

AUTOMATIC MONETARY STABILIZERS – A SOLUTION FOR A BETTER MONETARY POLICY AND ECONOMY FUNCTIONING

*Alina Georgeta AILINĂ*²³

Abstract

As we know, the opposite of the current that support a strong discretionary action of the state is the current that completely excludes the intervention of the state in the economy. In addition to these, there is the current which claims the use of more “light” tools in the management of macroeconomic policies and the economy in general. In order to compensate for the fluctuations in business cycles and even the emergence of some unexpected shocks or imbalances in the economy, in the macroeconomic policies framework, among other things, automatic stabilizers have been proposed to be used. The role and their’s operation it was widely discussed especially regarding the fiscal and social sphere as: progressive taxes, transfers, social benefits etc. Thus, this article aims to identify and explain the operation of monetary (and foreign exchange) automatic stabilizers, while trying to provide also for the Romanian monetary policy some benchmarks in order to act in this regard.

Keywords: automatic monetary stabilizers, business cycle, monetary policy, output fluctuation

JEL classification: E32, E52, F31

Introduction

The crisis has left behind numerous wounds, especially within Europe: businesses have not returned to previous levels of profit, many businesses have disappeared and others had reconfigured fundamentally their strategies, interest rates have fallen, asset prices have decrease, households still face low family budgets being affected partly by the decline in income and partly by the unemployment, many old workers have been threatened by losing their jobs thus retiring earlier, unemployment rose unexpectedly and even today is extremely high, especially among young people and at these problems are added new waves of biblical proportions of immigrants from the Middle East.

Macroeconomic policies, like fiscal and monetary policy, can improve these sorts of shortcomings, and in addition to discretionary instruments, the non-discretionary instruments, like automatic stabilizers can counteract, in crisis situations, the business cycle downturn and sustain aggregate demand. It can be identified two forms of macroeconomic policy responses to instability in an economy: through discretionary policy or through the automatic stabilizers. The effect of these automatic stabilizers is to create macroeconomic drag during periods of unusually powerful growth and macroeconomic boost during periods of very poor growth or negative growth. In fiscal and social fields, as automatic stabilizers, they are known for example the progressive income taxes, unemployment insurance benefits, social security and disability compensations etc. When we are looking to the monetary policy, the usual discretionary instruments may include the open market operations, key interest rates, reserve requirements and credit control, while the most known automatic monetary stabilizer is the floating exchange rates.

Thus, this article aims at analyzing possible automatic monetary stabilizers especially in terms of theory but also the article tries to offer some validation by analyzing the exchange rate automatic monetary functioning in some non-euro area countries, including Romania.

Description of the problem

In times of economic expansion or at least with sustainable economic growth stages, macroeconomic policies are often irrelevant for the public opinion, for politicians, for annalists or

²³ Researcher III, “Victor Slăvescu” Centre for Financial and Monetary Research, Romanian Academy, email: alina.glod@gmail.com

even for researchers but when recession or depression strike the normalizing (or the shock absorbent) effect of automatic stabilizers becomes very important. A reduction of operational costs is important, also fiscal and monetary stimuli are useful, but usually is not took into consideration the fact that an important part of stabilisation effect is achieved through automatic stabilisers. Their role should be conceived and better designed especially in times of economic quietness or macroeconomic soundness and it should be effectively exploited in times of tribulation, thus testing the dosage or the quality of the stabilizers.

Although the costs of using automatic stabilizers are reduced or even zero, unlike discretionary measures or instruments, the automatic stabilizers have limited use due to the lack of sufficient understanding of the way they operate and due to the fact that is more easy to find classical solutions than to rethink problems in order to find a variety of alternative better solutions.

There is not much theoretical and applied research papers on how the automatic stabilizers function in Romania and where there are, they focus on automatic fiscal stabilizers. Taking into account the above, this article tries to bring some light on the theory and the implementation of the concept of automatic monetary stabilizers, especially in our country.

Literature Review

Many papers and studies identify and analyze the behaviour of automatic stabilizers in different periods of time and in different part of the world shedding some light on the concept of automatic stabilizer and the way automatic stabilizer function (like: Egle (1952), Eilbott (1966), Eaton and Rosen (1980), Bayoumi and Masson (1995), van den Noord (2000), Blanchard (2000), Bourguignon, F., Spadaro, A., (2006), Dolls, M., Fuest, C., Peichl, A. (2010), Dinga and all (2011), Ghilarducci, T., Saad-Lessler, J. and Fisher E. (2011), Hofer, Hanappi and Müllbacher (2012), etc.); mostly, these papers concentrate only on the fiscal-budgetary (including social) automatic stabilizers.

Although it talks often about fiscal automatic stabilizers, it appears to be more effective the monetary automatic stabilizers. Firstly, the implementation of monetary automatic stabilizers can be installed very fast and more efficient. Secondly, because their design and implementation is done by specialists and not by politicians, they have a better substantiation. Thirdly, monetary policy has rather a long-term vision than a short or medium-term view, as in the case of the stabilization instruments conceived by the government. But regardless of whether it functions the monetary or fiscal stabilizers, all of them should be: temporary (thus avoiding growing deficits and inflation), targeted (especially design to serve those who are in deep needs), at the right time (when the economy is still below potential), it must bring a natural feeling in the economic turn (without sudden and strong changes, even if they are positives) and must be rapid, flexible and/or mobile (to be implemented quickly in the needed segment of the economy).

Monetary automatic stabilizers can be conceived by the way is structured monetary policy and financial-monetary system. In good times, monetary automatic stabilizers should contribute to the proper use of stock of money or to fundament the growth of reserves system; in bad times it should prevent the decrease in the liquidity, cushioning the eventual adverse trends determined by a financial crisis. Thus, the *deposit insurance system* (including the guarantee fund) can prevent banks deposits from falling sharply when depositors are in great fear of losing their money, preventing sudden withdrawals of funds that could even lead to bank failures.

Also, *an instrument of dual-function like credit-deposit/saving type* can be a monetary (rather banking!) automatic stabilizer. With the client's consent and under the conditions imposed by him, the deposit account (savings account) - credit account would be designed to be automatically charged with a modest amount of money over a period of time where the economic conditions are good and customer's financial situation is fine. When the economic cycle collapses and the personal finances fall (due to unemployment, job changes, adverse personal events etc.) the instrument is activated to provide the same comfort to the customer as before the adverse events. Customer may choose to cash or not the interest, and if it doesn't, the interest will add to initial deposit. The function of crediting should be activated automatically when the bank's client would ask for a loan based on the previous deposit in order to open a business or to invest in one (especially in the case that he lost his job!) or to cash a regular sum of money on monthly bases

until he can find a job. Today, there are in the banking market various simplistic versions of the instrument, but it doesn't cover the fully automatic stabilizers concept.

