## PUBLIC POLICIES AND ECONOMIC CRISES

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#### **ABSTRACT**

The paper will analyze in which way and what is the overall impact of the public policies can and should be applied governments or local responsibilities in order to fight against macroeconomic disequilibrium's.

From all the major three economic policies, pubic spending policy, fiscal policy and monetary policy, each has a special role and has a sudden or a longer time in which results should appear.

Only one single public policy cannot correct market private failures. We cannot find one economic model that can be applied in economics in order to avoid or to surpass economic crises. A mixture of all public policies can be the solution for national economies and a classical liberal view at international level.

Should financial policy become a goal of the public policy makers? Or by using public spending policy governments should achieve a lower rate of unemployment? The crises in financial systems that have occurred have demonstrated the linkage between financial stability and the health of the economy. We must say that the forces which shape public policies in periods of economic crisis tend to be different in character from the major determinants of policy-making in periods of prosperity.

So that we must analize if between the causes of economic and financial crisis are also some causes from the public sector economy and if it is possible to make the dissapear or at least to be fewer.

We must ensure that all the data's will be influenced by the level of how much an emergent economy id depending on trade with developed countries.

If at national level public policies can modify the economic environment a free trade phenomenon cand be the solution for decreasing disparities and lowering posibilities of wide economic crisis.

JEL classification: G01, H30

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### 1. PUBLIC POLICIES – A MUST TO ENSURE FREE MARKET ENVIRONMENT?

Each time that a market failure occurs, a question appears at the horizon: should the government intervene or not? Like Will Rogers says: the business of the government is to keep out of business – that is unless the business needs government help. This seems to be a quotation that was brought into the light by both economist and politicians, which means the most important actors in this business and policy maker environment. Even some presidents like Herbert Hover understood that it is a must that not only government should keep out but also and maybe most important is that business should keep out of the government. Even so maybe some times the government intervention in the economy will produce much more harm than the market failure itself. Why is that?

One of the causes of market failure is maybe that perfect competition serves only as a benchmark for the real economics and does not stand for a real situation.

There are a set of criticisms to be expressed when we use the perfect competition situation as a benchmark.

In these cases we can speak about the Nirvana criticism, the second best criticism and the normative criticism (Colander; 2004, 409). When we consider a market failure we speak about those situations in which the market strives in the direction in which the individual decision do not lead to a social desirable outcome. We can consider that this may be the time when a government intervention is needed.

A government action on the market does not have a known result. It is possible that the specific action to improve or not the desirability of the market. If we can speak about market failures why should not speak about government failures. Which is worse the governmental or the market failure?

Of course all the time we can have either positive or negative externalities of the markets. It is impossible to state from the first moment which is the case. Sometimes actions of the government or situations from the market can lead in the first moments to a positive externality and then, maybe years after, to a negative externality. Some would argue that the some inventions had positive externalities, and we can say here that maybe this is the case of the personal computer, but in the same manner the computer produces in latest year's dependency which can and should be considered as a negative externality.

Is it a situation for government intervention? We think not.

So what should be the solution? It is possible that not only a solution to be the answer but maybe a mix of them. We can propose here in the beginning: direct regulation, incentive policies and/or voluntary solutions. The best way maybe to solve them depends on the type of the elasticity and for sure depends on the type of industry.

#### 2. ECONOMIC OR FINANCIAL CRISIS?

What are we facing today, an economic or a financial global crisis? Reply should be: none or both. If in the beginning we "achieved" a financial crisis based on a deregulation of the financial markets, now when governments are moving towards a higher degree of financial market regulation the world is moving towards an economic crisis.

If the policy makers will consider that regulating the market will be a solution for the financial world they might be right, but in the same moment regulating too much the markets can drive the world economy into a period of stagnant economy overall.

