Sources and Portofolio for Sustainable Development Financement

Mihail DIMITRIU
Victor Slăvescu Centre for Financial and Monetary Research, Bucharest, ROMANIA

Key words: *sustainability, financial durable development, financial sources, financial resources*

Abstract: The process of globalization drives, in inevitable mode, to the re–thought (the conceptual reconstruction) of the finance paradigm the growth and economic development to economic level. The challenge erect, on aside, of this exhaustion and the qualitative deterioration of the funds (especially natural), and, but then of our model or optimization – maximization of objective function – if of nature to advertisings a modification radically an options and middles wherewith tackle this important activity: the financial economic activity.
He is obvious, in the same time, the fact that the financial economic activity don't else can be see in itself, as a module governed of a discreet distinct rationality, with a consistent and sufficient logic. The logic and rationality finance is due to accepts, below the pressure of global problems, a permanent communication and fundamental with another logics of severally and social behaviour (praxis). Plus, these are due to accept the possibility and the desirability revaluations, the reposition or just resubstantiate, in the light of new paradigms concerning the economic process (inclusively paradigms for the time being, academically, such as the entropic model).
All one nameable excelsior drove otherwise, to the appearance the concept specialized scilicet one developmental (or breed) durable. Through durable development is apprehended, in the sense most general, an optimal inter generations development (his developmental economic model of actual generation to don't endanger the conditions for economic develop for next-generations).
The durable development (or durable growth) is conditioned direct of the funds of same category, that is of the durable funds[1]. Our object is, as in the conditions amplification of the phenomenon of globalization, to research a special resource for the assurance of the growth (development) economically scilicet the financial resource. This research funds from the view durable development (growth) shall us drives to the proposal and the conceptual development, methodologically and technological what shall name financial sustainable resource. The concept of financial sustainable resource shall generate on considerations considering the sustainable sources of financial funds. Plus, it is important than the financial sources for the sustainable development are the financial sustainable sources for development.
Isn't a simple wordplay but is the word about the accentuation of the degree of depth whereat must insured

[1] Currently, it is a terminological crossing nice and slacks between durable and sustainable with all that at least conceptual exists an obvious difference

the feature of sustainability. Because, just as is shall demonstrated, the financial resource (and, on way of consequence, the source of financial resource) represent one among the foundations for the economic process, is natural as the attention to is directed to this assurance the foundation below the appearance of sustainability, can talked to certain rightfulness and confidence about sustainable economically process (system).

1. The concept of financial source

From the view of sustainability of economic process, the financial resource is output specify of the financial source (or, rather, of the source of financial resource), thence, leading, truly, it is to identified the existence (the conditions of existence, criteria of identification, criteria of sufficiency and of must, the mechanism of operation etc.) and sustainability for this source. The present section is stiff this problematic.

You try, therefore, to arrange about the concept of source of finance[2]. The intuitive meaning of this concept is that carry sends to a device (of institutional nature, certainly) that carry produces the financial resource. Therefore, the financial resource, just as we showed hereinbefore, is one of the output of economic process, don't is presented the research worker (and, certainly, nor direct onlooker or the actionably agent directly) therefore, but just as the of a potentiality financial sources. Scilicet, the financial resource don't represents, generally, than a local update (as much temporally how much and in space) of a potentialities financial sources. In this contexts, is can said that the financial source denotes the institutional mechanism (the institutional scheme) through is generated the financial resource, on the strength of output convert economic process in cause, in currency.

The most important significations for the suggested definition for the concept of financial source[3] were next:

a. The financial source is a mechanism, namely a system of interactions oriented and convergent toward an aims: generated the financial resource;

b. The involved mechanism of the concept of financial source is an institutional mechanism, scilicet he is projected, implemented and, possibly, checked up[4] by the targets (speak all through about encoding targets and not about informal targets. Evident, that targets can be inducted so economic system and of the process (the system) itself (practice, exists a coherent mix of this two sources of targets);

C. The involved mechanism of the financial source is some necessary the economic process. This means that the economic process is “endowed” in necessary mode (compulsorily) with such institutional device that to generate the financial resource pursuant and on interval for development of economic oneself process. The conclusion is that it appears impossibly as the an economic process to don't disposes of a such device of generate the financial resource;

D. The involved mechanism of the financial source represents a specific interface (of informational and formal nature) with economic environment in which is developed the economic process in question. This means that, just as we specified still more high, the generation of financial resource is output or cooperation among the economic process (the system) in question and economic environment (in large sense) in which operates that process. Otherwise, can, just, tell the fact that the financial source is a mechanism wherewith output of economic process is converted, on the strength of an economic specific grammar, in financial resource.

