

# The shortcut

„Political Economics has been, including in its theoretical formulation, something important in as far as (and only to that extent...) it has shown where exactly must the government find the truth principle of its own governmental policy.”

**Michel Foucault**

The temptation of ideological solutions to the problems of the economy has a cause: the economic is the most accessible goal of the politic. As long as politics is the pure management of power, it will do without the substance of control over people. So far no other formula for the efficient long-term control has been invented, other than that of the redistribution of wealth. This is how politics has become the acting universe through which the recipes for the access to resources are drawn, including the access to the final resource which is wealth.

It must be pointed out that it is not the fault of politics for exerting interference in the form of ideologies. In the end, any ideology is nothing – beyond resentments – but a shortcut for solving problems, cued to Alexander the Great's procedure involving the Gordian Knot.

In the absence of palpable results to impress in any area of activity, the pressure for the shortcut intervenes. The economy has – as an activity – numerous failures with regard to the expectations of people; everything seems too little, too slow, too flat, too short for too many, in a too persistent way, too differentiated and taking too long. Experiencing the failure must end! Resorting to taking the shortcut of ideologies seems natural because of the need of human motivation.

Yet still, the shortcut is failure in itself, the grand illusion of fulfillment, the numbing solution to progress. The market, for instance, this unifying hypothesis at the foundation of Economics, functions unperturbed in the absence of human sentiments. The human mechanisms of the market are implacable. The market would be the perfect regulator if it weren't for the results being invariably relativized by the human condition as too little, too slow, too flat, too short, and the human nature would not imagine structural abundance based on spatially and temporally limited expectations. The reconciliation between the rationality of the market and the humanity of expectations is the ambition of the ideologies. As it cannot be done concretely, it generates illusion for the implicated parties; the market self-regulates and eliminated failure, while the expectations are pushed into deviate side-ways of the type of generational sacrifice, revolutionary romanticism or salvation in the afterlife.

In spite of a persistent assumption, Economics is the most experimental science. Only that the instruments through which it experiments are not in accordance with its essence nor are they pursuing the objective-function of economic activity. The experiment is ideologically built, by

way of policies, and it cannot even be avoided as it could plainly be seen for the past three centuries, even the past two millennia if we accept the idea that the economy was – to the ancient Greeks – a problem solvable only within the fundamental framework of the human evolution and not that of the polis. After the economy turned into a ground where power is being distributed – meaning the moment in which wealth has become the public symbol of power (partially after The Renaissance and completely starting with The Enlightenment and the First Industrial Revolution) – ideologies have made the house rules in a cyclical way.

The balance between individual and social, laissez-faire and interventionism, regulation and deregulation, self-regulation and coordination, market and planning, monetarism and Keynesianism, public and private, homo oeconomicus and the natural man, national and global etc. constitutes the very history of the economy as an activity and as a science.

In fact Economics presents itself as an ideology, thus having many facets, opposed, somewhat divergent. With the exception of Microeconomics, which is a purely theoretical innovation and where non-ideological solutions are liable to prioritization, in the fields of Macroeconomics, Socioeconomics or Institutional Economics everything gets reduced to the ideology.

He who claims that the economy is not political does not understand why, for example, the central banks are lenders of last resort, why the orchestrator for coming out of crises or for spectacular leaps is the government, why the market is a centrifugal force to the peripheries and a centripetal force to wealth, why capital delocalizes production to areas with cheap labor force, why struggling banks are nationalized, why the mining industry's unions are being dispersed a.s.o.

It cannot be avoided, in the end, having the ideological vision in the construction of solutions to the problems of Economics as Macroeconomics and Socioeconomics.

The trick is to exercise the testing of the inevitably alternative solutions of policies and according to extra-economical contexts the most useful option to be selected. However, as long as wealth remains the expression of power and private property the fundament of liberty, ideology will continue to be the natural state of Economics. With epistemological rigor, that which can be seen is only Political Economics, as a reflex of the capacity of the economy of producing the strong symbol of power and the most efficient instrument of control as a function of politics.

Marin Dinu

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# Finances, in the Light of Utility and Equity Criteria

■

**Mario Pagliacci**

Perugia University, Italy

**Constantin Anghelache**

**Dan Armeanu**

Academy of Economic Studies, Bucharest

***Abstract.** This article intends to present tendencies in the regional industry and specialisation in Romania during the transition period. The authors present the main tendencies in the analysis of concentration and specialisation and industry developments by electoral cycles as well. An econometric model for the analysis in time of concentration and specialisation in Romania during the transition period is also presented.*

**Key words:** utility; equity; preference for risk; risk-averse.

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**JEL Codes:** D01, D81.

**REL Codes:** 7J, 11B.

The theory of utility can be successfully used in order to emphasize the principles of fiscal equity which are the basis of every modern fiscal system. Adam Smith identified at the end of the XIX-th century the following tax principles: rightness, certainty, comfort and efficiency. The fiscal equity is defined by financial theory as social justice and its existence is presumed by the observance of the following conditions:

- differentiated taxation of the revenues and fortunes;
- non-taxable minimum income;
- the correlation of fiscal duties;
- the generality of taxation.

The fundamental objective of the utility theory under uncertainty conditions is given by the rationalization of the choices made by the individuals in risky situation on the financial markets and not only. Each individual has an utility function and its form depends on the individual's attitude towards risk. The utility is defined separately for each individual in relation to his subjective perception.

Depending on individuals' attitude towards risk, there are three categories of utility functions:

- concave, specific to those individuals who are risk-averse;
- convex, specific to those individuals who have preference for risk;
- linear, specific to individuals that are risk-neutral.

We note with  $U$  the utility function of an individual in relation with the obtained income  $V$ . This expresses the individual behaviour with respect to taxable income and fulfills the following conditions:  $U' > 0$  and  $U'' < 0$ . This means that the utility of a loss in revenues is higher than the utility of an earning.

Since taxes can be considered as a sacrifice of obtained income, from the fiscal equity point of view the following concepts have been drawn:

- the absolute equal sacrifice;
- the proportional equal sacrifice;
- the marginal equal sacrifice.

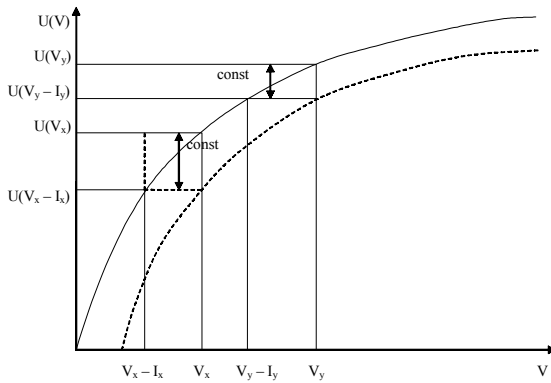
### I. The absolute equal sacrifice

From the fiscal equity point of view, this concept means the loss of the utility registered by the individuals belonging to a fiscal community.

In order to develop this model, we assume that there is an individual  $X$ , considered to be a reference individual and characterized by a gross income  $V_x$  and a tax  $I_x$ . For any other individual  $Y$ , we try to determine the level of tax  $I_y$  given the income  $V_y$  and taking into account the following condition:

$$U(V_x) - U(V_x - I_x) = U(V_y) - U(V_y - I_y)$$

The absolute equal sacrifice can be represented as follows:



The tax due by contributor Y can be evaluated taking into account the bijectivity of the utility function:

$$U(V_y - I_y) = -U(V_x) + U(V_x - I_x) + U(V_y)$$

$$V_y - I_y = U^{-1}[U(V_y) + U(V_x - I_x) - U(V_x)]$$

$$I_y = V_y - U^{-1}[U(V_y) + U(V_x - I_x) - U(V_x)]$$

Interesting results can be obtained by observing the absolute equal sacrifice in case of a logarithmic utility function.

Let  $U(V) = \ln V$ . The absolute equal sacrifice condition requires that

$$\ln(V_x) - \ln(V_x - I_x) = \ln(V_y) - \ln(V_y - I_y)$$

$$\begin{aligned} \ln \frac{V_x}{V_x - I_x} &= \ln \frac{V_y}{V_y - I_y} \Rightarrow \frac{V_x}{V_x - I_x} = \\ &= \frac{V_y}{V_y - I_y} \Leftrightarrow \frac{I_x}{V_x} = \frac{I_y}{V_y} \end{aligned}$$

As we can see, the ratio of tax value to obtained income is constant regardless of contributor and this means that the fiscal system uses proportional taxation. This principle represents a direct expression of equality before taxation. In case the power to contribute changes, contributors with lower power to contribute shall harder stand the payment of the taxes, instead of those with higher power to contribute.

In case the utility function is of radical type ( $U(V) = \sqrt{V}$ ) we have:

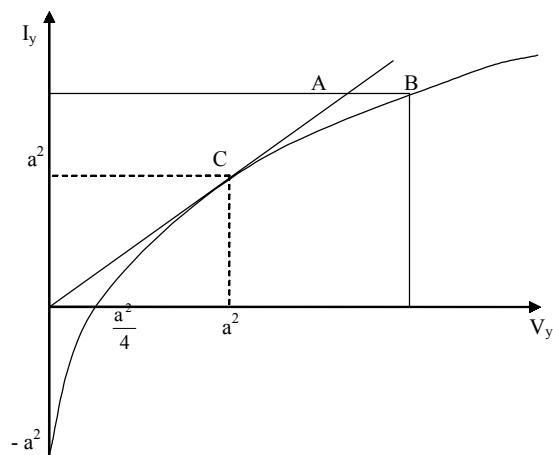
$$\begin{aligned} \sqrt{V_x} - \sqrt{V_x - I_x} &= \\ = \sqrt{V_y} - \sqrt{V_y - I_y} &= a = \text{const} \end{aligned}$$

$$\Rightarrow \sqrt{V_y - I_y} = \sqrt{V_y} - a$$

$$V_y - I_y = V_y + a^2 - 2a\sqrt{V_y}$$

$$\Rightarrow I_y = 2a\sqrt{V_y} - a^2$$

The chart of the tax paid by a contributor in relation to his taxable income is presented below:



It can be noticed that the chart is located under the first bisectrix and this is tangent in the point C, where the taxable income is equal to the tax. Segment AB represents the net income. In case the taxable income decreases under  $\frac{a^2}{4}$  it can be noticed that the tax is negative and this means that there should be a nontaxable minimum greater than or equal to  $\frac{a^2}{4}$ .

Let us now consider the following utility function<sup>(1)</sup>:

$$U(V) = -e^{-\eta V}, \eta = \text{const}, \eta > 0$$

The absolute equal sacrifice condition requires that

$$-e^{-\eta V_x} + e^{-\eta(V_x - I_x)} = -e^{-\eta V_y} + e^{-\eta(V_y - I_y)} = a = \text{const}, a > 0, a < 1$$

$$-e^{-\eta V_y} + e^{-\eta(V_y - I_y)} = a \Rightarrow$$

$$-\eta \times (V_y - I_y) = \ln(a + e^{-\eta V_y})$$

$$V_y - I_y = -\frac{1}{\eta} \times \ln(a + e^{-\eta V_y}) \Rightarrow$$

$$I_y = V_y + \frac{1}{\eta} \times \ln(a + e^{-\eta V_y})$$

Assume further that  $a + e^{-\eta V_y} < 1$  (otherwise, the tax would be greater than or equal to the contributor's income).

The tax rate is:

$$\frac{I_y}{V_y} = 1 + \frac{\frac{1}{\eta} \times \ln(a + e^{-\eta V_y})}{V_y}$$

It can be shown that the tax rate is an increasing function of the contributor's taxable income.

## II. The proportional equal sacrifice

The proportional equal sacrifice means that a constant ratio is maintained between the utility of net income and the utility of gross income:

$$\frac{U(V_x - I_x)}{U(V_x)} = \frac{U(V_y - I_y)}{U(V_y)}$$

If the utility function is logarithmic we have:

$$\frac{\ln(V_x - I_x)}{\ln V_x} = \frac{\ln(V_y - I_y)}{\ln V_y} = a = \text{const},$$

$a < 1$

$$\begin{aligned} \ln(V_y - I_y) &= a \ln V_y \Rightarrow V_y - I_y = V_y^a \\ \Rightarrow I_y &= V_y - V_y^a = V_y(1 - V_y^{a-1}) \end{aligned}$$

$$\frac{I_y}{V_y} = 1 - \frac{1}{V_y^{1-a}}, 1 - a > 0$$

It can be noticed that the tax rate  $\frac{I_y}{V_y}$  is an increasing function of taxable income and this means that the tax rate grows as taxable income grows.

In case the utility function is a radical function ( $U(V) = \sqrt{V}$ ) we have:

$$\sqrt{\frac{V_x - I_x}{V_x}} = \sqrt{\frac{V_y - I_y}{V_y}} = a = \text{const}, a < 1$$

$$\frac{V_y - I_y}{V_y} = a^2 \Rightarrow V_y - I_y = a^2 V_y \Rightarrow$$

$$I_y = V_y(1 - a^2) \Rightarrow \frac{I_y}{V_y} = 1 - a^2 = \text{const}$$

In this case the same tax rate is used for all individuals, with the advantages and disadvantages resulted thereof.

For a CARA utility function ( $U(V) = -e^{-\eta V}, \eta = \text{const}, \eta > 0$ ) we have

$$\frac{e^{-\eta(V_x - I_x)}}{e^{-\eta V_x}} = \frac{e^{-\eta(V_y - I_y)}}{e^{-\eta V_y}} = a = \text{const}, a > 1$$

$$\frac{e^{-\eta(V_y - I_y)}}{e^{-\eta V_y}} = a \Rightarrow e^{-\eta(V_y - I_y)} = a \times e^{-\eta V_y} \Rightarrow$$

$$-\eta \times (V_y - I_y) = -\eta V_y + \ln a$$

$$I_y = \frac{1}{\eta} \ln a$$

The tax is the same for all contributors, regardless of their taxable income. Obviously, this principle of taxation is unfair, as it does not take into account the power to contribute of tax payers.

### III. The marginal equal sacrifice

Marginal equal sacrifice means that the loss of marginal utility between net income and gross income is constant:

$$\begin{aligned} U'(V_x - I_x) - U'(V_x) &= \\ &= U'(V_y - I_y) - U'(V_y) \end{aligned}$$

In case of a logarithmic utility function we have:

$$\begin{aligned} \frac{1}{V_x - I_x} - \frac{1}{V_x} &= \frac{1}{V_y - I_y} - \frac{1}{V_y} = \\ &= a = \text{const}, a > 0 \end{aligned}$$

$$\frac{1}{V_y - I_y} = a + \frac{1}{V_y} = \frac{aV_y + 1}{V_y}$$

$$V_y - I_y = \frac{V_y}{aV_y + 1} \Rightarrow I_y = V_y - \frac{V_y}{aV_y + 1}$$

$$I_y = V_y \left( 1 - \frac{1}{aV_y + 1} \right)$$

$$I_y = \frac{aV_y^2}{aV_y + 1}$$

$$\frac{I_y}{V_y} = \frac{aV_y}{aV_y + 1} = 1 - \frac{1}{aV_y + 1}$$

The tax rate is an increasing function of taxable income: the greater the taxable income of contributor Y, the greater the tax due.

If we consider ( $U(V) = \sqrt{V}$ ) we have:

$$\begin{aligned} \frac{1}{2\sqrt{V_x - I_x}} - \frac{1}{2\sqrt{V_x}} &= \\ &= \frac{1}{2\sqrt{V_y - I_y}} - \frac{1}{2\sqrt{V_y}} = \\ &= a = \text{const}, a > 0 \end{aligned}$$

$$\frac{1}{2\sqrt{V_y - I_y}} - \frac{1}{2\sqrt{V_y}} = a \Rightarrow$$

$$\frac{1}{V_y - I_y} = \left( 2a + \frac{1}{\sqrt{V_y}} \right)^2 =$$

$$4a^2 + \frac{4a}{\sqrt{V_y}} + \frac{1}{V_y} =$$

$$\frac{4a^2V_y + 4a\sqrt{V_y} + 1}{V_y}$$

$$V_y - I_y = \frac{V_y}{4a^2V_y + 4a\sqrt{V_y} + 1} \Rightarrow$$

$$I_y = \frac{4a^2V_y^2 + 4aV_y\sqrt{V_y}}{4a^2V_y + 4a\sqrt{V_y} + 1}$$

$$\frac{I_y}{V_y} = \frac{4a^2V_y + 4a\sqrt{V_y}}{4a^2V_y + 4a\sqrt{V_y} + 1} =$$

$$= 1 - \frac{1}{4a^2V_y + 4a\sqrt{V_y} + 1}$$

The tax rate is an increasing function of taxable income.

Setting CARA

$$(U(V) = -e^{-\eta V}, \eta = \text{const}, \eta > 0)$$

we have:

$$\eta e^{-\eta(V_x - I_x)} - \eta e^{-\eta V_x} =$$

$$= \eta e^{-\eta(V_y - I_y)} - \eta e^{-\eta V_y} = a = \text{const}, a > 0$$

$$\eta e^{-\eta(V_y - I_y)} - \eta e^{-\eta V_y} = a \Rightarrow$$

$$e^{-\eta(V_y - I_y)} = \frac{1}{\eta} a + e^{-\eta V_y}$$

$$-\eta \times (V_y - I_y) = \ln \left( \frac{1}{\eta} a + e^{-\eta V_y} \right) \Rightarrow$$

$$V_y - I_y = -\frac{1}{\eta} \times \ln \left( \frac{1}{\eta} a + e^{-\eta V_y} \right)$$

$$I_y = V_y + \frac{1}{\eta} \times \ln \left( \frac{1}{\eta} a + e^{-\eta V_y} \right)$$

We must assume further that  $\frac{1}{\eta} a + e^{-\eta V_y} < 1$  (otherwise, the tax would be greater than or equal to the taxable income).

The tax rate is:

$$\frac{I_y}{V_y} = 1 + \frac{\frac{1}{\eta} \times \ln\left(\frac{1}{\eta} a + e^{-\eta V_y}\right)}{V_y}$$

The tax rate is an increasing function of the contributor's taxable income.

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### Note

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- <sup>(1)</sup> These functions are constant absolute risk aversion (CARA) utility functions.

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# Tax Policy and Social Output: The UE Case

■

**Ioan Talpoș**  
**Bogdan Dima**  
**Mihai Ioan Mutașcu**  
**Cosmin Eugen Enache**  
West University, Timișoara

***Abstract.** The aim of this paper is to emphasize how the correlations between fiscal policy and economic growth are manifesting in the UE case. After theoretical framework, the paper is organized as follows: Section 2 tries to provide a model at micro-economic level for the interconnections between fiscal policy and economic growth and Section 3 looks for some empirical evidences for the EU-25 case. Finally, some conclusions are drawn and some limits of the proposed analysis are derived in Section 4.*

**Key words:** fiscal policy; economic growth; effects; European Union .

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**JEL Codes:** E62, F43.  
**REL Codes:** 8E, 8K.

## 1. Introduction

The macro-economic relationship between fiscal policy and economic growth has long fascinated economists. Unfortunately, analyses of that relationship have frustrated empiricists for almost as long. One root of that frustration is the array of possible policy indicators. As Tanzi and Zee (1997) discuss, there are three candidate indicators of fiscal policy – government expenditures, taxes and deficits.

The literature does not systematically favor one indicator of fiscal policy over the others. Neoclassical growth models imply that government policy can affect only the output level but not the growth rate (Judd, 1985). However, endogenous growth models incorporate channels through which fiscal policy can affect long-run growth (Barro, 1990, Barro-Sala-i-Martin, 1992, 1995). The latter models classify generally the fiscal policy instruments into: a) distortionary taxation, which weakens the incentives to invest in physical/human capital, hence reducing growth; b) non-distortionary taxation, which does not affect the above incentives, therefore growth, due to the nature of the utility function assumed for the private agents; c) productive expenditures that influence the marginal product of private capital, henceforth boost growth; d) unproductive expenditures that do not affect the private marginal product of capital, consequently growth.

Unfortunately, many empirical studies examining fiscal effects on growth have been based only loosely on theoretical models, often testing *ad hoc* hypotheses relating to government size such as

government consumption spending or public investments or some aggregate measure of tax burden. Not surprisingly, early results were ambiguous or contradictory and frequently non-robust (see Agell et al., 1997, for a review).

Furthermore, Levine and Renelt (1992) investigated the robustness of explanatory variables in cross-country regressions using extreme bounds analysis and found that none of the fiscal indicators is robustly correlated with economic growth when evaluated individually. Nevertheless, the methodology used by Levine and Renelt was challenged to be “too strong” by Sala-i-Martin (1997), which investigated the distribution of coefficient estimates, concluding that for a substantial number of variables, including the fiscal ones, the relation to economic growth is robust. So, the empirical literature on the growth effects of fiscal policy produced mixed and non-conclusive results. Kneller et al. (1999) argue that one reason for such apparently contradictory results is their failure to incorporate the government budget constraint formally into testing procedures. Empirical models which do control for the government budget have generally found more robust associations between fiscal policy and economic growth (Devarajan et al., 1996, Kocherlakota, Yi, 1997, Miller Russek, 1997, de la Fuente, 1997, Kneller et al., 1999). Still we will not employ the budget deficit as a descriptor variable for the fiscal policy but instead the fiscal pressure and its components.

The paper is organized as follows: Section 2 tries to provide a model at micro-economic level for the interconnections

between fiscal policy and economic growth. Section 3 looks for some empirical evidences for the EU-25 case. Finally, some conclusions are drawn and some limits of the proposed analysis are derived in Section 4.

## 2. The conceptual framework

The effects of the fiscal policy could be localized both at the macro and at the micro levels. At the *macro-level*, these are localized in the social redistribution of the resources, social output dynamic, “full” or partial labor utilization, emigrational stance and external equilibrium. At the *micro-level*, such effects are reflected in the incomes and expenditures flux and in the patrimonial architecture.

A fruitful model for the spillovers of the fiscal policy at the micro-level could be represented by the framework of the *multi-periodic optimization of the patrimonial structures* model. More exactly, suppose that the economic system is form by  $N$  groups of identical agents, each group with its individual utility function. Each of them are chosen a certain structure of their wealth by incorporation both  $M$  monetary and  $Q$  non monetary assets trying to balance their return to risk ratio and to preserve an “optimal” structure of the wealth for a certain number of successive period in order to minimize the *adjustments costs* for suboptimal structures by taking into account the *budgetary restriction*. So that, the current and expected values for the non-monetary assets costs, returns and risks as well as the incomes from labor and capital are involved in the optimization process. If the information is “imperfect” (is

incomplete, unequal distributed and there are costs of obtaining, updating and using it) a *bounded rationality* anticipation mechanism will be involved (the anticipation will be form based on a *mix* mechanism which will incorporate “all” the available information from the current and past periods). The differences between different agents are reflected by their individual utility functions where the return to risk ratio is particularly weighted to reflects the “risk aversion”.