According to the Commission's analysis, unless policies take up the new challenges, potential GDP in the EU could fall to a permanently lower trajectory, due to several factors. First, protracted spells of unemployment in the workforce tend to lead to a permanent loss of skills. Second, the stock of equipment and infrastructure will decrease and become obsolete due to lower investment. Third, innovation may be hampered as spending on research and development is one of the first outlays that businesses cut back on during a recession. Member States have implemented a range of measures to provide temporary support to labour markets, boost investment in public infrastructure and support companies. To ensure that the recovery takes hold and to maintain the EU's growth potential in the long-run, the focus must increasingly shift from short-term demand management to supply-side structural measures. Failing to do so could impede the restructuring process or create

harmful distortions to the Internal Market. Moreover, while clearly necessary, the bold fiscal stimulus comes at a cost. On the current course, public debt in the euro area is projected to reach 100% of GDP by 2014. (Economic Crisis In Europe: Causes, Consequences and Responses, 2009)

### 3. MARKET FAILURE OF THE FINANCIAL SYSTEM

Even emergent countries, even countries without a well developed stock market felt sooner or later a crash.

Even if the financial market of a country is big or small, even if it is a complicated market or not, complexity of transactions and complexity of conditions on the stock market occurs and that complexity usually it is the cause for financial turmoil. It is the case of the investment in assets, or in the modern securities. Sometimes not even those which are trading with those modern and special tools are not understanding completely what they are trading effectively.

The complexities of the assets underlying investment securities, and of the means of originating those assets, can lead to a failure of lending standards and unanticipated defaults. Consider first the complexities of the underlying assets, which can include mortgage loans and a wide range of other financial assets.

The complexities of modern investment securities can lead to a failure of investing standards and financial-market practices for several reasons: these complexities impair disclosure; they obscure the ability of market participants to see and judge consequences; and they make financial markets more susceptible to financial contagion and also more susceptible to fraud.

Complexity can deprive investors and other market participants of the understanding needed for markets to operate effectively. Even if all information about a complex structure is disclosed, complexity increases the amount of information that must be analyzed in order to value the investment with a degree of certainty. This additional analysis entails higher cost.

Complexity can add great efficiency and depth to financial markets, but it also can cause a multitude of market failures. These failures, however, fall into three broad categories: (A) failures, such as impaired disclosure, caused by information uncertainty; (B) failures, such as financial contagion and the inability to predict consequences, caused by nonlinearity and tight coupling; and (C) failures, such as

moral hazard, servicer paralysis, and fraud, caused by conflicts and other forms of —misalignment (Schwarz, 2009, 26).

## 3.1. Western European Economies

Although the crisis originated in the US, the impact is heavier in Europe partially due to the larger size of the fiscal stimulus plans as well as the speed of reaction in the US. According to the OECD Economic Outlook revised forecasts of September, US GDP will contract by 2.8% in 2009, whereas Euro area (12 countries) is expected to contract by 3.9% and UK by 4.7% (Onaran, O, 2009)

The eurozone officially sunk into technical recession in Q2 and Q3 2008, as two of its biggest economies, Germany and Italy, shrank for two consecutive quarters. Sweden and Ireland have also slipped into 'technical recession' in 2008 and Spain and the UK are expected to enter technical recession in the last quarter of 2008;

Western European trade is mostly conducted within the region with 80.0% of exports destined to European countries in 2007. 7.6% of exports were destined to North America and Australasia, which are also facing downturns; Some economies are highly dependant on exports. In 2007, exports as a share of GDP amounted to 61.3% in the Netherlands, 40.0% in Germany, and 37.2% in Sweden. France, Italy, Spain and the UK were far less dependant on exports, which contributed less than a quarter of their GDP.

The financial system breakdown in Western Europe caught the governments from France, Germany, Spain and other major countries from EU not so well prepared. Different measures were taken: the bank of England reduced the reference interest rate from 5.0% in September 2008 to 2.0% in November 2008; Germany indicated that it will focus on investments in industry and infrastructure, and similar cuts were made by the European Central Bank and Sweden's central bank. It seems that not even the most developed and important countries in western Europe did not have a unique and common policy to face crisis.

## 3.2. Eastern European Economies

"The consequences of the world economic crisis will burden this region more than the rest of the world in coming years," declared the chief economist of the EBRD, Erik Berglöf, speaking on the fringes of a conference held by the Austrian Central Bank in Vienna in November 2009.

The International Monetary Fund has also issued a number of blunt warnings about developments in eastern Europe. The Austrian *Standard* quotes IMF economist Christoph Rosenberg, who declares that the recent recovery of financial markets in the region is almost exclusively due to the increased appetite for risk on the part of investors and has little to do with any improvements in the real economy. (Salzmann, M, Deepening Economic Crisis in Eastern Europe, 2009)

So that we can speak not about a financial, not even an economic crisis in Eastern Europe, but we can say that it is a come back to the roots. The economies of Eastern Europe grew a lot in the last years and for sure that growing economy doest not stand as a result for increasing productivity of increasing exports, but maybe it is the result of the foreign direct investment coming from more and more appeal to risks for western European investors.

