Economic Cycle Volatility in the World Economy and Prospects for Global Economic Equilibrium Recovery

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The global economic system, responding in 2008 within the global economic downturn, is likely not capable today under the neokeynesian mechanisms of promoting the global demand adopted by G-20 countries and under neoliberal governments' measures of cutting the social programs and raising taxes in the countries with the fiscal difficulties to ensure sustainable economic growth, which was supposedly restored in March-April 2009. The relative stability of the economic cycles, reached in recent decades, gave way to the time of increase the amplitude and frequency of their fluctuations. The world, like in the early 20th century, is experiencing economic and political uncertainty. It is becoming increasingly difficult to maintain the relatively democratic foundations of economic globalization and the peaceful coexistence of both countries in the global system and conditionally formed classes within societies in view of the expectations the next wave of global and local economic crises. This expectation is accompanied by an aggravation of contradictions owing to the growing Earth population that will lead to a bitter struggle for the allocation of scarce natural resources and foodstuffs. The increase in public welfare primarily in populated India and China, and at the same time the decrease in welfare and erosion of the middle class in many developed countries because of degradation of their economic areas due to loss of comparative advantage and aggregate competitive position in global real sector (global competitiveness) issued new challenges to the system of global economic growth and distribution of wealth.

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Estimated the real GDP and inflation in the global economy since 1970s, we found that such an unprecedented recession and deflation at low discount and interest rates in U.S., EMU countries and Japan as at the beginning of 2009 the world has not experienced. Bubble troubles in banking system, extreme accumulation of toxic assets in financial institutions and corporations, mortgage crisis of related real estate and stock markets in the U.S. and UK, uncontrolled offshore operations reflected the global financial crisis in the period 2008-2009. This has resulted in transmission shocks on the real sector and led to economic recession, which ended with deflationary processes. The new wave of global economic crisis would be expressed in a domination of other implications: it will be a deep debt crisis at the governmental and corporate level in PIIGS countries and the U.S., inflationary pressures in China and need to raise the discount rate or alternatively revaluate the Yuan to overcome them; the decline in Japanese economy because of stampede of economic actors from the real sector in expecting reiteration of natural and related anthropogenic disasters; low public consumption and a shift of emphasis towards the total savings in anticipation of economic and financial instability. All this will mean in the near future an inevitable global recession and eventual return to the schemes of protectionism not only in financial, but also in the real sector. Alternatively, the existing format of the global economy seems to be maintained through buy-out of sovereign debt of bankrupt economies by Chinese corporations and redrawing the world economic map in their favor.

A more pessimistic scenario could be a destruction of the existing world monetary system as a result of unwillingness of the U.S. and EU as a subject of international law to meet their sovereign debts. This could be resulted in: 1) a risk of eliminating the U.S. dollar and pass to the new U.S. currency; 2) a risk of collapse or membership narrowing of the European Monetary Union and return of the EMU countries to their national currencies and formation of a new global economic order. Delaying today the sovereign defaults of the U.S. economy and some EU-countries, the reluctance of Fed and ECB to carry out the additional money emissions or sell foreign currency reserves to repay sovereign debts, the retention of unacceptably low discount rates by central banks of leading developed countries in the actual so-called "post-crisis" period of illusive upsurge in economic activity, the adoption of the law in the United States to raise the public debt ceiling exacerbate situation in the future and would lead to shortening the cyclical phases of global economic development and increase of their downward bias.

Under these conditions it becomes important to consider the challenges of increasing volatility of economic cycles in the world and particularly in countries, on which probably nowadays the global economy most of all depends, and outline the prospects for recovery of the global economic equilibrium and economic sustainability.

There is no doubt that the last two decades prior to the global financial crisis of 2008-2009 were marked by relative stability of the global economy. Despite the existence of cyclical fluctuations in economic activity as an integral attribute of the capitalist economic system, the fluctuation range in the period 1992-2008 had not acquired such a large bias, as in the previous decades (see **Fig. 1**). Annual dive decline of real economic growth in 1988 - 1991's from 4.4% to 1% has changed to recovery of the increase trend in real GDP in the period 1992-2000, except 1998. In 2000 the world economy has reached the previous mark of economic growth 4.35%. However, in comparison the successful 1972 and 1973, when the level of economic growth reached 5.1% and 6.1% respectively, have remained far in history. As important factors for global economic growth in the period 1992-2000 can be called the collapse of post-socialist camp, integration of Central and Eastern Europe as well as a number of developing countries into the Multilateral Trading System of GATT / WTO, the expansion and convergence processes of the EU common market, deepening globalization processes in real and financial sectors. Thus from 1991 to 2000 the global economy grew by 27.4%, which is lower than the rate of growth for the periods 1971 -1980 years (36.2%) and 1981-1990 (30.4%), but more than in the period 2001-2010 (21.1%). Since the beginning of the 21st century the global economic growth was reached owing to the integration processes in the form of numerous regional trade agreements (Regional Trade Agreements-RTAs) and further liberalization of international trade under the WTO, and through the free international movement of financial capital, mostly among industrialized countries and through offshore zones. However, the degree of growth intensity in the global economy in the last decade shows that the deepening of economic globalization did not necessarily lead to increased economic growth dynamics in time series. Instead, it should be noted that empirically confirmed the inverse relationship.

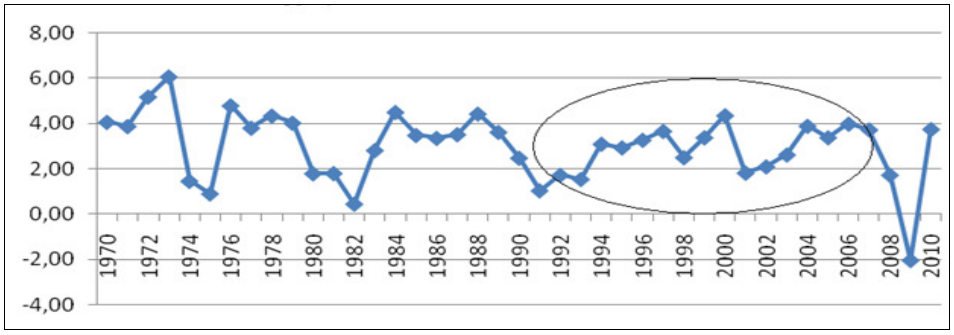

Fig.1. The nature of cyclical fluctuations range in economic development of world economy. Dynamics of real GDP growth in world economy for the period 1970-2010, in %.

The graph built by the author based on Economic Research Service data.