It should be noted that the natural functioning of banking market mechanisms it is sometimes disrupted by the state by taxing the interest. Thus, the tax on interests interferes with the natural process of lending and savings by discouraging movement of capital through banks, thereby encouraging the money at the "mattress" or even black economy.

At the same time, in credit agreements, certain contractual clauses allowing postponement of payment on a certain period of time in case of unemployment, against a background of economic downturn, may facilitate the automatic stabilization function of both - the financial situation of the client and of the bank and also, in the case of a multiplication effects, of an important part of the economy.

Returning strictly to the monetary policy, according to Cerna (2014), in the case of targeting monetary aggregates they can prove an automatic stabilizer character when the economy faces a negative shock in demand (a version of the IS-LM model constructed by Poole) and the central bank must maintain constant the monetary supply in order to offset the reduction in global demand. This involves lowering interest rates but even so, according to the author, it is not entirely capable to restore the full labor employment. In these conditions, a proper model would be The Aggregate Demand – Aggregate Supply Model (AD-AS) which might compensate entirely the demand shock through a reduction in interest rates in order to offset the shock.

Other visions deny the current banking model (with two levels), considering it as inappropriate for the monetary automatic stabilizers to function. Thus, Dowd (1988) states that a stabilization mechanism is automatic when operate in the "free banking" monetary system (an idea supported also by the Austrian school), eliminating many drawbacks caused by a monetary system under the patronage of the central banks ("[...] At first this intervention takes the form of establishing a government-sponsored bank with a monopoly over note issues. Regulations are also imposed on other banks. These interventions prevent a clearing system from developing and make the private sector banks more vulnerable to shocks, thus undermining the stability of the banking system. The state also frequently turns to the private banking system for forced loans when there is a fiscal crisis (such as a war), and this pressure further weakens and destabilizes it. By this stage public concern about the instability of the banking system has become acute, and the state feels obliged to intervene further to try to stabilize the monetary system, Banks' activities are then regulated and supervised to improve their "safety and soundness." This intervention increases the instability even more and we end up with the monetary system we have today" (Dowd, 1988)). However, it can be noticed that, in time, central banks have distanced themselves from the interventionist policy of the state and they are approaching to an equidistant and rather stabilizer monetary system, but being still far enough from the 1920s previous regime, using regulations and instruments to stabilize the monetary system and economy rather on short-term than on long-term (like in a paradigm of a durable development vision).

It must be said that even the *quantitative easing (QE) strategy could be design as an automatic stabilizers tool* if one of the problems of economic collapse might prove to be the sharp and strong decline of liquidity. The threshold at which this method would automatically go into action might prove difficult to establish, in the sense that it should be low enough to get close to the critical threshold of entering into a solvency crisis, but still high enough to temper or even to reverse the downturn of the economic cycle. The QE is one of the many unconventional monetary policies used especially when nominal interest rate may prove ineffective; thus, trough QE central bank tries to expand monetary base by acquisition of different financial assets from commercial banks. If QE remains a discretionary method, as at the present, it can create strong disturbances offering too much liquidity, when and/or where it is not needed. This weakness of using QE (especially by Fed) is analyzed by Palley (2014), which is stating that *Asset Based Reserve Requirements (ABRR)* can bring more benefits and fewer distortions both in monetary policy, in financial markets and in the economy. According to the author ABRR "it addresses the problem of asset bubbles that caused the financial crisis. Furthermore, ABRR have particular benefits for Europe because they can help address the loss of national monetary policy resulting from the creation of the euro. [...]ABRR require financial firms to hold reserves against different classes of assets, with the regulatory authority setting adjustable reserve requirements on the basis of its concerns with each asset class.

ABRR are easy to implement, use the tried and tested approach of reserve requirements, and would fill a major hole in the existing range of financial policy instruments. However, maximum effectiveness of an ABRR approach requires system-wide application to diminish possibilities for avoidance that can contribute to instability. [...]To fully succeed, reserve requirements must therefore be set by asset type, not by who holds the asset. [...]ABRR are more flexible than capital standards because they impose reserve requirements rather than equity requirements and they are also counter-cyclical rather than pro-cyclical. [...] ABRR also act as automatic stabilizers. When asset values rise or when the financial sector creates new assets, ABRR generate an automatic monetary restraint by requiring the financial sector come up with additional reserves. Conversely, when asset values fall or financial assets are extinguished, ABRR generate an automatic monetary easing by releasing reserves previously held against assets. ”.

According to economic and monetary theory, one of the most important automatic monetary stabilizers is *floating exchange rate*. Floating exchange rates are acting as automatic stabilizers when a negative supply or demand side shock is affecting the economy and the national currency is depreciating (while because of the significant capital outflow, the foreign currency is appreciating), the exchange rate will rise, leading to a fall in export prices, raising automatically the competitiveness of the exported goods. If foreign demand is price elastic, the revenue from export will grow, and if the exports are increasing significantly for an economy, they can improve the balance of trade, restoring, by the multiplier process, the internal aggregate demand, the income and the employment in that economy.

Regarding the exchange rates as automatic stabilizers, Krugman and Obstfeld (2003) asserted the idea that the rapid adjustment of market-determined exchange rates could support the countries to maintain internal and external equilibrium in the face of aggregate demand changes, even when monetary policy experienced shortages.

Under a fixed exchange rate regime in the situation of the reduction of the demand for a country's exports, it is necessary a reduction of the money supply, which might decrease the output, keeping the economy further in recession. Usually, it is believed that the fixed exchange rate might help taking inflation down: firstly, by international price pressure, which would exert a tight discipline on domestic price increases and secondly, by shift expectations from an inflationary setting to a price stability regime. However, a fixed exchange rate can generate macroeconomic imbalances that may compromise the initial result of low or stable inflation. Also, under a fixed exchange rate regime the inflation might be easily imported from a country's trade partners. It is also true that, though floating exchange rates regimes might act as automatic stabilizers, it can bring excess of volatility (larger and/or more frequent exchange rates fluctuations or even currencies speculative movements) and might not prevent the occurrence of obstinate and wide current account deficits. Even more, according to Mundell (1963): “Fiscal policy thus completely loses its force as a domestic stabilizer when the exchange rate is allowed to fluctuate and the money supply is held constant. Just as monetary policy derives its importance as a domestic stabilizer from its influence on capital flows and the exchange rate, so fiscal policy is frustrated in its effects by these same considerations.” A similar idea is formulated by Gustafsson (2009) for Sweden: “The deregulation of the financial sector combined with the introduction of a floating exchange rate is a sign of decreasing effectiveness of both fiscal policy, in general, and automatic stabilizers. This effect is probably reinforced by the increase in the degree of trade openness. The replacement rate in the unemployment insurance system has decreased over time, thus lowering the stabilizing effect on private consumption. Also the composition of aggregate demand has changed in a way that should have slight decreasing effects on the effectiveness of automatic stabilizers due to the share of stabilized components decreasing. The only development pointing in the direction of increased effectiveness of automatic stabilizers was the increase in government size.”