Maybe the crisis in Eastern Europe could have been lighter if the FDI were increasing with the same rate as productivity. But what happened was that the national economies increased more on the consumption basis then on the production one. An economic increase based only on consumption is now playing the last role in today's economics.

Now it is time for public policies to enter the stage and solve the issue. Only the work of national banks will not solve the economic crisis on their own. A set of public spending policies is needed. Maybe one master plan for infrastructure and production is needed in Eastern Economies. Structural changes should follow and these structural changes should rely on the products with a real comparative advantage and increasing productivity where it is possible.

What the Eastern Europe should do? For sure should rely on western's experience and try to catch up as fast as it is possible the gap between them and the western countries. If in the previous years some fiscal changes were made to make the business environment more appeal to foreign investors now it is time for evaluations and stability. Foreign direct investments will not represent at least for the next couple of years and start-up for the engine of the economy so maybe the emergent eastern countries should rely more on their own forces and not on imports of technology and capital.

# 3.3. Divergent or convergent measures between east and west?

Both economies from eastern and western countries tried on their own way to reply to the financial crisis, but unfortunately all the measures taken by the policy makers led to economic crisis. Solutions proposed by the national's governments were quite different between east and west and also between countries.

If some countries took the solution of cutting down expenses and to decrease public expenditure (like Germany, France, Italy and Romania) other took the measures of lowering taxes and aiming for a higher consumption and in the end a higher production (the case of Bulgaria and Poland).

Different measures for different structures of the economies. It is a struggle if a national economy depends too much on foreign trade (the countries mentioned in the first group) and it appear that during this economic and financial crisis, economies not so dependent of other economies, such as in the case of Bulgaria and Poland, are dealing a lot better than the previous group.

So that what will be the reply to the question to be divergent or convergent to a common situation and maybe to a common policy? Well the answer will be in the end that countries will adapt and adjust to that model that will drive them out of the economic crisis in the beginning and from the financial crisis in the end. If it is already a given that the economic crisis spread from west to east maybe this can be as in the case of a volcano. It will end from the point that all started but will leave great traces into national economies.

**Table 1.** Unemployment rate

%	2003	2004	2005	2006	2007	2008	2009
Bulgaria	18	14.3	12.7	11.5	9.6	7.7	6.3
Croatia	21.7	19.5	13.8	18	17.2	11.8	13.7
Romania	8.3	7.2	6.3	5.9	6.1	4.1	4.4
Poland	18.1	20	19.5	18.2	14.9	12.8	9.8
Germany	9.8	10.5	10.6	11.7	7.1	9	7.8
Italy	9.1	8.6	8.6	7.7	7	6.2	6.8
France	9.1	9.7	10.1	9.9	8.7	7.9	7.4
Uk	5.2	5	4.8	4.7	2.9	5.3	5.6

Sounce: CIA World Factbook

As it appears from the tabel above the economies did not show signs of economic crisis from the start, the unemployment rate was still decreasing in both eastern and western countris. Only some financial data were showing signs of macroeconomic disequilibrium.

If we analize the GDP per capita in eastern and western Europe we will see the drecreasing data even from 2007 when the unemployment rate was decreasing and maybe when the GDP per capita in Europe will stop decreasing the unemployment rate will end the increase. It is possible and quite likely to happen that the unemployment rate to have a gap of one or even two years considering the start of the financial crisis in th end of 2007.

Table 2. GDP based on purchasing-power-parity (PPP) per cal	apita per capita
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%	2003	2004	2005	2006	2007	2008	2009
Bulgaria	7.88	10.01	10.05	10.35	12.41	6.20	-4.56
Croatia	7.24	6.42	7.41	8.20	8.58	4.55	-3.76
Romania	7.91	12.16	7.53	11.83	9.62	9.77	-6.71
Poland	6.17	8.17	6.86	9.76	9.90	7.12	2.58
Germany	1.92	4.09	4.07	6.70	5.58	3.53	-3.71
Italy	2.11	3.84	2.54	4.71	3.68	0.30	-4.38
Uk	4.61	5.57	4.62	5.59	4.82	2.38	-3.28

Sounce: CIA World Factbook

As we mention above there are some case countries like Poland in which even if the GDP per capita decreased it still have a positive value and it seems that here the financial and economic crisis will not occur. But it is possible that like in the case of the gap of the unemployment rate that one entire country to have a gap from the rest of EU'27 to experience that crisis.