The world economy was determined by fall points in real GDP growth in 1998 and 2001. The period 2002-2007 was characterized by relatively steady economic growth in world economy, but marked annual growth over 4% was no longer reached. It should be noted that compared with the period 1970-1991 one can observe smoothing the amplitude of cyclical fluctuations in global economic development in 1992-2007. Temporary relative macroeconomic equilibrium was eventually achieved. In particular, the exploitation of the Chinese manufacturing locations by leading western multinational corporations gave every reason to enable the expansion of global economic growth, smoothing the problems of virtually enlarging financial sector, and also the realization of an unlimited potential to satisfy global demand for products of material production, preventing for years the development of global macroeconomic instability. Asian financial crisis of 1998 and low interest rate crisis in World Monetary System triad «US-EMU-Japan» of 2001 were not as stunning as the global financial crisis of 2008-2009. For the first time during 40 years the global economy has shown in 2009 not the lower rates of economic growth but even recession at the level of -2.06%. Ever since the global economy experiences abeyance in spite of the present growth recovery. The market uncertainty creates conditions for further disturbance of the global economic system and therefore the potential for increasing cyclical fluctuations range of economic development.

Great Moderation: a long period of the relative economic equilibrium in the global economy

The phenomenon of smoothing cyclical phases of economic development and the achievement of relative macroeconomic equilibrium in recent decades is reflected in the promotion of the definition "Great Moderation". This term and research of the mentioned above phenomenon were presented by *James Stock (2002)* and *Gerard Baker (2007)*. In their papers it was found empirically and explained a significant reduction of aggregate fluctuations in economic activity and considered success achieved owing to macroeconomic stability of the U.S. economy during the 1985-2007 (see **Fig. 2** and **Fig. 3**).

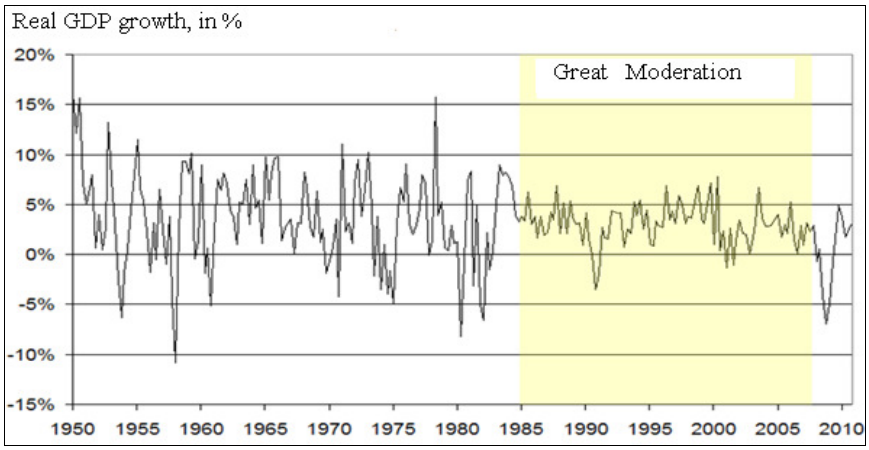

Fig.2. Great Moderation in the U.S. during the period 1985-2007.

Source: Wikipedia

Great moderation, according to Gerard Baker, is primarily the result of deepening the globalization and liberalization of the U.S. economy. The Baker's statement "The turmoil of free markets is the surest way to economic stability and prosperity" sounded convincing to 2008 and was confirmed statistically for the U.S. economy and industrialized countries in different empirical working papers. The recent fundamental study by *Bruno Ćorić (2010)* gives evidence about pervasive worldwide phenomenon

of a large decline in short-run volatility of economic cycles in above-mentioned time period.

Economic science has identified today three explanations for the revealing of the Great Moderation: 1) a favorable behavior of economic processes associated with mere good luck (good luck hypothesis), 2) an implementation by central banks of more competent monetary policy (good policy hypothesis), 3) structural changes in economic system through innovative developments and sophisticated institutional characteristics (structural changes hypothesis).

In a number of scientific papers *(for example, J. Stock and M. Watson, 2002)* the success of economic development of the industrial world owing to lower expression of exogenous shocks is emphasized. The concept of good luck explains the mild effects of macroeconomic, structural, technological shocks, including productivity shocks on the economic system over the past decades.

The paper by *Pancrazi R. and M. Vukotić (2011)* presents evidence that not only technological shocks (intensity of innovation) softened themselves, but also the manufacturing process, including development of total factor productivity, occurred with greater stability during the Great Moderation. In this context, we can conclude that the authors confirmed the achievement of macroeconomic equilibrium, primarily due to the relative stability of technology in the real sector over the past decades, i.e. due to absence of a radical technological progress. This allowed, in our opinion, the developed industrial countries via their multinational companies to exploit the markets of CEE countries and the economies of China, Brazil, India and Mexico and postpone rapid technological progress in developed industrialized world. The MNCs used globally a spatial comparative advantage and the effect of large scale of production in the framework of relatively sticky technology format, providing essential smoothing of cyclical fluctuations of GDP and inflation in industrial countries. Analyzing the ideas of *R. Pancrazi and M.Vukotić (2011)* one can demolish the good policy hypothesis and conclude that in terms of technological stickiness, that is in the absence of critical sharpening contradictions between the total factor productivity and inflation, aggressive monetary policy of Walker-Greenspan era, which was aimed at fighting inflation, had no significant impact on the reduction of cyclic fluctuations in economic development.

Dynan K. et al. (2006) suggest that financial innovation and increasing global integration led to the phenomenon of diminishing the volatility of economic cycles of the last decades.

Some studies give praise to improved monetary policy of industrial world which contributed to reductions in the volatility of real economic activity and inflation (for example, *Clarida, R., J. Galf et al. (2000), Lubik, T., and F. Shorfheide (2004), Boivin, J., and M. Giannoni (2006)*). Inflation targeting, i.e. credible target on low inflation under flexible exchange rates in developed countries helped their central banks to stabilize not only inflation but also inflation expectations, which by themselves can be a source of macroeconomic instability. Inflation control based on either the system of mostly fixed and narrow pegged exchange rates in transition countries, which is considered as an instrument of monetarists, and the system of floating exchange rates with explicit inflation targeting through monetary transmission mechanism in developed industrial countries in 2000s ensured relatively stable (non-volatile) interest rates, steady prices and real economic growth.

Analyzing graphically the nature of real GDP volatility for the world economy (see **Fig. 1**) we can agree with the conclusion of *Bruno Ćorić (2010)* concerning the appearance of Great Moderation globally during 1992-2007.