The formal description of the optimization problem at a *global* level looks by the aggregation of  $S$  individual problems like:

$$x_{ijt} \geq 0, \quad \sum_{j=1}^S \sum_{i=1}^N x_{ijt} = 1, \forall (j, t) \quad (1)$$

$$\begin{aligned} & \sum_{j=1}^S \sum_{i=1}^N \sum_{k=1}^t (c_{ijk} + c^*_{ijk+1}) x_{ijk} + \\ & + \sum_{j=1}^S \sum_{p=1}^M \sum_{k=1}^t (L_{pk} + L^*_{pk+1}) = \\ & = \sum_{j=1}^S \sum_{z=1}^Q \sum_{k=1}^t (Y_{zk} + Y^*_{zk+1}) \end{aligned} \quad (2)$$

$$\frac{\sum_{j=1}^S \sum_{i=1}^N \sum_{k=1}^t (\eta_{ijk} + \eta^*_{ijk+1}) x_{ijk}}{\sum_{j=1}^S \sum_{i=1}^N \sum_{k=1}^t (R_{ijk} + R^*_{ijk+1}) x_{ijk}} \rightarrow \text{MAX} \quad (3)$$

$$\sum_{j=1}^S E(*_{k+1}) = \sum_{j=1}^S \left( \sum_{k=1}^t \alpha_{kj} *_{k} + \beta_{ij} *_{t} \right) \quad (4)$$

where  $x$  is the weight of a non monetary asset  $i$  in the structure of the wealth in the current period  $t$ ,  $N$  is the total of the non monetary assets from the *selection universe*,  $c$  are the costs associated with the buy and

hold non monetary assets,  $L$  are the monetary and quasy monetary assets with a high degree of liquidity,  $Y$  are the incomes from labor and capital which are obtaining in the current period and/or are tesaurised from previous periods,  $\eta$  are the returns of non monetary components of the wealth composed by the monetary flows generated by their utilization and by their prices variations,  $R$  are their associated risks and  $*$  denotes the anticipated values of the involved variables formed in the current period for  $l$  futures periods.

*Relation (1) is a logical restriction:* the weights of a particular the non-monetary asset could be only positive or null and their sum could not exceed “1”.

*Relation (2) is a budgetary restriction:* the total amount of the expenditures with buying, holding and using the non monetary assets as well as financial resources tesaurised for the futures periods could not exceeds the total of available incomes from work and capital obtained in current period or accumulated from past ones.

*Relation (3) is the objective function:* each group of agents is trying to maximize not only the individual level of return or risk but their ratio.

*Relation (4) is the anticipation mechanism:* in a situation of bounded rationality the anticipation are formed by taking into account the past and current information as this could be obtain.

This description of the optimization problem implies that:

- Each group of agent is looking to systematically preserve an “optimal” patrimonial structure. If in the current

period this structure becomes as a result of a modification in the involved variables “sub-optimal” they are trying to “rewrite” the problem by excluding some assets from their wealth and including others.

- In order to minimize the *transactional costs* a certain adopted structure should be kept at least for some future period so that it is necessary to include the anticipated values of the variables.

- The “optimal” level of *monetary balances* (the stocks of different medium of exchange and medium of payment) is obtained *simultaneous* with the level of the non monetary assets by “solving” the optimization problem so that there is no “residual” tesaurisation for *prudential* or *speculative* reasons.

- The objective function implies a “balance” in return to risk ratio elements so that the agents could be described as “risk neutral” (with different degree of risk tolerance). In others words, they accept to assume a higher degree of risk that the “perfect risk aversion” agents and a lower level of return that the “perfect risk takers” in order to obtain a better correlation between these variables. Since such an assumption could be critical for the optimization problem description it should be noticed that this is not only a simple “average agent” description but even more a “autonomous” hypothesis about the social mechanisms of risks acceptance: at the “aggregate” level there are nether “casino” economical systems nether “old granny” ones.

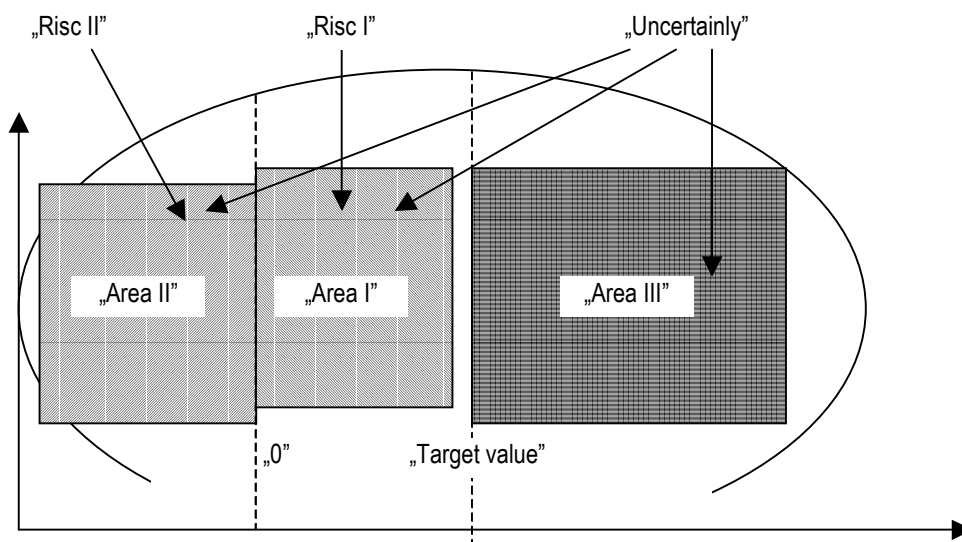
- The *bounded rationality* model implies that all the information which could be obtained at an “efficient level of implied

costs” is used both from previous as well as from current periods. The goal is to adopt the “second best” decisions with “incomplete information”.

A particular issue concerns the definition of the “risk” concept. The key distinction involved in defining and obtaining a risk measurement is the one between “risk” and “uncertainty”. “Risk” is the probability to obtain an unfavorable result of an economic decision. “Unfavorable” means that the result is “positive” but lower than the expected one or the result is “negative”. So that the risk concept incorporates both the situations of “unrealized” results and the situation of “looses”.

“Uncertainty” means that the observable result deviates (in a “positive” or “negative” sense) from the expected one. “Uncertainty” reflects both the situations of “unfavorable” results as well as the situations of an “excess of the results”. Suppose for instance that the returns of a

project are “normally” distributed around a certain “objective” or “subjective” target value as in Figure 1. In such a case, three main areas could be delimited: *Area 1*, where the returns are positive but lower than the target value which could be settled based on the average of the previous values, the average of the sectors returns, the “concurrent average”, the interest or inflation rate, the rate of growth for the financial markets etc. or could be a pure subjective value; *Area 2*, where the returns are negative and respectively *Area 3*, where the returns are positive and higher than the target value. *Area 1* and *Area 2* are forming together the *risk zone* while all three areas are reflecting the *uncertainty zone*. Of course, the relative importance of the *Area 1* and *Area 2* for the risk definition is not the same: the agent will perceive a greater level of risk associated with losses than with values of return which are lower than the target but still positive.



**Figure 1.** “Uncertainty” and “risk”: deviations from the expected return

A methodology to implement at the operational level such risk definition could consist in the next steps:

1. The construction of on risk values set  $r_{jt}$  according to the next rules:

$$r_{jt} = \begin{cases} m1 \times (\text{target}_j - \eta_{jt}) & \text{if } \text{target}_j > \eta_{jt} \text{ and } \eta_{jt} > 0 \\ m2 \times (\text{target}_j - \eta_{jt}) & \text{if } \eta_{jt} < 0 \\ m3 \times (\eta_{jt} - \text{target}_j) & \text{if } \text{target}_j < \eta_{jt} \\ \text{with } m2 > m1 > m3 \end{cases} \quad (5)$$

2. The construction of a global measurement of risk as the Euclidian norm of the risk values set components:

$$R_{jt} = \sqrt{r_{j1}^2 + r_{j2}^2 + \dots + r_{jt}^2} = \sqrt{\sum_{k=1}^t m_m |\text{target}_j - \eta_{jk}|}, m = 1, 2, 3 \quad (6)$$

The  $m$  parameters could be seen as measures of *risk aversion* specific to each group  $j$ <sup>1</sup>.

With these features, the optimization problem becomes:

$$x_{ijt} \geq 0, \sum_{j=1}^S \sum_{i=1}^N x_{ijt} = 1, \forall (j, t) \quad (7)$$

$$\begin{aligned} & \sum_{j=1}^S \sum_{i=1}^N \sum_{k=1}^t (c_{ijk} + c_{ijk}^*) x_{ijk} + \\ & + \sum_{j=1}^S \sum_{p=1}^M \sum_{k=1}^t (L_{pk} + L_{pk}^*) = \\ & = \sum_{j=1}^S \sum_{z=1}^Q \sum_{k=1}^t (Y_{zk} + Y_{zk}^*) \end{aligned} \quad (8)$$

$$\frac{\sum_{j=1}^S \sum_{i=1}^N \sum_{k=1}^t (\eta_{ijk} + \eta_{ijk}^*) x_{ijk}}{\sum_{j=1}^S \sum_{i=1}^N \sum_{k=1}^t (m_m |\text{target}_{ji} - \eta_{jik}| + m_m |\text{target}_{ji} - \eta_{jik}^*|) x_{ijk}} \rightarrow \text{MAX} \quad (8.1)$$

$$\sum_{j=1}^S E(*_{k+1}) = \sum_{j=1}^S \left( \sum_{k=1}^t \alpha_{kj} *_{k} + \beta_{tj} *_{t} \right) \quad (9)$$

This general framework could be applied to study the impact of the fiscal policy changes on all the relevant variables. It could be noticed that:

- The fiscal prelevations are susceptible to influence the costs of buying non monetary assets especially if they take the form of *indirect taxation*;

- The fiscal prelevations could influence the level and the dynamic of the available incomes, the thesaurisation and the returns/risks ratio especially if they reflects *direct taxation*;

- Same effects are exercised by the *public expenditures* at the different levels of the public authorities' structures.

■ Apart from positive growth effects of a fiscal expansion, in the last two decades, there was an increasing interest in the effects of a *fiscal consolidation*, which could have in certain circumstances a positive effect on growth. For instance, analyzing the cases of Denmark and Ireland, Giavazzi and Pagano (1990) were the first to prove the expansionary effects of reduction in the size of budget deficit or a fiscal contraction, *via* the interest rate premium and *government credibility*. This last element is also susceptible to influence

the expectation mechanism as well as the *risk aversion* (if the capacity of the fiscal policy to stabilize the social output dynamic is perceived to increase then it is possible to observe a shift in the empirical levels of the  $m$  parameters).

The effects of the fiscal policy characteristics could formally describe as:

$$x_{ijt} \geq 0, \quad \sum_{j=1}^S \sum_{i=1}^N x_{ijt} = 1, \forall (j, t) \quad (10)$$

$$\begin{aligned} & \sum_{j=1}^S \sum_{i=1}^N \sum_{k=1}^t (c_{ijk}(I_k) + c_{ijk+1}(I_{k+1}^*)) \times_{ijk} + \sum_{j=1}^S \sum_{p=1}^M \sum_{k=1}^t (L_{pk} + L_{pk+1}^*) = \\ & = \sum_{j=1}^S \sum_{z=1}^Q \sum_{k=1}^t (Y_{zk}(D_k, P_k, A_k, PE_k) + Y_{zk+1}^*(D_{k+1}^*, P_{k+1}^*, A_{k+1}^*, PE_{k+1}^*)) \end{aligned} \quad (10.1)$$

$$\frac{\sum_{j=1}^S \sum_{i=1}^N \sum_{k=1}^t (\eta_{ijk}(D_k, I_k) + \eta_{ijk+1}^*(D_{k+1}^*, I_{k+1}^*)) \times_{ijk}}{\sum_{j=1}^S \sum_{i=1}^N \sum_{k=1}^t (m_m | \text{target}_{ji} - \eta_{ijk}(D_k, I_k) | + m_m | \text{target}_{ji} - \eta_{ijk+1}^*(D_{k+1}^*, I_{k+1}^*) |)} \times_{ijk} \rightarrow \text{MAX} \quad (10.2)$$

$$\sum_{j=1}^S E(*_{k+1}) = \sum_{j=1}^S \left( \sum_{k=1}^t \alpha_{kj} (BD_k)^* + \beta_{tj} *_{t} \right) \quad (11)$$

where supplementary from the previous notations:  $D$  is a parameter of the “direct” fiscal prelevation (such as the “fiscal pressure” computed based on this kind of taxation),  $I$  describes the “indirect” taxation,  $A$  is linked with the social redistribution of incomes,  $PE$  are the public expenditures while  $BD$  is the budgetary deficit. According with the above relations:

$C_0$ : *The fiscal policy could affect the flows of incomes and expenditures, the global level of social output as well as the*

“*monetary balances*” *via the changes in the “budgetary restriction” of the wealth structure optimization induced by its different components.*

$C_1$ : *The fiscal policy could affect the anticipation mechanisms as well as the risk aversion both via the changes in the objective function and in the relative importance of the past and current information which is changing as the public authorities’ credibility varies over time (the agents’ trust in their capacity to stabilize the dynamic of the social output and to*

reduce as a consequence the afferent volatility of the economic performances).

Of course, the viability of the  $C_0 - C_1$  findings depends on a set of several conditions which are far to be trivial ones. Among these, one could notice:

- The global viability of the optimization problem framework with its central question: does the agents *systematically* optimizing? Or in a more radical formulation: do they even taking into account the “optimal” structure of their wealth?

- The “exact” nature of the anticipation mechanisms: if the *bounded rationality* model does not stand at least the  $C_1$  viability is implicitly invalidated,

- The taxonomy of the *selection universe* for the non-monetary assets and the liquidity degree for different “monetary” and “quasi monetary” assets could be directly reflected in the returns and risks. Or, such aspects are directly linked with the structural and institutional characteristics of the economic systems which modulates the amplitude and the configuration of the connections between the fiscal policy and return to risk ratio. Even more, the different determinants of returns and risks (prices of monetary and non-monetary assets, interest and exchanges rates) are susceptible to be influenced in non-uniforms ways by the fiscal policy that could not be predicted on *ex-ante* basis.

Since all these aspects and many others non specified here could leads to various empirical situations the set could be only interpreted in a “weak” sense according to which *the fiscal policy matters for expenditures, incomes, “monetary*

*balances”, returns, risks and anticipation mechanism but the “exact” degree of such a influence depends on particular values of the involved parameters.*

### 3. The fiscal policy and the social output: an empirical test for the EU countries case

The  $C_0$  (formulated in a “abridge” form as  $C'_0$ : *The fiscal policy could affect the global level of social output via the changes in the “budgetary restriction” of the wealth structure optimization induced by its different components*) could be directly tested. We are proposing such a test for the EU-25 countries case.

The basic specification of the pooled date model is:

$$Y_{it} = \alpha + X_{it} \times \beta_{it} + \delta_i + \gamma_t + \varepsilon_{it} \quad (12)$$

where  $Y_{it}$  is the dependent variable,  $X_{it}$  is a  $k$  vector of the exogenous variables formed by three components of the fiscal pressure determined by the “direct”, “indirect” and “social” fiscal revenues,  $X_{it} = [D_{it} \ I_{it} \ A_{it}]$  and  $\varepsilon_{it}$  are the errors terms for cross-sectional units observed for dated periods  $i = 1, 2, \dots, M$ . The  $\alpha$  represents the overall constant in the model, while  $\delta_i$  and  $\gamma_t$  represent cross-section or period specific effects (random or fixed). Identification obviously requires that  $\beta$  the coefficients have restrictions placed upon them.

We may view these data as a set of cross-section specific regressions so that we have  $M$  cross-sectional equations each with  $T$  observations stacked on top of one another:



$$Y_i = \alpha \times I_t + X_i \times \beta_{it} + I_T \times \delta_i + I_t \times \gamma + \varepsilon_i \quad (13)$$

where  $I_T$  is a T - element unit vector,  $I_t$  is the T – element identity matrix, and  $\gamma$  is a vector containing all of the period effects,  $\gamma = (\gamma_1, \gamma_2, \dots, \gamma_T)$ .

Analogously, we may write the specification as a set of T period specific equations, each with M observations stacked on top of one another:

$$Y_i = \alpha \times I_M + X_i \times \beta_{it} + I_M \times \delta + I_M \times \gamma_t + \varepsilon_t \quad (14)$$

where  $I_M$  is a M - element unit vector,  $I_M$  is the M – element identity matrix, and  $\delta$  is a vector containing all of the period effects,  $\delta = (\delta_1, \delta_2, \dots, \delta_T)$ .

More generally, splitting  $X_{it}$  into the three groups (common regressors  $X_{0it}$ , cross-section specific regressors  $X_{1it}$ , and period specific regressors  $X_{2it}$ ), one could obtain:

$$Y_{it} = \alpha + X_{0it} \times \beta^0_{it} + X_{1it} \times \beta^1 + X_{2it} \times \beta^2 + \delta_i + \gamma_t + \varepsilon_{it} \quad (15)$$

If there are  $k_1$  common regressors,  $k_2$  cross-section specific regressors, and  $k_3$  period specific regressors, there are a total of  $k_0 = k_1 + k_2 \times M + k_3 \times T$  regressors in  $\beta$ .

The spillovers of the fiscal pressure components which are tested could be described as follows:

- An increase in the component of the fiscal pressure associated with the social transfers will increase the relative importance of the public authorities in the social reallocation of the resources. Further, it should appear an increase in the demand for the non monetary assets. If there are non utilized capacities and this higher level of the demand is perceived as a *non-transitory*

one, the supply could be adjusted to the new level of the demand by *quantities*; otherwise, there will be an adjustment by *prices* or alternatively by *quantities and prices*;

- An increase in the direct taxation component could work as a *selector* for the economic projects with higher yield rate since it affects the volume and the structure of the agents' wealth and the different return rates. If such effects does not appears, the direct taxation will leads to a reduction in the real output growth;

- An increase in the indirect taxation is reflected in the prices and in the demand for the non-monetary assets. There could appear a shift in the volume and structure of the demand according to the taxation mechanisms as well as redistribution in the social resources. Briefly:

**The expected influence of the fiscal pressure components on real G.D.P. dynamic**

Table 1

Component	Expected sign
<i>A</i>	+ / -
<i>D</i>	- / +
<i>I</i>	+ / -

Data are from Eurostat. The time span is from 1995 to 2005 (annually data). The countries from the global set and their codification are listed in the Annex. The results from a specification of the model with *fixed effects (cross and period)* for this global set are reported in Annex A2. The values of the *Durbin-Watson statistics* as well as the unit roots tests from the Annex A3 which tends to indicates that the residual variables does not displays “individual”

unit roots (with some possible common unit roots processes) support an “acceptable” quality of the empirical model. These results are quite puzzling: a mix of “correct” signs and statistical significance for the parameters’ coefficients among “wrong” signs and low level of statistical significance. In fact, there could be identified at least two sub-groups of countries with a distinct impact of fiscal policy on economic growth (Annexes A4, A5, A6 and A7). For the first group (“United Kingdom group”):

- All the coefficients are statistically significant;
- With the exception of Denmark and Spain cases, the sign of the coefficients for the fiscal pressure linked with social transfers suggests that this component of fiscal policy is *negative* correlated with the dynamic of output;
- With the exception of Denmark, Lithuania and Hungary, the sign of direct taxation fiscal pressure indicates that this component is *positive* correlated with real GDP growth;
- With the exception of United Kingdom, Poland and Hungary, the sign of indirect taxation fiscal pressure shows that this component is *positive* correlated with real GDP growth.

For the second group (“Germany group”):

- Only ones coefficients are statistically significant;
- For the cases of Germany, Italy, Ireland, Finland, Latvia, Czech

Republic, Slovakia and Slovenia the social transfers influences in a *positive* manner the GDP dynamic with a low statistical significance. For the others members of this group, the influence is *negative* with a higher statistical significance;

- Without the cases of Greece, Malta and Slovakia there is no evidence of a consistent connection between direct taxation and real output. For the cases of Netherlands, Ireland, Greece, Austria, Finland, Latvia, Malta and Czech Republic the correlation between these two variables is a *negative* one; for the others, is *positive* with the same low degree of relevance;
- The correlation between the indirect taxation and the real GDP is *positive* for all the cases in this group but is statistical significant only in the case of France and Luxembourg.

Overall, the only consistent finding is that for the EU countries the *indirect taxation is positively correlated with the rate of change in real GDP (with a reduced number of exceptions- United Kingdom, Poland and Hungary); for the social transfers and direct taxation there are mix evidences.*

#### 4. Comments and (self) critics

The results from the previous section do not clearly support a rejection of the neither a confirmation of it in a stronger forms that: the fiscal policy matters for the economic growth but the exact nature, the extent of the spillovers, their amplitude and

persistence are different from country to country for the analyzed period. There could be advanced some explanations for such differences:

- The costs, prices, the volume and structure of the “monetary balances”, the level and structure of the income and thesaurization, the returns and risks associated with the non-monetary assets are different for the countries in the global set as well as for the two component groups;
- The *risk aversion* is different not only for different agents but also between countries according to their economical background as well as with the non economic factors such as the components of the *cultural paradigm* (“uncertainty avoidance” in Hofstede’s terminology);
- The  $\alpha$  and  $\beta$  parameters of the anticipation mechanisms are not only agents but also country specific; for instance, if these anticipations concerns the inflation processes the “new” members are influenced by their recent high / significant inflation history while the “old” ones had benefit from a longer prices stability experience.

But still there are some important issues to be address for this analytical framework both from conceptual and empirical levels:

#### **A) Theoretical limitations**

1) *What is the “hidden hypothesis” in the optimization problem?*

The micro-economic foundations of the optimization problem are not clearly stated in its formal description. For instance, there

is argument why the “monetary balances” are not established in a residual manner (and, in fact, there is no role of the thesaurization in the model). Worst, there is no argument of the optimization’ systematic character: does really the agents trying to choose an “optimal” structure of their wealth? And does they doing that in a multi periodic framework? (or, in other words, is there an “dynamic” and “inter generational” process of patrimonial adjustment?). Since there are no arguments for justifying such a process, it is just a “postulate” and not a “theory”. But the consistence of the entire argumentation does critically depend on its viability.

2) *How could individual optimization problems be aggregated?*

Even it could be agree on the optimization micro economic foundations, still there is a “aggregation issue” since there are not provided explanations about how the shift to the macro level is done from the individual agents specific problems.