The financial crisis has hit the various Member States to a different degree. Ireland, the Baltic countries, Hungary and Germany are likely to post contractions this year well exceeding the EU average of -4%. By contrast, Bulgaria, Poland, Greece, Cyprus and Malta seem to be much less affected than the average.

Countries where export demand has been strong and/or which have registered current account surpluses are more exposed to the sharp contraction of world trade (e.g. Germany, the Netherlands, and Austria). Countries which have been running

large surpluses are also more likely to be exposed to adverse balance sheet effects of corrections in international financial asset markets. Conversely, countries which have been running large current account deficits may face a risk of reversals of capital flows. Some Member States in Central and Eastern Europe are in this category. In some of these cases, the sudden stops in foreign financing forced governments to make a call on balance of payment assistance from the EU, IMF and the World Bank.

Countries which house large financial centers, such as the United Kingdom, Ireland and Luxembourg, are obviously exposed to financial turbulence. Conversely, countries which are the home base of cross-border banking activities in emerging economies in Central and Eastern Europe are also likely to be more strongly affected. The exposure for European banks to emerging market risk is fairly concentrated in a few countries.

Some of the countries took more financial measures than economic ones. Both Romania and Bulgaria had increased the importance of financial and fiscal policy and did not give such a great attention to economic measures. Both of them experienced high rates of increasing GDP on the basis of foreign direct investment, but when the investors experienced economic problems even with those financial measures, the crisis spread rapidly.

Poland on the other hand took some economic structural reforms that changed the country, and, also with a very big market, approximately 38.500.000 inhabitants, managed to create a national economy not so dependent of the foreign trade and foreign direct investors. Maybe the overall increase in the last 10 years was not so important in Poland in comparison with the rest of the eastern European countries but maybe was it is stronger and more reliable.

### 4. GOVERNMENTAL SOLUTION OR GOVERNMENTAL FAILURE?

As we have seen so far considering the financial system approximately all the governmental measures were to fail. So unfortunately we must say that we are in the situation of a governmental failure greater than the market failure. What was the story? Some financial institutions had a series of problems coming from their actions on the free market. The response of the market was that the actions that those financial institutions had were that of a bankruptcy. How the governments responded? Unfortunately with a failure, and a bigger one. Instead of leaving the market mechanisms to solve the problems, even a bankruptcy can be a solution

sometimes, the governments nationalized the problems. So governments brought a problem from the private market into the national economic systems.

Why the government did not had success till so far in solving at least the financial problem? There are several answers to this question.

First of all is that the governments do not have enough information on that specific matter. The policy makers should know at least the size of the problem. But because this system is one in which the financial innovation is something that is in fashion so to say today. Why is this lack of knowledge in this field? It is certain now that the number and speed of innovations exceeds the possibility of law makers to respond so quickly to the changes in the market. The financial market turmoil prompted central banks to have much more frequent and detailed discussions about market developments and the technical aspects of their market operations, both bilaterally and collectively. Such enhanced cooperation took place both at the Governors level and at the expert's level. The Bank for International Settlements served as a forum in this respect. Communication across central banks intensified as the turbulent episode evolved over time.

Central banks also acted in concert on some occasions. Although coordinated action had been considered already in August 2007, the first such action took place later in the year, amid heightened market tensions arising from year-end funding pressures. The central banks of five currency areas (BoC, ECB, SNB, Fed and BoE) jointly announced on 12 December 2007 a number of coordinated measures to provide term funding. Two other central banks – the BoJ and the Riksbank – joined the announcement to indicate their support. A key element was the establishment of swap lines between the Federal Reserve, on the one hand, and the ECB and the SNB, on the other. This allowed the two central banks in continental Europe to conduct US dollar auctions during European trading hours to help alleviate time zone frictions and to complement the Federal Reserve's TAF auctions [Committee on the Global Financial System (CGFS) (2008)]