However there are voices that state the fact that floating exchange rates also free the government or central bank from “defending” the exchange rate, taking care rather of problems like unemployment or inflation or any other internal important issue. Also, floating exchange rates have helped countries to overcome different external shocks (e.g. oil price increase), giving to the governments more flexibility in actions and requiring lower foreign reserves compared with fixed exchange rate regimes.

According to the Obstfeld (1986): “[...] Fixed exchange rates can be better automatic stabilizers than are floating rates when most shocks originate in asset markets; but when goods-market shifts drive macroeconomic fluctuations, floating rates generally have an advantage. And the evidence is that many disturbances of the early 1980s originated in goods markets. The stability advantages of floating rates in these circumstances, however, will be distributed unevenly among the economy's sectors. This misallocation is the root of the misalignment problem.”

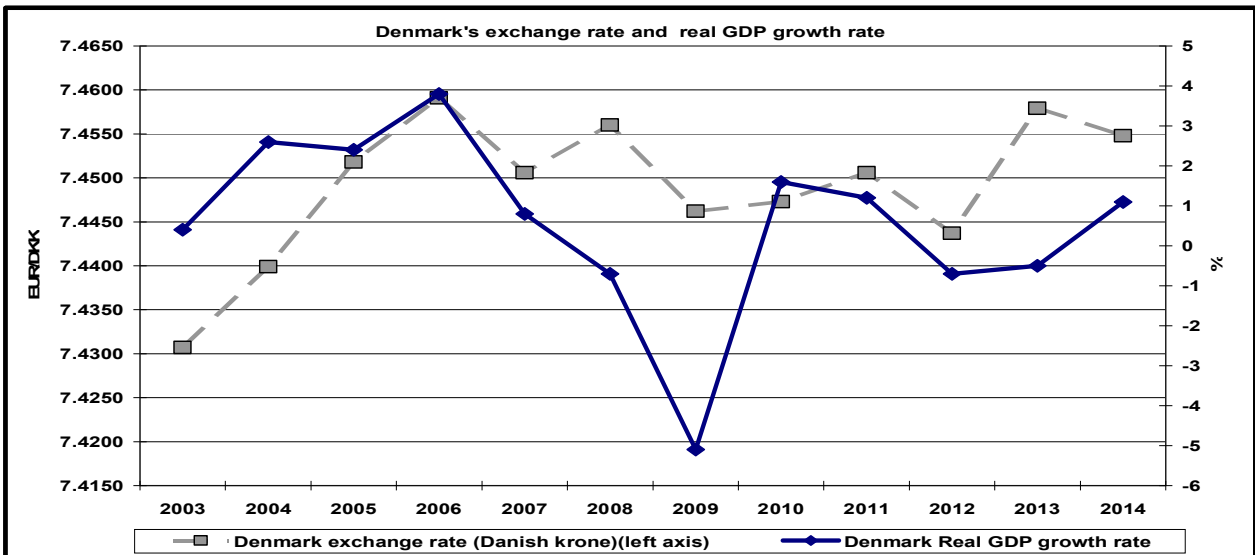
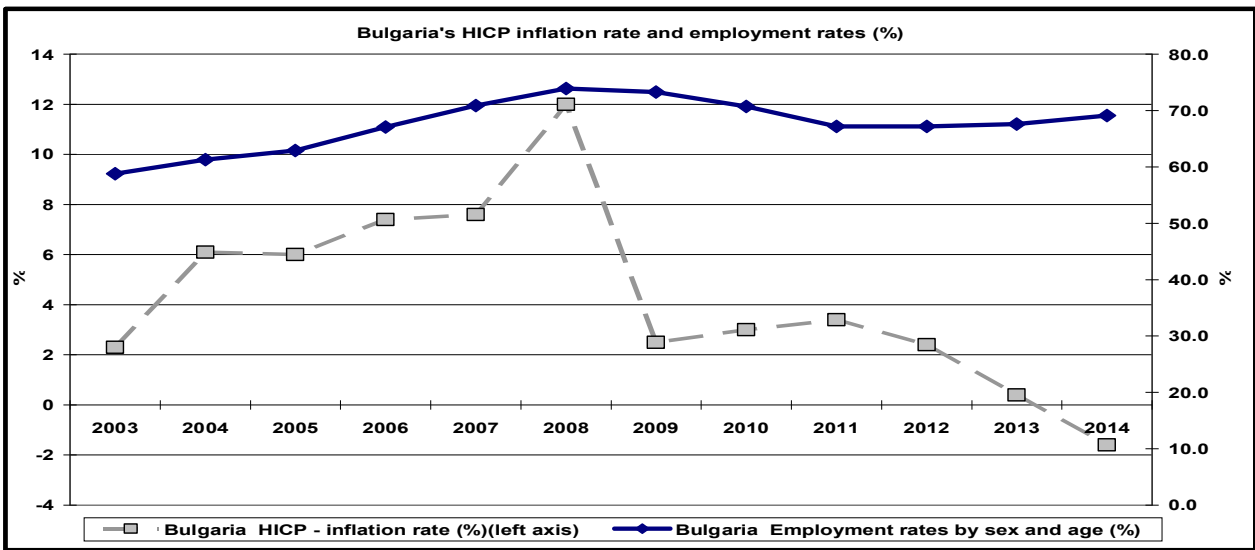
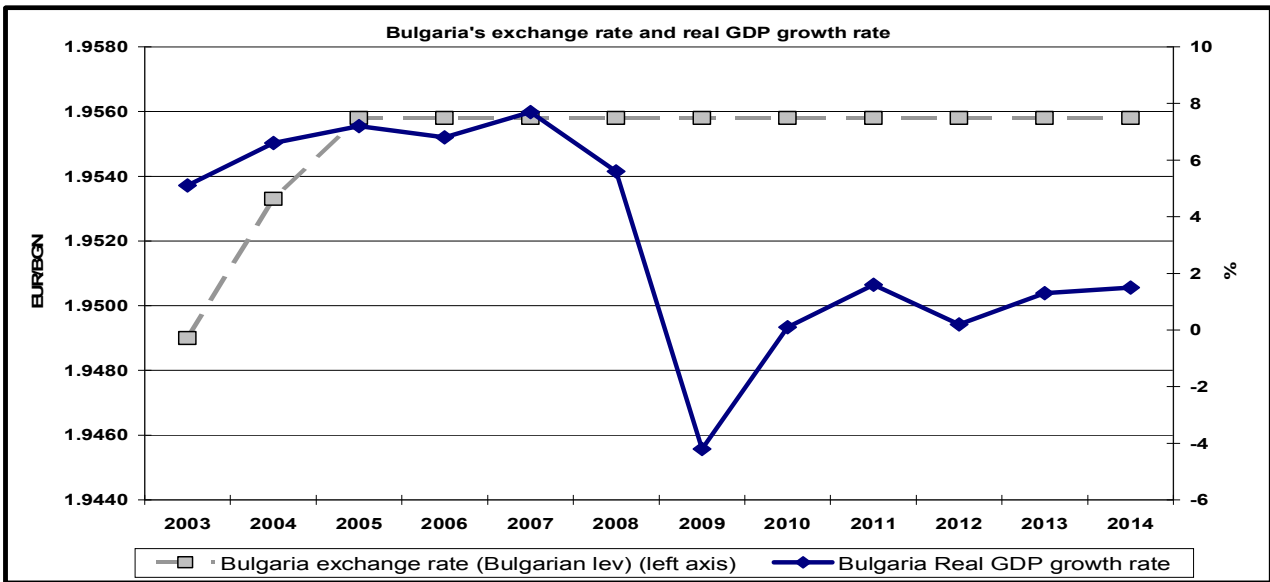
On the other hand, Aysun (2006) assert that: “[...] exchange rate regimes that limit the effect of external shocks on bank balance sheets and hence on foreign interest rates are better in terms of limiting output volatility in emerging markets with high foreign currency exposure. The results should not be interpreted as a case for fixed regimes but rather a case against perfectly flexible regimes in emerging markets. This analysis suggests that countries with shallow financial markets that have foreign exchange vulnerabilities should limit exchange rate fluctuations until their markets are developed enough to sustain a flexible regime or shift towards a monetary union or even dollarization.” Also, the author finds “larger welfare losses under flexible regimes”.