Assessing the trend of change in real GDP for the EU15, EU27, Japan and China (see **Fig. 4-7**), it must be said that the Great Moderation in the best way apart from the U.S. (see **Fig. 3**) occurred in China and lasted from 1992 to early 2011. We assume, that the liberalization of China's economy according to Milton Friedman' recommendations and opening the country to international investors in the framework of reforms carried out by Deng Xiaoping provided for a relatively long period of time not only high and stable real GDP growth, but also a reduction of the economic development volatility and achievement of macroeconomic stability by this indicator.

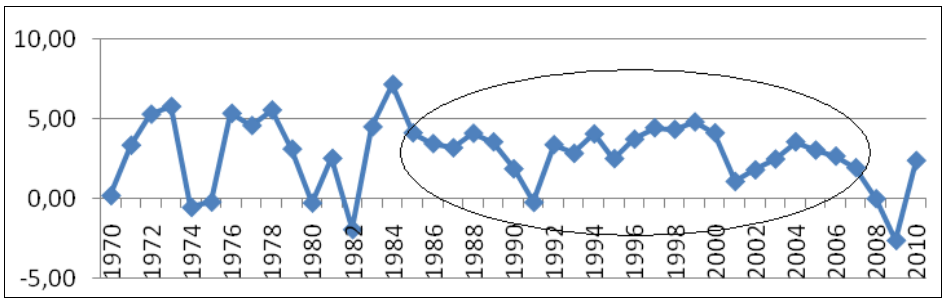

Fig.3. The nature of cyclical fluctuations range in economic development of U.S. Dynamics of real GDP growth in the U.S. economy over the period 1970-2010, in %. The graph built by the author based on Economic Research Service data.

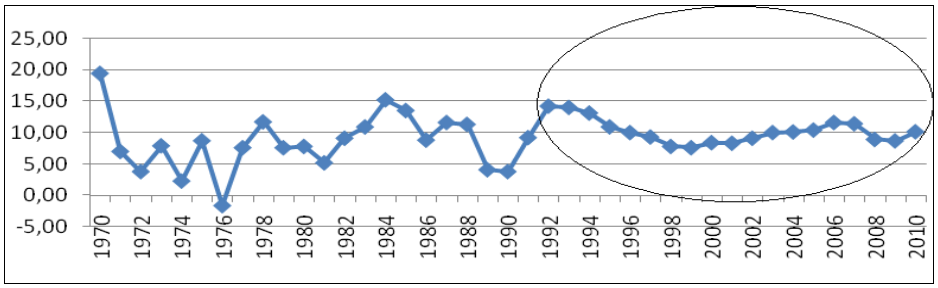

Fig.4. The nature of cyclical fluctuations range in economic development of China. Dynamics of real GDP growth in the Chinese economy over the period 1970-2010, in %. The graph built by the author based on Economic Research Service data.

Assessing the cyclical phases of economic development in the EU-15 we can see that during 1982-1988 there has been sustainable economic growth with relatively stable real GDP growth. This period of relative stability was marked by the departure of European Economic Community (12 countries), primarily Germany as an anchor of EEC, from Keynesian economic policy, price liberalization and reduction of public sector, the adoption of numerous EEC directives on free movement of capital within the common market, the effects from integration of new EU-countries - Greece, Spain and Portugal, as well as coherent monetary policy, including exchange rate policy of the European Monetary System. The high correlation of real GDP between the group of EU-12 countries, Sweden, Austria and Finland (three EFTA countries), which in 1995 transformed into the EU-15, and the same group with the inclusion in it the socialist CCE countries of Warsaw Pact (see **Fig. 5** and **Fig. 6**) indicates the trend of

the interdependence of macroeconomic stability in Europe in the 1980s, despite the different nature of its achievement in the capitalist and socialist world.

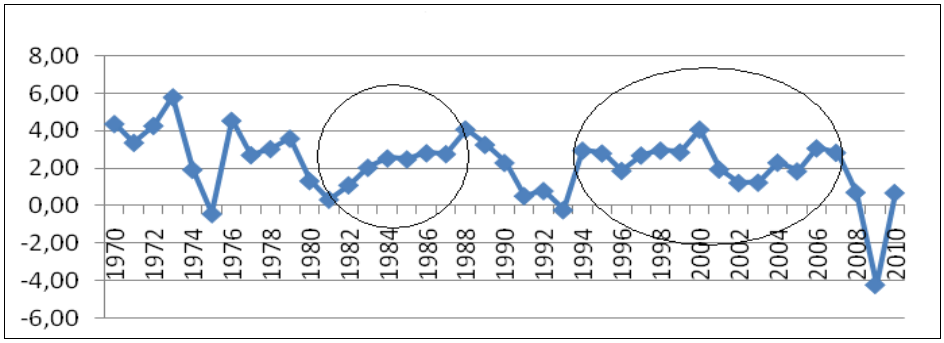

Fig.5. The nature of cyclical fluctuations range in economic development of the EU-27. Dynamics of real GDP growth in the EU-27 economies over the period 1970-2010, in %. The graph built by the author based on Economic Research Service data.

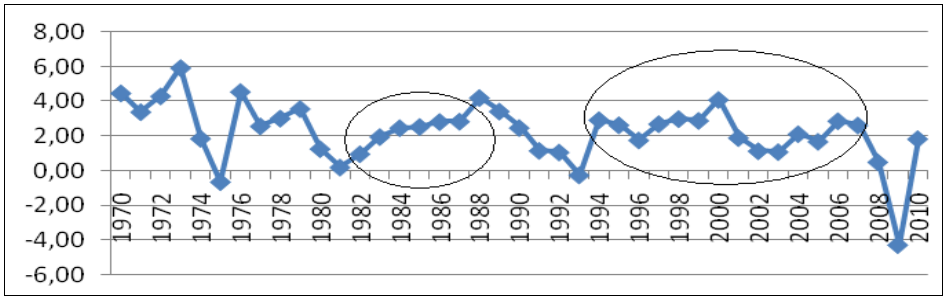

Fig.6. The nature of cyclical fluctuations range in economic development of the EU-15. Dynamics of real GDP growth in the EU-15 economies over the period 1970-2010, in %. The graph built by the author based on Economic Research Service data.