3) *How “bounded” is the proposed anticipation mechanism?*

The  $C_1$  (and, in a certain degree  $C_0$ ) could be directly derived only if anticipation mechanism stands as a “real” descriptor of the way in which the agents forms their anticipations. On could notice that: a) it is an “empirical” anticipation model since in fact argues that all the available information is used but the relative weights of the current and past information could not be *ex ante* established; b) it is a particular definition of the *bounded rationality* and does not formally reflects the costs of obtaining and using the information.

4) *What about the financial infrastructure?*

The transmission mechanisms of the fiscal policy spillovers are linked with returns and risk but there is nothing specific to their formation and to the role of financial infrastructure institutional and functional degree of maturity. Also there is nothing about the composition of the monetary and quasi monetary assets (in terms of complexity, liquidity/marketability and financial performances).

5) *Where is the Union?*

The empirical analysis is applied over the EU case. But there is nothing particular about the inter-countries linkages and about the harmonization of the national fiscal policies inside the Union mechanisms.

**B) Empirical estimation problems**

Not only the theoretical but also the empirical part of the paper is affected by imperfect clarifications. Some of them are connected with:

- The stability of the regression models and the quality of the results (for instance, in terms of properties of the residuals variables);

- The identification problems for the involved parameters;
- The possible existence of non-linear interactions between the variables and the effects of such interactions;
- The insufficient number of observation and the absence of an explanation for the composition of the samples for the global set as well as for the two groups;
- The instability of the coefficients signs not only between groups but also inside the same group etc.

Despite all these *caveats*, we argue that the proposed model could explain (with certain supplementary clarifications) the spillovers of the fiscal policy over the economic growth based on micro economic foundations and could supply even in mix terms some empirical support for the EU-25 countries. The main output consists in the thesis of the non uniformity of these spillovers and in the idea that there should be provided a consistent explanatory framework for the transmission over micro-channels of the effects induced by the changes in the different components of fiscal pressure.

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**Note**

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<sup>(1)</sup> It should be noticed that the parameter  $m_3$  is not necessary equal with "0" since an agent could have some interest in any kind of

deviation from the target value of return (could be interested both in risk and in uncertainty).

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## Annex A1: The global set of countries

Code	Country
1	Belgium
2	France
3	Germany
4	Italy
5	Luxembourg
6	Netherlands
7	Denmark
8	Ireland
9	United Kingdom
10	Greece
11	Portugal
12	Spain
13	Austria
14	Finland
15	Sweden
16	Cyprus
17	Estonia
18	Latvia
19	Lithuania
20	Malta
21	Poland
22	Czech Republic
23	Slovakia
24	Slovenia
25	Hungary

## The "A" set

Code	Country
7	Denmark
9	United Kingdom
12	Spain
17	Estonia
19	Lithuania
21	Poland
25	Hungary

## The "B" set

Code	Country
1	Belgium
2	France
3	Germany
4	Italy
5	Luxembourg
6	Netherlands
8	Ireland
10	Greece
11	Portugal
13	Austria
14	Finland
15	Sweden
16	Cyprus
18	Latvia
20	Malta
22	Czech Republic
23	Slovakia
24	Slovenia

## Annex A2: The parameters of the empirical model for the global set

**Dependent Variable:** Real GDP growth rate

**Method:** Pooled Least Squares

**Sample:** 1995-2005

**Included observations:** 11

**Cross-sections included:** 25

**Total pool (balanced) observations:** 275

**Cross-section weights (PCSE) standard errors & covariance (d.f. corrected)**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	19.31412	4.472689	4.318234	0.0000
1--A1	-0.290920	0.064190	-4.532169	0.0000
2--A2	-0.466808	0.365972	-1.275529	0.2039
3--A3	0.000123	0.040374	0.003042	0.9976
4--A4	0.166417	0.115857	1.436399	0.1528
5--A5	-0.915514	1.013351	-0.903453	0.3676
6--A6	0.058320	0.173664	0.335822	0.7374
7--A7	1.425258	0.354357	4.022098	0.0001
8--A8	-0.514474	0.278828	-1.845130	0.0668
9--A9	-0.205052	0.041106	-4.988316	0.0000

Variable	Coefficient	Std. Error	t-Statistic	Prob.
10--A10	-0.065916	0.039305	-1.677037	0.0954
11--A11	-0.285067	0.062730	-4.544340	0.0000
12--A12	0.270865	0.112618	2.405173	0.0173
13--A13	-0.678805	0.436592	-1.554781	0.1219
14--A14	0.661114	0.213669	3.094096	0.0023
15--A15	-0.258789	0.054907	-4.713181	0.0000
16--A16	-0.017117	0.030529	-0.560682	0.5758
17--A17	-0.196269	0.052327	-3.750807	0.0002
18--A18	0.423342	0.169500	2.497595	0.0135
19--A19	-0.818755	0.174492	-4.692226	0.0000
20--A20	-0.175772	0.192334	-0.913890	0.3621
21--A21	-0.258676	0.086261	-2.998761	0.0031
22--A22	0.065960	0.126295	0.522274	0.6022
23--A23	0.034556	0.059791	0.577941	0.5641
24--A24	0.094864	0.067723	1.400766	0.1632
25--A25	-0.085445	0.030809	-2.773430	0.0062
1--D1	0.503996	0.296182	1.701645	0.0907
2--D2	0.589196	0.662318	0.889598	0.3750
3--D3	0.330454	0.215394	1.534184	0.1269
4--D4	0.143993	0.193705	0.743365	0.4583
5--D5	-0.019761	2.846261	-0.006943	0.9945
6--D6	-0.653490	1.140429	-0.573021	0.5674
7--D7	-0.654384	0.235154	-2.782793	0.0060
8--D8	-0.323195	1.664732	-0.194143	0.8463
9--D9	0.414919	0.159164	2.606867	0.0100
10--D10	-0.278274	0.105436	-2.639275	0.0091
11--D11	0.302831	0.400017	0.757046	0.4501
12--D12	0.699088	0.504471	1.385785	0.1677
13--D13	-0.611386	0.480260	-1.273030	0.2048
14--D14	-0.048744	0.203000	-0.240118	0.8105
15--D15	0.082132	0.140863	0.583063	0.5606
16--D16	-0.082073	0.102596	-0.799969	0.4249
17--D17	0.176005	0.122904	1.432059	0.1540
18--D18	-0.081991	0.125168	-0.655050	0.5133
19--D19	-0.194836	0.113169	-1.721628	0.0870
20--D20	-0.968718	0.098741	-9.810743	0.0000
21--D21	0.251075	0.059769	4.200751	0.0000
22--D22	-0.101662	0.624623	-0.162758	0.8709
23--D23	0.588567	0.137342	4.285404	0.0000
24--D24	0.139719	0.447206	0.312426	0.7551
25--D25	-1.019116	0.214060	-4.760891	0.0000
1--I1	0.455950	0.387112	1.177824	0.2406
2--I2	-0.029364	2.269476	-0.012939	0.9897
3--I3	-0.559765	0.564034	-0.992431	0.3224
4--I4	-0.107059	0.100482	-1.065455	0.2882
5--I5	5.177718	4.340038	1.193012	0.2346
6--I6	-2.625614	1.233842	-2.127999	0.0348

Variable	Coefficient	Std. Error	t-Statistic	Prob.
7--I7	0.807670	0.207642	3.889715	0.0001
8--I8	-2.003729	1.332217	-1.504056	0.1345
9--I9	-0.799730	0.562132	-1.422672	0.1567
10--I10	0.344258	0.569269	0.604736	0.5462
11--I11	-0.397354	0.311425	-1.275923	0.2038
12--I12	0.044542	0.198872	0.223973	0.8231
13--I13	-0.484527	0.649223	-0.746318	0.4565
14--I14	0.393867	0.595917	0.660943	0.5096
15--I15	-0.792121	0.333417	-2.375768	0.0187
16--I16	-0.169931	0.110857	-1.532884	0.1272
17--I17	0.049202	0.029633	1.660393	0.0987
18--I18	0.637295	0.145535	4.378983	0.0000
19--I19	0.509813	0.095701	5.327149	0.0000
20--I20	-0.079764	0.115274	-0.691947	0.4899
21--I21	-0.249148	0.059517	-4.186185	0.0000
22--I22	-0.425584	0.213678	-1.991706	0.0481
23--I23	-0.195288	0.177410	-1.100770	0.2726
24--I24	0.234354	0.138614	1.690695	0.0928
25--I25	-0.362899	0.160175	-2.265636	0.0248
<b>Fixed Effects (Cross)</b>				
1--C	-1.365390			
2--C	6.413506			
3--C	10.19378			
4--C	1.327334			
5--C	-34.79650			
6--C	46.03477			
7--C	14.43451			
8--C	42.18809			
9--C	15.46776			
10--C	-9.877915			
11--C	-3.467476			
12--C	-16.02573			
13--C	29.38778			
14--C	-11.15386			
15--C	21.80504			
16--C	-3.508284			
17--C	-15.43250			
18--C	-28.58480			
19--C	-13.61433			
20--C	1.115535			
21--C	-11.72393			
22--C	-7.251486			
23--C	-18.53342			
24--C	-15.06082			
25--C	2.028330			
<b>Fixed Effects (Period)</b>				
1995--C	-2.164083			



Variable	Coefficient	Std. Error	t-Statistic	Prob.
1996--C	-1.899932			
1997--C	-1.391865			
1998--C	-0.761164			
1999--C	-0.092611			
2000--C	0.375373			
2001--C	0.806749			
2002--C	1.108069			
2003--C	1.071562			
2004--C	1.074510			
2005--C	1.873391			

#### Effects Specification

*Cross-section fixed (dummy variables)*

*Period fixed (dummy variables)*

R-squared	0.996460	Mean dependent var	16.90909
Adjusted R-squared	0.994122	S.D. dependent var	11.19914
S.E. of regression	0.858625	Akaike info criterion	2.822204
Sum squared resid	121.6440	Schwarz criterion	4.268913
Log likelihood	-278.0531	F-statistic	426.1349
Durbin-Watson stat	1.720565	Prob(F-statistic)	0.000000

#### Annex A3: The unit root tests for the residual of the global set model

Exogenous variables: Individual effects

User specified lags at: 1

Andrews bandwidth selection using Quadratic Spectral kernel

Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs.
<i>Null: Unit root (assumes common unit root process)</i>				
Levin, Lin & Chu t*	-3.81069	0.0001	25	225
Breitung t-stat	-3.31936	0.0005	25	200
<i>Null: Unit root (assumes individual unit root process)</i>				
Im, Pesaran and Shin W-stat	-4.60736	0.0000	25	225
ADF - Fisher Chi-square	108.767	0.0000	25	225
PP - Fisher Chi-square	219.385	0.0000	25	225
<i>Null: No unit root (assumes common unit root process)</i>				
Hadri Z-stat	12.8342	0.0000	25	225

\*\* Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

## Annex A4: The parameters of the empirical model for Group "A"

Dependent Variable: Real GDP growth rate

Method: *Pooled Least Squares*

Sample: 1995 2005

Included observations: 11

Cross-sections included: 7

Total pool (balanced) observations: 77

Cross-section weights (PCSE) standard errors &amp; covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	13.17047	0.507454	25.95400	0.0000
7--A7	2.000393	0.074186	26.96461	0.0000
9--A9	-0.166998	0.015608	-10.69952	0.0000
12--A12	0.158150	0.038716	4.084831	0.0002
17--A17	-0.091520	0.008770	-10.43553	0.0000
19--A19	-0.555632	0.036489	-15.22748	0.0000
21--A21	-0.119664	0.017324	-6.907283	0.0000
25--A25	-0.136031	0.007428	-18.31423	0.0000
7--D7	-0.787382	0.045657	-17.24566	0.0000
9--D9	0.659166	0.055990	11.77291	0.0000
12--D12	0.809266	0.184926	4.376157	0.0001
17--D17	0.198258	0.022241	8.914008	0.0000
19--D19	-0.157412	0.027034	-5.822795	0.0000
21--D21	0.235859	0.011861	19.88605	0.0000
25--D25	-0.767880	0.045848	-16.74823	0.0000
7--I7	1.169577	0.044849	26.07789	0.0000
9--I9	-0.985633	0.183640	-5.367196	0.0000
12--I12	0.260353	0.073434	3.545394	0.0010
17--I17	0.018217	0.006260	2.910023	0.0059
19--I19	0.503992	0.022008	22.90046	0.0000
21--I21	-0.282227	0.012910	-21.86127	0.0000
25--I25	-0.134342	0.030553	-4.397057	0.0001
<b>Fixed Effects (Cross)</b>				
7--C	17.45633			
9--C	19.77662			
12--C	-13.19332			
17--C	-10.06618			
19--C	-10.16327			
21--C	-6.216779			
25--C	2.406603			
<b>Fixed Effects (Period)</b>				
1995--C	-1.982924			
1996--C	-1.607894			
1997--C	-1.250611			
1998--C	-0.995663			
1999--C	-0.360601			

Variable	Coefficient	Std. Error	t-Statistic	Prob.
2000—C	0.140312			
2001--C	0.556738			
2002--C	0.952393			
2003--C	1.137988			
2004--C	1.607722			
2005--C	1.802539			

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**Effects Specification**

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*Cross-section fixed (dummy variables)*  
*Period fixed (dummy variables)*

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<b>R-squared</b>	0.999627	<b>Mean dependent var</b>	12.59351
<b>Adjusted R-squared</b>	0.999272	<b>S.D. dependent var</b>	10.97215
<b>S.E. of regression</b>	0.295995	<b>Akaike info criterion</b>	0.709818
<b>Sum squared resid</b>	3.416899	<b>Schwarz criterion</b>	1.866501
<b>Log likelihood</b>	10.67200	<b>F-statistic</b>	2821.404
<b>Durbin-Watson stat</b>	2.248014	<b>Prob(F-statistic)</b>	0.000000

**Annex A5: The unit root tests for the residual of the Group “A”**

Exogenous variables: Individual effects

User specified lags at: 1

Andrews bandwidth selection using Quadratic Spectral kernel

Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs.
<i>Null: Unit root (assumes common unit root process)</i>				
Levin, Lin & Chu t*	-0.90752	0.1821	7	63
Breitung t-stat	-2.96977	0.0015	7	56
<i>Null: Unit root (assumes individual unit root process)</i>				
Im, Pesaran and Shin W-stat	-2.68562	0.0036	7	63
ADF - Fisher Chi-square	32.1666	0.0038	7	63
PP - Fisher Chi-square	86.6762	0.0000	7	63
<i>Null: No unit root (assumes common unit root process)</i>				
Hadri Z-stat	4.76121	0.0000	7	63

\*\* Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

## Annex A6: The parameters of the empirical model for Group "B"

Dependent Variable: Real GDP growth rate

Method: *Pooled Least Squares*

Sample: 1995 2005

Included observations: 11

Cross-sections included: 18

Total pool (balanced) observations: 198

Cross-section weights (PCSE) standard errors &amp; covariance (d.f. corrected)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	21.62617	6.103251	3.543386	0.0006
1--A1	-0.373997	0.103052	-3.629217	0.0004
2--A2	-0.426859	0.352863	-1.209703	0.2289
3--A3	0.031821	0.055297	0.575462	0.5661
4--A4	0.051192	0.172885	0.296103	0.7677
5--A5	-1.017857	0.998038	-1.019858	0.3099
6--A6	0.062436	0.171845	0.363330	0.7170
8--A8	-0.548777	0.262362	-2.091680	0.0386
10--A10	-0.096715	0.052647	-1.837068	0.0688
11--A11	-0.267361	0.072934	-3.665785	0.0004
13--A13	-0.551072	0.461432	-1.194266	0.2348
14--A14	0.684834	0.262338	2.610498	0.0102
15--A15	-0.290277	0.061666	-4.707209	0.0000
16--A16	-0.050643	0.049925	-1.014380	0.3125
18--A18	0.322579	0.238235	1.354038	0.1784
20--A20	-0.188185	0.250819	-0.750282	0.4546
22--A22	0.106435	0.128995	0.825115	0.4110
23--A23	0.080637	0.089964	0.896319	0.3719
24--A24	0.137165	0.096717	1.418210	0.1588
1--D1	0.433931	0.376186	1.153501	0.2511
2--D2	0.493700	0.641325	0.769813	0.4430
3--D3	0.336000	0.306597	1.095900	0.2754
4--D4	0.181055	0.249355	0.726094	0.4692
5--D5	0.146411	2.797076	0.052344	0.9583
6--D6	-0.895095	1.148158	-0.779592	0.4372
8--D8	-0.295070	1.562444	-0.188852	0.8505
10--D10	-0.326304	0.132479	-2.463068	0.0152
11--D11	0.164461	0.459870	0.357626	0.7213
13--D13	-0.663629	0.500524	-1.325867	0.1875
14--D14	-0.137560	0.255250	-0.538921	0.5910
15--D15	0.058458	0.153795	0.380101	0.7046
16--D16	-0.140723	0.128459	-1.095466	0.2756
18--D18	-0.137932	0.156262	-0.882697	0.3792
20--D20	-0.921009	0.135798	-6.782198	0.0000
22--D22	-0.038230	0.631924	-0.060497	0.9519
23--D23	0.610419	0.179827	3.394485	0.0009
24--D24	0.414529	0.624499	0.663778	0.5081

Variable	Coefficient	Std. Error	t-Statistic	Prob.
1--11	0.416372	0.533962	0.779779	0.4371
2--12	-0.063680	2.183862	-0.029159	0.9768
3--13	-0.914419	0.799778	-1.143342	0.2553
4--14	-0.187415	0.139225	-1.346134	0.1809
5--15	5.256458	4.261968	1.233340	0.2199
6--16	-2.834559	1.238019	-2.289592	0.0239
8--18	-1.962270	1.255030	-1.563524	0.1207
10--10	0.358814	0.728790	0.492342	0.6234
11--11	-0.491447	0.333149	-1.475158	0.1429
13--13	-0.565448	0.670616	-0.843177	0.4009
14--14	0.296650	0.714530	0.415169	0.6788
15--15	-0.751328	0.355705	-2.112221	0.0368
16--16	-0.170192	0.147742	-1.151948	0.2517
18--18	0.716347	0.200730	3.568705	0.0005
20--20	-0.085420	0.148457	-0.575382	0.5661
22--22	-0.429240	0.214956	-1.996875	0.0482
23--23	-0.201691	0.235642	-0.855922	0.3938
24--24	0.290957	0.196327	1.482001	0.1411
<b>Fixed Effects (Cross)</b>				
1--C	-0.493502			
2--C	5.230562			
3--C	11.78574			
4--C	1.310655			
5--C	-39.32590			
6--C	49.31416			
8--C	39.31910			
10--C	-11.52751			
11--C	-3.224405			
13--C	27.30252			
14--C	-10.60073			
15--C	19.93648			
16--C	-4.576914			
18--C	-30.25035			
20--C	-1.494860			
22--C	-10.52065			
23--C	-21.45264			
24--C	-20.73176			
<b>Fixed Effects (Period)</b>				
1995--C	-2.200067			
1996--C	-1.951394			
1997--C	-1.385003			
1998--C	-0.642810			
1999--C	0.058845			
2000--C	0.525187			
2001--C	0.951564			
2002--C	1.178059			
2003--C	0.960652			

Variable	Coefficient	Std. Error	t-Statistic	Prob.
2004—C	0.781964			
2005--C	1.723004			

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**Effects Specification**

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*Cross-section fixed (dummy variables)*  
*Period fixed (dummy variables)*

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<b>R-squared</b>	0.995042	<b>Mean dependent var</b>	18.58737
<b>Adjusted R-squared</b>	0.991580	<b>S.D. dependent var</b>	10.85765
<b>S.E. of regression</b>	0.996326	<b>Akaike info criterion</b>	3.124122
<b>Sum squared resid</b>	115.1492	<b>Schwarz criterion</b>	4.485929
<b>Log likelihood</b>	-227.2880	<b>F-statistic</b>	287.4031
<b>Durbin-Watson stat</b>	1.694942	<b>Prob(F-statistic)</b>	0.000000

**Annex A7: The unit root tests for the residual of the Group “B”**

Exogenous variables: Individual effects

User specified lags at: 1

Andrews bandwidth selection using Quadratic Spectral kernel

Balanced observations for each test

Method	Statistic	Prob.**	Cross-sections	Obs.
<i>Null: Unit root (assumes common unit root process)</i>				
<b>Levin, Lin &amp; Chu t*</b>	-1.14925	0.1252	18	162
<b>Breitung t-stat</b>	-3.14382	0.0008	18	144
<i>Null: Unit root (assumes individual unit root process)</i>				
<b>Im, Pesaran and Shin W-stat</b>	-2.68087	0.0037	18	162
<b>ADF - Fisher Chi-square</b>	62.7027	0.0038	18	162
<b>PP - Fisher Chi-square</b>	138.018	0.0000	18	162
<i>Null: No unit root (assumes common unit root process)</i>				
<b>Hadri Z-stat</b>	11.0732	0.0000	18	162

\*\* Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality.

# Effects of International Financial Turbulences Extension on the Romanian Economy. Prevention Solutions

■

**Cristian Socol**  
**Andrei Hrebenciuc**  
Academy of Economic Studies Bucharest

***Abstract.** The world economy is under recession. The strong financial turbulences, the collapses of the main stock exchanges with global extension, the global real estate crises and alimentary problems represent the signs of a fundamental correction within the global economy. How did the global financial crisis appear? Are USA capable of minimizing the negative effects of the recession are facing with? How will the world financial crisis manifest in Romania? Which are the solutions to prevent the extension of the financial turbulences in Romania? These are the questions to which we are trying to give an answer within this work.*

**Key words:** global financial crisis; contagion; globalization; speculative attacks; external vulnerability.

■

**JEL Codes:** F21, F33.  
**REL Codes:** 10F, 10J.

The global extension of the financial turbulences, the perspectives of developing the “herd” effect in respect with the withdrawals of speculative funds from Romania, the Romanian stock exchange collapse, the inconsistency of the leu currency rate compared to the main currencies and the worsening of the main indicators which express Romania’s external vulnerability (the weight of the current account deficit in the GDP, the external debt service, the level of the NBR international reserves etc.) are phenomena which raise the risk of a financial crisis breaking in Romania.