Conclusively, directing to the fact that, in a exchangeable monetary saving of, how its are all the modern economies, the financial sequence for the output of a economic process is the sequence that is enjoyed eldest preference (pursuant, how is known, liquidity maxims keep it in report with another categories of assets, therefore, pursuant to the minimum cost of involved transaction of this match[5]), is can said, just as we proposed already, that the financial source represents the mechanism wherewith the output economic process is converted to the most liquidity part: The currency. It is an important question, which wants discuss, in the aim completion of the definition of financial source. Really the financial source monetizes just output of economic process? Answered is, obviously, positive. Indeed, although the financial source can generate financial funds and on the strength of the saving (is from past, is from future of example, through banking credit) or on the strength of the broadcast of his share at large debentures, and these possibility of

---

[2] Sometimes we shall use, in perfect substitutable way, and the concept of financial source, or more rigorous, source of financial resources.

[3] Obviously that the financial source isn’t a component for economic process or economic environment, but he represents “output” of an interaction among the economic process and economic environment. Scilicet, the financial source represents an element of interface among process and his environment.

[4] „Controlling” and not „inspection”

[5] The involve cost of the utilization of that assets

generate the financial resource of the by-path, logically, all transforms of output (in large senses, of) the economic process.

For instance, a banking credit is output sale credibility (solvency, profitableness, liquidity etc.) the process (of the system) in question; The acquirement of financial funds through the issuance of share represents the transformation in currency, through sale, of proprietary law of the process (of the system), according as the acquirement of financial funds through the sale of debentures represent the transformation in currency (sale) economic profitableness of the process (of the system) analysed. The condition for this assurance conceptual homogeneities of the definition of financial source (carry assures and her simplicity, in the same time, willable in a thing scientific fundamental research) is, certainly, the acceptation of extensive concept of an output the process (system) economically to average his economic. On the basis of a such the extensive concept concerning output[6], is can accept the idea that the financial source else than to convert in this currency output.

2. The sufficient and necessary conditions for sustainable financial sources

2.1 Conceptual preliminaries

On the strength of the significations known of the concept of sustainability, as well as on the strength of the definition of the source of financial funds, is can tackled the concept of sustainable source of finance or sustainable financial source. This means, in substance, to discover the characteristic which needles, added to one recognized to the financial usual his which source, getting one specificity what were ascertainable, he confers the financial source the character of sustainability.

In this subchapter shall concern us the conditions on which carries out them (or, if it is the word about a desideratum, the conditions on which burn be due to carry out them) a sustainable source of finance (or, what is equivalent, a sustainable financial source). It is easy to noticed the fact that, just as put the problem, it is discussed about the settlement of necessary conditions and sufficient which has them a sustainable financial source.

First, we shall specify the concept of sufficient conditions. Through sufficient conditions of a ale financial sources, where through this to become sustainable financial source, is apprehended the which conditions, once certified, transforms the financial source in a sustainable financial source or, from the view analyst, permits as the financial source to is consider, lawfully, a sustainable financial source. Logically, if we note with SFS a sustainable financial source and if note with $\mathrm{M}_{\mathrm{CS}}^{\mathrm{SFS}}$ the field of sufficient conditions which transforms a financial source in a sustainable financial source, therefore is can written: $\mathrm{M}_{\mathrm{CS}}^{\mathrm{SFS}} \rightarrow \mathrm{SFS}$, waves with $"\rightarrow"$ notes the logical implication. Scilicet, the “equipped” of financial sources with the predicates contained of the field $\mathrm{M}_{\mathrm{CS}}^{\mathrm{SFS}}$, does as that financial source to become a sustainable financial source.

Secondarily, we shall specify the concept of necessary conditions. Through necessary conditions of a sustainable financial sources apprehend the conditions on which verifies them, obligatorily, such source. Logically, if we note with $\mathrm{M}_{\mathrm{CN}}^{\mathrm{SFS}}$ the field of necessary conditions of such for financial sources, therefore is can written: $\mathrm{SFS} \rightarrow \mathrm{M}_{\mathrm{CN}}^{\mathrm{SFS}}$ Thence, a sustainable financial source is shall characterized through all the predicates on which contains them the field $\mathrm{M}_{\mathrm{CN}}^{\mathrm{SFS}}$.