Methodology and data sources

Being unclear if there is a visible connection between exchange rate regimes and the way of real GDP turns around, the article using a logical analysis tries to find possible connections. Firstly, concerning exclusively the automatic monetary stabilizers, the paper makes a foray in what they are and what they suppose to do. Also, using Eurostat data, the article tries to show some links between real GDP evolution and exchange rate movements in several countries outside of euro area (in or out of ERM2) or even outside of European Union (Norway). I selected countries with fix and flexible exchange rate regimes to see if there are visible differences between them and also I selected countries with recognized strong fiscal stabilizers and countries with weak fiscal stabilizer to see if can be discussed as interfering with the exchange rate. Thus, though it is taken into consideration the work of other researchers, this article tries to find its own path in explaining the realities.

Results obtained

It is known that, automatic stabilizers may be defined as those instruments which adjust automatically to the economic cycle, but when we look at the behaviour of the exchange rates and of real GDP growth rate in several countries outside of euro area and even from outside of EU for a period from 2003 – 2014, the above statements are not so clear (see Fig.1, Fig.2, Fig.3). Usually, under floating regimes, the exchange rates are acting as automatic stabilizers when a negative demand side shock seen by a downturn in real GDP growth rate is affecting the economy raising exchange rate and implicitly the competitiveness of the national products exported, thus the exports will rise and aggregated demand and the employment. Under fixed exchange rate regimes it is believed that inflation might be considerably reduced. Seeing the Fig.1 of the countries with fixed exchange rate (in or outside of ERM2), like Bulgaria and Denmark, we can say that the elements that supposed to be improved by the exchange rate conduct have still a lot of structural rigidities, which don't allow them to react well enough to changes in economic cycle. Although both countries have registered a collapse in inflation, the employment rate also suffered heavily, especially, surprisingly, in Denmark, which is operating within the Exchange Rate Mechanism 2 (ERM2) since 1999 and must manage together with ECB the exchange rate in a semi fixed regime of plus-minus 2.25%.



