ROMANIAN BANKING SYSTEM REACTION TO THE FINANCIAL AND ECONOMIC CRISIS FOLLOWING THE E3MG MODEL SCENARIOS OF POLLITT AND BARKER

Țâmpu Diana Larisa*

Abstract

This paper examines the impact that the crises that began in 2007 have on Romania economy taking into consideration the scenarios of E3MG model. What it will be figured here is a series of carefully defined scenarios, simulating aspects of behavioral changes within the banking sector and in the wider global economy. The conclusion will try to explain the mechanism by which the crisis has infested the economy specifying the moment when the current policy was effective or not. The last part of the paper highlights the effects that the monetary policy measures have on Romania case, following the 'seven-point plan' of Barker. The results show that there are ways to stimulate the economy and increase employment, transforming the financial crisis into an opportunity for a new green deal.

Keywords: E3MG model; economic crises, scenario, monetary policy, government policy

I. Introduction

It seems that the last two or three years were once of the hardest. But, it looks like the next ones will be harder. In these days of hard work, uncertainty and recession after recession it's good to remember the following words from Albert Einstein: Let's not pretend that things will change if we keep doing the same things. A crisis can be a real blessing to any person, to any nation. For all crises bring progress. There's no challenge without a crisis. It's in the crisis where we can show the very best in us.

* *postdoc researcher, The Romanian Academy, E-mail: diana.tampu@yahoo.com*

Probably if Einstein would have been alive today, he would have started his business when bankruptcy and disaster would have been the words that have appeared on the lips of most entrepreneurs. Many business owners haven't listened the words of wisdom of Einstein, to others the chain reaction that caused the economic crisis led them to the bankruptcy. A thing is clear in a time when most companies sink, instead of doing nothing, or not enough, all stakeholders are more willing to do what in other circumstances they would resist to (Drucker, 1986).

When the crises began in 2007, it was obvious that its effects will not be limited only to banking sector. The domino effect was spread immediately. What has happened first in the United States in the banking sector has been transmitted to other companies and households, to other countries and other economies. The effects in other sectors did not fail to occur, but this not only because of the contagion effect, but also because it wasn't only a simple financial crisis, but rather a crisis that affects the entire system (Köhler J., Barker T, 2006). This paper intends to exam not only the impact of policies on specific sectors of economic activity, but also the impact on the overall performance of the economy, including consideration of net social welfare and equity.

2. The Romanian banking system reaction on the crisys using the philosophy of the Energy-Environment-Economy Model Scenario

The E3MG model - Energy-Environment-Economy (E3) Model for the Globe was developed originally by Hector Pollitt and Terry Barker (2009). E3MG is an estimated model based on OECD Structural Analysis database, Eurostat, UN, IMF and IEA data. It presents long term behavior and dynamic fluctuations of a set of macroeconomic indicators, in order to be used not only for a healthy policy simulation but also for a medium and long term forecasting. (Hendry et al., 1984, Engle and Granger, 1987), presenting in this way an explanation about the behavior of government.

Taking into consideration the philosophy of the E3MG model, the reaction of the Romanian banking system is presented in six particular scenarios, descended from Barker and Pollitt model. The first ones relate to the changes in the patterns of behavior banks' own, two and three concerns the effects derived from the behavior of banks on households and businesses. The last three scenarios relate to behavioral changes in the overall economy. Each of these scenarios includes entries from the previous scenario, plus the changes. Entries are spread over the period 2005-2012, depending on the variable analyzed.

2.1. The six scenarios of Romanian bankig system reaction

2.1.1. *Scenario 1a: The banks cut expenditures*

In an attempt to protect their own businesses, banks resorted to reduce its expenditures, both capital (e.g. buildings) and labor force. These two were clearly highlighted in media reports. In market economies, the investments of the banking sector was assumed to decline by 25% during 2009-11 compared to the baseline, and employment fell by 12.5% (Dagoumas A., Barker T., Pollitt H., 2009).

