic Associations that are the European Union and the ASEAN countries (i.e. Association of South Eastern Asian Nations) over the period 1970-2003. Using a heterogeneous panel, they have investigated the existence of co-integration by applying the Pedroni test (1997, 1999) and in order to detect the causality between the two variables they used an Error Correction Model (ECM).

By testing nineteen countries from South-East Asia and Latin America, Samad A.'s (2009) PhD. working paper investigates the linkage between the foreign direct investments and the economic growth measured in GDP. Using the co-integration technique, the Granger test and the Error Correction Mechanism (ECM), the paper finds that five countries in Latin America and one country in East and South East Asia have long run relation and exhibit unidirectional causality running from GDP to foreign direct investments. Seven countries, two from Latin America and five from East and South East Asia, demonstrate bidirectional short run causal link between GDP and foreign direct investments. Four countries, one from Latin America and three from East and South East Asia, exhibit that there exists unidirectional short run causal link running from GDP to foreign direct investments.

Recognizing the co-integration between the savings and the economic growth for the case of MENA countries (Morocco – 1965-2007 and Tunisia – 1961-2007), AbuAl-Foul B.(2010) examines empirically the long-run relationship between the real gross domestic product (GDP) and the real gross domestic saving (GDS) using the Pesaran et al.(2001) approach on an Autoregressive Distributed Lag Model (ARDL). He follows first the stationary tests (Augmented Dickey-Fuller – ADF and Phillips & Perron test for confirmation), than a Vector Error Correction model of estimation for

examining the causality among co-integrated data. As results, the study reveals that in the case of Morocco a long-run relationship exists between the variables, while no evidence of long-run relationship to exist in the case of Tunisia. The Granger causality test supports bidirectional causality between economic growth and saving growth in Morocco. However, in the case of Tunisia, the results suggest that there is a unidirectional Granger causality between real GDP and real GDS and runs from saving growth to economic growth.

Simultaneously, Shaikh F.M. (2010) uses the same methodology as AbuAl-Foul B.(2010) on testing the causality between investments, trade and economic growth in Pakistan. Using quarterly time series data from 1998 to 2009, his paper examines a VAR model for analyzing the integration and co-integration in order to suggest a long run relationship among the factors. The results of VECM causality test find bidirectional causality between foreign direct investment, export and economic growth, with are two important factors that enhance the affect of economic growth in Pakistan.

Egbo O. et al. (2011) explores annual time series variables (gross domestic product (GDP), foreign direct investment (FDI), exchange rate (EXRATE) and inflation rate (INFRATE)) for the Nigerian economy on testing the Granger causality. By covering a period of 27 years (from 1981 to 2007), the study computes the Ordinary Least Square test and the Unit root test for stationarity of the time series and Granger causality test to establish the causal relationship between the variables. The stationarity test (unit root) showed that the included variables, gross domestic product (GDP), foreign direct investment (FDI), exchange rate (EXRATE) and inflation rate (INFRATE) were non-stationary at their level and first difference with 2 lags. They were thus integrated of order one. The Granger causality test was adopted and it showed that a causality relationship ran from FDIs to GDP and not from GDP to FDIs. The findings showed that there is a positive relationship between FDI and GDP which implies that FDI stimulates economic growth in Nigeria.

The latest study of Awe O.O.(2012) overcomes the previous studies by emphasizing a modeling approach of the Granger causality. His paper employs an empirical modeling of seven economic indicators in Nigeria for a period of 35 years (1970-2004), i.e. Gross Domestic Product, Money Supply, Investment, Exchange Rate, Inflation Rate, Government Expenditure, and Interest Rate on Lending. The paper examines the Pairwise Granger causality among sixteen VAR models defined by the selected economic indicators. They obtained the following results: (a) No causality exists between Government Investment and Government Expenditure, (b) Bidirectional causality exists between Exchange Rate and Government Expenditure, (c) No causality exists between Inflation Rate and Government Expenditure, (d) No causality exists between Interest Rate and Government Expenditure, (e) Bi-directional causality exists between money supply and Government Expenditure, (f) Uni-directional causality exists between GDP and Government Expenditure, (g) Uni-directional causality exists between Exchange Rate and Government Expenditure, (h) No causality exists between Inflation Rate and Government Investment, (i) No causality exists between Interest rate and Government Investment in the ninth model, (j) Unidirectional causality exists between money supply and Government Investment in the tenth model, (k) Uni-directional causality exists between GDP and Government Investment in the eleventh model, (l) No causality exists between Inflation Rate and Exchange Rate, (m) No causality exists between Interest Rate and Exchange Rate, (n) Bi-directional causality exists between money supply and exchange rate in the fourteenth model, (o) Bi-directional causality exists between GDP and Exchange rate, (p) Bi-directional causality exists also between Interest Rate and Inflation Rate in the last VAR model.