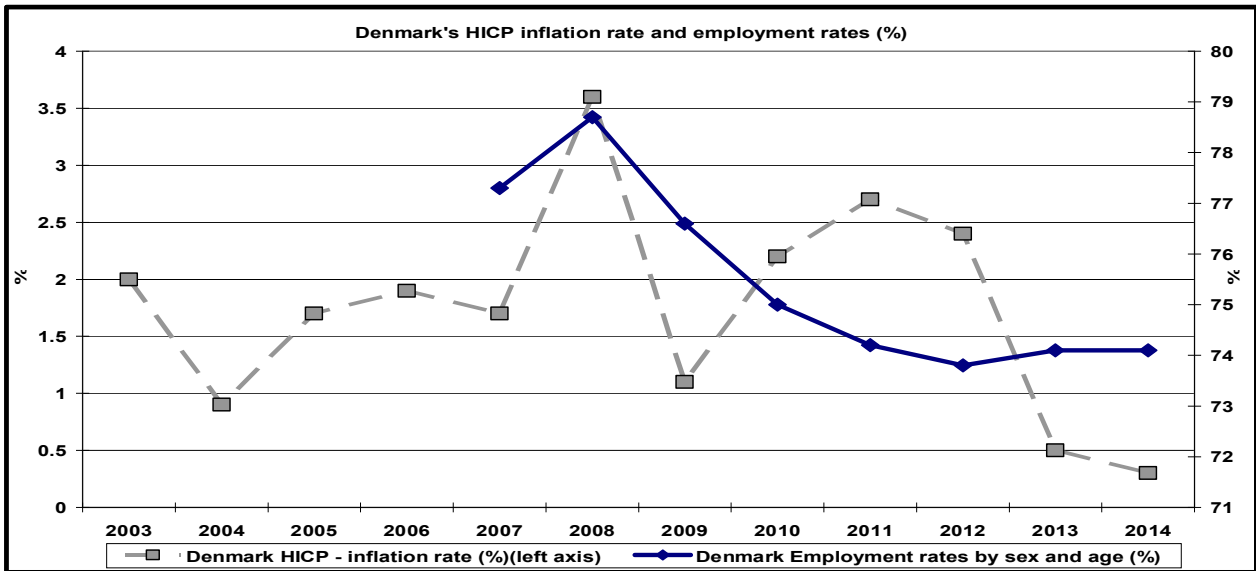
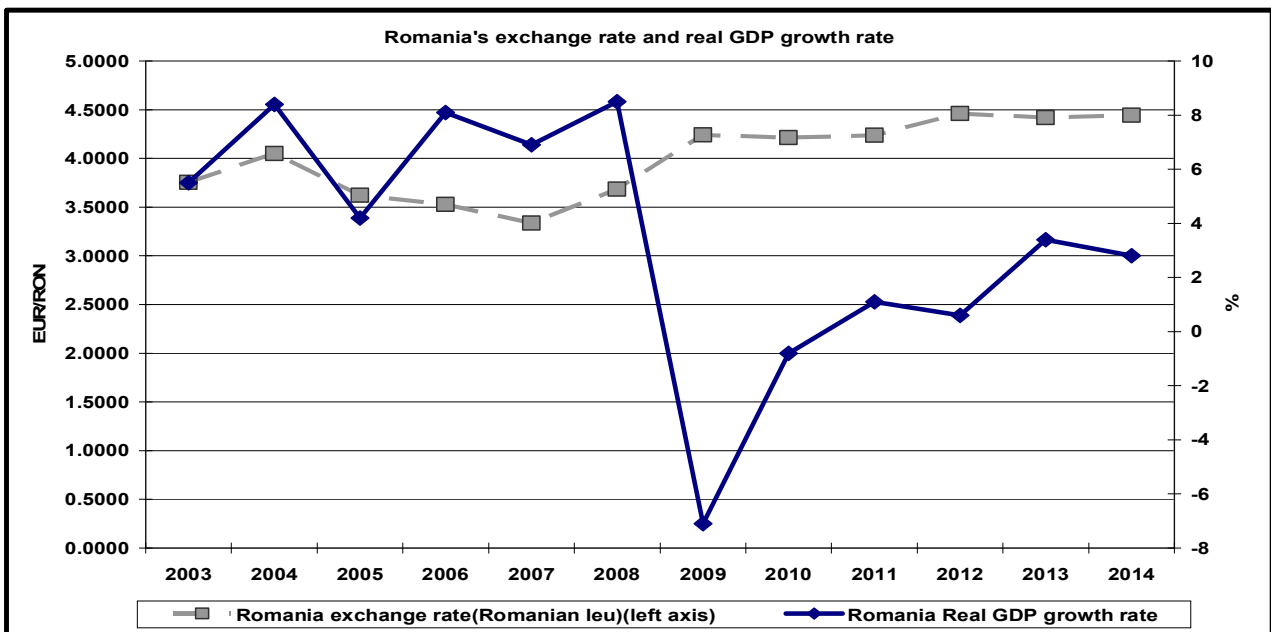


Fig.1. Bulgaria and Denmark exchange rates and the evolutions of their supposed effects in economy including the conduct of real GDP growth rate
Source: Eurostat data

When we look at the evolution of floating exchange rates from Romania and Poland (see Fig.2), it can be seen a kind of stabilization mechanism of the exchange rate fluctuation over the real GDP growth rate but is uncertain if is due to the discretionary or un-discretionary monetary policies actions. Also, the exchange rate contributed to the decrease in inflation (in Romania it looks like a natural deflationary process started in 2000 and reinforced since 2008) but the most important it seems like the international crisis started in 2008-2009 had no effect over the trend of the employment rates (they are continuing to grow smoothly).