### **The world financial crisis started in USA**

The globalization of the world economy makes the economical evolutions in a country, such as USA, influence and be influenced by the economic evolutions from other countries. Because of the fact that USA continue to represent the world’s greatest economy, the fluctuations within this country may have a considerable effect on the rest of the world. During the last 20 years, USA were taken into consideration in the main engine of the economic growth, in the economy which, in case it “gets flu” it will transmit the “cold” to all the others. If, at the end of the 90s, the USA economy was growing fast, the American families and companies were buying more and more goods from abroad (USA was representing “the engine of the world economic growth”), at the end of 2000, more and more signals of a possible recession of the United States of America appeared. The foreign companies were worried about the fact that

the slowing down of the growth in USA will result in the diminishing of the sales towards this country, in the diminishing of the profits and in the occurrence of the bankruptcies. The main share prices suffered losses, the stock exchanges collapsed, the currencies suffered major depreciations.

The scenario repeated in 2007 and its effects are also felt in 2008. One year ago, the USA Federal Reserve Chairman, Ben Bernanke, warned about the fact that the debts of the bad payers from the sector of the loans on mortgage given to those with a doubtful payment history have reached the amount of 100 billion dollars. The American official insisted on the crisis situation in which the USA real estate market is at the present and on the increasing fears related to the effects of the raise in number of the Americans who are in inability of paying the mortgages, the result being the bankruptcy of 30 mortgagees. The investors proved to be very irritated by the losses suffered in the sector of the loans on mortgage given to those with a doubtful payment history, which could affect the demand for the shares offers. On the other hand, the economic analysts have forecast the imminent recession of the USA economy, warning about the fact that the economic uncertainty caused by the crisis of the loans on mortgage (sub-prime loans) could lead to a greater inconsistency on the financial markets in 2007 and 2008, including those in the emergent countries, among which there is also Romania.

This new type of crisis differs from the previous ones, as a result of the influence of the profound structural transformations suffered by the global economy. The growing liberalization of the financial markets and the



de-reglementation operations have determined an increased inconsistency and a chaotic movement of the capitals striving for profit. For this reason, the global financial stability (and especially that of the emergent countries) was affected, and the regional shocks accentuated within the last two decades. The American economy and the great American investment funds have benefited from these circumstances (see the Asian crisis of 1997), strengthening their global spheres of influence. The American investment funds were the first which outlined the direction and the way of action on the financial markets, the trend of the market being strongly influenced by the decisions taken on the financial market over the ocean. These were the ones which pumped in money and which substituted the investments deficit in the problem-areas, being also helped in this process by the global institutions which are greatly under their influence – The International Monetary Fund (IMF) and the World Bank (WB). The disparate crises occurring in different areas were adjusted with the help of the IMF recommendations, even though this organism had previously created the background favorable to the spreading of the crisis through the recommended policies. The direct investments controlled by the great financial giants have occurred within these areas together with the diminishing of the incertitude degree and with the raising of the rating per country supervised by the global institutions. The thesis, on which the IMF specialists were basing, will be helpful for the developing countries, but in most of the cases only the additional profits of the investment funds have hallucinatingly increased.

Unfortunately, the boomerang effect occurred, and the last years started to represent a new model of crisis somewhat atypical, having America as the main character and the great financial giants as secondary characters.

It is obvious that the American economy is under recession, the crisis of the loan on mortgages leaving substantial losses behind. It is shocking only to quantify the losses suffered by the world famous banks on the American market within the last two years in order to understand that the age of the world „elite banks” – immune to the global financial crises – has passed (for example, only the UBS estimated losses from the loans on mortgage are around the amount of 20 billion dollars). This situation has created anxiety and uncertainty both for the great investors and for the decidents of the macro-economical policies. The extremely great liquidity on the financial markets has evaporated and the S&P500 index, which analyses the evolution of the shares in the companies acting in the important sectors of the American economy has suffered major corrections. In order to counter-balance this lack of liquidity on the market, which could negatively influence the economy, especially with reference to the aggregate demand, the American Congress has applied measures of fiscal facilitation in amount of 150 billion dollars, with the declared purpose of stimulating the consumption and of maintaining the climbing trend of the American economy. The political decidents' great fear consists of a strong diminishing of the aggregate demand, which could affect the real economy.

It is good to know that the American economy based its growth on a consumist

behavior, the aggregate demand being stimulated by the excessive growths of the aggregate demand, the new balance being achieved to a more and more increased potential GDP. Such a policy has also had negative externalities – reaching some raised budget deficits (or even the occurrence of the twin deficits) during the last years. Lately, the monetary policy promoted by FED (The American Federal Reserve System) had the same lax direction as the fiscal policy, the major diminishing of the reference interest rate determining the occurrence of a real negative interest rate. The final objective of the monetary policy was to stimulate the consumption and the private investments. Unfortunately, FED could not approach another consequence of this measure – the monetary excess pumped in the system through this diminishing of interest did not adjust the losses from the real economy. The banks used the pumped in excess of liquidity, adjusting their internal balances seriously affected by the crisis of the loans on mortgage. In April 2008, 55% of the commercial banks, which were acting on the American market, were making the crediting conditions heavier, fact which proves clearly that we could not speak about a crediting relaxation and a stimulation of the consumers' incomes. Thus, the hypothesis according to which the liquidity excess will adjust the real economy was erroneous. The relevance of these assessments can be easily checked, the dollar recording a major depreciation compared to the reference currencies (during the last 9 months, the dollar has depreciated, in comparison to the Euro, with 16% from 1E = 1.35\$ to 1E = 1.56\$), and the index expressing the consumers' confidence (Consumer Confidence Index)<sup>(1)</sup> has reached a historic

minimum unequaled during the last 16 years. The dramatic decrease of the consumers' confidence led to a negative effect on apprehending the American economy and to a significant loss in credibility of FED and of the other decisions of economic policy. The loss in credibility has been transferred almost immediately in greater inflationary anticipations and in a decrease of the private investments.

### **The global financial crisis has been anticipated**

The increasing liberalization of the financial markets and its de-reglementation operations have determined an increased inconsistency and a chaotic movement of the capitals. The financial analysts and the international financial organisms were expecting a serious correction on the world financial markets.

The experts of the International Monetary Fund considered the collapse of the world stock exchanges (let us remember that the black week 01.03.2007-08.03.2007, when the New York Stock Exchange recorded the most serious collapse after September 2001, as an effect of the „earthquake” propagation on the Chinese financial market) as an expected and necessary correction, determined by a better appreciation of the risks by the investors. “The markets have recently adopted a better appreciation of the risks and we consider this thing to represent a necessary correction... At present, we are going towards a more neutral position regarding the monetary policy, which is a healthy thing because this position is more sustainable”, declared the General Manager of the International Monetary Fund (IMF), the Spanish Rodrigo Rato. The Manager of the

Fitch Rating Agency, David Riley, has also warned about the fact that “the increased inconsistency of the exchange rates and a continuous depreciation of the dollar will affect the emergent countries, which have a weak credibility of the policies and greater needs of external financing”.

### **Are USA capable of rapidly surpassing this recession?**

Unfortunately, the global context has worsened more and more the forecasts for the American economy. During the last two years, the price of the oil doubled bringing a heavy burden on the shoulders of the world economy. The economists hurried to assert that this thing is not extremely serious, from a historical point of view each oil crisis caused by the successive price increases leading to a decrease in the oil demand influenced by the occurrence of a recession in the American economy. The decrease of the demand led almost every time to the price stabilization to a new balance level and to the absorption of the temporary shock.

Although, the current crisis experienced by USA is a “strange” one or at least a different one. The raise in price did not result in the adjusting of the demand at a lower level, even though the American economy is in a recession period. Is it possible that the global economy detached of the American one? The answer offered by the empirical analyses of this hypothesis is affirmative. The oil demand has maintained to a raised level because of the emergent economies (Russia, China, India, Brazil), and the price correction appeared later. This thing was also due to the fact that the offer at the world level is relatively rigid. The experts

consider that we can expect its strong increase during the future years. Even in the case of discovering a new “oasis” of oil, the offer will only be adjusted on a long term.

Based on the dollar depreciation and in the absence of other solutions which could generate the expected profits, the investors decided to protect themselves by using the supports on the market of derivatives – future contracts with support assets on oil and goods. A predictable process, under the terms that the American stock exchange cannot offer big profits any more, and the real estate market is in free fall (the Case-Shiller index, which analyses the American real estate sector, recorded a 14% decrease compared to the last year, and over 1% of the population is in a strange situation, the payment of a few loans on mortgage much over the market value of the owned buildings).

How do the future contracts influence the price of the oil in the real economy? There is a simple explanation. The concluding of a few future contracts on the capital market at raised prices intensifies the investors’ expectances of raising the oil price. This fact, corroborated with the world increase of the oil demand under the terms of an accentuated rigidity of the offer, generate a more raised price of the oil in economy. The excessive income gained by the sovereign funds, which administrate the petrodollars in the oil exploiting countries, are mainly returning on the American capital market, creating a vicious circle with a single major loser – USA.

The financial markets showed their dark faces, bringing decisions of economic policies in a limit situation. The fiscal facilitations practiced by the Congress only increased the fabulous incomes of the oil exporting

countries (Saudi Arabia, Venezuela, Iran etc.) and of the Chinese dealers from products industries, worsening more and more the current account deficit of USA.

An interesting fact. America's salvation may occur together with the accentuated raise of oil price. The producers from the Asian countries have not been affected until now by this raise of oil price because they are protected by subsidies to energy supported by the national governments. This led to a tempering of the production costs increase, an unimaginable fact in other circumstances related to the increase in the invoices for energy. In return, this thing cannot be supported on a long-term by the Asian governments, the energy subsidies will be either eliminated, or decreased, bringing an adjusting of the production costs and, implicitly, of the final prices of the products. Thus, the exports of the emergent countries will be affected and the pressure on the current account deficit of America would suffer a decrease.

Farrell and Lund (2008a) show that, in the case of a dollar depreciation with 26% compared to its value from 2000 or with 18% compared to the value from January 2007, USA could reach the equilibrium of the commercial balance within maximum 10 years. Although, there must be shown that the hypotheses of the study ignore the Houthakker-Magee effect, according to which "an increase of USA exports stimulated by a global GDP increase with one percent would be smaller than an increase of the USA imports stimulated by an increase with one percent of the USA GDP". To what this effect really refer? A country which records decreased elasticity, according to the incomes related to the partner countries from

a commercial point of view, must either have an economic growth more decreased in comparison to them, or suffer a worsening of the current account or currency depreciation. After the 90s, Krugman has found a new correlation between the incomes elasticity and the rates of economic growth, naming it "the rule at 45". By extrapolating this effect, we may continue to anticipate increased depreciations of the dollar and the worsening of the USA commercial balance (even though in a lower rhythm), excepting the situation in which the rates of the USA GDP increases would be smaller than the rates of increasing the global GDP.

Inserting this effect within our analysis, we may explain, in what follows, the continuous worsening of the USA current account deficit during the last years, fact which potentates the occurrence of the twin deficits of the American economy. The specialists' opinion is that, after 1996, the American boom was focused on the high-tech industry and on the services sector, practically ignoring the producing industries and those of staple products. The growth of the services sector and the economic development have amplified the retail development which, correlated with the American consumist appetite, led to the rapid growth of the imports. On the other hand, the USA current account deficit suffered from the raise in the oil price (if, during the last 6 years, the price of the „black gold” had remained unchanged, the cost of the USA imports would have been with 154 billion \$ smaller). In order to finance this lasting deficit, USA had to attract billions of dollars from the external markets, remaining vulnerable to the behavior changes of the

global investors (Sovereign Funds, Retirement Funds, Private-Equity Funds etc.). At present, USA have a great problem regarding the sustainable financing of the current account deficit. According to the studies performed by Farell and Lund (2008a), if the current trend of savings and of investments maintained at the same level, and the rate of exchange remained unchanged until 2012, the USA current account deficit would reach 1.6 trillion \$, approximately 9% of the GDP. Such a pronounced disequilibrium would lead to a tripling of the external public debt from 2.7 trillion \$ in 2006 to almost 8 trillion \$ in 2012.

It is interesting to analyze the transposition of the liquidity excess and how the world economy is affected by this fact. Farell et al. (2008) analyze the effects of this global financial reorganization. During the last 25 years, the financial assets have strongly increased despite the more difficult or unstable periods. In 2006, their value reached the amount of 167 trillion \$, a 17% raise compared to 2005 and double in comparison to the period 1995-2005 (when there was a raising rhythm of 8% per year). It is obvious that the de-reglementation of the financial markets and of the monetary policies in the developed countries – decrease in interests – has influenced this fact. The increase trend on the financial markets has surpassed the increase trend of the global GDP, leading to a financial deepening in almost all the regions (a strong increase of the financial markets followed by an increase of its weights in the national GDP). This development has allowed the more efficient dispersion of the risk, it has facilitated the financing of the investments at

lower interest rates and it has offered more liquidity to the markets (in the 90s, only 33 countries had financial assets which were surpassing in value the internal GDP, while in 2006 this figure had already reached 72 countries, more than double). Analyzing the ratio between the value of the financial assets and the GDP level, in 1990 only two countries were surpassing 300%, at present, the same calculated index surpasses 300% in 26 countries. A fact which was proven, the deepening of the financial markets was directly influenced by a series of factors: the development of the private-equity companies, the privatization of the national companies in the emergent countries, the liberalization of the capital account within most of the countries, the occurrence of the corporate bonds guaranteed with assets and transactioned on the capital markets. All these factors led to the increase in innovation and to the development of the financial markets, processes that generated, at the same time, a liquidity excess, which raised the price of many assets (see the global real estate boom and, recently, the accentuated raise in the oil barrel and in the price of the goods). The impressive growth of the financial markets from the emergent countries and the decrease in importance of the American market, at the world level, have been influenced by this fact. Together with the occurrence of the unique European currency, the strength of the dollar has significantly decreased.

The development trend of the emergent financial markets will continue to be maintained within the next years, especially because of the increase in the ratio between the assets' price and their efficiency (P/E ratio). This index doubled on the Russian and

Chinese equity market during the last 4 years and there are no signs that this direction will be affected on a short term.

Interesting, in spite of the increase in importance of the unique European currency or of the capital markets in countries such as China, Russia and Brazil, the American financial market has still maintained its domination. At present, it attracts more than one third of the global financial assets total, meaning approximately 56.1 trillion \$.

Where is this money coming from and how does it influence the American and the world economy? The financial power held by the developed countries starts being affected by the capital owned by the countries rich in oil and by the Central Asian countries. America's huge external debt correlated with the raise in the oil price made huge amounts of money available for these countries, and at the end of 2006 the total reached the amount of 8.5 trillion \$. This influx of capital arrived in the hands of a few funds, which were initiated on the global financial markets only 6 years ago, meaning a spectacular raise. The decrease in the American interests' rates during the last years has been affected by the capital invested by these corporations; approximately 0.75 percents of the interest rate decrease were the result of purchasing American public securities by the Central Asian banks and of the sovereign funds from the Arabian countries. Farrell and Lund (2008b) calculated the impact of the funds based on petrodollars on the financial markets. Even though the weight is still low compared to the mutual or retirement funds, these funds have recorded an average annual increase of over 20% during the last years. According

to the empirical results, at an average price of 70 \$ per barrel, the capitalization of these funds would be increased with 2 billion \$ per day, reaching the amount of 6.9 trillion \$ in 2012. Can the impact of a price of \$ 150, or even \$ 200 be easily analyzed?

As all these amounts of money are attracted within the global economy, we cannot wonder of raise in the price of the real estate assets at a global level or of the raise in the price of the goods during the last two years. All these amounts of money have impelled the market of the future contracts with the oil or other goods as an active support, acting as an inflationary spiral at the global level (reasonable expectances of raising the price of the oil through future contracts => raise in the price of the oil => raise in the funds incomes based on petrodollars => raise in the liquidities on the markets of the future contracts).

The specialists are not certain regarding the destination of investing this liquidity excess without releasing major world disequilibriums. During the last three decades, the real estate boom has been preceded by the stock exchange boom, so that the occurrence of another boom based on a different asset is inevitable. There is also the probability that these amounts of money could be invested in regions from the Middle East or from Africa, with the purpose of developing these areas. Their attracting within the global economy would lead to the creation of a significant internal market, especially the multi-national corporations benefiting from it. During the last years, the Saudi Arabia or the United Arab Emirates have started to invest internally important amounts of money but major conflicts from

these areas as well as from Africa are still slowing down the major direct investments. A raise of the stability degree in the area could also lead to a raise in the oil offer, and there are a series of African countries, which hold big resources, unexploited yet by the great oil companies around the world.

### **Manifesting of the global financial crisis in Romania**

On April 22<sup>nd</sup> 2008, the Standard & Poor's Agency published an analysis according to which Romania – besides Lebanon and Turkey – are among the countries which are the most vulnerable to the effects of the real estate crisis from USA. In addition, we must recognize that there are signals warning about the possible occurrence of a financial crisis in Romania, especially because of the contagion of the global financial crisis, of the fast advance of the loan and of the worrying level of the current account deficit. The level of the current account deficit recorded in our country (14% of the GDP in 2007 and a forecast of 15% of the GDP in 2008, according to IMF), the increased inconsistency of the Bucharest Stock Exchange, the massive entries of speculative funds, the low sustainability of the public finances, the increased rhythm of raise for the external debt service can determine the release of a financial crisis in Romania on a medium term.

The extension of the global financial crisis on the Romanian economy is based on three effects. The contagion effect – propagation of dis-equilibriums from one region to another – becomes more and more acute in a globalized world. The increase in similarity of the business cycles of the great commercial powers confers substance to the idea of global economy.

China, one of the greatest markets, which absorbs charge stocks and one of the greatest markets for the capital goods and for the long use goods, is more and more connected to USA, which are, maybe, the world's greatest consumer of goods, the European Union and Japan, other two great important markets for goods and charge stocks.

We can imagine 4 giants (USA, EU, China, Japan) holding the “weight” of the world economy above the raised arms. When one of them cannot stand it any more and leaves the hands down, the other three will try to keep their balance. In case the one who abandoned the fight recovers and supports again the world economy, the shock is temporary and it is naturally absorbed by the market mechanisms. If the second giant “falls” too, the weight is strongly pressing the shoulders of the remaining ones, and, very probably, the shock is recurrent. It cannot be absorbed but through global reglementation, this thing being difficult to achieve under the terms of inexistence of some institutions with global extension, as it is the present situation.

The contagion effect is usually accompanied by the cumulative causality effect – situation in which the dis-equilibrium occurred in one area overlaps the dis-equilibriums from other areas – creating major impact shocks. Let us think that, in 2007, when USA announced that they slow down the rhythm of the economic growth and the Chinese stock exchange give signs of fatigue, the suppliers of raw materials and of goods from all over the world was panicked. For them, this meant lower profits, decreased orders, more demanding markets etc. Thus, in case one of the stock exchanges

from USA, China, EU and Japan give signs of over heating, “the reaction cells” from all over the world seek for “insularizing” solutions of economies for the global shock.

Moreover, China has developed for 10 years with an annual rhythm of over 10 percents, swallowing huge quantities of raw materials, being a market, which initiates the global economic growth. The investors in the capital markets understand this movement as a decrease in the demand of products and raw materials from behalf of China, so a decrease in the demand for most of the world’s companies. The effect is propagated in the technological chain, specific to each industry, because a decrease in the demand represents a decrease in the company’s incomes, so lower dividends and decreases in the price of the shares on the market.

In addition, the “herd” effect must not be neglected under the terms of globalizing the financial markets. The managers of the speculative investment funds are simultaneously conquering the best territories from the point of view of the profit opportunities but, at the same time, they simultaneously leave the territory when the profit possibilities are narrowing. They act as a herd.

The international financial turbulences are affecting and will continue to affect the Romanian economy. The channel through which the shock wave will be transmitted on the capital market from Romania is linked with the activity of the foreign investment funds. The high interests and the economic boom from Romania attracted important investors at the Romanian stock exchange, the excess money feeding the consumer credits. The economic crisis can be released when the interest rates are increased in the

developed countries – as it happens at present – the investors transferring money at home. The negative variant for Romania would be that in which there will be materialized the massive withdrawals of the speculative investors’ funds (of portfolio), which would further lead to the strong depreciation of the leu, to increased inflation, to difficulties regarding the financing of the external debt financing etc. In contrast with the developed countries, this happens when capital injections reappear immediately after the passing of the negative wave. However, it is obvious that, largely, the apprehension of the great investment funds on the emergent capital markets can decipher the temporary or the recurrent nature of the shocks produced on the emergent financial markets, as it is the case of Romania.

The signals of the international financial crisis contagion upon the Romanian economy started to be visible. During the last year, the leu appreciated/depreciated in comparison to the main currencies, the rate of exchange being characterized by a more and more increased inconsistency. The Bucharest Stock Exchange has been more “red” than “green” during the last year.

The information regarding the 28% increase of the Romanian external debt on a medium and long term in 2007 compared to 2006 (up to 36.7 billion Euro) and the decrease of the degree of covering the official reserve of currencies and gold of NBR (from 6.4 months of import on December 31<sup>st</sup> 2006, to 6 months of import at the end of 2007) do not have the characteristics to diminish the economic analysts’ worries but to intensify them. Similarly, the 66% increase of the current account deficit in 2007 (compared to 2006),



based on the strong deterioration of the commercial balance and on the decrease of the direct foreign investments in Romania (with 21% in 2007 compared to 2006), simultaneously with the decrease in the degree of covering of the current account deficit in the foreign investments from 91% in 2006 to 42% in 2007, accentuate the increase in the external vulnerability of the Romanian economy.

### **The modality of minimizing the effects of the financial crisis in Romania**

By materializing the pessimistic variant, in which the foreign speculative investment funds will withdraw the capitals from Romania, the Romanian authorities will face choices difficult to achieve. One of the possibilities would be to let the leu depreciate. Nevertheless, under the terms in which the Romanian banks borrowed much from abroad, the solution would be inefficient because the leu depreciation would make more and more difficult to return these loans. Thus, the depreciation would threaten the reliability of the Romanian bank sector (in March this year, Standard & Poor's has degraded the rating perspective of the Romanian bank sector, considering this sector as being vulnerable). The second solution through which there can be tried to prevent the strong leu depreciation would be the increase of the interest rates, so that the amplitude of the capital outputs could be reduced. And this is what NBR has done, successively increasing the interest rate of the monetary policy up to 10%. However, such an option would seriously affect the investments, it would decrease the aggregate expenses and the economic growth and it would lead to the increase of the unemployment.

However, many economists are pessimistic regarding the authorities' capacity to stabilize the rates of exchange on a short term. In case the market anticipates the leu depreciation, it will be useless that the Romanian financial authorities try to maintain the current rate of exchange on a short-term. The Romanian and the foreign investors are aware that, through the leu depreciation, together with the buying of currency and its subsequent conversion, they will obtain high profits. This will determine the escape of lei, and the NBR action will be inefficient, because there will be more private investors who wish to sell lei and buy currency than the authorities' capacity to support this process. Therefore, the Romanian financial authorities will be successful in thwarting the leu depreciation only for a few days period, but the price paid for this process will be sufficiently raised. The profit will reach in the private investors' hands. Moreover, it is difficult to estimate the level of the balance rate of exchange, which NBR would like to stabilize and, similarly, because of the difficult international financial cooperation, it is difficult to obstruct the manifesting of the contagion effects.