In principle, $\mathrm{M}_{\mathrm{CS}}^{\mathrm{SFS}} \subset \mathrm{M}_{\mathrm{CN}}^{\mathrm{SFS}}$, because, if it is a predicate in $\mathrm{M}_{\mathrm{CS}}^{\mathrm{SFS}}$ which don't find in $\mathrm{M}_{\mathrm{CN}}^{\mathrm{SFS}}$, therefore it must accepts the fact that, lawfully, it isn’t a sustainable financial source. This means that, from functional viewpoint, once a financial source (SF) verifies the predicates from $\mathrm{M}_{\mathrm{CS}}^{\mathrm{SFS}}$, becoming SFS, then she gets a series of new features (predicates), generated of new state of financial source, which predicates don't find among one of the field[7] $\mathrm{M}_{\mathrm{CS}}^{\mathrm{SFS}}$. If we note with $\mathrm{M}_{\mathrm{PN}}^{\mathrm{SFS}}$ the multitude of new predicates which gets them a

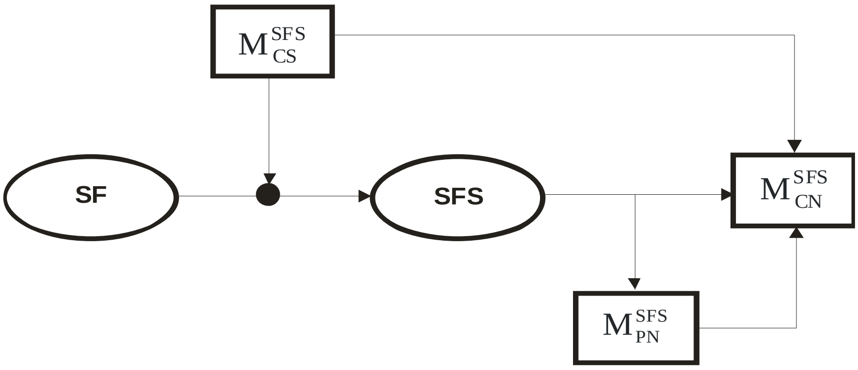
[6] It is sufficient, for instance, to considered the really output of an economic process (system), any impact which the process (system) in question has it about economic environment or about the zone of directly impact from the natural environment, all the same formally of demonstrate that impact: goods, jobs, information, positive or negative externalities, unemployment’s (or absorption of labour), inflation (or deflation or disinflation), concentrate of property (or homogenize), pressures for settlement (or for de non settlement) etc.

[7] It is a typical example of synergy effect or, haw else it says, effect of domination system

financial source through her crossing to the state of sustainable financial source , therefore is can written: $M_{CN}^{SFS} = M_{CS}^{SFS} \cup M_{PN}^{SFS}$.

It is a certain element (a predicate about SF), p_{CS}^{i} from the field M_{CS}^{SFS}. That is $p_{CS}^{i} \in M_{CS}^{SFS}$, waves "I" is it a counter. Then, we have with must the following relation of appurtenance: $p_{CS}^{i} \in M_{CN}^{SFS}$ or, in another term: $\left(p_{CS}^{i} \in M_{CS}^{SFS}\right) \rightarrow \left(p_{CS}^{i} \in M_{CN}^{SFS}\right)$. In the same time, it can (although isn't compulsorily) to have an element (a predicate about SFS), or else many such elements, p_{CN}^{j} from the field M_{CN}^{SFS}, that don't appurtenance to the field M_{CS}^{SFS}, that $p_{CN}^{j} \in M_{CN}^{SFS}$ and, in the same time, $p_{CN}^{j} \notin M_{CS}^{SFS}$. Certainly, the reasoning is rigorous just if put a condition for the field of counters that counts the elements of p_{CS}^{i} mode, respectively, p_{CN}^{j}. If we note with "I", the field of indexes for the predicates p_{CS}^{i}, and with "J" the field of indexes for the predicates p_{CN}^{j}, therefore, $i \in I$, respectively, $j \in J$, therefore the condition shall be: $j = i + 1$.

Schematically, the one say hereinbefore is can present thus:



The 1st diagram. The logic of sufficient and necessary conditions for sustainable financial source

2.2. The settlement of sufficient conditions[8]

We suppose that it is a financial source, an institutional device able to convert an output of the economic process in coin. We develop our demarche in the hard nucleus direction of sustainable financial source assure (all the same as a matter of fact that this financial source operates to level economic - for instance, a firm, financially or none financially - or to macroeconomic level - for instance, the fiscal device of the cabinet). This direction is necessary in the aim to identify the most general characteristics, from the view of the sufficiency, such that, through desirable singularized, to obtain the sufficient conditions of sustainability for a financial source.