The period of relatively sustained growth in 1982-1988 in old Europe reached its peak in 1988 and changed to the time of accelerated decrease in real GDP growth, reflecting the trend of joining the world economy in the accelerated phase of economic recession. In our opinion, the period of 1989-1991 was critical for the whole economic system of neoliberal capitalist type. However, despite the entire critical situation with

the end of the recurrent economic cycle, low state of global commodity markets in 1988-1991 actually gave rise to the collapse of the socialist camp and thereby created new impacts for the capitalist system to a stable economic development on the basis of comparative advantage principle. It was quite difficult for European CMEA countries to manage the economy and stop the gap of inefficient public enterprises with a collapse in export prices for resources (including fuel resources). Decline in export prices and reduced global demand for resource commodities have restricted foreign exchange earnings in the Warsaw Pact and caused social and economic tensions in societies of these countries. Had the Kremlin been able to retain control over the situation in the European socialist countries during this period and preserved the administrative command system on their controlled territory, the phenomenon of the Great Moderation of capitalist world in such historical format would never occur. Neoliberalism in the world economy and particularly in Europe won at that time due to the collapse of the socialist camp and the absorption of the CEE and Chinese economies by western MNCs. Otherwise, if the administrative command socialist system would get immunity from the global cyclical shocks, relatively short cyclic stability of economic development of the capitalist world, which began in the 1980s and glorified as a result of the victory of "free-market common sense" over Keynesianism, would came to a close as early as the 1990s. The crisis of the capitalist economy that brewed at the beginning of the 1990s, required new (probably neokeynesian) approaches to economic policy. The economic doctrine of the Chicago School would scarcely take a key role in development of economic globalization in 1990-2000's. The implementation of the "Keynesian globalization" or "Keynesian integration" projects could become the reality and predetermine the inefficiency, over-regulation and significant potential for macroeconomic instability which would reflect the large amplitude of cyclical economic fluctuations. But history does not know the subjunctive mood - the phenomenon of the Great Moderation occurred just under neoliberalism.

The real uninterrupted phase of Great Moderation in the EU-15 (EU-27) occurred during the 1994-200 and its duration was a decade less than in the U.S. Reducing the amplitude of cyclical fluctuations in economic development of Europe can be explained through the institutional sophistication process in the framework of Maastricht Treaty, strengthening the integration of production and trade relations of the CEE countries with the EU-15, formation of the European Monetary Union and

the establishment of the euro area, but also through a number of common to the global economy processes.

Cyclical nature of Japanese economic development considerably differs from the above analyzed economies. According to *P. Krugman (2009)*, "…Japan had developed a fundamentally different economic system, a new and superior form of capitalism. The debate over Japan became a debate over economic philosophy, over the validity of Western economic thought in general and the virtues of free markets in particular". State support of the real sector in Japan since 1960 and over the next decades gave to understand that this country did not going to use the postulates of Chicago school. Thatcherism, Reaganomics, the economic policy carried out by Helmut Kohl in Germany in the 1980s were not patterns for imitation in Japan. The state support of Japanese industrial development had purely Keynesian execution: Ministry of Foreign Trade and Industry and the Ministry of Finance played an important role in determining the economy and targeting strategic sectors of industrial production; there was a favorable relationship between government and business ("friendly capitalism"); the public financing of industrial investment and infrastructure programs was intensively carried out; the economic growth was planned indicatively based on the state strategic design; bank loans guaranteed by the government and import licenses gave incentives to the establishment and expansion of Japanese financial and industrial corporations (keiretsu); centralized plans ensured the greater presence of Japanese allied firms on world commodity markets.

Despite the dominance of Keynesian economics in the Japanese export-oriented industrial sector, Japan with the U.S. were in the forefront of globally integrated free international stock and exchange markets, indicating to realization of neoliberal policies in the financial sector and their implementation abroad. The performance of Japanese corporations on international stock markets expanded capacity for further expansion of their global corporatism around the world through offerings of shares and debt securities.

Japan was the right pattern of relative cyclical equilibrium that did not confirm correlation between the system of free markets and smoothing cyclical volatility of economic development. However, it is difficult to say in the context of achieving relatively lower amplitude of economic development for the 1975-2007, whether the Japanese economy can be described fully by the phenomenon of the Great Moderation (see **Fig. 7**). In the period 1988 - 1993 Japan experienced a chronic recession of real

GDP growth. The crisis of low interest rates and bank effective liquidity deficit in Japan during 1997-1998 plunged it into the Asian crisis of 1998 that shook the country's macroeconomic equilibrium and led to a recession - real GDP fell to -2.15%. Japan's economic downturn did not affect the amplitude of cyclical fluctuations in U.S. and EU, but had some synchronous impact on global economic volatility (see **Fig. 1**). A significant devaluation of the Japanese yen and the outflow of financial capital from the Japanese economy due to the collapse of stock markets in 1998 have caused inflationary expectations. However, despite the annual money emissions during the crisis period at 10-11% per month and further devaluation of the yen, which failed to be neutralized via the foreign exchange reserves of $ 21.35 billion, Japan did not face with inflation. The economic downturn hampered inflation and relative economic equilibrium was restored already in 2001 without sharp cyclical fluctuations.

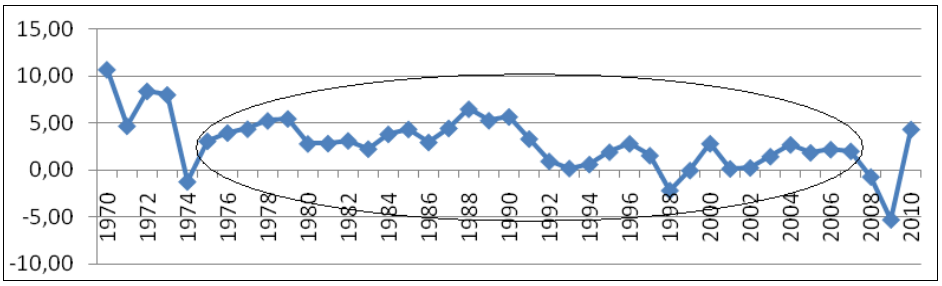

Fig. 7. The nature of cyclical fluctuations range in economic development of Japan. Dynamics of real GDP growth in Japanese economy over the period 1970-2010, in %. The graph built by the author based on Economic Research Service data.

Paradoxically enough, according to our correlation and regression estimations, based on Economic Research Service data, the real global economic growth and the Great Moderation in the world economy during 1992-2007 had actually no relationship with analogical dimensions in the USA and China.

At the same time there was no significant and close relationship between Great Moderation in U.S. and Chinese economies in this period. Instead, the dynamics of real GDP of the EU-15 (EU27) and Japan had a significant and close relationship with the phenomenon of the Great Moderation in the global economy- correlation coefficients are respectively 0.744 (0.786) and 0.632 at a significance level of 0.01. The coefficient of determination (dependence) of the Great Moderation in world

economy on changes in real GDP of EU27 and Japan is 84.7%. Including into model the change in real U.S. GDP, the coefficient of determination does not change significantly - 88.4%. Speaking of Great Moderation in China in terms of real GDP, we found a statistically inverse, but insignificant and weak relationship with analogical dimensions in the global economy, the U.S., Japan and EU countries.