Inspired by the previous studies about the impact of the investments on the economic growth, our paper seeks to identify if there is a pattern connection in the case of Romanian economy between the mutual fund investments (defined by the Total Net Assets – abr. TNA) and economic growth (defined by the Gross Domestic Product – abr. GDP). Therefore, we set our analysis on following a systematic methodology as presented in Table 2.

Table 2. Empiric Analysis Methodology

Stage - steps		Tests	
1	Testing for stationary – unit root tests	OLS Regression Augmented Dickey-Fuller (ADF) Kwiatkowski-Phillips-Schmidt-Shin (KPSS)	
2	Testing for co-integration	<i>Individual co-integration tests</i> Engle & Granger (1987) Johansen (1988)- Vector Auto Regression test (VAR) Johansen & Jubelius (1990) Durbin Watson cointegration regression (Bajo – Rubio, 1999) Philips-Ouliaris Philips – Hansen Wald test statistics <i>Panel settings co-integration tests</i> Modified Wald test (MWALT) Pedroni (1997, 1999) Pesaran et al. (2001) with its variations: -Error correction model (ECM)* -Autoregressive Distributed Lag Model (ARDL)	
3	Testing for causality	<i>Non-co-integrated series</i>	<i>Co-integrated series</i>
		Granger causality test	Vector Error Correction Model (VECM)
		Toda – Yamamoto (1995)	
4	Results interpretation	Unidirectional causality Bi-directional causality No-causality	

Note: It is appropriate to use criterions for refining the time series lag length for delayed variables by using Akaike criterion or Schwarz criterion.

* Error correction model (ECM) is available on three variations – Restricted ECM (Standard t distribution), Unrestricted ECM (Banerjee, Dolado and Mestre model - 1998) and General ECM (χ^2 distribution).

Following all this comprehensive literature, we intend to confirm the presumption of "the cause precedes the effect". Therefore, we intend to verify the causality between the capital raised and managed by the investment funds (as defined by the value of the total assets (TNA)) and the economy conditions (assessed by the GDP dimension).

3. Methodology

3.1. Data

In order to investigate the causality between the mutual funds dynamics and the economy we collected annual and quarterly data from several sources like Investment Company Institute (abr.ICI), the European Fund and Asset Management Association (abr. EFAMA) and national mutual fund associations (i.e. Romanian Association of Asset Managers, www.aaf.ro) and professional data provider (www.kmarket.ro).

The time period of analysis is quarter time series data from 1998 Q2 to 2012 Q2 in Romania. Also, please note that Romania revalued their currency as of Q3 2005, and therefore, we use data that reflect these changes.

The variable economic growth is approximated by the growth of the GDP at a particular time t . The variable mutual fund investments is approximated by the ratio of the total net assets (TNA) managed in Romania by the mutual funds at a time t . In table 3 are presented the descriptive statistics of the analyzed variables.

Table 3: Descriptive statistics

	TNA	GDP
Observations	57	57
Mean	1.152289	1.060074
Median	1.141339	1.167784
Maximum	1.955494	1.287886
Minimum	0.163088	0.517272
Std. Dev.	0.273869	0.245591
Skewness	-0.638845	-1.017903
Kurtosis	6.55762	2.326078
Jarque-Bera	33.93673	10.92186
Probability	0	0.00425

Source: Own processing in Eviews

Note: TNA represents the total net assets; GDP represents the gross domestic product

We can observe that the two variables present a positive evolution during the analyzed period. The Skewness coefficients show that the distributions of both variables present a left tail. The Kurtosis values present a leptokurtic distribution for TNA and a platykurtic distribution for GDP. Also, the Jarque-Berra values show that the two series do not follow a normal distribution law.

3.2. Unit root testing for stationarity

In order to apply Granger causality test, the series should be stationary. For establishing the stationarity of the variables, the series may be tested using the Augmented Dickey-Fuller (ADF) or Kwiatkowski-Phillips-Schmidt-Shin (KPSS) unit root tests. In addition, here is used the Schwarz criterion on determining the appropriate lag length for delayed variables.

The results of ADF and KPSS test show that the two series are stationary (table 4). For both tests, we used the models with constant. The bandwidth is chosen based on the Newey-West criterion by using the Barlett kernel estimator.