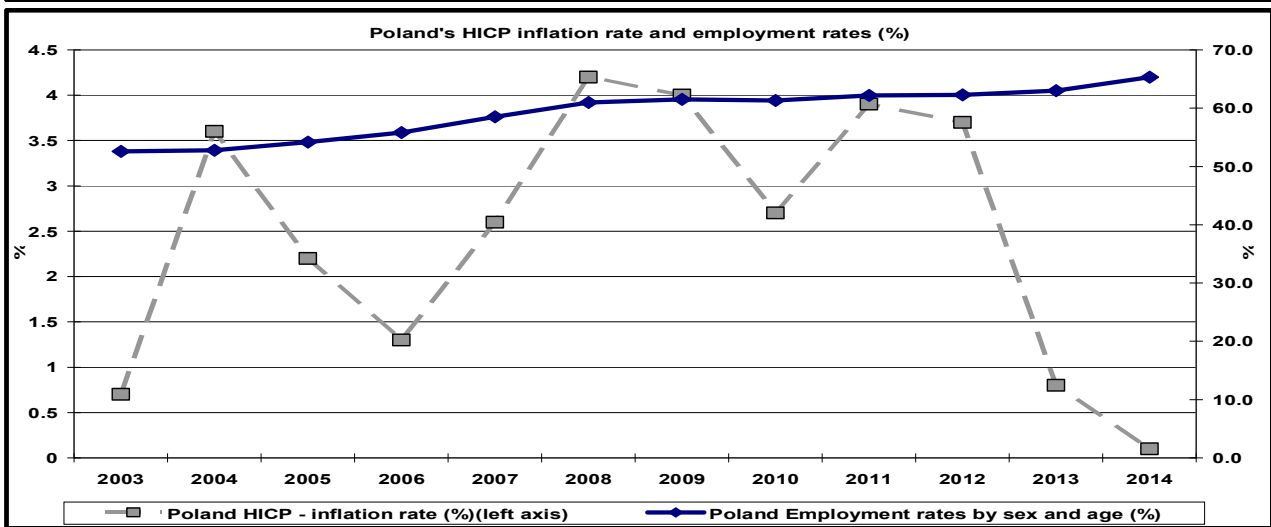
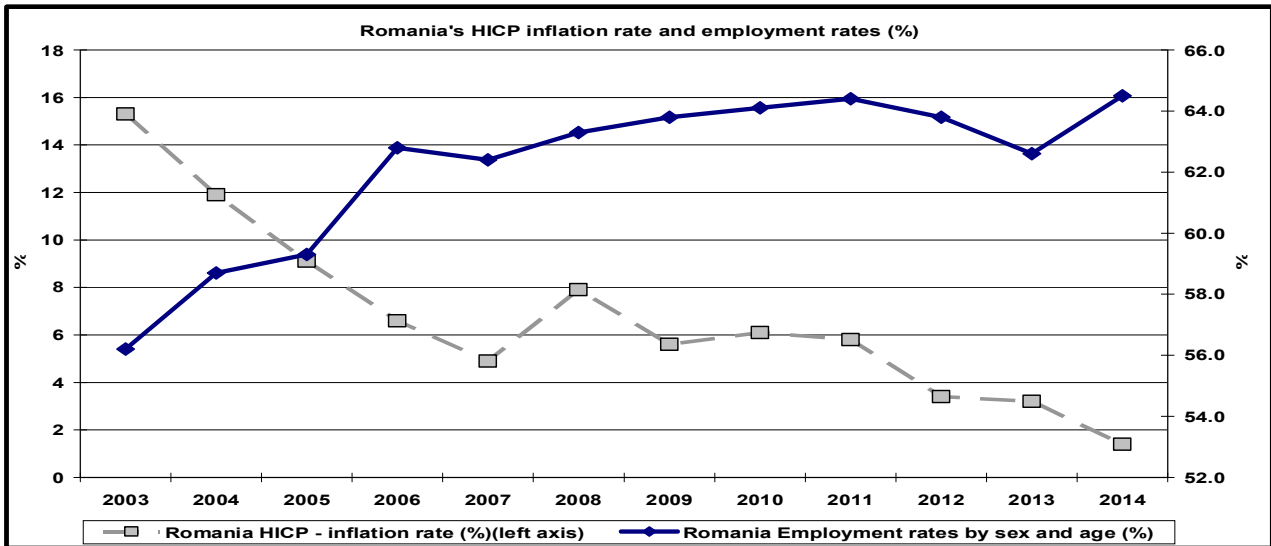
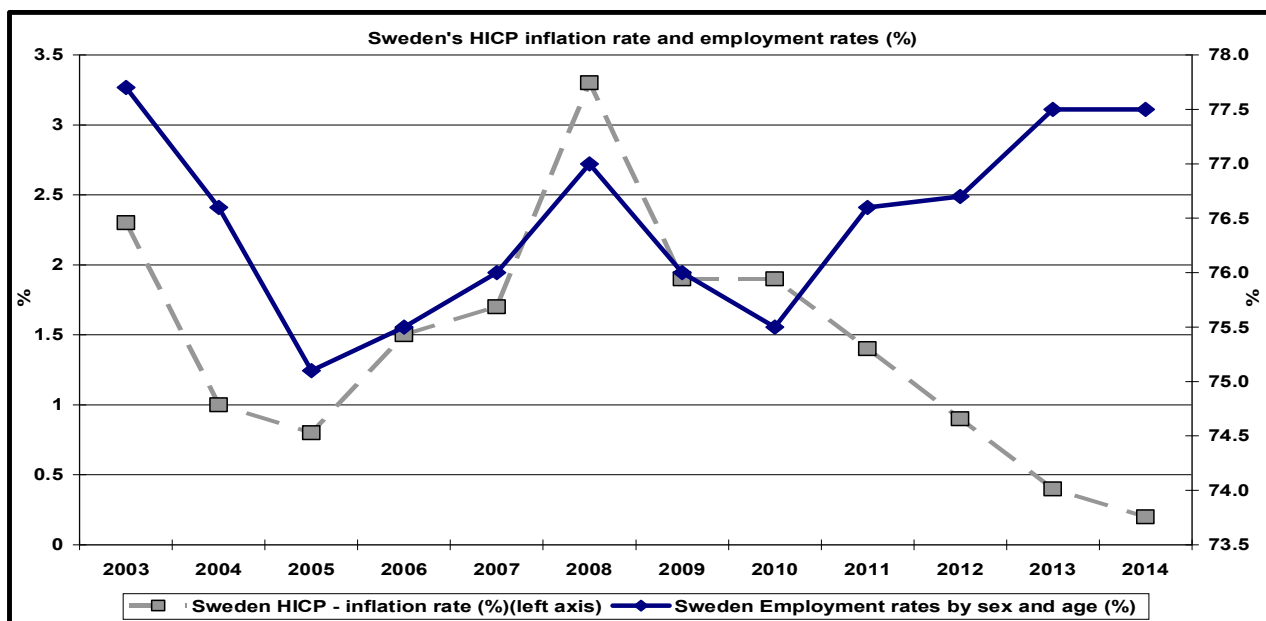
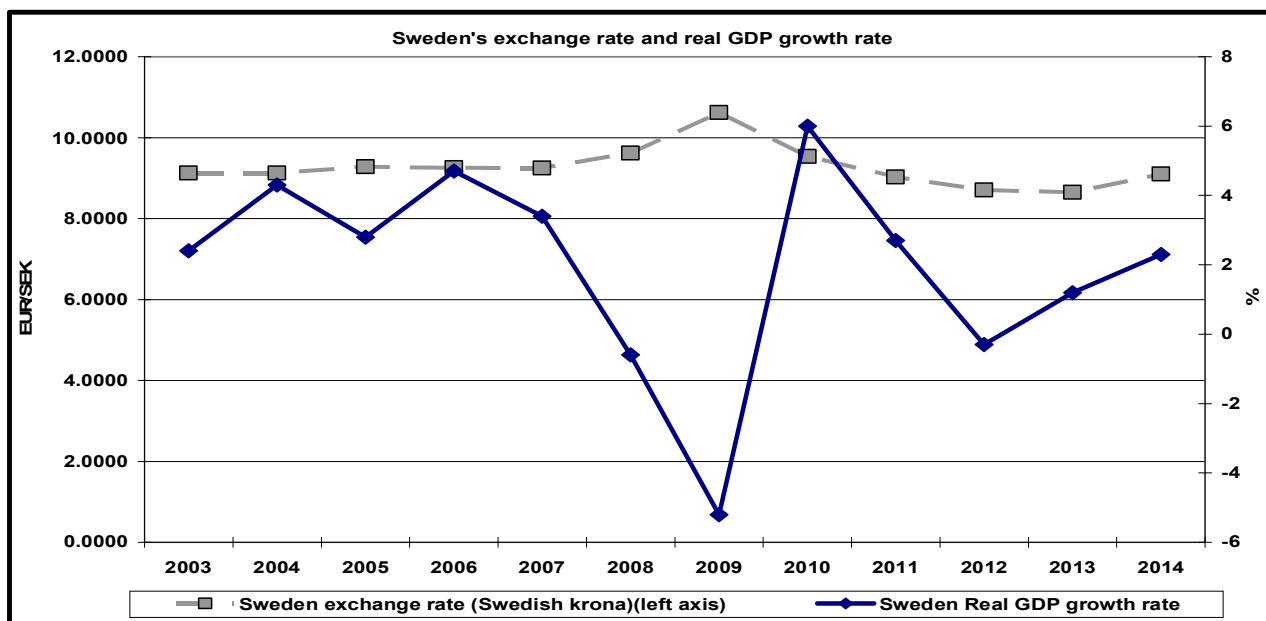