An increased efficiency is proven by the structural solutions. The increase in competition of the Romanian exports and the strict conditions imposed by the European Union to the member countries will not "allow" the outbreak of a disastrous crisis within the Romanian financial system. Through early warning, The European Commission will impose the rationalization of the public expenses, restrictive fiscal and monetary policies in order to stabilize the macro-economy on a short-term.

The strict relementation, performed by The National Securities Commission (CNVM), of the investment funds' activity, which acts in the Romanian stock exchanges, will intensify the discipline on the financial market.

The increase of the National Bank of Romania's currency reserves is imperatively necessary in case of a possible intervention on the market for a major dis-equilibrium. Moreover, NBR must promote a restrictive monetary policy, especially under the terms of the increase in the overheating risk of the Romanian economy. NBR must carefully monitor the activity of the banks in the system,

by strictly implementing the prudential norms, in order to maintain the financial stability at a high level. Finally yet importantly, it is necessary that the Ministry of Finances implement an anti-cyclic fiscal policy and it will intensify the sustainability of the public finances.

In order to cope with the increased inconsistencies of the leu – dollar (or leu - euro) rate of exchange, the Romanian companies can conclude a contract (either with a bank, or with a dealer on the currency market), for the future euro delivery or sale at an agreed rate of exchange, so that they could avoid the risks associated to the conversion (currency hedging).

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### Note

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<sup>(1)</sup> Consumer Confidence Index (CCI) is a composite index, created both on the basis of the current expectations (40% of the CCI) and

on the basis of the future expectations (60% of the CCI) of the consumers.

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# Representing the Local Interests in Governmental Policy Making. The Romanian Experiment

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**Lucica Matei**

National School of Political Studies and Public Administration, Bucharest

***Abstract.** The paper aims the analysis of mechanisms related to representation of territorial interests at national level in formulation, implementation and evaluation of governmental public policies by involving local actors, local government associations (National Association of Municipalities, National Association of Towns, National Association of Communes) in Romania.*

*The paper is conceived on three major topics, represented in Romanian governmental institutional structures, on:*

*1. Levels represented in public policy making process, on one hand, territorial-administrative levels, national, county and local level (municipality, town, commune), and, on the other hand, the political, legislative, executive and consultative level.*

*2. Developments of public policy system, from the analysis of the Romanian legislative and institutional framework to practices, turning into account the institutional and legislative approach on public policies.*

*3. National and local actors, roles, illustrated in a study on a local structure level.*

*The elaboration of the matrix of stakeholders in finalising, elaborating, implementing and evaluating public policies will represent the conclusions of this paper.*

**Key words:** inter-governmental relations; public policies; associations of local public administration.

**JEL Codes:** H11, H77, H83.

**REL Codes:** 13C, 13G, 13J.

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## 1. Introduction

Today, we witness a change of the role of the traditional nation state, change determined on one hand by the effects of globalization and European integration, and, on the other hand, by the effects of decentralization, delegation, privatization, etc.

The current traditions, models and practices of governance could not determine the occurrence of a “consensus” concerning the relation part-whole, reflected in the national governance system on several levels of inter-governmental relations, related, on one hand, to the endogenous system of the state and, on the other hand, to the exogenous supra-national or European environment.

For the European states the Europeanization process is closer, undergone presently by Romania, and expressed in accordance with some exigencies of change, namely: reform of the public sector, public administration and civil service, precisely policy-making reform. It means to strengthen the Executive, to create the system and mechanisms for horizontal coordination around policy-making and its implementation, to develop the agenda of the Executive involved in policy-making, to create the subsystems for public policy-making and application.

The state structures have impact on

developing the connections between administrations on different administrative levels, taking into consideration the fact that a unique state structure corresponds to each state. In this context, based on Professor Ziller’s (1993) assertions concerning the existence of a Public Administration Law in each country, varying from one national system to another, we confirm the usefulness of a common definition for the administrative law, as a set of principles and rules referring to public administration organisation and management, and relations between administrations and citizens.

For Central and Eastern European countries, functionality of inter-governmental own system represents a priority for their governance, ensuring and arguing by facts its own capacity to adopt, implement and assess the public policy system, which is reflecting the territorial interests of the territorial-administrative structures, represented in local governance relations and inter-governmental relations.

The local interests, expressions of the local needs identified under the form of rationales, determine certain behaviour of the local actors concerning the achievement of economic performance necessary to meet the local needs. They constitute one of the components of the economic local mechanism, representing the cause and stimulus for the local actors’ actions. The local interests are represented in the local complex system, expressed at the level of interests for the institutionalised group (with representativeness role in the dialogue with decision-making partners of the public power) and at the level of territorial interests. We mention the meaning concerning the

local territory, comprising the geographic framework and the existent community, organised at social, economic and political level, adding the historical, cultural dimension and the mark of the local traditions.

## 2. Public policy-making in Romania

### 2.1 Principles of public administration

The institutional and legislative approach of the public policies is based, on one side, on the institutional management, by using instruments such as planning of the resources (human, financial, material and administrative) or the development of efficient institutional models, borrowing from the private sector expertise, the process of strategic planning, and on the other, the adoption, modernization and actualization of the necessary legislative framework.

Both the principles of public administration and the elements of the administrative framework, known as the context of “administration by law” (Schwarze, 1988) represent the premises to achieve a good governance act. Thus, the quality of fundamental laws on autonomy (instrument for the Executive and an information and predictability source for the public), the administrative procedure (sets specific procedures for decision-making process, coordination and balance of powers for the relation of officials with the public, communication between them, authorising any interested party to be entitled to a hearing or to request appeal) and accountability and control mechanisms (facilitating transparency, ensuring control of financial and administrative decisions, calling to courts) influence and determine key

changes in public policy-making, implementation and assessment.

The most important principles of public administration (OECD, 1999), common for the European states, confidence and predictability (legal certainness), openness and transparency, responsibility, efficiency and effectiveness represent the basis of public policies system also in Romania. Principles such as administration by law, principles of proportionality, legal certainty, protection of legitimate requirements, non-discrimination, right to a hearing within the framework of decision-making procedures in administration, interim reports, equal conditions to administrative courts, non-contractual responsibility of public administration, established by the European Court of Justice, are compulsory for all Member States (OECD, 1999).

The above principles can be found in the administrative procedures and they are applied by public institutions on all levels. The public sector actors are obliged by law to comply with these legal principles that should be controlled by independent bodies, systems of justice, parliamentary scrutiny, individual authorised persons.

The results in different analyses of public policy-making in Romania confirm the respect of the above-mentioned principles at the level of different actions, as follows:

- The participation of actors – local authorities, private sector, non-governmental organizations and international institutions to the *planning* process of public policies. Another activity is that of informing in regard to the planned public policies of the civil society – *Principle of participation and transparency*.

- The process of planning the public policies is about permanent actualization of the policies of the Romanian Government and their coordination with other initiatives – *Principle of continuity and coordination.*
- The involvement of actors found at legislative, executive and political levels in the public policy process suggests taking responsibility for all levels for the results achieved – *Principle of responsibility.*
- The real assessment of the level for applying public policies adopted by the Romanian public administration – *Principle of subsidiarity.*
- The capacity to react in real time of the Government to situations determined by the existence of a public need, establishment of clear actions on the basis of pertinent objectives, estimation of results and their assessment, by applying efficiency, effectiveness and economy of resources – *Principle of good governance.*
- The capacity to develop cooperation and consultation relations in the problem of public policies of actors situated at different levels by assuring a coherent view on the objectives to be accomplished and the measures to be taken – *Principle of cooperation and coherence.*

The system of elaborating public policies in Romania follows the principles applicable in the European space (<http://www.gov.ro>):

1. Existence of a general legislative framework valid and coherent for formulating public policies (methodologies

and well defined rules regarding the preparation and revising of documents which contain sketches of policies (policy drafts) which are sent for debate and approval inside governmental meetings).

2. Autonomy of the ministries in elaborating own public policies.

3. The inter-ministerial character of the process of formulating public policies

Stages:

- Exchange of information between ministries for formulating the legislative and political documents;
- Consultation between ministries;
- Public declarations based on positions negotiated by ministries: “to talk in one voice”;
- Consensus between ministries: reaching an agreement between interdependent policies;
- Conciliation: mediation by a third party of conflicts not resolved on time by ministries;
- Mediation between ministries: conflict solving by a higher authority, by reaching consensus and conciliation.

4. Elaborating standards for the process of elaborating policies respected by ministries.

5. Prioritizing the components of national policies.

6. Avoiding re-organizations or reforms which contain unpredictable changes which may affect the system for public policy-making.

7. Internationalization of governmental policies marked by: EU accession, development of globalization for economic processes, NATO membership, and Council of Europe membership.

## 2.2. Levels represented in the process of public policy making

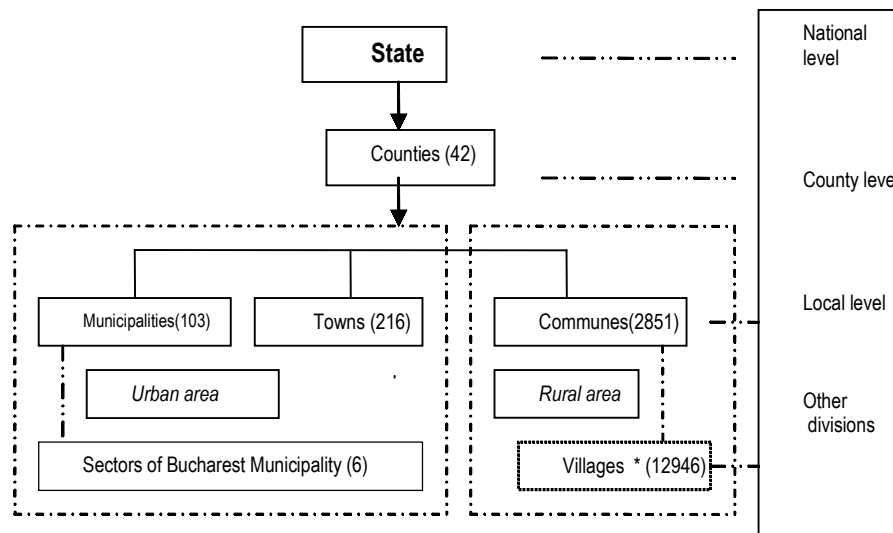
The system of public policies is represented by the sum of instruments, procedures and institutional mechanisms, developed in order to improve the quality and efficiency of the decision-making process. It suggests the existence of a good collaboration between the territorial – administrative levels, national, county and local level (municipality, town, commune), on one hand, and political, legislative, executive and consultative, managerial levels, identified as areas for public policies actors.

*a. The territorial – administrative level* legitimated by Constitution of Romania and Law on Local Public Administration (Law no. 215/2001) comprises three hierarchical levels: national, county and local (Figure 1).

*1. The county level* is represented by the 42 counties of Romania, including also

Bucharest Municipality. Each county has its residence at municipality level, representing the political, economic, social-cultural and scientific center of the county. At each county level, the local government authority is exerted by a County Council, coordinating the activities of commune, town and municipality councils.

*2. The local level* comprises 2851 communes, 216 towns and 103 municipalities (www.insse.ro). The communes, towns and municipalities have their own Local Council (deliberative authority) and a mayor (executive authority), elected after the poll organised on a term of 4 years. Bucharest Municipality is organised on 6 territorial-administrative subdivisions, called sectors. Bucharest Municipality has a General Council of Bucharest Municipality and General Mayor of the capital and each sector has a local council and a mayor.



Source: Matei (2004).

**Figure 1.** Representation of the administrative hierarchical levels in Romania

*b. The representation of decision-making actors in public policies, identified related to roles and areas, other than those*

defined at the Romanian administrative - territorial structures:

(1) *the political level* which refers at the content of strategies and political programs assumed by the Government and ministries, in sectoral problems;

(2) *the legislative level* which refers to the sum of international regulations to be assumed by Romania;

(3) *the executive level* represented by the Government and includes also the managerial

level which refer to the problems of functionality of ministries and public institutions;

(4) *the consultative level* which refer to the relations developed by the Government and ministries with civil society, media and citizens.

(5) *the managerial level* refers to current problems occurring in functioning of ministries and Government institutions.

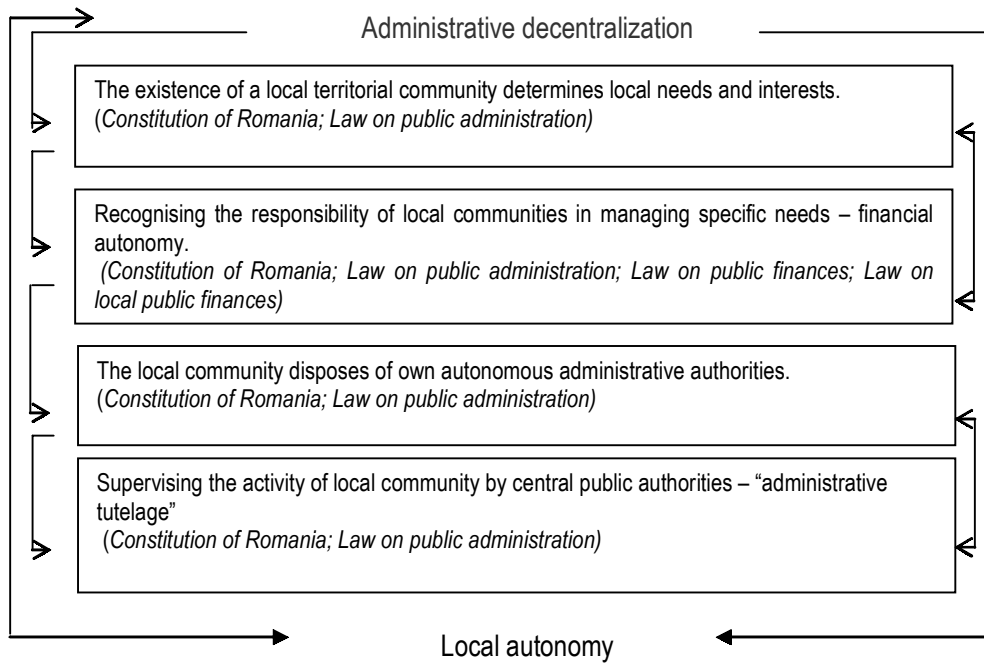


Figure 2. Key elements of administrative decentralization in Romania

### 3. Evolutions in the public policy system

#### 3.1 National actors and roles

a. *The Cabinet of the Prime Minister* adopts political decisions, by using a permanent structure of sub-committee in order to maximize correctitude and efficiency of its deliberations.

b. *The General Secretariat of the Government (GSG)* (box 1) and *PPU* (box 2) establish the general rules and priorities, the general guidelines, monitor the standards,

supervise the programs and ensure the conditions necessary to accomplish attributions in the areas of public policies, as well as the functionality of the inter-ministerial committees (box 4). For coordinating the activity of the institutions and inter-ministerial structures involved in the reform process of the public administration and of public policies, was created the Superior Council for Reforming the Public Administration, Coordinating Public Policies and Structural Adjustment (box 3).



## **Box 1**

### **The General Secretariat of the Government**

It establishes the methodological and organizational framework for the system of planning, elaboration, implementation of public policies at the level of ministries and other special bodies of central public administration, assuring:

- elaboration of the system of planning and formulating public policies, of conceptual documents and regulations regarding the elaboration of public policies and their permanent improvement within a continuous process of consultation and collaboration with the Ministry of Economy and Finance and the Chancellery of the Prime Minister;
- application of the public policy formulation procedures;
- monitoring and assessment, using indicators of performance and other techniques of efficiency of the process of formulating public policies;
- assures the methodological support and consultancy to the ministries regarding the public policy formulation.

In this sense, it:

- Collaborates with the public policies units inside the ministries;
- Assists ministries in implementing the procedures for formulating public policies;
- Identifies the necessity for professional training of the personnel involved in formulating public policies in regard to instruments, methodologies and aptitudes of this system of planning of the public policies;

- Achieves the activities necessary for preparing and organizing meetings of the Government and completing the drafts of laws already adopted.

For this aim, it:

- Analyzes and assesses the public policy drafts and the drafts of laws, following the respect of procedures;
- Organizes working meetings for preparing the meetings of Government with representatives of state secretary or general secretary level, ministries and other public authorities initiating or giving approvals, in order to correlate view points on draft proposals to be submitted to Government for approval;
- Presents to the Prime Minister 's approval the list with documents and working agenda of the Government, as established during the debates and preliminary working meetings;
- Organizes the Government's meetings;
- Follows the accomplishment, by the ministries and other special bodies of the central public administration of the measures and tasks resulted from legal acts and Government's meetings;
- Completes the draft laws adopted by the Government, according to the law;
- Presents the normative acts adopted by the Prime Minister in order for him to sign and to ministries with power of signature;
- Presents to the Parliament draft laws, emergency ordinances followed by reasons and the decisions for their enactment, as signed by the Prime Minister;

- Transmits the decisions, emergency ordinances and Government's ordinances to the general Secretary of the Chamber of Deputies for publication in the Official Gazette of Romania, Part 1;
- Assures the publication of reasoning notes for adopted decisions, emergency ordinances and ordinances on the official website of the Government;

It elaborates normative acts in its area of activity;

It assures the representation of the Government before justice courts, with the ministries obligated to execute the Governmental acts against those opening the trial case;

It assures, for its area of competencies, the relation with the Parliament and ministries, as well as with other special bodies of the central public administration.

It monitors the implementation of the Governing Program, assuring:

- The accomplishment of the standard format and informational system for planning and reporting the implementation of the Governing Program;
- The information of the Strategic Planning Council in regard to the stage of implementation of the Governing Program;

It runs the financial operations in its area of expertise, by assuring:

- the elaboration of the annual budget draft for the working apparatus of the Government, with the exception of the Chancellery of Prime Minister;

- the elaboration and assessment of accomplishing the investment plans in its area of activity;
- execution of the financial operations regarding the funds of its own budget and destined to assist the actions initiated by the working apparatus of the Government and other structures legally created;
- manages the funds meant to ensure the financing for actions and projects aiming at promoting the external image of Romania.

## Box 2

### Public Policies Unit changed into Public Policies Division

#### *Mission:*

To create and make perfect mechanisms for strengthening the Governmental capacity to coordinate the process of formulation, implementation and monitoring of public policies at central level.

#### *Roles:*

a. Coordination – the activity of the technical secretariats of the councils, committees and inter-ministerial commissions established by law;

b. Collaboration – with state secretaries or their counterparts, named by leaders of the ministries and of other institutions and public authorities for the area of public policies;

c. Assures the interface with other institutions with clear role in the area of formulating public policies and the Romanian Government.

#### *Functions:*

- Elaboration of a new framework in order to define a standard system for

formulating public policies at central and local level;

- Develop mechanisms, procedures and instruments for assessing the impact of public policies;
- Elaborate analyses, studies and reports on the impact of public policies at national level;
- Coordinate the elaboration of the Yellow Paper regarding the progress of the formulation process of public policies;
- Identification, elaboration, coordination and monitoring of implementation of programs under external financing in the area of public policies;
- Planning of the measures to be adopted in order to achieve the tasks stipulated in the strategies and programs of the Government;
- Creation of the necessary framework for monitoring the process of implementing public policies by institutions of central public administrations;
- Monitoring the accomplishment of standards for the process of public policy at central level;
- Assuring the general framework for continuous training of human resources involved in the process of policy formulation;
- Disseminating the information to the civil society and other stakeholders of the governmental program regarding the approach of elaboration of the content and methods to implement and monitor public policies.

### **Box 3**

#### **Superior Council for Public Administration Reform, Coordination of Public Policies and Structural Adjustment**

Attributions:

- Assures the coherent and unitary character of strategies and policies at the level of public authorities and institutions, for fulfilment of conditions of the Euro-Atlantic integration;
- Assures the monitoring of strategies for reform of the public administration;
- Coordinates and assures the communication with councils, committees and inter-ministerial commissions which administer the Governmental policy in different areas;
- Supervises the process of the reform of public administration;
- Supervises the implementation of strategies and policies at the level of public authorities and institutions.

### **Box 4**

**Inter-ministerial Permanent Councils** (Government decision no. 750/2005), as consultative bodies, with no legal personality:

- Inter-ministerial Council for internal affairs and justice;
- Inter-ministerial Council for external and European affairs;
- Inter-ministerial Council for European integration;
- Inter-ministerial Council for economic problems, fiscal and commercial policies, internal market, competition and business environment;

- Inter-ministerial Council for administration, civil service, decentralization and local communities;
- Inter-ministerial Council for social affairs, health, consumers' rights;
- Inter-ministerial Council for education, culture, research, youth, sport and minorities;
- Inter-ministerial Council for agriculture, rural development and environment;
- Inter-ministerial Council for regional development, infrastructure, urban planning and tourism;
- Inter-ministerial Council for crisis situations;
- Inter-ministerial Council for strategic planning.

