EMPIRICAL APPROACH UPON THE RELATIONSHIP BETWEEN CENTRAL BANK INDEPENDENCE AND INFLATION IN DEVELOPED AND DEVELOPING COUNTRIES

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Central bank independence has become over time one of the key concepts in modern theory and policy. Most economists agree that central bank independence is desirable because it helps achieving and maintaining the long – term goal of price stability. Although one might think about alternative mechanisms to reach lower inflation rates, central bank independence is clearly the most often recomended. The empirical trends upon a more independent central bank with a more transparent and accountable monetary policy regime has emerged in economic literature regarding central banking and monetary economics. In recent years, starting from the Maastricht Treaty central bank independence has become the panacea of the monetary economics and monetary policy approaches. Moreover it is important to analyze and assess the impact of this key issue in central banking upon the inflation performances of the central banks. In this article we provide a qualitative overview upon some recent trends in the central bank independence field: does it still matter? How can be it evaluate and stress it's impact upon macroeconomic performances, especially upon inflation. As we can observe in the economic literature upon central bank independence there are several approaches to use several indices in order to measure this qualitative and quatitative institutional variables. The most important debate is to eliminate the gap between de jure and de facto independence in order to flatten the measuring of institutional aspects, the legal implication, the constitutional facts and the actual practices of the central banks. Finally, we suggest that according to the new index for measuring central bank independence and inflation targeting index we can evaluate more accurate the degree of the de jure and de facto independence and stress the impact on inflation performance with a case study for ten developed countries and ten developing countries.
Keywords inflation targeting, central bank transparency, communication strategy, decision-making process, inflation level.
JEL Classification E50, E52, E58.

I. Introduction

In the beginning on the 1990's the stipulations of the Maastricht Treaty embedded with the importance of the central bank independence and the positive impact of it upon the macroeconomic performances. It is highlighted by (David 2009: 19) the importance of central bank independence of the romanian central bank and it's assessments in assuring and maintaining the price stability objective.

It is suggested by (Mishkin 2007: 20) the importance of the monetary policy strategies especially inflation targeting with a special focusing of the central bank independence matter. The overall independence notion translated to the central banks as being free from the influence, guidance or control from the rest of the government, meaning the executive and legislative branches (Thisani 2008: 15).

The central banker is subject to explicit influence of elected principals through contracts and the endogenous interest groups (Gabillon and Martimort 2004: 353-355). The authors suggest that

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political independence increases those agency costs but significantly stabilizes the politically induced fluctuations of inflation.
Studies developed by (Allesandrini, Calcagnini & Zazzaro 2008: 699-700) and (Huang and Wei 2006: 242-243) reveal that central bank independence has an important role for the ultimate design of monetary policy making institutions.

II. Former approaches regarding the relationship between central bank independence and inflation

The most important indicators for measuring central bank independence was developed by (Cukierman 1992: 369-386). At the beginning at it's studies, the author developed LVAU and LVAW *de jure* indicators for measuring central bank legal independence. Later he had developed two behaviour oriented indicators: turn over rate of central bank Governor and the board members for measuring actual practice accuracy of the central banks.
Recent studies of (Haftel and Thompson 2006: 250-275) and (Patel 2008: 27-41) studied the relationship between central bank independence and inflation in developed and developing countries but had registered divergent conclusions and results. It can ne noticed that in cases of high independent central banks it is registered high inflation rates and vice versa: some low inflation level countries exhibit lower scores of central bank independence.
Other authors like (Masciandaro et al. 2008: 833-848) and (Siklos 2008: 802-816) analyzed the connection of different indices for measuring cental bank independence and their impact on the inflation rates and have emerged to the conclusion that the divergent results start from the inaccurate indices with several problems in the contruction and explicit variable stipulations.

III. Measuring central bank independence and it's connection upon inflation in several developed and developing countries

Analyzing the ecomic literature regarding central bank independence we can observe that the different approaches are sometimes divergent regarding the soundness and effectiveness of the indicators for measuring central bank independence. This is because there exist still differences between *de jure* and *de facto* independence and also that in some countries there are still developing reforms regarding modernizing the central banks, especially in the less developing countries of Africa and Asia.
For a more accurate measuring of central bank independence we have adopted the (Dumiter 2009: 83-85) and (Dumiter 2010: 183-184) index for measuring central bank independence and inflation targeting. This index is conceived as a sum of numerical values assigned to thirty eight institutional arrangements both in law and practice of central banks: nine attribute to political and legal central bank independence, fifteen attibute to central bank governance and conduct of monetary policy and fourteen attributes for central bank transparency and accountability.
The index for measuring central bank independence and inflation targeting constructed by Dumiter is considered both a *de jure* and *de facto* index because the aggregated vallue is based noy only on the institutional practices or norms of central banks and also what is written in the central bank laws. However, the new index for central bank independence and inflation targeting is an interpretation based on these laws, which are put into actual practices and those practices that are not embedded oin the central bank statue.
Table 1 presents the connection between central bank independence and inflation in ten developed countries by using the Dumiter's index in the period 1980-2009 and the average inflation rate (average) in the period 1999-2008. Analyzing the empirical results in the developed countries we can observe that according the first pillar – political and legal central bank independence – the most independent central banks are those of France, Sweden, United States and Denmark; these countries central banks' register longer tenures of central bank Governors and the members of the Governing Board, appointment and dismissal procedures