Hence the global economic stability and relative equilibrium in above-mentioned period was reached in close relationship with the economic processes that took place in the European Union and Japan. The reduction in volatility of the Chinese economy during 1992-2007 rather strengthened and transmitted shocks of economic instability in perspective for the developed industrial countries and the entire world economy.

In order to get a clearer picture of the appearance of Great Moderation in the context of macroeconomic stability in the U.S. and other industrialized world, China and in the entire world economy we assessed the nature of price volatility (see **Fig. 8-13**).

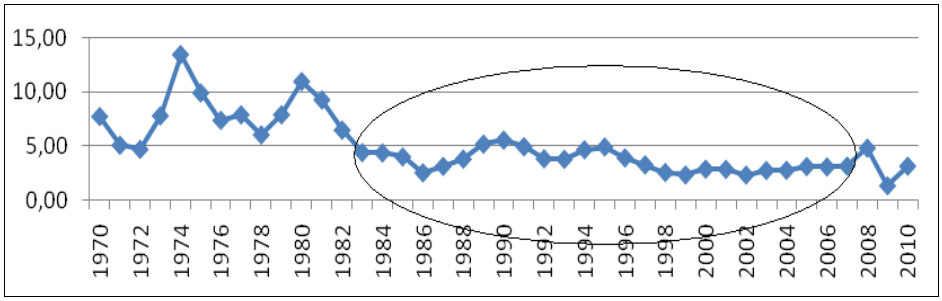

Fig.8. Dynamics of changes in consumer prices in the global economy over the period 1970-2010, in%. The graph built by the author based on Economic Research Service data.

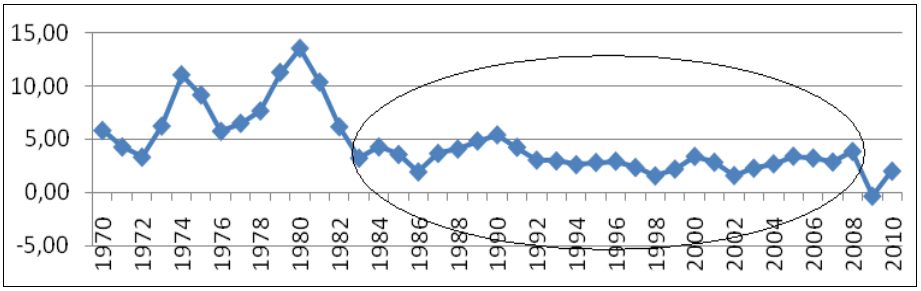

Fig.9. Dynamics of changes in consumer prices in the U.S. economy over the period 1970-2010, in %. The graph built by the author based on Economic Research Service data.

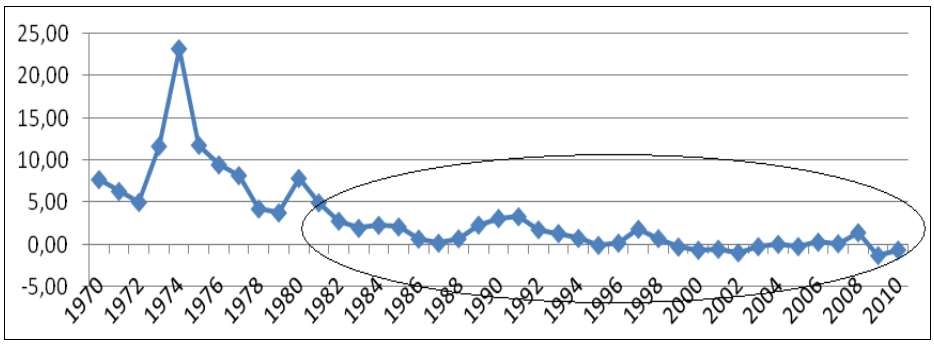

Fig.10. Dynamics of changes in consumer prices in the economy of Japan over the period 1970-2010, in%. The graph built by the author based on Economic Research Service data

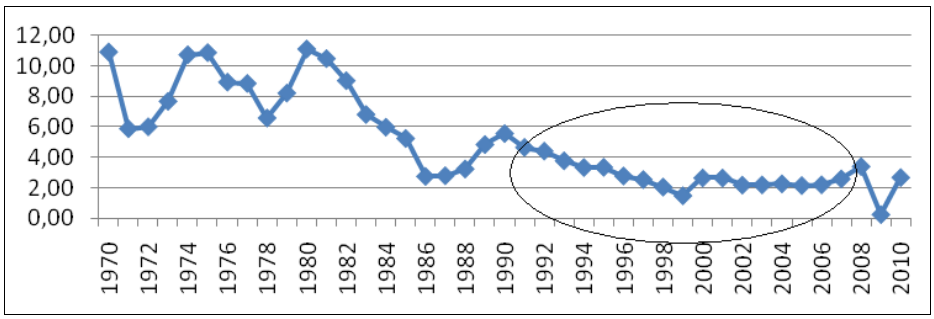

Fig.11. Dynamics of changes in consumer prices in the economy of the EU-27 over the period 1970-2010, in%. The graph built by the author based on Economic Research Service data.

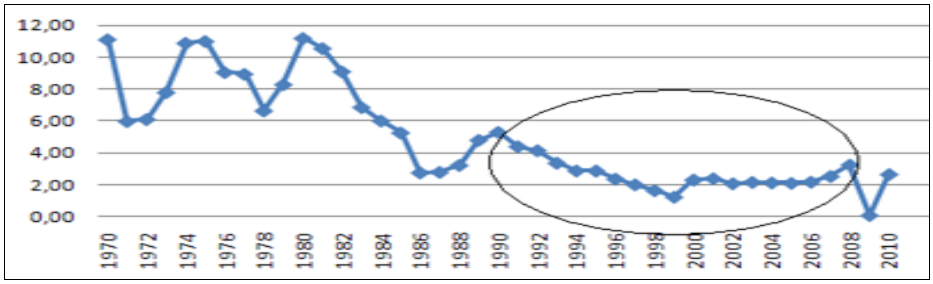

Fig.12. Dynamics of changes in consumer prices in the economy of the EU-15 over the period 1970-2010, in%. The graph built by the author based on Economic Research Service data.