Functions:

- finds solutions for specific problems of the areas it manages;
- assures the coherence of the implementation of governmental policies from respective areas of interests;
- assures the inter-ministerial communication inside the respective field as well as the harmonization of view points;
- forms inter-ministerial working groups for solving problems with multi-sectoral character;
- proposes the creation, according to the law, of inter-ministerial commissions for coping with certain problems;
- coordinates the monitoring of implementation for promoted policies;

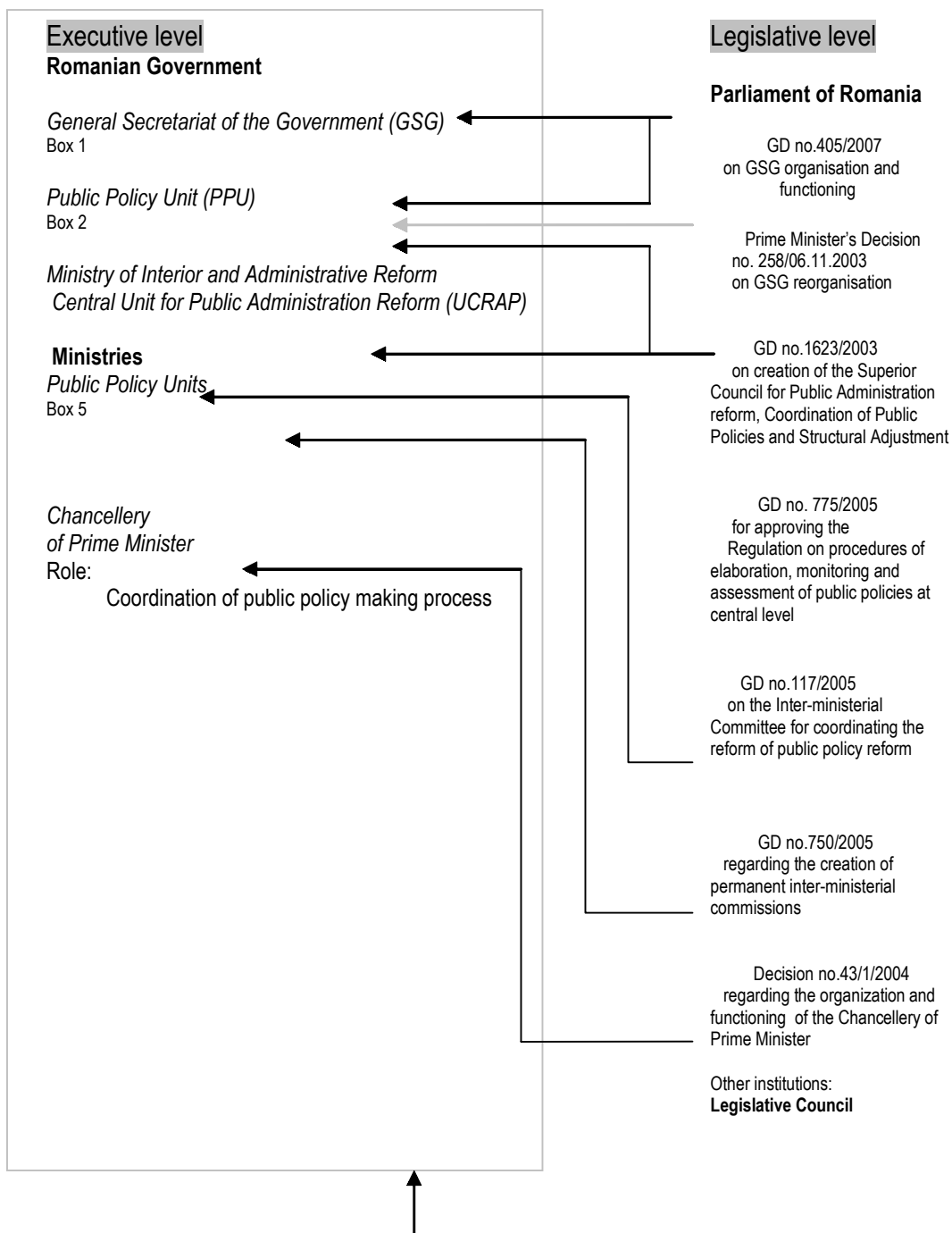
- elaborates periodical reports;
- monitors the activity of the inter-ministerial commissions and of subordinated working groups.

c) **Line ministries** must prepare their drafts of public policies, implement the policies, monitor the implementation and results, use this feedback for a continuous improvement of implementation, and inform on the development of new drafts of public policies. The attributions in the area of public policies are accomplished by own PPU named specialized units in the area of public policies (box 5).

#### **Box 5**

**Specialised units for the area of public policies** at the levels of ministries and other special bodies of public administration, having several attributions:

- assuring the consultancy of special departments inside ministries in what concerns the elaboration of public policy proposal;
- monitoring the observance of the procedures for public policies – making, monitoring and assessing;
- sending the public policies proposals to PPU of GSG;
- elaboration of reports of monitoring and assessment in regard to the initiated policies and their implementation at the level of ministries, in cooperation with social departments.



**Figure 3.** Institutional and legislative evolution on public policies

d. *The association structures of public administration authorities* from the prospect of responsibility on economic, social, cultural and environmental development at the level of administrative-territorial units are involved in the process of public policy making, in the procedure of consultation of legislative initiation. They are as follows:

1. *National Union of County Councils in Romania* (UNCJR) is a non-governmental organisation comprising on free consent the County Councils, as authorities of local public administration. UNCJR represents the interests of county councils, both in the relation with the executive power and in the relation with the legislative power, supports the direct participation to legislative initiatives and it is present whenever necessary in the consultation process for public policy making.

2. *Association of Municipalities in Romania* (AMR), created in 1990, comprises the towns that were declared municipalities, respectively 103 members. It is a dialogue partner for Government and Parliament of Romania to support the interests of local authorities and common interests of local communities related to central public administration, non-governmental organisations and third parties.

3. *Association of Towns in Romania* (AOR), represents the interests of 210 small towns in Romania. It was set up in 1994 in view to improve the role of local authorities related to central administration, formulating proposals to change or complete actual legislation.

4. *Association of Communes in Romania* (ACoR) represents unitary the interests of communes in Romania related to any entity,

governmental or non-governmental, organised at national, regional, county or local level. It has the right to legislative initiative of some drafts for normative deeds and to formulate proposals in the process of elaborating drafts for normative deeds.

5. *Federation of Local Authorities in Romania* represents the member association structures (AMR, AOR, ACoR) in relations with the Government, Parliament of Romania and other public authorities and institutions. It represents the interests of the local authorities in the context of the present national political system, the joint interests of local communities in the relations with central public administration, non-governmental organisations and third parties on domestic and international level.

#### 4. Public policy-making

The process of public policy-making suggests creating documents of public policy with general character in the initial stage, which include identifying the main aspects of public policies and directions for action. The detailed analysis of the sectoral public policies and the achievement of individual documents is a stage that precedes the *public policy draft*. The actual proposal consists of the existence of the following elements and stages:

1. *The institution having the initiative;*
2. Defining *the problem* that led to the necessity of initiating the policy;
3. *Defining the public policy;*
4. General *aim* of problems' solving – which will indicate the situation to exist at the end of the policy implementation;
5. *General objectives and specific objectives;*

6. *Beneficiaries: direct (target groups) and indirect;*

7. *Alternatives for solving the problem;*

8. *Process of consultation* – is about increasing the transparency of the decisional process and allows, in the same time, the accumulation of useful information needed in order to solve problems of public policy.

9. *Option for solving*

The proposal of *public policies is subject of approval to the leader of the initiating institution of the public policy*. It is sent to ministries and other bodies of interest of the central administration, for their elaboration of comments and proposals upon seven days of receipt. The proposal as such is handed in to the GSG.

The General Secretariat of the Government, through the Public Policies Unit, enacts a *conformance certificate* to verify the respect of procedures by the initiators, signed by the delegated minister for coordinating the activity of the GSG, in maximum ten days.

Ministries and other special bodies of central administration may launch the procedure to initiate drafts of legal texts following the same statute, only after receiving the conformance certificate. The conclusions provided in this certificate are to be included in the reasoning of the draft of law.

10. *Activities for monitoring and assessment* are taking place during and after the implementation of public policies. They follow the degree of achievement of the public policy' objectives and take place at the level of each authority of central administration. Their object consists in the activities and results of the process of policy making. The methodology for monitoring and assessment must be present in the public policy draft.

11. *Impact analysis of the public policy* allows political decision takers to formulate a perspective regarding the consequences of the actions to be accomplished and the assessment of the effectiveness of actions to be achieved (Figure 4).

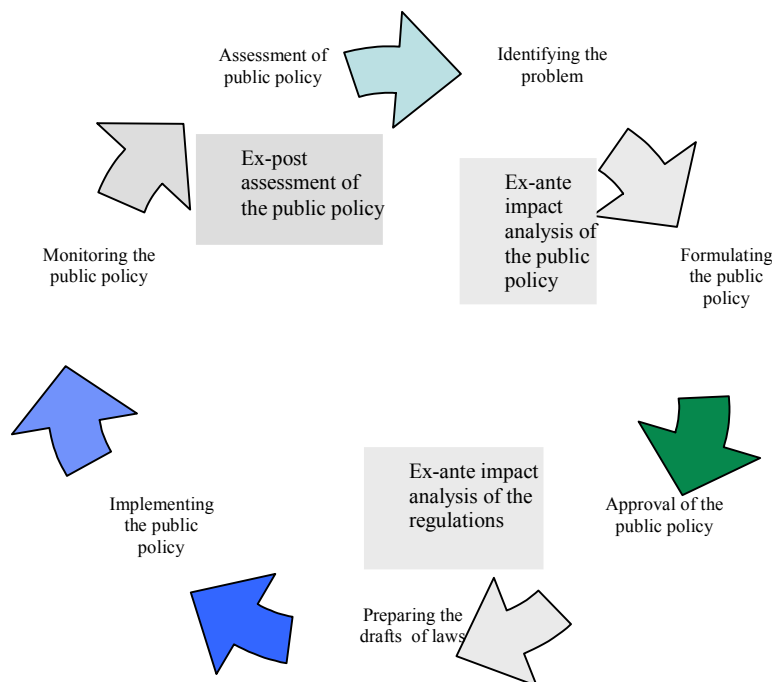


Figure 4. Typology of the assessments in the public policy cycle

The quality of public policy depends on a large extent on the activities of *consultation* and *coordination* (Figure 5), developed on one hand inside the public institutions belonging to the executive power, and on the other hand between public institutions and representatives of bodies and organisations concerned, groups of interest, depending on the topic. Consultation between various levels of governance, between ministries and line ministry responsible for the document of the respective public policy, between executive administrative bodies, improves the information basis, producing useful information.

Different stages of the consultation process are regulated through normative deeds:

1. *consultation on general level* – Law no. 24/2000 on the rules of legislative technique for elaboration of normative deeds, republished, GD no. 314/2001 on setting, organising and functioning of commissions

for social dialogue inside ministries and prefectures.

2. *level of inter-ministerial consultation* – Regulation on procedures at Government level, for elaborating, certifying and submitting drafts of normative deeds in view of adoption, approved by GD no. 50/2005, Law no. 52/2003 on decisional transparency in public administration, Regulation on procedures for elaborating, monitoring and evaluating public policies at central level, approved by GD no. 775/2005.

Other normative deeds regulating the consultation procedure: Law no. 215/2001 on local public administration, art.8, GD no. 521/2005 on consultation procedure for the association structures of local public authorities in elaboration of normative deeds.

At ministries level, consultation is achieved within discussions in Commission of Social Dialogue, consultations with professional associations, operators in the market, informing citizens by media.

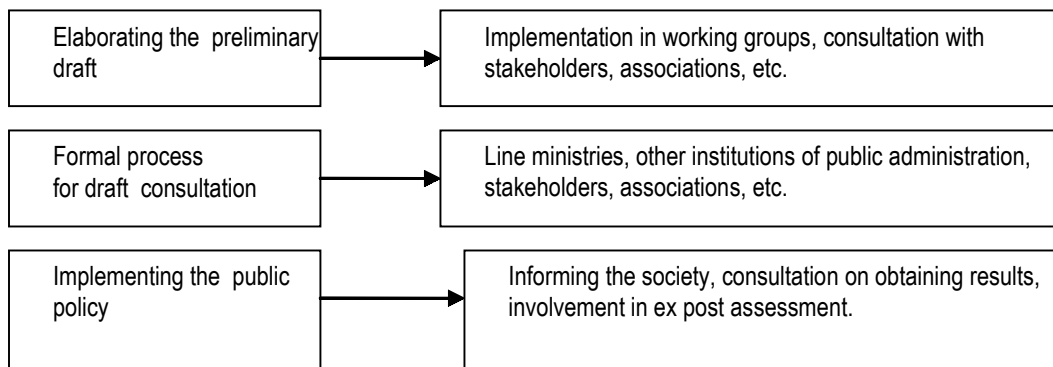


Figure 5. Consultation and coordination

*Implementing public policies* is procedurally supported in some cases by the *regulation process*. This imposes quality standards for consultation and impact

studies, and involves high costs, sometimes bigger than the benefit to be obtained, even leading to critics of the efficiency of the regulation.

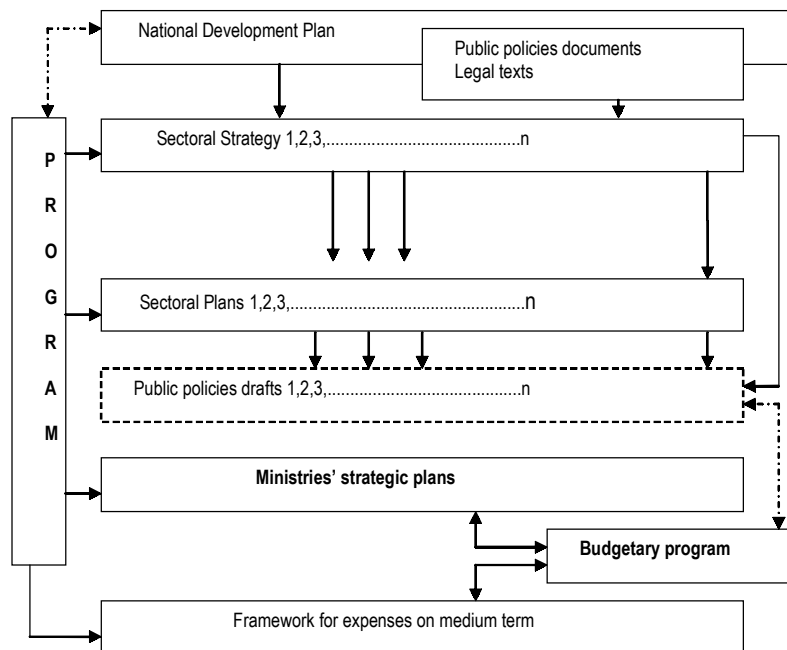


In the view of Maldelkern group (2001), the principles for an efficient regulation are defined by the following characteristics:

- *Necessity*, which consists in assessment of the public authorities of the need to introduce or not a new regulation;
- *Proportionality*, which says that any regulation is to be maintained between the advantages granted and the constraints imposed;
- *Subsidiarity*, which consists in the procedure of taking the decision at the appropriate administrative level;
- *Transparency*, which implies the participation of stakeholders and their consultation in elaborating the public policies;
- *Accountability, accessibility* consisting of elaborating the accessible regulations which are addressed to them;
- *Simplicity*, which means easy to use and comprehend regulations.

The most important aspect of the process of implementation of public policies is that regarding the achievement of status for New Investments for Financing (NIF). They are included in the general cycle for elaborating the budget. The *Council for Strategic Planning* has the following attributions:

- establishes and coordinates the priorities which derive from strategic documents for achieving the Government's objectives in collaboration with the resort ministries;
- correlates the governmental policies with engagements and conditions assumed by the Government in relation with international organizations;
- elaboration of the multi-annual programming of fundamental strategic priorities and their corroboration with medium budgetary planning;
- correlation of policies to be implemented with budgetary funds allocated on short and medium term (Figure 6).



Source: www.gov.ro

Figure 6. Correlating public policies with the budget

A. One example in formulating a public policy may be represented by the policy regarding the public debt initiated by the Ministry of Economy and Finance (Figure 7)

and supervised by the experts of the World Bank and IMF and those of the PHARE Project RO 02 586/03.04.03 “Enhancing the system of management of the state treasury”.

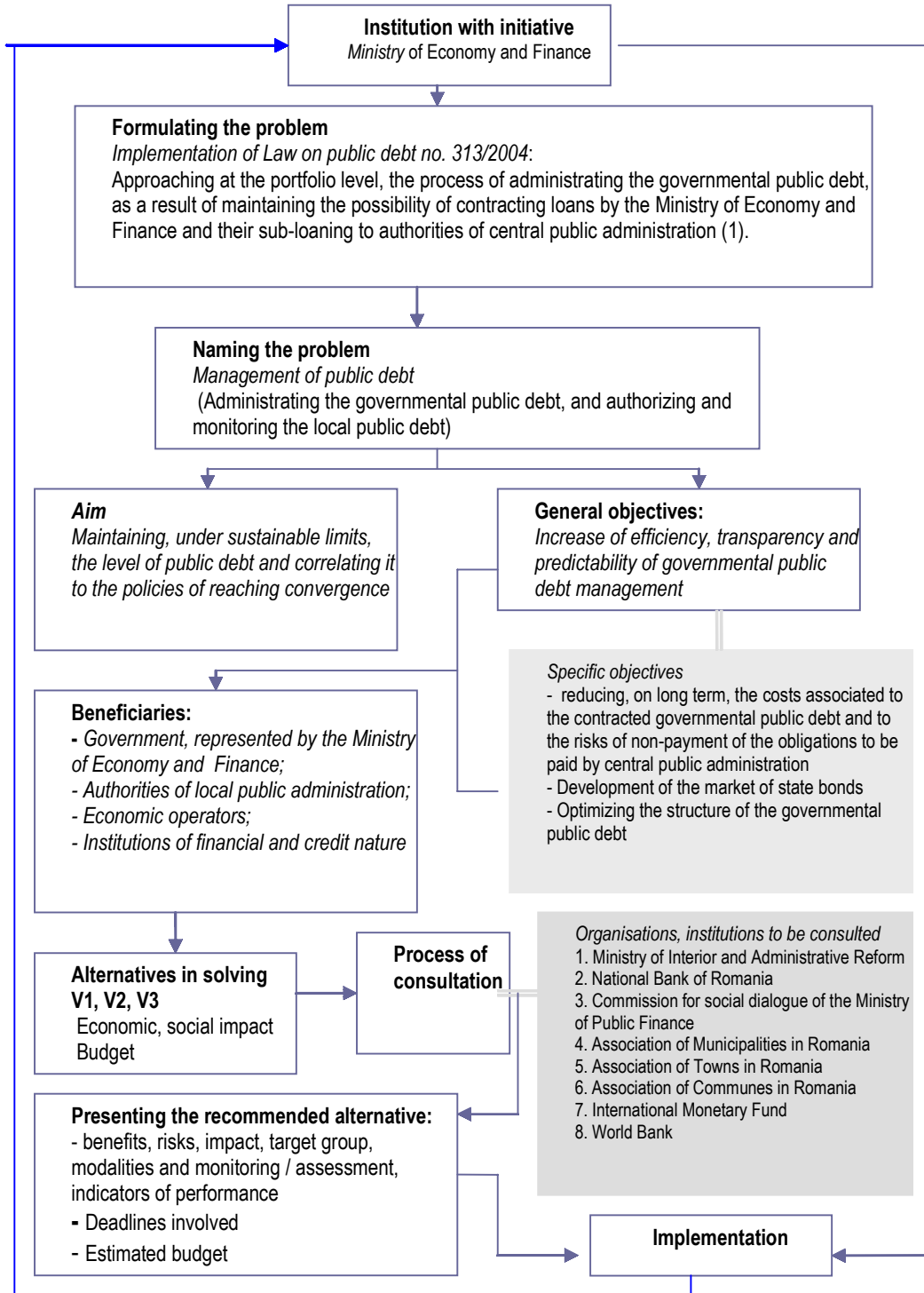


Figure 7. Process for public policy making

Legend:

(1) - The financing of projects (not of the budgetary deficit). Contracting a considerable amount of small governmental loans, denominated in different currencies, with different conditions and terms for reimbursement, with higher associated costs due to the character of these instruments.

- By using loans, consequence of off time limit withdrawing, the international financial institutions receive commissions for non-use as well as specific

Source: www.gov.ro

**B.** The results of *quantitative analyses* of the proposals for public policies in 2006 and 2007 (since adopting the Government Decision no. 775/2005 on Regulation for formulating, monitoring and assessing public policies) reveal the following aspects:

1. the number of proposals for public policies has decreased in the second year, related to the first year of applying the Government Decision from 39 proposals in 2006, to 18 proposals in 2007;

2. from the total number of proposals of public policy (57) during the two years, 37 received favourable certificate from PPD,

commissions for this particular instrument. Following this approach, the numbers of operations realized at the level of public debt portfolio, and normally, the operational risk have increased. The optimal structure for this portfolio was not achieved. The implementation of this law as well as the regulations that followed signed by the World Bank, IMF and experts of the PHARE project RO 02 586/ 03.04.03 "Enhancing the system of management of the state treasury".

of which 27 in the first year, 13 favourable certificates with observations, of which 8 in 2006 and non-favourable certificates - 4, in the first year.

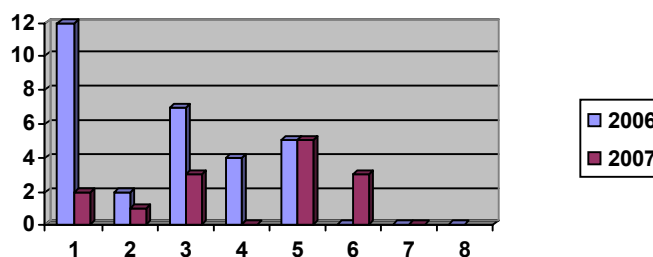
3. the areas in proposals refer to education (10), economics and business environment (22), social and health policies (10), public works (3), public administration (2). The areas of agriculture and rural development, defence and foreign affairs, communication and IT were less represented in 2006, lacking completely from the portfolio of the proposals for public policies in 2007.

Evolution of proposals of public policies in 2006-2007

Table 1

Domain of public policy / Type of certificate	Favourable			Favourable with observations			Non-favourable			Total
	2006	2007	Total	2006	2007	Total	2006	2007	Total	
Public Administration and Justice	8	1	9	3	1	4	1	-	1	14
Environment	1	1	2	1	-	-	-	-	-	2
Social Policies and Health	4	2	6	1	1	2	2	-	2	10
Agriculture and Rural Development	4	-	4	-	-	-	-	-	-	4
Education, culture and interethnic relations	4	4	8	1	1	2	-	-	-	10

Domain of public policy	Type of certificate	Favourable			Favourable with observations			Non-favourable			Total
		2006	2007	Total	2006	2007	Total	2006	2007	Total	
Economics, finances and business environment		6	2	8	2	1	3	1	-	1	12
Defence and Foreign Affairs		-	-	-	-	-	-	-	-	-	-
Infrastructure, Development and Public Works		-	-	-	-	1	1	-	-	-	1
Communication and IT		-	-	-	-	-	-	-	-	-	-
<b>Total</b>		<b>27</b>	<b>10</b>	<b>37</b>	<b>8</b>	<b>5</b>	<b>13</b>	<b>4</b>	<b>-</b>	<b>4</b>	<b>54</b>



### 5. Matrix of stakeholders

We define the matrix of stakeholders in substantiating, elaborating, implementing and assessing public policies (Table 2).