	EA	JP	СН	GB	US	RO
Exceptional fine-tuning (frequency, conditions)	Υ	Υ	Υ	Υ	Υ	Υ
Exceptional long-term open market operations	Υ	Υ	Υ	Υ	Υ	Υ
Front-loading of reserves in maintenance period	Υ		Υ			
Change in reserve requirements/targets				Υ		Υ
Change in the standing lending facility					Υ	
Broadening of eligible collateral			Υ	Υ	Υ	
Broadening of counterparties				Υ	Υ	
Introducing or increasing securities lending				Υ	Υ	

**Table 3.** Special measures taken during the financial crisis

EA = euro area; JP = Japan; CH = Switzerland; GB = United Kingdom; US = United States; RO = Romania; Y = yes; blank = no

**Source:** National Banks and Committee on the Global Financial System Papers.

In we consider only one of the above measures; it is obvious that the 2007 till today financial crisis was predictable.

For instance if we take into account only the reserve requirement into the last 40 years we will observe a huge decrease.

	1968	1978	1988	1998	2008
Great Britain	20.5	15.9	5.0	3.1	0
Germany	19.0	19.3	17.2	11.9	2
United States of America	12.3	10.1	8.5	10.3	10

**Table 4.** Change in reserve requirements

Maybe we can express a link between change in the reserve requirements and the unemployment rate. If the national bank increases the reserve requirement, than the supply of money will decrease and business will enter into a period of low financial liquidity. This possibility together with the decrease of the consumption of population can lead, not immediately, to a decrease of the total demand for goods and services. If in the first moments the companies can find solutions using the toll of foreign trade, the export to be more specific, meanwhile the financial turmoil is spreading and companies will react in decreasing production on the developed markets at first and then on emergent countries. This is why emergent economies

will experience first an economic decrease and only after that a financial one. If in the case of developed market economies the first problem seems to be the financial one, in the emergent countries the negative experience will occur in the economy as a whole and only after that will be more and more obvious in the financial sector.

What is the outcome of the analysis of those measures? Well we see that in the areas in which we had more and more problems the regulations proposed are more and more strict.

Second of all, the government nature is a bureaucratic one and does not allow smooth changes on the way to market intervention. We should say that the government intervention will change the market on the long run and not as it is requested today to have solutions on a short run, so that the market failure to be eliminated.

Not in the end a government does not have all the time the incentive to solve the problem entirely. Let's consider that the financial system is one of the most globalize systems nowadays. Why a national government to have the incentive to solve the problem of a multinational company, even if it is a financial one? Maybe the answer to this question should be the boomerang effect on national economies of the international financial institutions.

All around those problems can not be understood and known by only one bureaucratic government and for sure the action of a single government will not have desired and requested result.

The answer of the financial system came from the international financial institutions. For some countries the answer was late, for other was wrong and for some others inappropriate. Here we can consider the experience of Greece, Hungary (not needing anymore the help of international financial institutions) and maybe (hopefully not) the case of the other eastern economies.

### 5. CONCLUSION AND PROPOSALS

Financial systems may experience problems that may give rise from two distinct developments that can each make it more difficult for central banks to keep the relevant interest rates near their policy rate targets: first, there may be unpredictable shifts in the aggregate demand for reserves; second, there may be occasions on which a central bank needs to extend large amounts of credit but at the same time keep the net aggregate supply of reserves consistent with its policy rate target.

Another improtant problem is that of communication. Misinformation and misinterpretation of central bank actions are more likely and costly in times of stress. What should the central banks do? First of all to try al least to increase communication with the market participants and media. Sometimes changes in economic environment are more or less turbulent in according with the capacity of the governor or the board of governors to communicate with the economic environment.

Maybe it is more important to communicate, to explain problems and measures than to act without promoting and explaining the impact of central banks actions.

Also in these cases the explanations not only of the economic and financial solutions proposed are to be explained but also some economic outcomes can be explained and than maybe when those economic outcomes occur the market will not be so to say "suprised".

As an example the measures taken by the NBR (National Bank of Romania), even if they seemed more strict than other measures taken by other national banks.