Table 4: The results of ADF and KPSS test

	ADF	KPSS
TNA	-5.919409***	0.076434
GDP	-2.451714	0.209509

Source: Own processing in Eviews

Note: *** represents the rejection of null hypothesis at 1% significance level.

Critical values for ADF test are: -3.552666 (1%), -2.914517 (5%), -2.595033 (10%) for TNA variable and -3.560019 (1%), -2.91765 (5%), -2.596689 (10%) for GDP variable.

Critical values for KPSS test are: 0.739 (1%), 0.463 (5%), 0.347 (10%).

3.3. Co-integration testing

Co-integration concept implies the existence of a long-run relationship between the analyzed variables. The main principle of testing for co-integration is to address whether the variables are significantly deviate from a certain relationship. As a fact, if the variables are co-integrated, they move together over time and therefore any disturbances might affect the long-term dynamics. Otherwise, if two series aren't co-integrated, they may change independently far away from each other.

For performing the integration test on GDP and TNA time series it is necessary to use the Johansen (1988) test. We used the values of Trace Statistic and Max-Eigen Statistic in order to test the number of cointegrated relations, respectively the VAR model with intercept (without trend) and six lags, in order to minimize the informational criteria of Schwarz and Hannan-Quinn.

The test results are presented in table 5 and indicate a rejection of null hypothesis, so the two series are not cointegrated.

Table 5: Johansen Cointegration test

	Hypothesis	Trace Statistic	Critical value (0.5)	Max-Eigen Statistic	Critical value (0.5)
TNA	$H_0: r=0$ vs $H_1: r=1$	33.28088***	12.3209	32.59937***	11.2248
GDP	$H_0: r\leq 1$ vs $H_1: r=2$	83.11323***	15.49471	60.00863***	14.2646

Source: Own processing in Eviews

Note: *** denotes rejection of the hypothesis at the 0.05 level

3.4. Granger testing for causality

Approaching the causality test proposed by Granger (1969), the relationship between variables may take the following forms transposed on our interest:

- the economic changing environment (ΔGDP_n) is due to the dynamism of the mutual funds activity;
- the variations in the total net asset value of the funds (ΔTNA_n) explains the economy's dynamism;
- the economic growth (ΔGDP_n) helps to predict the total net assets that are attracted and managed by the mutual funds.

The procedure involves the quantification of the current level of the TNA variable which can be explained by its historical values. Then, is rather important to see if the adding variable x_{t-1} (i.e. GDP_{n-1}) may explain the increase of the variance.

Synthetically, the causality analysis between the two variables involves the following steps:

(1) in order to test whether 'the dynamics of the economic (GDP) is due to the evolution of the ATN (for the mutual funds)', we can estimate the regression equation:

$$TNA = a_0 + a_1 * GDP_{n-1} + a_2 * TNA_{(n-1)/0} + \varepsilon_1 \quad (u)$$

$$TNA = a_0 + a_1 * TNA_{(n-1)/0} + \varepsilon_1 \quad (r)$$

where:

TNA represents the total net assets;

GDP represents the gross domestic product;

ε_1 - is the error term

For testing we use a Fisher-Snedecor test type constructed as follows:

$$F = \frac{(SSR_r - SSR_u) / k}{SSR_u / (T - 2k - 1)} = \frac{(R_u^2 - R_r^2) / k}{(1 - R_u^2) / (n - 2k - 1)} \in F(k, n - 2k - 1)$$

where SSR_u and R_u^2 represent the sum of the squared residuals and the coefficient of determination in the unrestricted equation (u), and SSR_r și R_r^2 present the the same elements, but are defining the restricted regression equation (r), that includes only terms of Y_{t-1} type.

The hypothesis 'the changes in GDP aren't the cause of the TNA variation' is rejected, if the calculated F (statistic F) is greater than the critical value.

(2) similarly, we test whether 'the changes in GDP are due to the dynamics of the TNA', following the regression:

$$GDP = b_0 + b_1 * GDP_{n-1} + b_2 * TNA_{(n-1)/0} + \varepsilon_2 \quad (u)$$

$$GDP_n = b_0 + b_1 * GDP_{n-1} + \varepsilon_2 \quad (r)$$

where:

TNA represents the total net assets;

GDP represents the gross domestic product;

ε_2 - is the error term

Next, we proceed to Fisher-Snedecor testing and rejecting the hypothesis that 'the ATN are not the cause of the GDP growth' if the calculated F test is greater than the critical values.