assign by Parliament, lower turnover rates of central bank Governors' and political non-vulnerability of the central bank Governor. At the opposite side are countries as: New Zeeland, Norway and Japan who exhibit lower tenures of the Governor and the Board Members which overlap the political cycle, appoitment and dismissal procedures made by the Government and political vulnerability of the central bank Governor.

Regarding the second pillar – central bank governance and conduct of monetary policy – at the top of the hierarchy are countries as: France, Germany, Denmark and United Kingdom by a clear focusing of the final objective of monetary policy – price stability – the bank prevaillance upon the Government in case of policy conflicts, and the unequivocally prohibition of Government direct and indirect lending. The lowest scores of this pillar register countries as: Canada, Norway, New Zeeland and Japan because of some aspects as: Government prevaillance in case of policy conflicts, establishing the monetary policy objectives and targets in compliance with the Government and granting potential indirect lending to the government in several cases.

Table 1

Measuring central bank independence and its' relationship with the inflation performances in developed countries[1]

Country	**P_{PL}[1]**	**Ranking**	**P_{GC}[2]**	**Ranking**	**P_{TA}[3]**	**Ranking**	**I[4]**	**Ranking**	**I[5]**	**Ran King**
Canada	7.55	4	6.67	5	10.00	1	8.07	7	2.06	2
Denmark	8.88	2	7.80	2	8.93	3	8.54	4	2.94	5
France	9.44	1	9.33	1	9.64	2	9.47	1	3.15	8
Germany	7.22	5	9.33	1	9.64	2	8.73	3	2.75	4
United Kingdom	8.33	3	7.13	3	9.64	2	8.37	5	2.47	2
Japan	4.33	8	4.33	8	5.71	5	4.79	9	1.39	1
Norway	6.11	7	5.00	6	9.64	2	6.92	8	3.05	7
New Zeeland	7.11	6	4.66	7	10.00	1	7.26	7	3.95	10
Sweden	9.44	1	7.00	4	10.00	1	8.81	2	3.29	9
United States	8.88	2	7.13	3	8.21	4	8.07	6	3.00	6

Note: [1] Measuring central bank independence and inflation targeting in developed countries was made by analyzing central banks websites, government websites, central bank laws and statutes, different norms and regulation and other publication and studies available on the central bank website and on the real practices of the developed central banks in the period 1980 and 2009; the inflation indicator have been estimated by the author as the main average of the inflation variable in the period 1999 – 2008 – the data used by the author is available on: International Monetary Fund – World Economic Outlook Database 2010.

[1] P_{PL} – Pillar I – Political and legal central bank independence.

[2] P_{GC} - Pillar II – Central bank governance and conduct of monetary policy.

[3] P_{TA} - Pillar III – Central bank transparency and accountability.

[4] I – Index for central bank independence and inflation targeting – overall score.

[5] i – inflation – average consumer prices – percent change.

The third pillar – central bank transparency and accountability – reveals the most accountable and transparent developed central bank: Canada, New Zeeland, Sweden because of the inflation targeting strategies embedded with the high disclosure of the macroeconomic models used for policy conflicts and the quarterly publishing of the time series for the main macroeconomic indicators and the complex communication strategies. The less accountable and transparent central banks are those of: Japan and United States because of promoting the *policy mistique*

without any complex and direct explanations of the present and future policy paths and without any transparent and functional communication startegy.
Overall, the corelation with the inflation rate in the developed country group is the following one: the highes score for the final value of the Dumiter's index have countries as France, Sweden, Germany and Denmark, countries who exhibit lower levels of average inflation (between 2.75 percent in Germany and 3.29 percent in Sweden), the lowest score of the final value on the Dumiter's index in the developed country group register: Canada, New Zeeland, Norway and Japan, countries which exhibit different levels of average inflation (lower levels in Japan – 1 percent and Canada – 2 percent and higher levels in Norway – 7 percent and New Zeeland – 10 percent).