The same phenomenon occurs in Romania too. The Romanian Development Bank and the Romanian Commercial Bank the largest banks from the local market have cut strong their spendings. The Romanian Development Bank in the first half of 2010 has lower expenses with 3% over the same period of last year. In this situation it was felt of low demand for banking products, which is why the banks have had to bear higher net cost of risk. Romanian Commercial Bank tried to cut the expenses drastically, particularly the expenses with the labor force which decreased during 2009 by 21.9%. At operational level the overall level of expenditures fell by 9.7%

2.1.2. *Scenario 1b: Banks encourage higher rates of saving*

Another result of the crisis is that banks in their attempt to protect to protect their own balance sheets have encouraged a greater saving rate. The methods they use to do this have been quite ambiguous: more marketing on media and offers introductory / in order to prevent the withdrawals savings. Net impact of this measure is an increase of 0.5 percent of household savings ratios in 2009 and 2010.

At the base of any growth cycle is a process of increasing the productivity of capital - whether human, financial or otherwise, the productivity growth requires changes / innovations in the capital. Such processes involve the use of financial resources, which cannot have the source only in savings of the residents or loans from nonresidents. Similarly, after stabilizing economies from the financial crisis during 2007 2008, the start of economic growth requires financial resources to increase productivity. Consequently, growth prospects, at least in the developed countries are not optimistic (Dănilă N. 2011)

This hypothesis contrasts with the view expressed by Ben Bernanke (2005), the Fed chairman. U.S. official argument was that, worldwide, excepting U.S., there is an excess of savings, in particular because the baby boom generation, which has retire. In addition, Bernanke argued that some emerging countries become lending sources for the developed countries. These two factors put pressure to lower the interest rates and in the USA was encouraged lending and discouraged saving (Barker T., 2009).

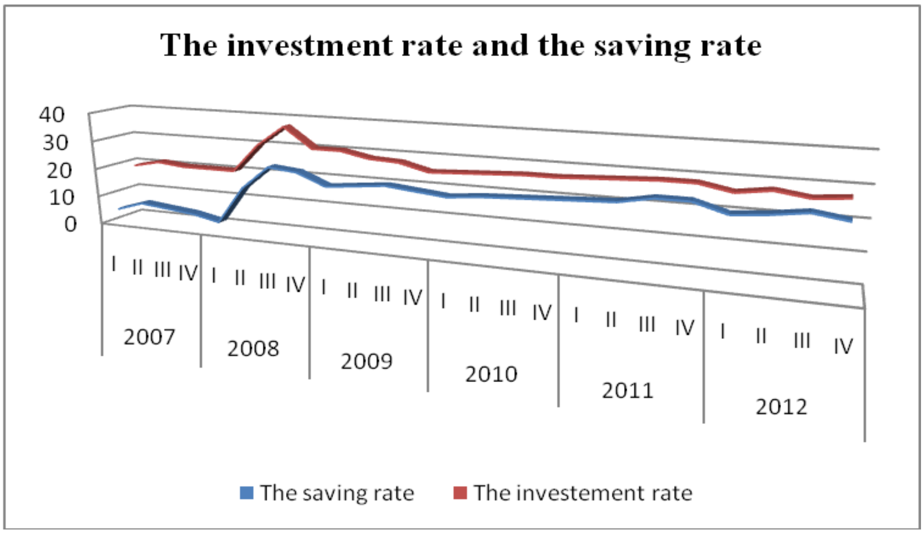
However, this reasoning seems not to have survived at the financial crisis and economic reality because excess of savings from the developed countries has evaporated, leaving in place an excessive level of debt. The primary sector of a national economy is the household saving.

At EU level, the savings rate fell after the financial crisis. Meanwhile, in general, the public debt is higher than the national savings. In these conditions, in the medium term the EU will suffer as a result of fluctuations in financial markets and economic policies will target to increase savings in the government sector.