On the strength of all the results obtained by now, we consider that a list of the predicates (a list of elements for field M_{CS}^{SFS}) that to assure the sustainability of generic financial sources burn can be necessary. You build this list, firstly, from the view of all actors concerned in the assurance of sustainable the growth and development, just as they were these analyzed previously. Then, you synthesize the list of which predicates enforced, from the view of the sufficiency, for the financial oneself source.

2.2.1. List of sufficient predicates for the elements which support the economic process

A. List of sufficient predicates for economic process itself

1. The integration of economic involved process

- Notation of the predicate: ${}_{PE}I$;
- Definition of the predicate: the capacity of economic process for delivered output that absorbed by economic environment in which is develop the process in question (scilicet, the output of economic process

[8] We consider that, logically, the order must be sufficient conditions, necessary conditions, because, at least in the case discussed here, from methodological viewpoint, the sustainable financial source still don't exists, she must be becomes. But, for transform the financial source in the sustainable financial source, it is necessary to verify the sufficient conditions

represent the element of the solvable economic demand)[9].
- Function of the predicate: the assurance, on a horizon of predictable time, possibility or the output transform in coin (scilicet, this the predicates assures the essentially condition for operation of financial source);
- Quantification: the relative determination of the turnover economic process.
2. The competitive economic process involve

- Notation of the predicate: ${}_{PE}C$;
- definition of the predicate: the capacity of economic process delivered output that is considered, in economic environment for this process, as having little mid-term substitutes or, to limit, as having a high cost of relative opportunity for his substitution[10];
- Function of the predicate: the assurance, on a horizon of predictable time, of the certainty convertibility output in coin (scilicet, this the predicates assures the essential condition for the operation, without the risks or minimum risks, of financial source);
- Quantification: elasticity of output substitution for economic process involves.

B. List of sufficient predicates for economic resource

B.1. For non financial economic resource

1. Isomorphism for the nature[11]

- Notation of the predicate: ${}^{nf}_{RE}IN$;
- Definition of the predicate: recover, at least at grade qualitative of the economic specific efficiency, for those two categories of economic resources in the structure of output;
- function of the predicate: the assurance, on a horizon of predictable time, of human capital and the know-how capital (which capitals assures the active resources for process, that is those which resources trains, according to the specific production function all the other economic resources improve in the process;
- Quantification: factorial efficiency (in the case of the resource of management, efficiency is established through specific missions of audits performance).
2. Functional isomorphism[12]
- Notation of the predicate: ${}^{nf}_{RE}IF$;
- Definition of the predicate: the assurance, through three components of output, exertion of these function components, for the next economic cycle;
- function of the predicate: the avoiding, on a horizon of predictable time, of possible shock pursuant to the non superposition of structural needfulness output modification with the structural effectiveness output modification;
- quantification: maintain the marginal rates of substitution between the economic resources of process, depending on concrete output from each economic cycle, in feasibly interval from technological normative and economic view point.
B.2. For financial resource
1. Isomorphism of speed
- Notation of the predicate: ${}^{f}_{RE}IV$;
- definition of the predicate: the assurance that the transform of economic output in coin (all the same of the multi cycle concatenation in the economic process in this cause or between the many correlate functional economic process) inside of a temporal gap which assures the absence of non finance risk

---

[9] The signification of this predicate is, rather, that output of economic process must be convergent with the demand of environment economic, or, still, process output must be on the list of economic objects which compose the demand from economic environment. In this sense, the predicate can be named the convergence of economic output process with demand of economic environment, but the integration term can be most proper with the nameable significations, so shall keep them

[10] It isn't a monopoly situation! With all these, must mentioned the fact that the monopoly carries out in necessary this way condition, without as she is sufficient condition of monopoly, what verifies the considerations due previously (to the chapter 2, pct.2.1), as regards the relations of inclusion among M_{CS}^{SFS} and M_{CN}^{SFS}. In the same time, it is obvious the fact that the feature of competitively can be considerate a specially monopoly (the monopoly about the minimum cost of chose for instance)

[11] The predicate is just for the human resource and the managerial resource

[12] The predicate is just for the material resource, the informational resource and the formal resource

- function of the predicate: the avoiding, on a horizon of predictable time, of possible shock pursuant to non superposition of structural modification of needfulness input with the structural effectiveness output modification;
- Quantification: temporal gap without risk of non finance[13]