(3) After applying the two tests are possible four conclusions:

a. an unidirectional causality: the Δ TNA is the cause for Δ GDP (TNA => GDP) if the null hypothesis is rejected at (1) and accepted by (2);

b. an unidirectional causality: the Δ GDP causes the Δ TNA (GDP => TNA) where the null hypothesis is rejected at (2) and are allowed to (1);

c. a bidirectional causality: TNA \Leftrightarrow GDP, if the null hypothesis is rejected both at (1) and (2) regression;

d. the two variables are both independent, if the null hypothesis is accepted in (1) and (2) regression.

4. Empirical analysis and results

4.1. Testing for stationarity. Results of the Unit Root Test

We run the ADF and KPSS tests for stationarity. As a result, the series of economic growth and total net assets for Romania do not have a unit root, so they are stationary and then run the co-integration tests.

We use also a simple regression analysis which is found not to be spurious by the rule of thumb.

OLS Regressions:

$$TNA = c_1 + c_2 * GDP + \epsilon_t \quad (1)$$

$$GDP = c_1 + c_2 * TNA + \epsilon_t \quad (2)$$

We construct the first regression in order to test the impact of gross domestic product on total net assets, respectively the second regression to test the influence of TNA on GDP. The results of our regressions show that the influence of both variables is negative and not significant. In other words, GDP does not influence TNA, and TNA does not have an impact on GDP.

The result of the simple regression analysis is presented in table 6 as follow:

Table 6: Ordinary least squares regressions

	(1)	(2)
C	1.399011*** (8.74679)	1.275736*** (9.112816)
GDP	-0.23274 (-1.582681)	
TNA		-0.187159 (-1.582681)

Source: Own processing in Eviews

Note: In parenthesis are the t-statistic values.

*** represents 1% significance level

4.2. Testing for co-integration. Results of the Johansen co-integration test

Johansen co-integration test reveals that at 5% level of significance an using six lags, we do not have pairs of co-integration among the variables. This verifies the fact that when the time series are co-integrated, there must be either bi-directional or unidirectional Granger causality between them.

4.3. Testing for causality. Results of Granger Causality Test

Using the R application for the Granger causality test, we try to analyze if □ there is a stable relationship between GDP and the total net assets, which demonstrates that the economic environment and economic circumstances significantly influence the activity of investment funds (table 7).

Table 7: R Statistics on Granger test of causality

	L=no of lags	F-statistic	p-value
GDP does Granger cause TNA	1	0	0.9969
GDP does not Granger cause TNA	2	0.1975	0.8215
GDP does not Granger cause TNA	3	1.4677	0.2354
GDP does not Granger cause TNA	4	1.2843	0.2907
GDP does not Granger cause TNA	5	0.9767	0.4434
GDP does not Granger cause TNA	6	1.2974	0.2819
TNA does not Granger cause GDP	1	2.179	0.1458
TNA does not Granger cause GDP	2	1.3896	0.2586
TNA does not Granger cause GDP	3	0.9738	0.4131
TNA does not Granger cause GDP	4	1.7864	0.1487
TNA does not Granger cause GDP	5	1.8003	0.1342
TNA does Granger cause GDP	6	2.0606	0.0811

Source: R Statistics

Note: TNA represents the total net assets; GDP represents the gross domestic product

The null hypothesis is accepted, that means that the two variables are independent, exception is the case for one lag (for GDP), respectively with 6 lags (for AT).

5. Final remarks

In this study, Granger causality test was applied in order to determine the presence of the relationship between two variables (economic growth and mutual fund investments development) and its direction in Romanian economy between 1998 Q2 and 2012 Q2.

The findings of this study provide two major contributions. First, it presents an investigation on the relationship between the GDP growth and the mutual funds development using the co-integration and causality tests, which allows us for identifying any interdependencies among the variables and their changing effects. Secondly, it provides a systematic and comprehensive model for testing the causality among different other economic variables, becoming an appropriate research for developing the existing economic literature.

According to the results of the study, there is no reciprocal causality relationship between economic growth and the mutual fund investments development in Romania. The direction of causality relationship is only from mutual fund investments to growth rate and there is no causality relationship from growth rate to mutual fund investments.

In other words, mutual fund investments in Romania are one of the factors affecting economic growth; however, the high or low economic growth rate does not have an effect on the presence of mutual fund investments in Romania.

This result clearly shows that large amount of mutual fund inflows in Romania play a role in high growth rate observed in Romania recently. As a result, it is necessary to continue to encourage investment inflows so as to ensure constant economic growth in Romania.

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