From the standpoint of the relationship between national saving and public debt, Romania has a relatively good position. Thus, the external pressures are not as high in our case. On the other hand, the perspectives of economic growth in Romania are adversely affected by the behavior of households in their dual aspect: of human capital and generator of financial capital. Household behavior is, however only the answer to economic policies and, therefore, changes in the way people act depends on impulses that economic decision generates regarding public spending, monetary policy and encouraging the savings through financial products.

Figure 1.

The investment rate and the saving rate during 2007 – 2011



Source: National Statistics Institute, author calculations[1]

However, the degree of savings in Romania is very low. The country is financed from external resources which are brought inside. The degree of penetration of savings products lending in Romania is quite low, 1%, comparative with countries with tradition in this system, such as Austria (65%), Czech Republic (54%) and Germany (37%), and one of the reasons is the level of promotion.

In 2006-2007 the increase of the investment effort was fueled by inflows from abroad, whether they were refundable (the amount of credits on medium to long term granted to non-financial non-governmental sector increased by 55 percent) or non-refundable - direct foreign investments and funding programs developed under the pre accession program.

[1] *The investment rate is calculated as the ratio between gross capital formation from GDP and the savings rate is calculated as the difference between national disposable income and final consumption, relative to GDP*

Between 2008 and 2009 in the ways of financing investment projects, amount reductions were observed in all internal channels[2]:

- own resources, taking into account the negative dynamics of population disposable income and losses as reflected in the corporate sector in recent years;
- budgetary funds, capital expenditures carried out in the second quarter dropped by about 28 percent in real terms;
- borrowed funds, considering that amount of new credits estimates of the second quarter for purchasing of equipment and real estate projects indicate reductions with 70-80 percent from the second quarter of 2008. The leasing market (held in proportion of about 90 percent by the corporate sector) has recorded severe adjustments in the first half of this year, especially on segments “auto" and "equipment" (euro value of the contracts fell by 76 percent and 82 percent respectively).

The statistical available data at the level of population indicate during 2009-2011 reducing the level of investments, given that real disposable income was still below the similar level from the same period last year, while gross mortgage loans registered an insignificant increase.

As can be seen in Figure 1 the financial wealth of households has recovered in 2009, because of the higher savings propensity and because of the wealth effect resulted from gains on the financial markets. The saving rate was set to reach 14 % of GDP in 2010 and over 20% in 2011 from a more of 5 % recorded in 2008. The traditional savings products were banks savings encouraged by attractive returns and investment funds. The first year of a fully functioning private pension system has also supported wealth accumulation. The boom consumption phase which started in 2005 approached its end in 2009 due to tightening lending requirements, re-pricing of risk and uncertainty over future earnings.

Despite the historically low saving capacity, the actual economic crisis has brought some improvement in the propensity to save, mainly boosted by accumulation in traditional forms of savings.

2.1.3 *Scenario 1c: Reduced access to credit*

Another way that banks try to protect their loan balance is reducing loans to business, despite the encouragements made by policy makers (whose actions are not modeled here), lower rates of credit have been widely presented to the press. The macroeconomic impact is a reduction in investment by enterprises. This led to a

[2] *The National Prognosis Commission, Private sector development in Romania, available at* *http://www.cnp.ro/user/repository/13d8770e862eb522b62f.pdf*