C. List of sufficient predicates for economic environment

C.1. Fiscal-budgetary system

1. Transparent fiscal-budgetary system

- Notation of the predicate: ${}^{sfb}_{ME}\mathrm{T}$
- Definition of the predicate: the predictability[14], without costs of transaction (or to costs of which transaction represents least costs of opportunity) of the decisions of fiscal and budgetary politics, on a horizon of time on term at least average (existence of a fiscal-budgetary strategy on terms at least average or of a budgetary frame on term at least average);
- function of the predicate: the assurance, on a horizon of predictable time, possibility taking in the calculus of the strategy of economic process, of respective decisions (through the anticipation impact, respectively through the construction by process, proper reaction functions to these decisions);
- quantification: the minimization of the unexpected loss to the level of economic process.

2. Competence[15] anti cycle for fiscal-budgetary system

- notation of the predicate: ${}^{fb}_{ME}\mathrm{Cac}$
- definition of the predicate: the institutional capacity and practicability of fiscal-budgetary system (of the ministry of domain), acted (took institutional decisions) anti-cycle or to counteracted, partial or total, the pro-cycle effect of actions from other institutional actors;
- function of the predicate: the assurance, on a horizon of predictable time, against formation of vicious cycle (on the strength of the reactions of positive feed-back), as much in the sense of the growth of economic process and in the sense of their diminution;
- quantification: indicator formally disinflation[16] for diverse macroeconomic variables, real or symbolic

3. Fiscal domination degree

- notation of the predicate: ${}^{fb}_{ME}\mathrm{DF}$
- definition of the predicate: valence, in the matter of the politics of macroeconomic adjustment, the rules and fiscal targets, in report with objective and the monetary targets[17];
- function of the predicate: the correlation of the dynamics of the coin supply (that is the monetary sources[18]) with the dynamics of the deficits of public sector;
- quantification: “accommodation” degree of monetary policy to fiscal policy.

C.2. Monetary – banking system[19]

1. Transparent monetary-banking system[20]

---

[13] With the stock age of material funds case or with the optimization portfolio of active case, because it is a minimize of the cost of timeliness generated of the appearance risk of non finance

[14] The transparency of fiscal politics and this predictability, from the view of economic process, is perfect interchangeable notions

[15] The term of competence don't is adverted to common stipulates from the norms of organization and operate of an institutional structures date, but he has a signification capacities of the nature potential, effective ability to act. This the term must seed in the light in which the loss, of the monetary politics (with Romania adhesion to UE), of own competence (of the independence) to act anti cycle, he leaves this obligation of macroeconomic adjustment on the expense of fiscal politics.

[16] We use the “disinflation” term (take over from the monetary phenomenology) as regards any quantitative macroeconomic indicator (real or monetary), with the sense of diminish the speed of variation (diminish the speed of growth, if the phenomenon in question is ascending, respectively reduce the speed of diminution, if the phenomenon in question is some descending).

[17] The fiscal domination enters in economy what is appointed a non ricardian model (as opposed to the ricardian model, which involves a monetary domination)

[18] Through monetary source apprehend a monetary basin, for instance, a bank, irrelevantly with output of the process in question and, feasibly, irrelevantly direct with no output of any economic process from average economic. The financial source, conversely, has a direct connection and, sometimes, exclusive with a certain economic process (even if he holds a certain autonomy in report with this), be a personalized source

[19] This express, slightly else unusual, is fated to figure in the concept as much the central how much bank and the banking commercial system

- notation of the predicate: ${}^{mb}_{ME}T$;

2. Financial stability monetary-banking system

- notation of the predicate: ${}^{mb}_{ME}CB$;
- definition of the predicate: the institutional capacity and practice of monetary-banking system (in first of all central bank), projected, implement and check up the banking consolidation;
- function of the predicate: the assurance, on a horizon of predictable time, a financial discipline, as well as the assurance against formation of monetary substitutes (arrears, euro banking), violation of the norms concerning financial discounts etc.;
- quantification: specific indicators which to measure the tendencies (trends) of various elements which presents the stabilities, stationeries, reaction functions etc.