The expectation that central banks will act to attenuate market malfunctioning may create moral hazard by weakening market participants' incentives to manage liquidity prudently. So that maybe central bank's intervention should be or not be public? In certain cases, if we consider that all the time the financial system will have a "super-bank" to manage all the problems, the banks and other financial or non-financial institutions will deal more happy and without any burden on to the financial market. This is not what the market should do. They must be aware of all the risks and to manage liquidity wisely and not so wide-handed.

All of that can not represent but financial solutions, but maybe much more important are those economic solutions. If the cause of this financial-economic crisis seems to be the failure of the financial markets we think that the solution is more an economic one then financial. It will be in the hands of national governments to change the markets and hopefully not using only financial tools but also other economic policies like the public spending policy and the fiscal policy.

The public spending policy should create jobs for those sectors that shrank or in the worse case scenario to try to change on medium and long term the structure of the economy. A good thing that usually economic crisis are bringing is increasing interest for savings and decreasing appeal for consumption (maybe the best

example here is USA in 2007 with a savings rate of no more than 1% and nowadays a saving rate of 7% average for 2009).

The question that will arise is whether the governments will have enough money to finance this new public spending policy. We can propose here two solutions: one to leave the problem of the inflation on the second plan or to try to cut other expenses not so compulsory for the national economies. Inflation can be avoided, but this means that policy makers will have to agree categories of expenses to be cut down. One solution for the countries in EU will be for instance the decreasing expenses for the officials and commissions of EU. This can be a very boiling point because it has to be decided exactly by the beneficiary of those expenses. It is a though point but let's imagine that this crisis will be due in a reasonable time of 3-5 years or the worse case scenario to have a come-back of the economy in the same manner and time as the big crisis from 1929-1933. Hopefully the policy makers will take into account the public benefit and not an individual or even a national one, otherwise they will create once again an new market failure, this time not only a financial one but more complex a general economic market failure of the capitalist market system.

#### REFERENCES

- 1. Colander (2004), Economics, ISBN 0-07-254902-5, New York
- 2. Allen F., D. Gale (2007), Understanding Financial Crises, ISBN-13: 9780199251414, Oxford University Press
- 3. Allen, Franklin and Gale, Douglas M., An Introduction to Financial Crises (August 14, 2007). Wharton Financial Institutions Center Working Paper No. 07-20. Available at SSRN:http://ssrn.com/abstract=1008311
- 4. Babus, Ana, Carletti, Elena and Allen, Franklin, Financial Crises: Theory and Evidence (June 8, 2009). Available at SSRN: http://ssrn.com/abstract=1422715
- 5. Gorton H., L. Huang (2004), "Liquidity, Efficiency and Bank Bailouts", American Economic Review 94, 455-483, http://fic.wharton.upenn.edu/fic/papers/02/0233.pdf (05.01.2010)
- 6. Gonzalez-Paramo, Jose Manuel (2009), Financial market failures and public policies a central banker's perspective on the global financial crisis, http://www.bis.org/review/r090210e.pdf (05.03.2010)

- 7. Trichet, J.C. (2008), International Interdependencies and Monetary Policy: A Policy Maker's view, Speech at the Fifth ECB Central Banking Conference, Frankfurt am Main, http://www.ecb.int/press/key/date/2008/html/sp081114. en.html(28.02.2010)
- 8. Committee on the Global Financial System (CGFS) (2008), Central bank operations in response to the financial turmoil, CGFS Publications No. 31, http://www.bis.org/review/r090210e.pdf (05.01.2010)
- 9. Site:http://thinkexist.com/quotation/it\_is\_just\_as\_important\_that\_business\_keep\_out\_of/195403.html (25.02.2010)
- 10. http://www.indexmundi.com/ (28.02.2010)
- 11. Economic Crisis In Europe: Causes, Consequences and Responses http://ec.europa.eu/economy\_finance/publications/publication15887\_en.pdf (25.02.2010)
- 12. Onaran, O. (2009), Global crisis and global reaction in Western and Eastern European Union, http://www.internationalviewpoint.org/spip.php?article1797 (28.02.2010)
- 13. Salzmann, M, Deepening Economic Crisis in Eastern Europe, (2009) http://www.wsws.org/articles/2009/nov2009/euro-n24.shtml (05.03.2010)
- 14. Schwarz, LS, Regulating complexity in financial markets, http://papers.ssrn.com/sol3/papers.cfm?abstract\_id=1240863 (15.02.2010)