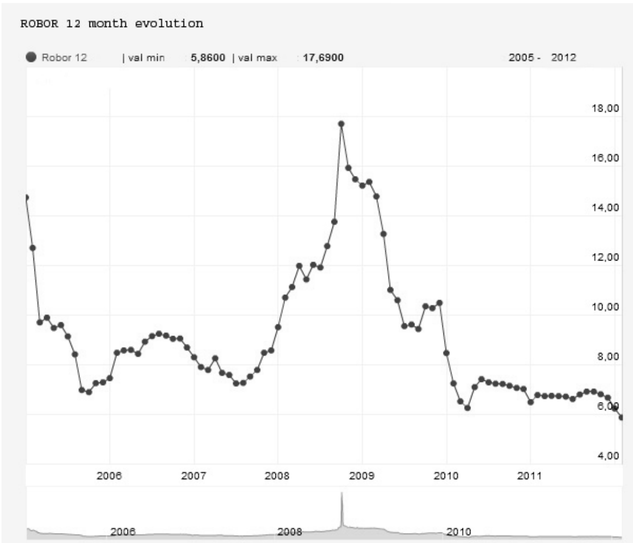
reduction in investment by 5% in 2009-11. In Romania, in their flight to liquidity along with the crisis started, all banks have raised the interest rates for credits to high levels; even more the conditions that must be fulfilled to "take" a loan have become increasingly difficult. In these circumstances the demand for loans has fallen dramatically. This demand could be invigorated with lower interest rate by 5-6 percentage points according to Dominic Bruynseels, the chief executive (CEO) of the Romanian Comercial Bank, the largest bank in the market. At the Romanian Comercial Bank the interest rate for loans in RON reached to 14%, and for the currency to 6%, from levels lower than 5% before the crisis.

The biggest problem is the lack of quality demand. There is a demand for refinance the loans, but there is a weak request for new loans with creditworthy from strong customers. Certainly a decrease in interest rates by 1-2 percentage points will stimulate the demand for loans, but only when the reduction would reach to a decrease of 5-6 percentage points. Romania benefits in altercation with the crisis are that the banks from here have not toxic assets and the banking system is stable. However banks would change their attitude, and become from store credit - as they were in the last 3-4 years, institutions in which companies can go to find the best-performing loans solutions.

At the end of 2011, the Romanian National Bank has sent another call to the banking market: cheapening the loans for stimulating the consumption, even coming with a threat: if cheaper credit is not going to happen, the banks will lose their market share (NBR Annual Report, 2011).

Figure. 2.

ROBOR evolution during 2006 – 2011



Source: NBR

Moreover the central bank freezes the key interest rate to a value of 6.25%, and then dropped it to a new minimum level of 5.75%. Most banks did not consider National Bank of Romania's advice, making the profit to be the main target, and not the market share. As it is illustrated in figure 2, ROBOR rates jumped in October 2008 - when the economic crisis made its presence felt in Romania, to the value of 17.69%- the maximum value that has been reached after 2005, banks being able in this way to protect their balance sheets and not to offer more nonperforming loans. Central bank attempts were very long, and lasted more than two years until ROBOR rates came back to an acceptable value of 7-6%. All this is made again to stimulate the consumption, and and thereby we get to scenario 1d which involves reaching a normal savings rate that is considered normal and lower interest rates.

2.1.4 *Scenario 1d: A return to normal savings rate*

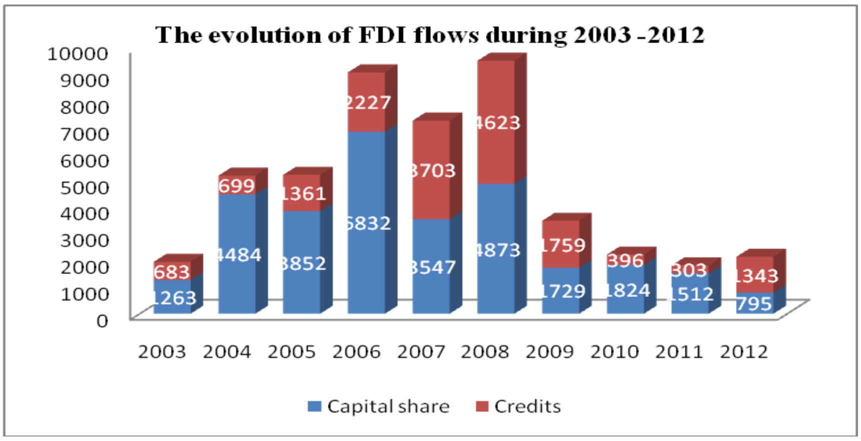
Continuous reduction of household savings rate down to zero, is not sustainable and has been at least partially determined by the availability of cheap loans. As banks do not offer credits to such an extent is not unreasonable to suggest that savings ratios to return to historical averages. We took 2000 as a benchmark and we find that the saving rates have increased in U.S., Japan and Western Europe (excluding Germany, where rates are already high), to 7-9%.