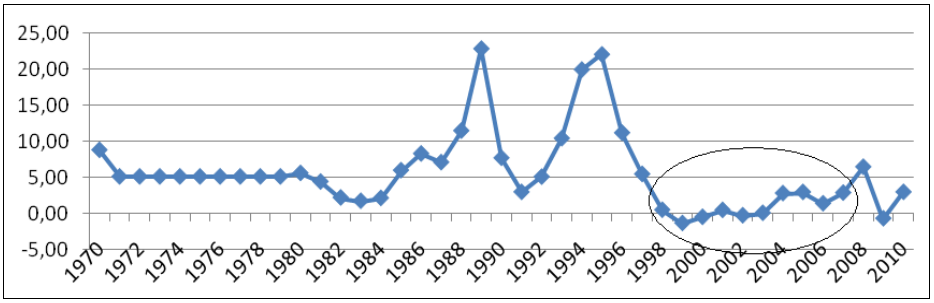

Fig.13. Dynamics of changes in consumer prices in the economy of China over the period 1970-2010, in %. The graph built by the author based on Economic Research Service data.

Analyzing the graphs built for the global economy and individually for U.S., EU, Japan and China one can see that the Great Moderation in the U.S. and Japan occurred in the terms of a decrease in the fluctuations range of CPI and simultaneously low

inflation since the early 1980s to 2007. Development of price volatility in the global economy coincided in temporal pattern with price volatility in the U.S. and Japan. While for the U.S. and Japan economies price volatility reduced since 1982-1983 owing to monetary policy decisions of central banks independent of government, the EEC countries experienced relative price stability only since 1991. This coincides with the time of declaration of the Maastricht criteria for nominal convergence and Coordinated Action Plan of establishing the European monetary union, including common monetary institution with exclusive autonomy from the decisions of governments and the EU Council. It is to notice, that the currency crisis in the European Monetary System in 1992 did not affect the beginning of the period of price stability in the EU. The Great Moderation in the EU took place in conditions of low inflation and price volatility smoothing during the 1992-2007. Relative price stability in China is becoming apparent during the 1998-2007 after overcoming inflation and achieving lower price levels compared with the period of 1985-1997. The main argument in favor of good monetary policy hypothesis is that the overcoming of inflation and price level lowering due to prudent monetary measures of central banks preceded the reduction in volatility of real GDP in the U.S., Japan and EU countries. After the Great Moderation in the period of 2008 - 2010 the world has tended to increase of price volatility, but inflation after 2009 remained within the reference of price stability. In 2009 the law inflation trend was explained, mostly, by recession. In 2010 and 2011 the inflation is scotched via inflation targeting measures and strengthened foreign exchange interventions. The exception is now the Chinese economy. Being on stage of the industrial boom it is experiencing in 2011 inflationary pressures, which may reduce to zero the real growth in the country and in the world economy in the near future. The conclusion about the impact of inflation in China on inflationary trend in world economy can be confirmed on the basis of our analysis results.

Conducted correlation analysis concerning the trend of changes in consumer prices in the world economy during the Great Moderation period 1992-2007 to similar trends with the U.S., Japan, EU-15 (27) and China shows that there were significant close direct relationships between the price trend in world economy with the price trends in China (correlation coefficient 0.955 at significance level 0.01), the EU-27 (correlation coefficient 0.748 at significance level 0.01) and the EU-15 (correlation coefficient 0.666 at significance level 0.01). However, the price trend in the U.S. and Japan did not explain actually the price trend of world economy. Having

built multiple regression model of dependence of the price trend in the world economy during the Great Moderation on the change of consumer price index in U.S., EU-27, China and Japan, we found that the coefficient of determination is 98.2%. At the same time the significance of price trend in Japan in this model is imperceptible for global economy. Excluding from the model the price trend of Japan, the coefficient of determination is 98.0%. One-factor regression models showed the dependence of the price trend of world economy on the price trend of China (coefficient of determination is 91.3%), EU-27 (55.9%), EU-15 (44.3%), Japan (17.3%), and US. (15.6%). Thus, price stability in the world economy depends, primarily on price stability in China and the EU.

The culmination of the empirical part of our study is to analyze relationship between trend in real GDP and price trends in the global economy, U.S., EU 27 (EU15), China and Japan during the Great Moderation. Results of the analysis allow determining on which economies the restoration of global economic equilibrium depends nowadays in view of maintaining the existing global economic order. After correlation analysis of trends in real GDP change and consumer prices change, we found that a strong and significant direct relationship exists between real GDP growth in China and inflation in the EU-27 (correlation coefficient 0.800 at significance level 0.01), EU -15 (0.856 at significance level 0.01), the global economy (0.658 at significance level 0.01), Japan (0.571at significance level 0.05), China (0.536 at significance level 0.05). In addition to these results another significant relationship can be traced - real GDP growth in Japan is closely and directly linked to inflation in the U.S. (correlation coefficient 0.679 at significance level 0.01). Other relationships were statistically insignificant.

Thus, with further expansion of real GDP growth in China there is a tendency of world economy and in particular the economies of the EU, Japan and China themselves to higher inflation, and therefore to increase in the amplitude of cyclical fluctuations in their economic development and cause the global economic imbalance. Actual trend of economic recession in Japan in view of anthropogenic disasters threats for businesses tends to restrain inflationary pressures in the U.S., however, violate the global economic balance, because affect directly the increase of the downward amplitude of global real GDP.

Scenarios of restoring the global economic equilibrium: instability vs. relative stability

As noted above, the current global economic growth, reached on basis of governments' and international credit institutions' financing the global demand at the present stage of cyclical economic development, is a source of inflation and debt crisis , which in the long-term period would be followed by recession and deepening inequality in societies. Monetarism and Keynesianism as macroeconomic concepts on higher stages of economic globalization lose their alternative attributes in the absence of radical technological change in the real sector. These concepts are diluted in essence and bear the same risk of deploying new economic crisis. Volatile exchange rates as a result of the practice of explicit inflation targeting, a permanent fiscal stimulus of developed industrial countries of G-20 to realize global comparative and competitive advantages in international trade, negative real interest rates as well shorten the economic cycle, multiply periods of the economic development from inflation to deflation, accompanied by macroeconomic and welfare shocks.

Although the lessons from the financial crisis 2008-2009 were drown at the summits of G-20, but effective ways to prevent the next wave of crises, that surely will come in the near future, were actually not produced.

Nuriel Roubini made a statement that in 2013 the world economy would be overwhelmed by "perfect storm", if countries will delay for the future the solution of serious problems. Although the lukewarm recommendations made by Roubini for readjustment of economies of the U.S, EU, Japan and China can avoid the storm warning, but they do not answer the question how to provide a new long-term "Great Moderation", which would be identified with relative economic stability and confidence of societies in their future peaceful coexistence for the good of progressive development of human civilization.