Table 2
Measuring central bank independence and its' relationship with the inflation performances in developing countries[1]

Country	**P_{PL}[1]**	**Ranking**	**P_{GC}[2]**	**Ranking**	**P_{TA}[3]**	**Ranking**	**I[4]**	**Ranking**	**I[5]**	**Ranking**
Armenia	6.33	8	7.13	3	8.93	2	7.46	4	8.96	9
Bulgaria	6.66	7	6.13	6	6.79	4	6.53	8	7.26	6
Brazilia	3.00	9	4.13	7	8.57	3	5.23	10	5.26	2
Croatia	6.66	7	7.66	2	4.64	6	6.32	9	5.04	1
Estonia	7.11	5	8.00	1	6.79	4	7.30	5	6.83	5
Hungary	7.00	6	7.66	2	9.64	1	8.10	2	8.03	7
Latvia	8.88	1	7.00	4	5.36	5	7.08	6	8.69	8
Lithuania	7.44	4	7.66	2	4.64	6	6.58	7	6.29	4
Poland	7.77	3	6.33	5	8.93	2	7.68	3	5.75	3
Romania	8.22	2	8.00	1	8.93	2	8.38	1	26.82	10

Note: [1] Measuring central bank independence and inflation targeting in developed countries was made by analyzing central banks websites, government websites, central bank laws and statutes, different norms and regulation and other publication and studies available on the central bank website and on the real practices of the developed central banks in the period 1980 and 2009; the inflation indicator have been estimated by the author as the main average of the inflation variable in the period 1999 – 2008 – the data used by the author is available on: International Monetary Fund – World Economic Outlook Database 2010.

[1] P_{PL} – Pillar I – Political and legal central bank independence.
[2] P_{GC} - Pillar II – Central bank governance and conduct of monetary policy.
[3] P_{TA} - Pillar III – Central bank transparency and accountability.
[4] I – Index for central bank independence and inflation targeting – overall score.
[5] i – inflation – average consumer prices – percent change.

Table 2 reveals the connection between central bank independence and inflation in ten developing countries by using the Dumiter's index in the period 1980-2009 and the average inflation rate (average) in the period 1999-2008. The first pillar – political and legal central bank independence exibits higher levels in: Latvia, Romania, Poland and Lithuania due to the long tenures of the central bank Governor and Board member, lower turnover rates and non-political vulnerability; at the opposite side are: Croatia, Bulgaria, Armenia and Brazilia with lower tenures of the Governor and Board members, political vulnerability and the Goovernment implication in the appointment and dismissal procedures of the Board members.
The second pillar – central bank governance and conduct of monetary policy – applied for the developing country group establisheh higher scores for: Estonia, Croatia, Hungary and Lithuania and lower score for Poland, Brazilia and Bulgaria. The main important variables for the highest score were explicit prioritisation of the price stability objective, the bank's ability to establish the objectives and targets and the exclusive prohibition of government lending. The countries which exhibited lower scores had multiple objectives without any prioritisation, government

interferences in the monetary policy process and providing direct and indirect credit to the government.
Pillar III – central bank transparency and accountability – registered highest score in: Hungary, Poland, Romania, Armenia due to the inflation targeting monetary policy strategy with clear objectives and targets, a special communication upon the future paths of monetary policy, explicit direction inclination after the Board decision and *forward-looking* analyzes and approaches. The less transparent and accountable central banks are those of: Bulgaria, Croatia, Brazilia and Lithuania because of less developed central bank websites, unpublic disclosure of important information about the current and future paths of monetary policy, and the Governor's accountability before Government.
The correlation between central bank independence and inflation in the less developing countries shows that the most independent central banks: Romania, Hungary, Poland, Armenia exhibit higher average inflation rates (the lowest rate – Poland – 5.75 percent and the highest Romania – 10 percent) and the less independent central banks: Bulgaria, Croatia, Brazilia and Lithuania exhibit medium averare inflation rates (the lowest rate – Croatia – 5.04 percent and the higher rate – Bulgaria – 7.26 percent).

IV. Conclusions

The empirical observed trends upon a more independent central bank and a more transparent monetary policy regime is sustained by a large extent of the theory and practices of the central banks. Moreover, the importance upon the relationship between central bank independence and inflation rate has to undergone the institutional shifts from the past.
In our article we provided a qualitative overview regarding the connection between central bank independence and inflation in 10 developed and 10 developing countries using the new index for measuring central bank independence and inflation targeting based on three pillars: political and legal central bank independence, central bank governance and conduct of monetary policy and central bank transparency and accountability.
In the developed country group we can observe a direct connection between central bank independence and inflation because the most independent central banks: France, Sweden, Germany and Denmark exhibit moderate levels of inflation. This suggest that in the developing countries central bank independence is neither significant nor mandatory for register lower inflation rates.
In the developing country group the final measurements show the following results: the most independent central banks'are those of: Romania, Hungary, Poland and Armenia which exhibit higher average inflation rates, but the rest of the developing countries registered different connections with the average inflation rate.
The conclusion for measuring the impact of central bank independence on the inflation rate is to reconsider constructing a new index for independence, transparency and accountability with different time variant variables and for inflation the importance of adopting the monetary conditions index.

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