2.1.5 *Scenario 1e: The uncertainty creates a disincentive for investment.*

Last change in the behavior of market agents was the decrease of investments. This effect is distinct from that of lack of access to loans described in scenario 1c and reflects the uncertainty of future profitability. The increased volatility of asset prices and commodity prices may increase this uncertainty. In this scenario, the business investment from the private sector in Romania was permanently reduced by 38% compared to 2009-11. It should be noted that this reduction is roughly comparable to the reduction of 30-40% of GDP as reflected in the United States during the Great Depression.

Figure 3.

The evolution of FDI flows during 2003-2010

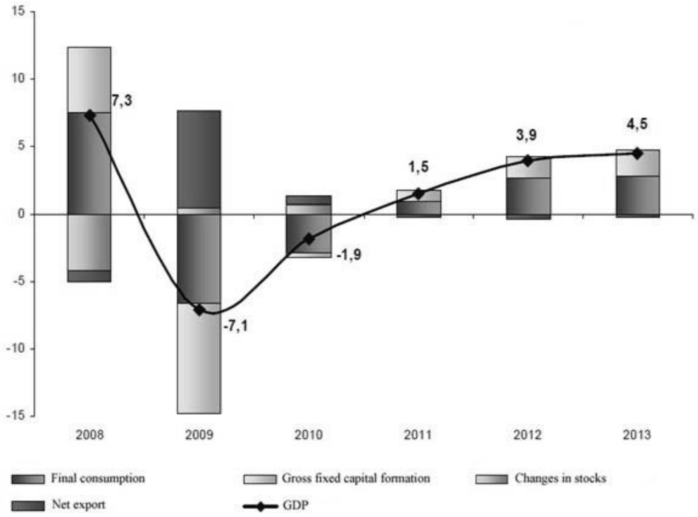


Source: NBR, author calculations

In June 2012 the growth rate in materials investment reached the same level from 2007-2008. In fact, the recovery was due almost entirely to increasing investment in equipment and machinery (by 60.6%) and transport (by 73.8%) (NBR Report, 2013). Investments in private and mixed sector (public and private) have contributed most to the increase: 90%, which are financed from own resources of businesses and households. Meanwhile, foreign investors interest is exhausted, investments in long-term tangible assets financed from abroad decreasing by 25%. (Balint A., 2013).

Figure 4.

Contribution to real GDP growth

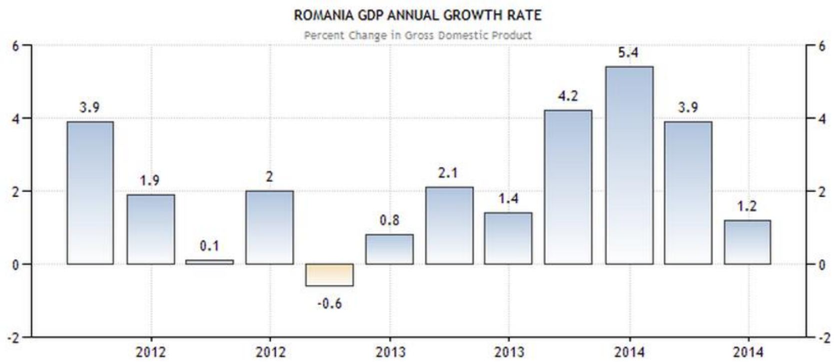


Source: The National Institute of Statistics, NBR, National Prognosis Commission

The macroeconomic framework for 2014-2015 takes into account that economic and financial developments will be better , the recession will reduce its amplitude on the first half of the year, so that on an average to be possible an increase of GDP by 2.5% in 2015 (European Comission, 2014). However the real GDP figures for Romania of 2014 shows a decrease in the GDP annual growth rate as can be easily observed in the next figure.