Matrix of stakeholders in public policy-making

Table 2

Actors	S's interest in basing the policy	S's interest in policy making	S's interest in implementing the policy	S's interest in assessing the policy	Resources available to the S	The capacity of S to mobilize resources	Position of S to the policy
Line ministry							
Public sector							
Private sector							
Association of Municipalities in Romania							
Association of Towns in Romania							
Federation of Local Authorities in Romania							
Professional Associations							
Citizens							
Other stakeholders							

## Conclusions

The World Bank ([www.worldbank.org/wbi/governance/govdata](http://www.worldbank.org/wbi/governance/govdata)) uses a complex indicator GRICS (Governance Research Indicator Country Snapshot), formed out of several hundred variables which come from different sources (25) and 18 different organizations. This indicator expresses the quality of the governing act in six different

governance indicators: visibility and accountability, political stability, governance effectiveness, quality of regulations, rule of law, corruption control. In what concerns the policy making, the relevant indicators are considered the effectiveness of governance and the quality of regulations, whose evolution, for Romania is presented in Table 3.

**Evolution of indicators of political stability, effectiveness of governance and quality of regulations in Romania**

Table3

Indicator	1996	1998	2000	2002	2003	2004	2005
Political Stability	-	47.6	40.1	50.9	52.8	51.4	46.2
Government Effectiveness Estimate (-2.5 to+2.5)	-0.88	-0.63	-0.67	-0.32	-0.16	-0.11	-0.03
Percentile Rank (0-100)	17.1	24.9	26.8	47.8	54.1	54.1	56.9
Standard Error	0.18	0.27	0.19	0.14	0.14	0.13	0.13
Number of surveys/polls	5	5	9	11	12	13	13
Regulatory Quality Estimate (-2.5 to +2.5)	-0.59	+0.23	-0.31	+0.01	-0.20	+0.13	+0.17
Percentile Rank (0-100)	25.0	53.2	35.0	53.2	47.8	59.1	58.4
Standard Error	0.27	0.30	0.34	0.18	0.16	0.16	0.16
Number of surveys/polls	6	5	7	10	11	12	12

Correlating the results obtained in the area of public policies with those two indicators, effectiveness of governance and quality of regulations, we observe a dependency of their values of positive nature, and directly proportional to the results achieved: e.g. law making and changing of the legislative system, completion of a data

base with documents of public policies, elaboration of methodology and guidelines for methods of analysis of the impact of public policies, elaboration of methodologies for measuring the performance of public ministries and institutions, strategic planning, elaboration of the guide regarding the consultative process, etc.

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# “Lamfalussy Architecture” – A Model for Consolidating the Financial Markets’ Supervision

■

**Nicolae Dardac**

**Elena Georgescu**

Academy of Economic Studies, Bucharest

***Abstract.** The enhancement of convergence in the supervisory practices, both by increasing the quality of the legal framework and of the regulations in the field of financial services and by improving the consultation process, represents a prerequisite for setting up the Single Market for financial services at EU level. In order to reach this goal a new approach, known as “Lamfalussy Architecture”, has been developed. The implementation of this model will increase the efficiency of the regulatory and supervisory framework within the financial markets, by removing the obstacles in the way of their integration into the Single Market. At the same time, setting up an EU Single Market implies a thorough monitoring of the financial stability through a constant review of the regulatory and supervisory framework.*

**Key words:** “Lamfalussy architecture”; Financial Services Action Plan (FSAP); convergence; supervision; single financial market; Level 3 committee (L3C).

■

**JEL Codes:** G18, G21.

**REL Codes:** 11B, 11C.

## Introduction

Setting up a Financial Services Single Market is one of the long-term objectives of EU. In such a market, the financial institutions authorized to provide specialized services in a member state should be also able to perform, in similar conditions, in any other member state, in an adequate competitive environment, harmonized with the legal framework in this field.

The consequences of the setting up of the financial Single Market have been analyzed and evaluated right from the moment when this new concept was launched. Thus, the Cecchini Report on 1998 emphasized the fact that setting up a Single Market of totally integrated financial services would increase the IGP with 1.5%. The advantages coming from this have been subsequently highlighted in other reports<sup>(1)</sup> addressed to the EC (European Commission) or to the European Financial Services Round Table, as well as in other papers in this field.

Given the importance of the intensification of the integration process, and, respectively, of the setting up of the Single Market for financial services in EU, the need to identify and create the infrastructure necessary for sustaining this objective implicitly occurred. Therefore, in June 1998, the European Council requested the European Commission to set up a framework to contribute to the development of the Single Market for financial services.

In May 1999, the European Commission Statement regarding the Financial Service Action Plan (FSAP) was published, approved by the European Council 11 months later, respectively in

March 2000. FSAP's goal was to set up a Financial Single Market in EU. In this respect, FSAP initiated a set of measures to eliminate all the national differences and obstacles until 2005, so that an adequate legal framework for supporting the financial services' integration process in EU is created. These measures envisaged mainly the gross market (securities issuance and their trading, securities settlement, accounting); retail market (insurance, saving through pensions funds and mutual funds, payments, electronic currency and money laundering prevention), as well as fields like financial supervision, companies' insolvency, taxation of incomes from savings etc.

The adopted measures have been transposed, partially, into Community Regulations, whose main particularity was their direct application in the internal law of the member states. But most of the FSAP measures can be found in the European Directives, which need to be transposed in the legislation of each member state. As far as the other measures are concerned, we have to stress that they are mainly in the form of Statements and Recommendations of the European Commission.

The new perspective on the regulation framework introduced by FSAP included 42 legislative and non-legislative proposals, its main goal being to sustain the integration process of the financial markets in EU. Based on this program, the national regulatory and supervisory authorities developed their own strategies with regard to the future priorities, according to their statutory attributions.

Having in view the size of the consequences of the FSAP measures' adoption and implementation process,



respectively of such a large number of Regulations and Directives, in July 2000, ECOFIN set as its main objective the creation, until 2003, of the Single Capital Market in EU.

At the same time, FSAP represented the starting point for the complex and difficult integration process of setting up the Financial Services Single Market, subsequently supported by launching a new approach in the legislative and regulatory framework of this field. This new approach, known as *Lamfalussy Architecture*<sup>(2)</sup>, after the name of the president who founded this committee – the baron Alexandre Lamfalussy, was based on the recommendations of the Committee of “*Wise Men*”, as a premise of the supervisory practices convergence.

### **1. “Lamfalussy Architecture” – a new framework for the consolidation of the supervisory practices’ convergence within EU**

As we already mentioned, a new approach has been developed, under the name of *Lamfalussy Architecture*, in order to increase the efficiency of the EU legal framework, to respect the FSAP terms and to expand the convergence of the supervisory practices, both by enhancing the quality of the legal framework and of the regulations on financial services, and by improving the consultation process.

The new model<sup>(3)</sup> applied, for the first time, in 2001, on the capital market (CESR) was also extended in 2004 for the banking market (CEBS) and, respectively, for the insurance and pensions market (CEIOPS), following the ECOFIN decision in December

2002. Setting up this architecture was the result of many discussions on the identification of the most adequate institutional structure able to improve the quality of the rules specific for each sector of the financial market, and, at the same time, to provide the efficiency of the supervision activity for these markets within EU. This new institutional formula was founded on the principle of the necessity of supervision and regulation to adapt to the dissimilarity of the national markets, in the detriment of some opinions supporting the idea of setting up a single regulatory and, respectively, supervisory authority in EU. Therefore, the main purpose of this new approach was to conceive and transpose in practice an efficient mechanism for making the convergence within the supervision of the European financial market, a prerequisite for setting up a community flexible legislative system to answer promptly to the market’s evolutions.

According to this new approach, the legislative process has been structured as follows:

*Level 1.* Setting up the main core principles and defining the prerogatives for their implementation, through regulations and directives. These are adopted through the co-decision of the EU Council of the European Parliament, subsequent to the consultation process developed in the spirit of the best practices related to regulation.

*Level 2.* Adopting the measures for implementation, consisting of technical details on the applicability of the directives. The implementation measures are advised, as a preliminary, by the competent

regulatory committees, respectively CEBS<sup>(4)</sup>, CESR, CEIOPS (*Level 3 Committees*), following the procedure of consultation of Level 2 Committee, respectively European Securities Committee, European Banking Committee and European Insurance and Occupational Pensions Committee (ESC, EBC<sup>(5)</sup>, EIOPC). Within the procedures related to this level, the European Commission has in view the position adopted by the European Parliament.

*Level 3.* Intensification of the cooperation between supervisory authorities, based on the Level 3 Committee's (CEBS, CEIOPS, CESR) Guidelines, with a view to the current activity of the regulatory and supervisory authorities, common standards (where there is no community legislation) and recommendations regarding the directives and regulations. The activities regarding the comparison of the regulatory practices, carried out at this level by the 3 committees, also improve the implementation process.

*Level 4.* Intensification of the application of the *acquis communautaire* (European Commission)

Of course, the *Lamfalussy Architecture* results in benefits for the traditional process of legislation, including, without being exhaustive, a more constant interpretation of the community legislation, a better convergence of the national supervision practices as well as an intensified increase of the quality of the legislation regarding the financial services.

2007 also represented the moment when the benefits from the Lamfalussy procedure were reviewed, as provided by Directive 2005/1/CE (which introduced a new

organizational structure for the 3 committees in the financial services' field, beginning with March 2005). We would like to mention that this obligation is in accordance with the above mentioned directive and the deadline is the end of 2007.

In the recent years, the EU financial markets went through few major changes, such as: the acceleration of the integration process; the extend of the activity of the financial institutions over the borders; the amplification of the process of concentrating the markets at the same time with increasing the complexity of the financial products and innovations; the intensification of the mergers and acquisitions processes both at a cross-border and inter-sectoral level etc. Moreover, the recent turbulences demonstrated, on one hand, the markets' interconnectivity, and, on the other hand, the necessity to adapt the EU supervisory framework to the markets' reality.

In this context, in October 2007, the ECOFIN Council agreed the idea of intensifying the efforts to improve the financial stability within EU. Therefore, reviewing the *Lamfalussy Architecture* is a necessary step in achieving this goal. The moment of the *Lamfalussy Architecture*'s review appeared in a context which justifies the necessity of developing this process, having in view the consequences of the decisions following this assessment, but also implies the taking into consideration of the characteristics of each sector where the new vision on the legislative process has been applied.

The reports of the European Parliament and of the Inter-institutional Monitoring Group (IIMG), as well as the official positions

adopted by CEBS, CEIOPS and CESR, communicated to the European Commission, and the Position of ECOFIN<sup>(6)</sup> reveal the general conclusion according to which the results of the Lamfalussy process are positive.

## 2. The assessment of the “Lamfalussy Architecture” results

*The European Commission Communication<sup>(7)</sup> issued at the same time as its presentation of the conclusions revealed from the assessment of the Lamfalussy Architecture, according to which although the process has mostly reached the settled objectives, states the fact that it is still necessary to make certain significant changes meant to increase its efficiency, regarding the functioning of the Level 3 Committees, as well as the contribution brought to the enhancement of the cooperation and convergence in supervisory activity. Also, according to the European Parliament Report<sup>(8)</sup> from 2007, the Lamfalussy process has significantly contributed to the development of a much more flexible regulatory system, and also to the establishment of the appropriate conditions for a better cooperation and convergence in the supervisory field. At the same time, the decisions are being taken much faster and in a more efficient manner. The conclusions registered in the above mentioned reports are completed by those from the Final Report (the third) al IIMG<sup>(9)</sup>, which was published on the 15th October 2007.*

This report<sup>(10)</sup> examined the functioning of the Level 3 Committees and assessed their capability to generate the desired results

when given the challenges which should be handled, but also the existent dysfunctions. It also presented the recommendations which were necessary in order to improve the process of issuing regulations and applying them. Therefore, when focusing on the conclusions referring to the functioning of the Level 3 Committees, from the mentioned report, in our opinion the following main areas can be distinguished:

- *Progresses*: on account of the recognition of the progresses registered by the Level 3 Committees, regarding the consultancy activity, as well as the cooperation and convergence in supervisory activity, the continuation of the integration process of the European financial markets and the changes brought to the regulatory framework point out the improvement of these committees’ activity, when referring to the obtained performance as well as possible fields in which they could get involved.

- *Challenges*: the Level 3 Committees should serve as a platform, their objective being to facilitate both the coordination in the regulatory and supervisory activity, as well as to promote new supervisory instruments and methods which should contribute to the enhancement of the trust between the national supervisory authorities. Therefore, the following objectives could be regarded as being most important:

- Contribute to full and high quality implementation of the EU legislation by giving technical assistance to national competent authorities, including the issue on implementing guidelines as a pre-condition of achieving a consistent application of EU law across Member States, as well

- as the identification of any legislative or practical obstacles to cooperation.
- Enhance supervisory convergence and cooperation: the Committees should identify any duplications or gaps in supervisory practice or, in specific fields, as well as to identify opportunities for delegation of tasks.
  - Improve cross-border group supervision in the banking and capital market sectors. Thus, the concept of lead supervisor/consolidating for large cross-border groups and financial conglomerates needs to be more precisely defined and take into account the potential financial and political impacts.
  - Facilitate market infrastructure/ transactions oversight: the Committees should serve as a platform for exchange of information between national supervisors on a range of issues including national markets, cross-border activities and specific technical expertise.

■ *Equipment*: the Level 3 Committees should be provided with a clear EU mandate, complemented by an annual working program, which should be endorsed by the European Parliament, the Council and the European Commission, and also with a sufficient legal basis covering their activities. At national level, a clear requirement to cooperate at EU level and to support the EU convergence process should be included in mission statements of national regulatory and supervisory authorities. *We would like to underline the fact that this IIMG recommendation was endorsed by the ECOFIN Council in October 2007, when the*

*Member States were invited to decide upon the opportunity of including an EU component to the mandates of the national supervisory authorities.* Also, the decision making procedures of the Level 3 Committees should differ depending on the type of activity. Another important issue which should be taken into account is the necessity of an uplift of the committees' financial means and resources in order for them to be able to perform their tasks. As a result, the current model of financing may need to be revised accordingly.

■ *Crisis management*: the analysis of the relationship<sup>(11)</sup> between the supervisory activity and the evolutions registered in the crisis management field exceeds the IIMG mandate. Thus, the improvements made to the crisis management arrangements, in the last years, have had direct implications to the supervisory activity. On account of the pivotal role that these authorities have in detecting crisis situations, we must not forget the conclusion regarding the lack of a watertight separation between the phases of crisis prevention and crisis management.

Considering this issue, we find as being notable the extension of the Level 3 Committee's guiding role, from the involvement in the well functioning current activities towards the one targeting the cooperation on crisis management, as it results from the Common Guidelines<sup>(12)</sup> issued by CEBS and the Banking Supervision Committee (BSC) within the European Central Bank.

The rhythm of Lamfalussy process differed within the 3 sectors (banking, capital market and insurance), as it can be seen from the scoreboard of the transposition process

at EU Member States level, both for the Financial Services Action Plan Directives (FSAP)<sup>(13)</sup> and for the Level 1 and Level 2 Lamfalussy Directives<sup>(14)</sup>, published on the Commission website and updated twice a month.

Although there are certain differences regarding the rate of transposition, based on the conclusions of the European Council drawn in December 2007 concerning the review of the *Lamfalussy Architecture* and on the self assessment of the three Level 3 Committees, the Chairs of CEBS<sup>(15)</sup>, CEIOPS and CESR have embraced a common stand when referring to the necessity of consolidating the outcomes. In this regard, the following common priorities were settled for the future activity:

- Home-host cooperation, with emphasis on the establishment of a common framework for the delegation of supervisory duties;
- Consistency of the regulatory and supervisory framework regarding the treatment of the “rival products”, such as the investment funds and the insurance policies;
- Self-regulatory standards and regulatory approaches coordinated towards the rating agencies;
- Consistency in the issue of the requests for the internal governance, which result from different directives;
- Financial conglomerates;
- Assessment of the financial illiquid instruments, based on the weaknesses discovered during the recent turbulence of the market.

In completion of these, each of the 3 Committees has settled its own priorities,

from which, following the purpose of the present study, there will be mentioned the ones settled by CEBS for the banking industry:

- The contribution for the reviewing of the Directive concerning the capital Requirements: Capital Requirement Directive (CRD).
- Actions to take as a result of the turbulence of the market, with emphasis on: the supervision of the liquidity risk; increasing the transparency of the exposure towards the structured financial products; the enhancement of the standards regarding the assessment of the illiquid financial instruments; weaknesses of the market in the field of the default credits and the so called “monoline” risk.
- The endorsement of the efficiency of the process for the EU Single Market, with emphasis on the continuous development of the operational structure for the purpose of improving the functioning of the colleges of supervisors and the supervision of the cross-border groups, the implementation of a uniform reporting framework, the solving of certain aspects which derive from the implementation of the Pillar 2.

Thus, it is shown that the moment chosen for the implementation of the detailed analysis of the *Lamfalussy Architecture*, more precisely the end of the year 2007, was fully justified, for it was a critical point in the establishment of a new approach in supervision and regulation activity, so that these two, combined, could actively

contribute to removing of the remained barriers for the implementation of the convergence of supervisory practices, a precondition of an efficient supervision.

The assessment of the *Lamfallusy Architecture* contributed, on one hand, to the identification of those components which did not function according to the expectations and the actions taken for their improvement, and on the other hand, to the establishment of a new approach within each of the levels of this architecture.

Given the context, in our opinion, the results of the *Lamfallusy Architecture* assessment indicate, when referring to the component on which the present study focuses, the necessity of reviewing the mandates of the Level 3 Committees (CEBS, CEIOPS, CESR) and, on this basis, of the decisions regarding their establishment, which is a precondition of the enhancement of the supervisory practices in all the sectors of the financial services market. This reviewing should not imply the detailed description of tasks or the setting up of an exhaustive task list, but rather it should concern the following key coordinates:

- The elimination of constant dysfunctions in the activity of these Committees regarding the convergence in the supervisory practices of the cross-border financial groups;
- The importance of developing a common culture in the field of supervision, by using adequate means

and by establishing the necessary instruments for accomplishing the statutory prerogatives;

- Emphasizing the role which these Committees could have in the EU financial stability;
- Stating in their mandates, the necessity of a cross-sectoral coordination of the regulatory activity, which is a condition for reaching an efficient and functional framework of the common activities performed;
- The clarification of the palette of available resources for each of them.

## Conclusions

In our opinion, the *Lamfallusy Architecture* is the main catalyst for the acceleration of the integrating processes of the EU financial markets. The implementation of this model will lead to a more efficient regulatory and supervisory framework within the financial markets, by removing the obstacles in the way of their integration into the Single Market. Setting up an EU Single Market also implies a thorough monitoring of the financial stability through a constant review of the regulatory and supervisory framework. At the same time, the crisis registered on the sub-prime mortgage market in the US and its impact on the European financial markets has confirmed the importance and the necessity of a constant review of the EU regulatory and supervisory framework.

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## Notes

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- <sup>(1)</sup> London Commission, Price Waterhouse Coopers and Oxford Economic Forecasting, Qualification of the Macro-economic Impact of Integration of EU Financial Markets, November 2002, ZEW and IEP- Zentrum für Europäische Wirtschaftsforschung and Institut für Europäische Politik, Report for the European Financial Services Round Table.
- <sup>(2)</sup> See [http://en.wikipedia.org/wiki/lamfalussy\\_process](http://en.wikipedia.org/wiki/lamfalussy_process).
- <sup>(3)</sup> Decision of the European Commission 2001/527/EC for setting up the CESR (the Committee of European Securities Regulators), Decision of the European Commission 2004/5/EC for setting up CEBS (the Committee of European Banking Supervisors) and, respectively, Decision of the European Commission 2004/6/EC for setting up CEIOPS (the Committee of European Insurance and Occupational Pensions Supervisors).
- <sup>(4)</sup> National Bank of Romania is member of CEBS.
- <sup>(5)</sup> National Bank of Romania is member of EBC.
- <sup>(6)</sup> Council Conclusions on Review of the Lamfalussy process – <http://www.consilium.europa.eu/Newsroom>.
- <sup>(7)</sup> European Commission, Communication on the review of the Lamfalussy process, Brussels, 20 Nov. 2007.
- <sup>(8)</sup> European Parliament, Report on Better Regulation in the EU, par. 18 and 19, 2007.
- <sup>(9)</sup> Inter-institutional Monitoring Group (IIMG) is a group which was re-established in 2005, as a result of the expansion of the Lamfalussy process, up to its present structure, as its name points out, being applicable to all the relevant areas from the financial field. The Group's mandate, which was given by the European institutions and which ends on the 31st December 2007, with the possibility of being extended and/or revised by the European Parliament, European Commission and the European Council, consists in “the assessment of the registered progress in the implementation of the Lamfalussy process in order to provide a more efficient regulatory system for financial services and to identify any possible necking within this process.
- <sup>(10)</sup> Inter-institutional Monitoring Group, Final Report Monitoring the Lamfalussy Process, Brussels the 15th of October 2007.
- <sup>(11)</sup> The assessment of the current of the EU framework regarding the prevention of the crisis is left to the European Council, under the aegis Economic and Financial Committee.
- <sup>(12)</sup> In 2006, CEBS and BSC founded Task Force on Crisis Management, in order to improve the cooperation arrangements for the management of potential financial and banking crisis.
- <sup>(13)</sup> See [http://ec.europa.eu/internal\\_market/finances/actionplan/index\\_en.htm#transposition](http://ec.europa.eu/internal_market/finances/actionplan/index_en.htm#transposition)
- <sup>(14)</sup> See [http://ec.europa.eu/internal\\_market/securities/transposition/index\\_en.htm](http://ec.europa.eu/internal_market/securities/transposition/index_en.htm)
- <sup>(15)</sup> CEBS was set up by the Decision of the European Commission from November the 5TH 2003, as being an independent consultancy group and which, given its status, provides the European Commission, on a regular basis, with reports regarding the recorded progresses. At the same time, CEBS is a private company financed by its members' contribution.

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- Decizia Comisiei Europene 2001/527/EC privind înființarea CESR (the Committee of European Securities Regulators), Decizia Comisiei Europene 2004/5/EC privind înființarea CEBS (the Committee of European Banking Supervisors) și, respectiv, Decizia Comisiei Europene 2004/6/EC privind înființarea CEIOPS (the Committee of European Insurance and Occupational Pensions Supervisors)
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# Gross or Net Settlement? What Type of Securities Settlement System Works Best?

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**Vasile Dedu**

Academy of Economic Studies, Bucharest

**Florian Neagu**

**Romulus Mircea**

Romanian National Bank

***Abstract.** The securities markets are going through material structural changes. Some best practices have been identified in order to deliver safety and efficient securities settlement systems. The paper investigates when gross settlement works better than the net solution. We highlight that, due to the new trends in securities markets characteristics, the safety criteria might deliver indifference between using gross or net settlement. The efficiency criterion is the one that makes the difference. We build a model and develop some scenarios in order to assess what type of settlement (gross or net) works best.*

**Key words:** securities; settlement; risk; efficiency; banks.

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**JEL Codes:** C15; G21; G29.