False decisions made today at the G-20 level seem to be a wrong approach to choosing the model of economic growth and economic policy response to cyclical phases, as well as unprecedented wrong vision of technological change. Classical approaches to provision of a temporary global economic equilibrium are accompanied shortly by two possible scenarios of its development.

Inflationary scenario in global economy. Cyclic adjustments in global economy require a number of policy measures on national and supranational levels that would reflect following processes and effects in development of world economic system:

- Debt monetization and toxic assets write-offs for multinational corporations and governments that are on the verge of default. This can be done through a money emission of G-7 central banks (primarily Fed and ECB);

- The system of freely floating exchange rates with the practice of inflation targeting would become firmly established by main central banks;

- Global demand activation based on neokeynesian approach, i.e. expected global manufacture production growth and increase of global trade volumes via rapid credit expansion in real economy. Policy measures: Monetary expansion and low discount rates. This would cause further the problem of negative interest rates for bank systems because of inflationary long-term perspectives ($r_t=R_t-(p_{t+1}-p_t)$, where r – real interest rate, R – nominal interest rate, p- price level, and $r_t<0$);

- Reorientation of bank deposits (personal and business savings) of societies in favor of enhanced investment and consumption in the real economy – "Go out and buy!" Policy measures: Instruments to achieve lower interest rates on deposits (Krugman's concept «Baby-Sitting Coupons Problem»);

- Unbridled fiscal expansion of governments based on international credits, including World Bank loans. Global policy measures: stimulating economic growth in countries through infrastructure and business projects with the engagement of MNCs;

- Issuance of government bonds on foreign loans and their long-term monetization and maturity prolongation potential. This instrument leads the system to the long-term inflation risks and a fear of default announcement;

- The welfare catching-up of less developed countries relative to more developed countries owing to FDI and technological transfer of western MNCs indicates demographic growth in Asia. The growth of GDP per capita of demographically large-sized China and India leads to a demographic boom on the Earth and therefore untwisting the spiral of global production and consumption in the world of limited natural resources;

- The expansion of world oil and natural gas production requires MNCs' control over fuel fields and this conserves extensive technologies;

- Demand activation in de facto globally closed or semi-closed economies. Policy measures: Financing economies opening similar to "Color revolutions" in

former Soviet Union or Arab Protests Spring with an attempt to provide deeper integration of the economically and politically oriented national regimes, that use developmentalism, into the Western system of global free market and its further expansion.

Deflationary scenario in global economy. In order to prevent the next wave of deep crisis and mitigate the amplitude of cyclical fluctuations in global economic development the Global Governance and particularly national governments will have to go to deflationary measures and enable deflation processes in order to restore the temporary global economic balance. This scenario would reflect following events:

- China's «Hard Landing». Forced restrictive monetary measures of the People's Bank of China in 2011 in response to the inflationary spiral will lead to a narrowing the growth perspectives of global goods and services markets. According to George Soros effective "formula to keep the economy of China is a" blow off steam"" in view of overheating;

- Further dramatic devaluation of financial assets on the international stock markets because of: 1) weakening the economic activity in Japan due to earthquakes, tsunamis and the situation in Fukushima, in spite of the Japanese economy offers low interest rates; 2) deflationary processes in the U.S. as an response on recession in the Land of the Rising Sun;

- Economic downturn in China and Japan, which can generate "perfect storm" and the next black period of global economy in 2013;

- Critical " supply-effective demand" disbalance, mostly in the U.S. and EU in the context of global excess capacities of MNCs;

- Significantly slow or halt of factor productivity growth because of preserving by MNCs the existing extensive production technologies;

- Decrease of consumer prices in view of stagnation of real wages and earned incomes under caution of banks in granting the consumer credits;

- Reduction of public consumption caused by tough social fiscal measures of the governments. Reason: reducing public expenditures and increasing social taxes in the course of economic reforms under the supervision of the IMF to restore fiscal discipline in the countries;

- Monetary restriction of central banks. Policy measures: Narrow money supply, inflation targeting by raising interest rates to fight inflation or to prevent the announcement of default in the long-run perspective;

- Revision of the system of floating exchange rates in favor of fixed or narrowly pegged one. Result: no or low autonomy of the central banks to activate monetary policy for economic growth, low international mobility of financial capital and therefore a way to global capital overheating and recession;

- Credit restriction in terms of effective liquidity deficit and worsening problem of toxic assets;

- Tough fiscal discipline in the euro area and introduction of unified fiscal policy in the EU;

- Implementing strict anti-inflation measures in defaulted economies;

- A sharp economic downturn and unemployment, growing poverty and inequity in society;

- Long painful period of depression to the moment of economic growth recovery after numerous business bankruptcies and stagnant markets in expectancy of their merger by more powerful corporations in the global environment.

Alternative scenarios of global economic development. Recently in the economic thought the scientific papers appeared, which indicate that the growth of global economic system as an element of Earth subsystem is swiftly approaching the critical point of the Earth physical capabilities and its ecosphere. Therefore, too near approach to this point means the achievement of steady state - a system that requires rather qualitative, but not aggregate quantitative economic growth. Overrunning the economic system beyond the Earth scope means disturbance of Earth physical and ecological balance, which in turn will cause anthropogenic disasters and finally increase the volatility of cyclical economic development. Quantitative growth implies the need for continuous growth of material production and environmental and social costs are increasing faster than benefits from produced goods and services. In other words, the quantity of certain goods and tangible components of services increases at their constant throughput capacity. Qualitative growth has to be ensured in the opposite direction - via improved environmental and social-oriented technologies is to achieve the throughput capacity of produced goods without forcing their annual

quantitative increase. Only in such way the economic subsystem can reach a balance with ecosphere of the Earth.

The idealistic concept of steady state economy, which was recently presented in new interpretation by *H. Dali and R. Costanza (2009)* challenges to permanent global imbalances (temporary short-term equilibria). This concept could lay claim to ideology of new economic order formation and its realization would significantly influence the reduction in cyclical volatility in the world economy. However, the progressive ideas of the authors regarding the need to terminate the economic growth («growthonomics»), which ignores the physical limitations of the Earth and its ecosystem, will be subjected to criticism for decades and condemned as:

- Authors' hidden Malthusianism concerning population and social welfare growth of the South and East;
- Vulgar naturalism regarding the role of added value in the economic system, proposals for replacement of interest income (namely the compound interest income) by commission fees on current accounts in the banking system, and 100% reserve requirement for a significant reduction in Ponzi-loan leverage;
- Subjectivism in the interpretation of the laws of thermodynamics in the sense of generating growth in the system;
- Socialism in the sense of 1) ensuring a more equitable and fair distribution of wealth in the global economy for the benefit of poor societies and 2) governing the GDP growth (namely prevention of its increase under conditions when the equilibrium between marginal cost and marginal revenue occurs). Such socialistic vision can not a priori be approved within the Anglo-Saxon Protestant civilization, especially in the U.S.