Figure 5.

Romania GDP annual growth rate



Source: National Institute of Statistics

In the estimation done by the European Comission, was taken into account the funding increase of ongoing projects, improving the absorption of EU funds. The foreign trade of goods and services should have been recovered due to the increased of domestic and external demand and due to commercial exchanges at global level. In this case, both exports and imports should have been increase – but none of this seems to have happened.

2.1.6 *Scenario 1f: The reaction of global commodity prices.*

Reducing the demand for raw materials meant that their prices to fall. At the global level the oil prices fell to baseline of $ 60 per barrel in 2009. From that moment the oil price has continued to grow sequentially, reaching a maximum on April 2011 of 123$/baril. Now the oil price is 106$/baril[3]. According to NSI and Eurostat, Romania was among the countries where the fuel prices had an upward trend during the crisis. Compared with the peak from 2011 the price of gasoline at the pump was in Romania with 18% higher, this percentage placing our country in second place in Europe after Greece. On the other hand top on the table stands Switzerland, fuel being in December 2011 almost with 17% cheaper than the global average, this increase being influenced by the appreciation of the Swiss franc against the dollar.

Regarding the increases between the minimum value from the beginning of 2009 and prices from June 2014 there is a difference of 54.8% in Romania above the EU average of 46[4].

3. The effects of the crisis in Romania and some conclusion

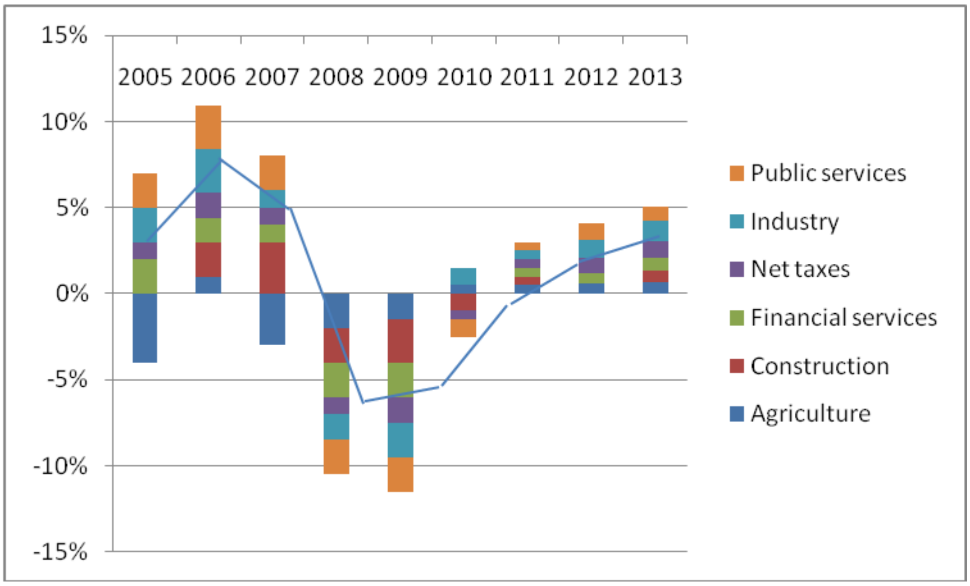
It is not surprising that Romania is among the countries least affected by the crisis compared with the United States, PIGS countries, but greatly affected for a country so unstable from a politically and financially point of view. The main cause of the crisis in Romania has not been generated by the contagion effect. For example, countries like China, India or Mexico, are affected in terms of trade which they have with USA. Romania is protected from banks with very high development, where toxic assets could cause damage, is protected from large investors that through the contagion effect could create great damage here.