**REL Codes:** 7J, 11B.

## 1. Introduction

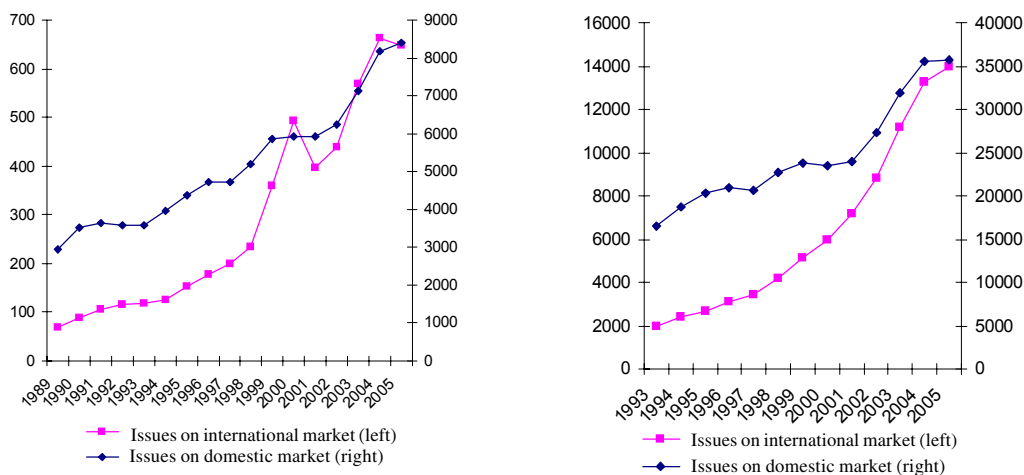
Safety and efficiency are the most important features to be achieved within a security settlement system (SSS). Best practices (BIS, 2001) recommend that settlement of securities transactions should take place on a delivery versus payment (DVP) basis in order to eliminate principal risk (securities are delivered, but payment is not received, or vice versa). Finality may be in real time, intraday, or at the end of the day. DVP models differ according to whether the securities or/and funds transfers are settled on a gross or net basis, and in terms of the timing of the finality of the transfers.

The most important SSSs use DVP1 (see Annex). If such DVP is in place, the finality always takes place intraday. We find no evidence that certain SSS characteristics (type of settled securities, number or value of transactions, number of participants) trigger a path towards gross or net use in the settlement process. We question if this is the most safety and efficient way to build an SSS, or we may find some room of improvement.

The securities operations, especially in the new segments, develop very fast. The

infrastructure might not keep the pace. Secondly, the risk of liquidity springs considerably. In such conditions, it is feasible, in terms of efficiency and safety, to embark the settlement into the same approach as in the plain vanilla operations?

Securities markets delivered important structural changes during the last decades. The most material are the following three, to our view. Firstly, the securities delivered higher trends than the banking assets, both in volumes and paces, but the focus in settlement remained especially on the payment (cash leg) systems. Secondly, the international securities transactions are more dynamic than the domestic ones (figure 1). The share of cross-border transfer with bonds and equities increased tens of times during the last decades. Thirdly, new instruments, very complex and with not-straightforward pay-offs, emerged and extended rapidly (OTC derivatives are the best example). These structural changes are so fast, that the infrastructure (legislation, netting procedures, settlement systems, etc.) is not able to keep the same pace. In the most situations, the same in-place infrastructure is used.



Source: BIS.

Figure 1. Debt securities issued on domestic and international markets (bln. USD)

The second part of the paper assesses that, from the safety net point of view, it is broadly indifferent if you settle net or gross. In the third part, we demonstrate that, if the efficient principle should be observed, the type of settlement should be tailored according to the SSS characteristics. The last part concludes the main ideas from the paper.

## 2. Safetyiness

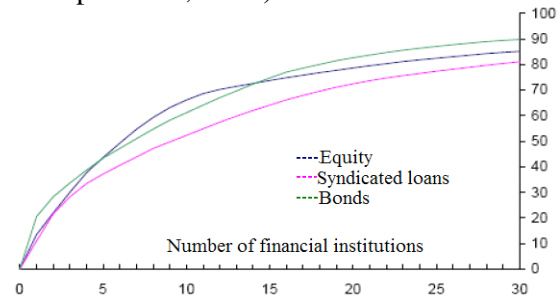
The employed type of settlement might not matter too much when the safetyiness is assessed. This conclusion is based both on the change in the quality of the participants, and in the risk profile of securities operations.

The role of systemically important participants in the SSSs is up trending. Banks largely involved in securities operations are the bulk of such kind of participants. These banks are more prone to deliver systemic risks, because: (i) usually these entities are the biggest banks in the world and (ii) they develop multiple connections through the securities operations. Marsh and Stevens (2003) or Wredenburg (2006) also underpin that banks involved in securities markets (brokerage, settlement etc.) have higher ability to trigger systemic implications.

For the most dynamic securities markets, we should add the characteristic of high level of concentration, which also add to the systemic risk. The top 8-10 dealers from credit derivatives markets count for 70% of the overall international total gross positions, and this market share was pretty constant in the previous years (Figure 2).

The top 10 dealers for the securities traded on international markets are responsible of around 75% of the operations,

with some sub-categories touching the limit (eg 96.6% for international US equities, 81.2% international European equities etc, Group of Ten, 2001).



Source: Gieve, 2006.

Figure 2. Financial markets concentration

Change in the risk profile is another characteristic that has surged in the securities operations. Most opinions refer to an atomization of risk (Knight, 2007, Borio, 2007). The innovation in the financial markets (delivered especially through complex securities channels) allows the unbundling and re-bundling of the payoffs. It is also true that the lack of transparency of these transactions is not an effective support of the idea of atomization and dissemination of risks along multiple participants. It might be possible to have atomization of risk, but there are no statistics to support clear evidence. In fact, as the recent financial turmoil are unfolding, other opinions (Trichet, 2007) highlight that, despite the fact that over the recent years credit risk transfer facilitated the risk sharing, credit risk ultimately resides in the financial system. In a large number of cases, the credit risk stood in the banking sector, through the commitment they still had to activate back up lines of conduits or structured investment vehicles. In other words, who is at the beginning of the chain of building up complex securities (and the banks are the

originators, in most cases), might not be so shielded against risks, even if the exposure is gone from the balance sheet.

Concluding, the banks largely involved in the securities operations are especially the systemically important ones, therefore choosing net or brut settlement in order to reach the criterion of safety does not matter too much.

### 3. Efficiency

We measure the efficiency of a settlement system in terms of (i) liquidity burden per transaction, and (ii) the value of average loss per transaction in case of a default.

Gross settlement systems call for a critical mass of securities and adequate liquidity in order to reach an efficient functioning. The systemic risk in such SSS is lower because a transaction is not settled if the participants' accounts are not fueled with cash or securities. The problem that might rise is the lack of liquidity in cash or in financial instruments. The recent financial turmoil highlighted that liquidity risk is an issue that should be better tailored in the future.

Net settlement systems edge out the need for important intra-day liquidity needs, but the netting process might increase the systemic risk because each participant exposure is revealed at the end of the clearing process. The intra-day exposure is hidden, and the lack of liquidity

in cash or securities is unveiled only at the end of the day. Some solutions promote for several settlements during the same day.

In tranquil times, liquidity is just a matter of cost. In financial distresses, the evaporation of market liquidity (cash or securities) is very likely to occur. In such conditions, a SSS architecture that embarks in gross settlement might deliver material imbalances in the finality of the process, affecting efficiency. Borio (2007) singularizes that the new financial environment is more reliant on the availability of funding liquidity, and it might become scarce at time of distress. This is even problematic in the field of securities lending.

Therefore, there are situations where gross settlement costs might outpace the benefits, and we may not rule out the possibility of using net instead of gross settlement. In order to find out which typology of operations fits better the efficiency criterion, we use Guadamillas and Keppler (2000) methodology, adjusted for our specific needs.

Let us assume a market where act  $k$  banks as brokers/dealers. The matrixes below illustrate the characteristics for each type of settlement, i.e. gross (G), bilateral net (N) and multilateral net (M) system. The  $t_{ij}$  element represents the value of securities bought by bank  $i$  from bank  $j$ . Let also assume that  $t_{ij}$  is one operation (not the net of transactions between these two banks).

Matrix G					Matrix N					Matrix M
0	$t_{12}$	$t_{13}$	...	$t_{1k}$	0	$n_{12}$	$n_{13}$	...	$n_{1k}$	$m_1$
$t_{21}$	0	$t_{23}$	...	$t_{2k}$	$n_{21}$	0	$n_{23}$	...	$n_{2k}$	$m_2$
$t_{31}$	$t_{32}$	0	...	$t_{3k}$	$n_{31}$	$n_{32}$	0	...	$n_{3k}$	$m_3$
...	...	...	...	...	...	...	...	...	...	...
$t_{k1}$	$t_{k2}$	$t_{k3}$	...	0	$n_{k1}$	$n_{k2}$	$n_{k3}$	...	0	$m_k$
					$n_{ij} = \max\{0, t_{ij} - t_{ji}\}$					$m_h = \sum_{j=1}^k t_{hj} - \sum_{i=1}^k t_{ih}$

Each matrix shows the number and the value of settlement operations. In matrix N,  $n_{ij}$  is the net position of bank i against bank j. In matrix M,  $m_i$  is the net multilateral position of bank i against other credit institutions.

Table 1 reflects the number and the value of each type of settlement process. It is easy to prove that gross settlement systems come with the most complex pattern of transaction in terms of number

and liquidity needs. But we do not penalize these type of settlement in terms of liquidity burden (affecting also efficiency), because what matters more is the average liquidity needs per settling each transaction. In order to rank this burden, we compute the probability a certain type of settlement to deliver higher liquidity requirements than the other two, according to specific market characteristics.

**Number of settled operations and the liquidity needs**

Type of settlement	Number of affected settled operations	Value of affected settled operations
Gross	1	$t_{ij}$
Bilateral net	2	$t_{ij} + t_{ji}$
Multilateral net	2k-3	$\sum_{j=1}^k t_{ij} + \sum_{i=1}^k t_{ij} - t_{ij}$

Secondly, in order to assess the impact of one default, let us consider that bank i would not be able to deliver the cash or security leg to bank j at the settlement day.

As a consequence, the transaction  $t_{ij}$  will stay unfold. Table 2 summarizes the number and the value of affected transactions, according to the type of settlement.

**Number and value of settled operations affected by one default**

Type of settlement	Number of settled operations	Value of settled operations
Gross	$k(k-1)$	$\sum_{i=1}^k \sum_{j=1}^k t_{ij}$
Bilateral net	$k(k-1)/2$	$\sum_{i=1}^k \sum_{j=1}^k n_{ij} = \left( \sum_{i=1}^k \sum_{j=1}^k  t_{ij} - t_{ji}  \right) / 2$
Multilateral net	k	$\sum_{h=1}^k  m_h  = \sum_{h=1}^k \left( \sum_{j=1}^k t_{hj} - \sum_{i=1}^k t_{ih} \right)$

In order to find which solution embarks better in the efficiency criterion, we tailor 11 scenarios tested on 100,000 hypothetical cases each. To capture the variety within the SSS characteristics (type of settled securities,

number of participants etc.), we test the influence of small and large banks, considering the value dispersion of the settled securities, the share of small and medium banks in the SSS, the number of

participants. The results of liquidity constraints for each type of operation are presented in Table 3.

If the SSSs settle many types of securities (bonds, CD, government securities, equities, other), then gross settlement should be implemented (e.g. scenario 7 or 8).

If new and complex securities (we include here the OTC derivatives, too) should be settled, then the bilateral net procedures might be the best solution (e.g. scenario 1). Therefore, it is more probable to face a situation like  $(B) < (G) < (M)$ , due to the material level of concentration, and the important values traded by the largest banks.

If the government bonds market is characterized by high dispersion in values, then gross settlement should be used

(scenario 9, 10 or 11). On the other hand, if the market is very homogeneous, then bilateral net settlement is the most efficient solution (e.g. scenario 6). The same outcome we reach when the number of participants is low, or the weight of operations settled by small and medium banks in the total settlement is humble.

Where there is a high dispersion in the value of the settled securities, in most cases the value per transaction is the lowest for bilateral net settlement. In the opposite corner is the multilateral net settlement. This high dispersion appears when there are a few banks that trade large value securities (comparing to the average), or the value of securities lies on a large array (e.g. the system allows several types of securities in the settlement process).

The scenarios (values of default per transaction)

Table 3

No. scenario	A	B	C	D	E			
1	10	0	10	10	20	1	2	(B)<(G)<(M), in 96% of situations (B)<(M)<(G), in 4% of situations
2	10	0	10	85	90	5	10	(G)<(B)<(M), in 93% of situations (B)<(G)<(M), in 7% of situations
3	10	0	1000	85	90	5	10	(G)<(B)<(M), in 91% of situations (B)<(G)<(M), in 9% of situations
4	10	0	1000	85	90	3	4	(B)<(G)<(M), in 99% of situations (G)<(B)<(M), in 1% of situations
5	10	0	1000	50	60	1	100	(G)<(B)<(M), in 99% of situations (B)<(G)<(M), in 1% of situations
6	100	0	10	85	90	3	4	(B)<(G)<(M), in 100% of situations
7	100	0	100	85	90	5	10	(G)<(B)<(M), in 100% of situations
8	100	0	100	85	90	1	100	(G)<(B)<(M), in 100% of situations
9	100	0	1000	85	90	5	6	(B)<(G)<(M), in 51% of situations (G)<(B)<(M), in 49% of situations
10	100	0	100	50	60	5	10	(B)<(G)<(M), in 61% of situations (G)<(B)<(M), in 39% of situations
11	100	0	100	85	90	5	10	(G)<(B)<(M), in 100% of situations

Legend:

A = number of participants in SSS

B = interval of variation for the value of securities settled by small and medium banks

C = interval of variation of the share of small and medium banks in the overall banks participating in the SSS

D = interval of variation for the value of securities settled by large banks (calculated multiplying the average value of the securities settled by small and medium banks with the coefficients presented in the columns)

E = the hierarchy of the average value of default per transaction. In such way, we computed the value of settlement

per transaction for (G) gross, (B) bilateral net and, (M) multilateral net settlement, where:

$$(G) = \frac{\sum_{i=1}^k \sum_{j=1}^k t_{ij}}{k(k-1)} \quad (B) = \frac{\left( \sum_{i=1}^k \sum_{j=1}^k |t_{ij} - t_{ji}| \right) / 2}{k(k-1)/2}$$

$$(M) = \frac{\sum_{h=1}^k \left( \left| \sum_{j=1}^k t_{hj} - \sum_{i=1}^k t_{ih} \right| \right)}{k}$$

The next step is to find out which type of settlement (gross or net) delivers the highest value of losses per transaction when a default occurs. We compare the results obtained for reducing the liquidity burden with the outcome delivered when we focus

on abating the level of risk. In Table 4 we identify, for each of the 11 scenarios, the average probability of default and the Sharpe ratio (mean/variance) for each type of settlement to deliver higher losses than the other.

#### Average probability of default according to the type of settlement

Table 4

No. scenario	Comparison between the following lines of Table 2								
	Solutions for settlement between (G) and (B)			Solutions for settlement between (G) and (M)			Solutions for settlement between (B) and (M)		
	Mean	Variance	Mean/ Variance	Mean	Variance	Mean/ Variance	Mean	Variance	Mean/ Variance
1	0.4945	0.0440	11.237	0.4543	0.0279	16.3050	0.4589	0.0349	13.1371
2	0.4811	0.0744	6.4620	0.3168	0.0682	4.6446	0.2763	0.0846	3.2681
3	0.4506	0.0710	6.3434	0.2940	0.0713	4.1242	0.2599	0.0879	2.9583
4	0.4506	0.0710	6.3453	0.4090	0.0600	6.8196	0.3673	0.0695	5.2818
5	0.4504	0.1269	3.5488	0.2757	0.0985	2.7993	0.3779	0.1123	3.3662
6	0.5406	0.0523	10.3289	0.4939	0.0351	14.0730	0.4307	0.0434	9.9265
7	0.5091	0.0523	9.7280	0.3684	0.0523	7.0481	0.2845	0.0702	4.0515
8	0.5091	0.0518	9.8288	0.0884	0.0504	1.7540	0.1611	0.0912	1.7654
9	0.5057	0.0524	9.6600	0.4197	0.0449	9.3446	0.3283	0.0593	5.5402
10	0.5072	0.1173	4.3228	0.3666	0.1555	2.3575	0.4407	0.2105	2.0935
11	0.5091	0.0523	9.7314	0.3684	0.0522	7.0520	0.2846	0.0702	4.0539

Legend:

The scenario number is the same as in the Table 3.

The values for settlement in the cases (G), (B) or (M) represent the losses per unit that might occur in the case of a default in the context of using (G) gross, (B) bilateral net or (M) multilateral net procedures. The net values per unit in each of these 3 situations are computed dividing the column 3 to column 2 from Table 2, for each line. In the computation process, we reach a matrix of values (apart from Table 3 where the outcomes are values). For each matrix, we compute the mean and standard deviation of the elements.

The mean represents the average probability that the first solution for settlement scratched in the table to be the lower than the second (i.e. (G)<(B), or (G)<(M), or (B)<(M)). A small value for the mean reflects that the average probability of the first solution of the settlement process is lower than the average probability ascribed to the second solution.

The variance and the Sharpe indicator have been computed for each of the 3 matrices.

Table 4 highlights that, if a default occurs, the probability to loose participating in a multilateral net system is higher than in other situations. The extreme case is accounted when there are

many participants in the SSS, a large fan of securities to be settled, and a large palette of the securities values. For this described situation, the multilateral net system should be strongly avoided. The

loss encountered in the gross settlement system is quite the same as in the bilateral net system. The results maintain the decisions formulated when considering the minimization of the liquidity burden.

#### 4. Conclusions

Although securities markets face important structural changes, the infrastructure used to settle these operations might have not kept the pace. Banks largely involved in security business are usually of systemically importance. That is way, from a financial stability point of view, the criterion of safety

ness in choosing gross or net settlement do not matters too much. The efficiency criterion is the key. We assess it from both the liquidity burden point of view, and the level of loss encountered when a default occurs. We conclude that, for the most dynamic segments of the securities markets (i.e. new and complex financial instruments, and cross-border large value transactions), it should be implemented a DVP3 procedure (or a DVP4 – gross settlement for cash leg and net settlement for securities leg). The same idea goes when the number of participants in SSS is low. When the type of securities settled is eclectic, gross settlement should be in place.

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## Features of selected securities settlement systems

System	Type of securities*	Settlement of cash leg**	Securities settlement (delivery)***	Intraday finality****
Belgium				
NBB SSS	B, C, G, O	G	G	Yes
CIK (FMS)	E, O	N	G	Yes
CIK (EMSS)	B, E, O	G	G	Yes
Euroclear Bank	B, C, G, E, O	G, RTGS	G, RTGS	Yes
Canada				
CDSX	B, G, E, O	N	G	Yes
France				
RGV2				
Irrevocable channel	B, C, G, E, O	RTGS	RTGS	Yes
Revocable channel	B, C, G, E, O	N	G	Yes
Germany				
Clearstream Banking Frankfurt	B, G, E, O	N, RTGS	G, RTGS	Yes
Hong Kong SAR				
CCASS	E, O	N, RTGS	G, RTGS	No
CMU	G, O	G, N	G, N	Yes
Italy				
LDT	B, G, E, O	N	N	No
Monte Titoli	B, G, E, O	nap	RTGS	Yes
EXPRESS II	B, G, E, O	N, RTGS	N, RTGS	Yes
Japan				
BOJ-NET JGB Services	G	RTGS	RTGS	Yes
JASDEC	O <sup>(1)</sup>	RTGS	RTGS	Yes
	E <sup>(2)</sup>	N	RTGS	No
	E <sup>(3)</sup>	N	N	No
Netherlands				
Euroclear Netherlands	B, G, E	RTGS	RTGS	Yes
Singapore				
DCSS	B	G	G	Yes
CDP	E, O	N	G	Yes
MEPS	G	RTGS	G	Yes
Sweden				
Stockholmsborsen	O	N	N	Yes
VPC	G, E, O	G, N	G	Yes
Switzerland				
SECOM	B, G, E, O	G	G	Yes
United Kingdom				
CREST	B, C, G, E, O	RTGS	RTGS	Yes
United States				
NBES	G, O	RTGS	RTGS	Yes
DTC	B, C, E, O	N	G	No

## Legend:

\* Bonds (B), certificates of deposit (C), government securities (G), equity (E) and/or other (O).

\*\* Gross (G), net (N) or real-time gross settlement (RTGS).

\*\*\* Final transfer of a security or financial instrument: it can either be gross (G), net (N) or real-time gross settlement (RTGS).

(1) From January 2006, in addition to commercial paper, corporate and other debt securities are eligible for JASDEC;

(2) For equities traded outside the exchanges and cleared via the JASDEC DVP Clearing Corporation;

(3) For exchange-traded equities cleared via the Japan Securities Clearing Corporation.

Source: BIS, 2007

System	Number of transactions (million)	Value of transactions (USD billion)*	Average value per transactions (USD thousands)*	Total number of participants
Belgium				
NBB SSS	0.3	6390	24024	94
CIK	1.0	201	194	81
Euroclear Bank	27.0	191780	7113	1497
Canada				
CDSX	66.0	nav	nav	76
France				
Euroclear France	32.9	207330	6306	184
Germany				
Clearstream Banking Frankfurt	47.3	48623	1029	369
Hong Kong SAR				
CCASS	43.3	2052	47	480
CMU	0.0	852	21739	307
Italy				
LDT	nav	nav	nav	nav
Monte Titoli	1.2	nav	nav	2174
EXPRESS II	25.3	65234	2576	129
Japan				
BOJ-NET JGB Services	3.3	147008	44092	335/351**
JASDEC	61.4	nav	nav	277/65***
Netherlands				
Euroclear Netherlands	3.0	1183	394	57
Singapore				
DCSS	0.0	4	1138	44
CDP	203,881	123	0	1278
MEPS	0.0	340	7511	111
Sweden				
Stockholmsborsen	141.8	503	4	100
VPC	13.0	14514	1116	42
Switzerland				
SECOM	22.5	8571	381	437
United Kingdom				
CREST	68.8	162110	2356	43051
CMO	nav	nav	nav	nav
United States				
NBES	22.4	368897	16499	1319
DTC	263.0	148200	563	334

Legend:

\* converted at yearly average exchange rates.

\*\* book entry/registration system

\*\*\* equities/commercial paper

Source: BIS, 2007.