Fig.2. Romania and Poland exchange rates and the evolutions of their supposed effects in economy including the conduct of real GDP growth rate

Source: Eurostat data

If we take into consideration countries with strong fiscal stabilisers according to the theory (see Fig. 3), from EU (but outside of euro area) like Sweden and from outside of EU like Norway but with floating exchange rate regimes, we can see that exchange rates moved rather according to the conduct of automatic stabilisers but the effects on the inflation and employment rate are rather

inconclusive (for Norway there are insufficient data for employment rate!). In Sweden it can be seen that only from 2010 the inflation decreased heavily and the employment rate grew strongly but we cannot say that is an effect of the exchange rate regime and conduct or it is due to discretionary or un-discretionary actions. It should be said that since 1992, the Central Bank of Norway abandoned the fixed exchange rate, choosing a rather a managed float exchange rate regime in order to protect NOK (Norwegian krone) of speculative attacks from early 1990s. Also, the Swedish krona doesn't participate in ERM II, being under a flexible exchange rate regime and registering rather strong volatility. The Norway krone suffered important depreciations from seventies until nineties and under global financial crisis it exceeded the 10.0 NOK for 1 EUR (decreasing mildly afterwards), but even so the investors were able to realize important gains amid a stable economy and strong public finances.



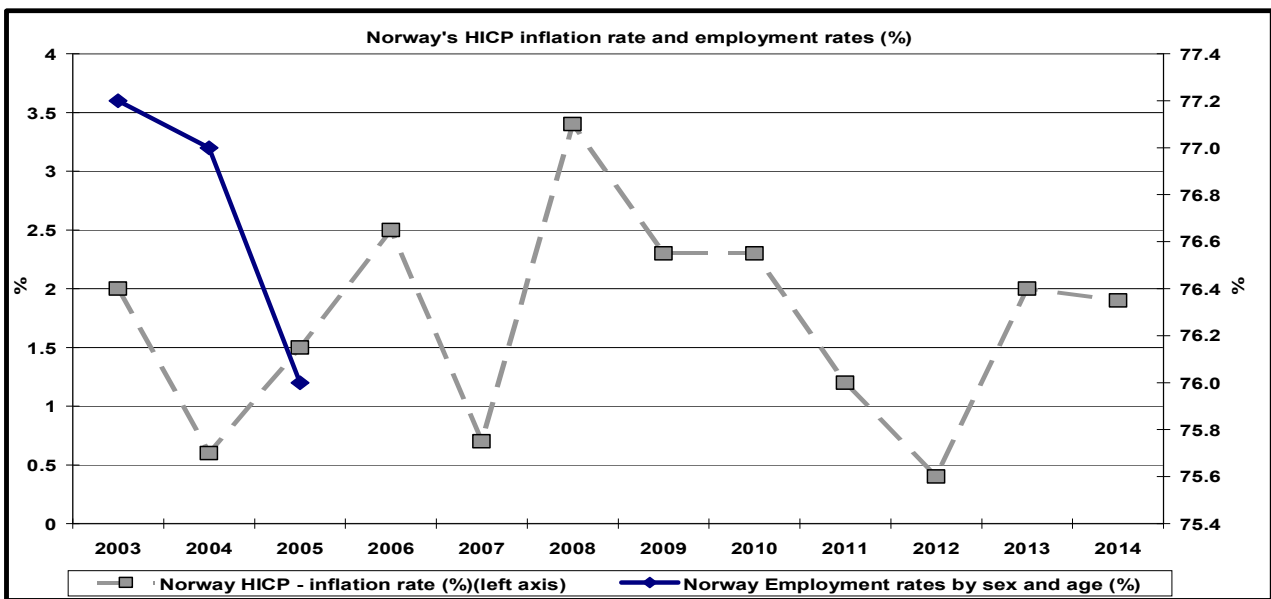
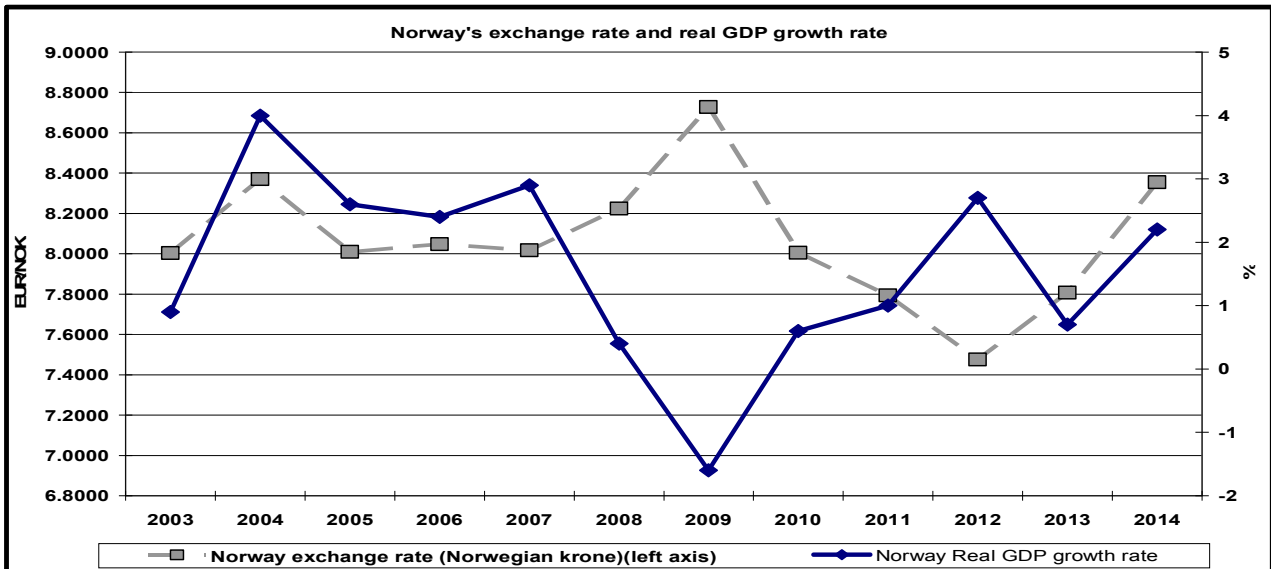


Fig.3. Sweden and Norway exchange rates and the evolutions of their supposed effects in economy including the conduct of real GDP growth rate

Source: Eurostat data

Conclusions

Many elements like legislative, political and administrative factors may cause many problems in the natural function of an economy and can constitute an important argument for avoiding the use of discretionary policies and thus making more viable the implementation of the automatic stabilizers. There are no visible deficiencies in the use of automatic stabilizers, being practically costless.