[3] *http://www.indexmundi.com/commodities/?commodity=crude-oil-brent&months=60*

[4] Percentages are calculated based on the evolution of the Harmonised Index of Consumer Prices for "Fuels and lubricants for personal transport equipment" according to Eurostat classification.

Figure 6.

The economic growth in Romania during 2005-2012



Source: NIS, author calculations

The model the government sectors E3MG treat as exogenous, so that countries with relatively large public sectors will be less affected. Recent events have shown that this assumption is reasonable in the assumption that governments haven't cut their spendings or in response to lower tax revenues, increased tax fees. Although Romania is not characterized by a large public sector, the government increased taxes, without any positive effect on the amounts collected (Tampu D., 2012) In terms of budgetary expenditures, they registered a slower growth (+ 4.2% over the previous year) to 201.9 billion lei, mainly due to decline in the wage fund by 8.6% compared to 2009 and reducing the investment expenditure by 5%.

The sectors who suffer most are the investments and the business sectors that typically produce entries in the economy. In Romania it was so different from the world in terms of sectors that were affected with the coming of the crisis.

This paper aims to highlight the Romanian banking system reaction to the financial and economic crisis following the scenarios of E3MG model of Hector Pollitt and Terry Barker**.** The model is used to analyze the economic crisis making a combination of theories. According to previous analysis the years 2009-2011 were extremely hard for the global economy, in the absence of any policy intervention. Recovery was expected for the period 2011 - 2012 worldwide and for Romania during 2012-2013. In particular, the Romanian recovery is still awaited.

The current research analyzed Romania, and the effects that the economic crisis has had on it, compared to other developed countries. The model results show that the continue impact that the crisis has on the supply chain of basic materials. In particular, countries with a high concentration of industries are more affected than the others which may be poorer, but are affected by the crisis on other sectors.

The current policy measure has been shown to be too small in scale in order to improve the economic situation, adding only 1% back to the global output. In Romania the VAT increase by 5%, contrary to any fiscal policy doesn't stimulate the consumption. The conclusion that appears after this analysis is that current policy is not close to being adequate for preventing a sizable reduction in global economic activity. The results of modeling the 7-point plan have strengthened the idea that strengthening the confidence to invest both nationally and globally is the defining element to deal with the crisis. So policies must be carefully coordinated, involving simultaneous opening of markets, all requiring a level of cooperation that has not yet been seen.

The three main criteria that have to be done in the particular case of Romania are:

- Restoring confidence of population in the national financial system;
- Reducing the level of volatility and uncertainty over future prices;
- Supporting the budget system by the private sectors through loans with 0 interest rates.

Seven-point plan was broken into six scenarios. Of these, two had negative globally effects: on banking investment and commodity prices stabilization. The temporary stabilization of interest rates near zero will have a positive impact, but not great as most of the economies have led the rate level near zero. The main positive result of increased investment will be the returning of confidence in the global financial system. The results show that there are ways to stimulate the economy and increase employment, transforming the financial crisis into an opportunity for a new green deal.

Acknowledgment:

This work was supported by the project "Excellence academic routes in doctoral and postdoctoral research - READ" co-funded from the European Social Fund through the Development of Human Resources Operational Programme 2007-2013, contract no. POSDRU/159/1.5/S/137926.

References

Barker T, 2009, *Understanding and Resolving the Big Crunch*, Presented to the Cambridge Trust for New Thinking in Economics, available at http://www.neweconomicthinking.org/downloa ds/BigaCrunch%20.pdf;

Balint A. O., 2013, The application of multi - agent systems in the field of transport, *Hyperion Economic Journal - HEJ*, ISSN 2343-7995, Vol. 1, Nr. 1, pp.