The problems of economic growth limits and worsening cyclical economic fluctuations with the approach of economic subsystem to the physical capability boundaries of the Earth are considered to be solved partly or fully in preceding technological singularity. According to the last Moore's opinion his Law of exponential growth has its limitations and would terminate in the framework of presently tactile by mankind atomic world. This means that Earth civilization has to find anyway in the future new space-time dimensional horizons of its objective reality on the way of economic growth realization. None of the fundamental works in this

direction had been presented yet by economic scientific community. The ideas of researches can be found only in futuristic articles and journalistic brief essays. However, analyzing the progress in vision of futurists in social and belletristic literature, cinematography, in the research papers of specialists from Singularity Institute for Artificial Intelligence and comparing their ideas with processes that take place around the world's latest research in physics (such as the Large Hadron Collider, experiments on teleportation of massive physical particles at a distance), we believe that global civilization is coming to the point at which it could not economically develop only on the basis of classical physics.

Classical physics assumes that the particles of substance are moving slower the speed of light and their mass is zero (luxons) or is greater than zero (tardyons). We believe that the traditional scheme of costs rationalization (such as use of natural resources, labor, industrial and human capital in producing and distributing wealth) within the neoclassical theory of comparative advantage and in the concept of Porter's competitive advantages come to the end in a world built on the laws of classical physics. Common gravitational factors of society well-being in global capitalistic economy, such as international trade a la laissez faire, foreign direct investment, big demographic size of the economy as the source of increasing production scale and potentially large consumer market, regional trade agreements (free trade areas, customs unions, economic and monetary unions), Heritage Foundation's economic freedom and Porter's global competitiveness pillars make it at present no more to fight the inert economic development for a developed industrial society and developing countries as well. The above mentioned economic factors driven by classical physics cannot prevent the strengthening of divergence in the actual capitalistic system of wealth distribution on the Earth. They maintain today ceteris paribus only temporarily the low economic cyclical amplitude.

The present and forthcoming scientific researches regarding physical particles moving faster than the speed of light (tachyons) serve for enabling their mass activation in four-dimensional space through new gravitational and electromagnetic drivers of quantum mechanics and relativity theory in various spheres of mankind being, including economic system. They are aimed at solving many problems of humanity, which have already come or will come owing to irreversible consequences of the dominant anthropogenic type of economic development, which has its own environmental and resource constraints.

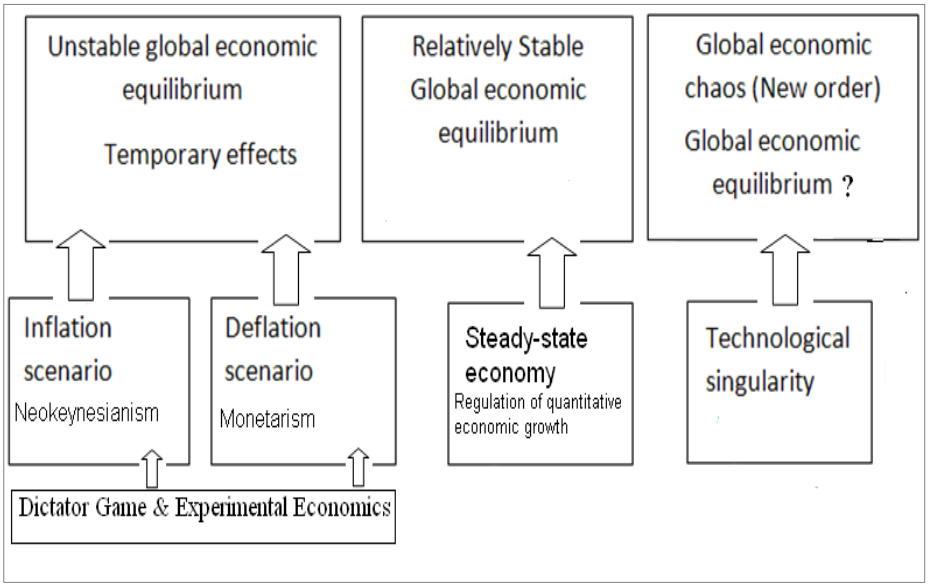

Fig.14. Scenarios of global economic equilibrium recovery

Conclusions

The conducted research allows us to conclude that the Great Moderation 1992-2007 occurred due to the process of economic globalization, which was directed by neoliberal economic mechanisms. The inclusion of transition economies and countries with emerging markets in global production networks, liberalization of international capital flows, institutional integration architecture, established free trade areas, custom unions, common markets and their support through liberal economic policies, IMF prescriptions of monetary discipline helped to achieve temporarily a relatively long-term global economic equilibrium, which was disturbed in 2008 because of termination the economic cycle.

Governmental non-interference in markets, freedom of economic actors and restrained monetary policy can lead better to reduced volatility of the cyclical development of capitalist economic systems compared to Keynesian economics, but not able to overcome fully the problem of the conflict between inflation and achieving a critical point of potential factor productivity growth in the existing technological format.

The deepening of economic globalization through the integration of more and more new less-developed economic areas with a deficit of capital and relatively weak production technology in business networks of MNCs can smooth over this contradiction and continue the economic cycle. When the effects of such integration critically reduced or terminated as a result of technological, relative factor endowment and therefore price equalization or these effects absolutely absent because of the closed areas from the global (integration) processes, in globalized and integrated world the stagnation and expectations of the economic crisis and the disturbance of stability and duration of a cyclic phase begin.

Therefore, a necessary step to preserve the relative economic stability is the permanent transition to a qualitatively new technological format of economic relations with the retention of free markets and economic freedom.

It can be expected that the coming out of humanity beyond the black square of the atomic world into the four-dimensional space would open excellent prospects for further evolution of capitalism and its important superstructure – virtual liberalism, which will continue the project of global economic growth and expansion outside. The essence "global" will gain even wider paths or will become infinite. At the same time the space for enabling the economic equilibriums can expand. However, it is not excluded that category “equilibrium” will cease to determine the existence of global system and global mankind being in its attitude to the usual benefits of the actual material world.

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