Usually, in literature there are analyzed mostly the automatic fiscal stabilizers, monetary automatic stabilizers being treated rather marginally or unimportant. Even so, monetary automatic stabilizers can prove their efficacy in reducing inflation, unemployment, current account deficits or even public deficits, one such example being the exchange rate.

Even if it works under a fixed or flexible exchange rate regimes, the exchange rate can prove itself useful in the stabilization (relatively rapid) of the world economies. However, it should be noted that the exchange rate is not a purely monetary automatic stabilizer due to the possibility of the monetary authority interventions in its operation. This is confirmed by a logical and rather simple analysis of exchange operation for a number of countries outside the euro area and even outside of

European Union (Norway). Also, the analysis aims at surprising the conduct of exchange rate and its effect on economy under the fixed or flexible exchange rate regimes.

There can't be drawn any clear conclusion (for or against) the exchange rate to operate under a fixed or flexible exchange rate regimes, taking into account its stabilizing role for the economy. Thus, considering the decisions made over time by the central bank there are arguments for and against different types of exchange rate regimes.

Therefore, besides deepening the study of monetary stabilizers already identified, future work will take into consideration the necessity of finding many other monetary automatic stabilizers, who can operate more rapidly and more efficient in stabilizing the world economies or different parts of it.

Bibliography

1. Aysun, Uluc (2006), "Automatic Stabilizer Feature of Fixed Exchange Rate Regimes in Emerging Markets", *Economics Working Papers*, Paper 200627, online at: http://digitalcommons.uconn.edu/econ_wpapers/200627.
2. Bayoumi, T., Masson, P. R. (1995), "Fiscal flows in the United States and Canada: Lessons for monetary union in Europe", *European Economic Review*, 39, 253-274.
3. Blanchard, O. (2000), "Commentary", *FRBNY Economic Policy Review*. April 2000, 69-73.
4. Bourguignon, F., Spadaro, A. (2006), "Microsimulation as a tool for evaluating redistribution policies", *Journal of Economic Inequality* 4(1): 77-106.
5. Cerna, S. (2014), „*Politica Monetară*”, Editura Academiei Române, București.
6. Dinga and all (2011), coord., "Sustenabilitatea economică prin politici de ajustare în contextual globalizării", Publishing House of Romanian Academy, Bucharest.
7. Dowd, K. (1988), "Automatic Stabilizing Mechanisms under Free Banking", *Cato Journal*, Vol.7, No.3, winter.
8. Dolls, M., Fuest, C., Peichl, A. (2010), "Automatic stabilisers and the economic crisis in Europe and the US", <http://www.voxeu.org/index.php?q=node/5529>.
9. Eaton, J., Rosen, H. (1980), "Optimal redistributive taxation and uncertainty", *Quarterly Journal of Economics* 95: 357-364.
10. Egle, W.G. (1952), "Economic Stabilization", University of Cincinnati Press.
11. Eilbott, P. (1966), "The Effectiveness of Automatic Stabilizers", *The American Economic Review*, Vol. 56, No. 3 pp. 450-465.
12. Ghilarducci, T., Saad-Lessler, J., Fisher, E. (2011), "Retirement Income Security Project Scepta Working Paper 2011-2 The Automatic Stabilizing Effects of Social Security and 401 (k) Plans", Schwartz Center for Economic Policy Analysis and Department of Economics New School for Social Research, 6 East 16th Street, New York, NY 10003, online at: http://www.economicpolicyresearch.org/images/docs/research/retirement_security/Auto%20Stab%20paper%20FINAL.pdf.
13. Gustafsson, L. (2009), "Automatic Stabilization in Sweden - Developments through 30 years of economic change", Bachelor's Thesis, Lunds Universitet, online at: <http://lup.lub.lu.se/luur/download?func=downloadFile&recordId=1437002&fileId=1646934>.
14. Hofer, H., Hanappi, T., Müllbacher, S. (2012), "A Note on Automatic Stabilizers in Austria: Evidence from ITABENA", Working Paper No. 1203, The Austrian Center for Labor Economics and the Analysis of the Welfare State, JKU Linz Department of Economics, Austria.
15. van den Noord, P. (2000), "The size and role of automatic fiscal stabilisers in the 1990s and beyond", OECD Economics Department Working Papers, No. 230, Paris: OECD.
16. Krugman, P.R., Obstfeld, M. (2003), "International Economics Theory And Policy Sixth Edition", *Pearson Education, Inc.* Online at: http://course.sdu.edu.cn/G2S/eWebEditor/uploadfile/20120417191243_590081573385.pdf.
17. Mundell, R. A. (1963), "Capital Mobility and Stabilization Policy under Fixed and Flexible Exchange Rates", Adapted from: *Can. Jour. Econ. Pol. Sci.*, 29, 475-485 (Nov.). Online at: <http://www.columbia.edu/~ram15/ie/ie-18.html>.

18. Obstfeld, M. (1986), "Floating Exchange Rates: Experience and Prospects", University of California, Berkeley - Department of Economics, Centre for Economic Policy Research (CEPR), National Bureau of Economic Research (NBER), NBER Working Paper No. R0792, online at: http://www.brookings.edu/~media/Projects/BPEA/1985-2/1985b_bpea_obstfeld_cooper_krugman.PDF.
19. Palley, T. I. (2014), "Monetary policy after quantitative easing: The case for asset based reserve requirements (ABRR)", the paper was presented at the Progressive Economy Forum held at the European Parliament, Brussels, Belgium, 5-6 March. Online at: <https://www.nbp.pl/badania/seminaria/21xi2014.pdf>.
20. Poole, W. (1970), "Optimal Choice of Monetary Policy Instruments in a Simple Stochastic Macro Model", *Quarterly Journal of Economics*, 84, p.p. 197-216.