51-55; http://econpapers.repec.org/article/hypjournl/v_3a1_3ay_3a2013_3ai_3a1_3ap_3a51-55.htm

Bernanke B, 2005. *The economic outlook*, Speech 90, Board of Governors of the Federal Reserve System (U.S.);

Cambridge Econometrics, 2007. E3ME manual, available online at www.camecon.com/L ibraries/...Files/E3ME_Manual.sflb.ashx ;

Cambridge Econometrics, 2009. Model Application for Post-2012 regime, Global policies and Eu27 Action. An analysis of GHG reduction using E3MG, carried out for DG Environment, European Commission;

Dagoumas A., Barker T., Pollitt H., 2009, *Energy investments under the financial crisis,* available online at http://cambridge.academia.edu/AthanasiosDagoumas/Papers/722075/Energ _investments_under_the_financial_crisis ;

Dănilă N., *Saving and growth prospects*, available online at http://www.bnr.ro/Economisirea-si-perspectivele-cresterii-economice-6792.aspx ;

European Commission (2008), A European Economic Recovery Plan: Communication from the European Commission to the European Council, COM (2008) 800 Final, available at http://ec.europa.eu/commissionabarroso/president/pdf/Comma20081126.pdf;

European Commission, 2008. A European economic recovery plan, communication from the European Commission to the European Council, COM(2008) 800 final, available online at http://ec.europa.eu/commission_barroso/president/pdf/Comm_20081126.pdf ;

European Comission, 2014 European Economic Forecast for Romania, http://ec.europa.eu/economy_finance/eu/forecasts/2014_spring/ro_en.pdf

IEA, 2009, The impact of the Financial and Economic Crisis on Global energy Investment;

Köhler J., Barker T., Anderson D., Pan H., 2006, Combining Energy Technology Dynamics and Macroeconomics: The E3MG Model, *The Energy Journal,* Vol. 27, Special Issue: Hybrid Modeling of Energy-Environment Policies;

Leetmaa P., Rennie H., Thiry B., Household saving rate higher in the EU than in the USA despite lower income, available online at http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-SF-09-029/EN/KS-SF-09-029-EN.PDF;

Ministry of Finance, The budget fiscal strategy during 2011-2013, availbla online at http://discutii.mfinante.ro/static/10/Mfp/strategbug/STRATEGIA_FB_27sept.pdf;

Pál R. , *CEE Households' Wealth and Debt Monitor, Country Focus*, Published by UniCredit Bank Austria AG, Schottengasse ;

Pollitt H. and Barker T., 2009. *Modelling the financial crisis with the global, econometric E3MG model*, presented at the International Conference on Applied Economics and Time series Econometrics (ICAETE), April 17-18 2009, Hyderabad;

Sabiescu A., *What business strategy had the largest banks in Romania*, available online at http://www.wall-street.ro/slideshow/Finante-Banci/90331/BCR-vs-BRD-Ce-strategii-de-business-au-avut-cele-mai-mari-banci-din-Romania/2/Bancile-taie-puternic-cheltuielile.html ;

The National Prognosis Commission, Private sector development in Romania, available at http://www.cnp.ro/user/repository/13d8770e862eb522b62f.pdf;

Vladucă L., Țampu D., Costea C., 2012, Approach of consequences of increasing taxation in Romania from benefits to collateral effects, *Journal of economic financial theory and practice,* vol. 1, nr. 1, pp. 412-420, ISSN 1582-6260, http://economice.ulbsibiu.ro/revista.economica/archive/suplimente/Volume1-2012.pdf;

The National Bank of Romania, Inflation Report, 2012, ISSN 1582-2923;

The National Bank of Romania, Annual Report, 2011, ISSN 1584-0913;

The National Bank of Romania, FDI Report in 2012, 2013, ISSN 2247-5095.