3. Monetary sterilization degree

- notation of the predicate: ${}^{mb}_{ME}SM$
- definition of the predicate: the weight of sterilized average monetary mass, on a horizon of predictable time, in total monetary mass from economy;
- function of the predicate: the prevented movement of the curve LM[21] in response to the variation of monetary mass (supply coin), variation determined, in main, of the net fluxes of capitals to la economic boundary;
- quantification: the calculus respective coefficient of sterilization

C.3. Extern payments balance

1. The cover degree of the current account deficit through public external debt

- notation of the predicate: ${}^{bpe}_{ME}DPE$
- definition of the predicate: the weight of contracting public external direct debt in the covering accounting deficit of current account;
- function of the predicate: the assurance, on a horizon of predictable time, of the autonomy of the fluxes of capitals, to the economic boundary, such that adjustment external equilibrium to depend the less quotient of the intervention of public external direct indebt ness;
- quantification: the calculus respective coefficient of covering.

2.2.2. List of sufficient predicates for financial source

On the strength of the established predicates, from the sustainable view, for the mains "actors" which play in sustainable financial source interval, we establish, now list of predicates which verifies these predicates to become a sustainable financial source.

First of all, it is necessary a systematization and an abstraction for established predicates excelsior, in the aim identified predicative which features to transform a financial usual source into sustainable source. Is useful also, the evaluation of the signification on which among these predicates has it from the sustainable view on which is called generate or preserve. We achieve this examination in the likeness of a centralizer table.

The 1st table

The agreement/disagreement among the variation of the predicates and sustainable variation

Crt. no.	„The actor"	Sub domain	Predicate	Symbol of predicate	Variation of predicate	Variation of sustainable assigned	The signification of the correlation
1	Economic process		Integration	${}_{PE}I$	growth	growth	concordance
					decrease	decrease	
2			Competition degree	${}_{PE}C$	growth	growth	concordance
					decrease	decrease	

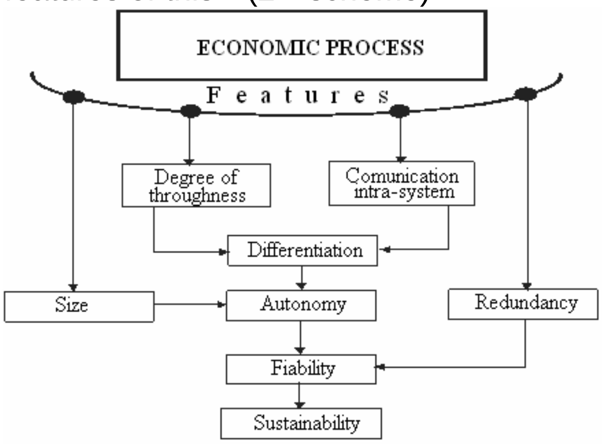
---

[20] All this features the predicates (with the exception of the notation) are analogue with same name from the fiscal system, with only discrepancy that is adverted to the monetary politics and of monetary credit

[21] LM Curve (Liquidity-money) models the monetary politics, rather, the equilibrium among supply and demand on sale monetary. The movements of the LM curve, generate of the appearance of gap between the supply and demand of coin, generates variations output (GDP) and the instalment of the interest, with impact about macroeconomic intern equilibrium

3	Economic resources	financia l resourc	Isomorphism for the nature	${}^{nf}_{RE}IN$	growth decrease	growth decrease	concordance
4			Functional isomorphism	${}^{nf}_{RE}IF$	growth decrease	growth decrease	concordance
5		ial re	Isomorphism of speed	${}^{f}_{RE}IV$	growth decrease	growth decrease	concordance
6	Economic environment	Fiscal – budget system	Transparent	${}^{fb}_{ME}T$	growth decrease	growth decrease	concordance
7			Anti-cycle competence	${}^{fb}_{ME}Cac$	growth decrease	growth decrease	concordance
8			Fiscal dominated degree	${}^{fb}_{ME}DF$	growth decrease	decrease growth	discordance
9		Monetary-banking system	Transparent	${}^{mb}_{ME}T$	growth decrease	growth decrease	concordance
10			Financial stability	${}^{mb}_{ME}CB$	growth decrease	growth decrease	concordance
11			The degree of monetary sterilization	${}^{mb}_{ME}SM$	growth decrease	decrease growth	discordance
12	the econo		The degree of cover the deficit of current account through public external debt	${}^{bpe}_{ME}DPE$	growth decrease	decrease growth	discordance

Secondarily, we say that, in substance, the sustainable is a species from a large kind, the reliable ness. Sequence in sequence, the reliable ness of the process (system) is depending on the many features of this[22] (2nd scheme).



The 2nd Schema. The conceptual frame of generate the reliable ness (sustainability)

Therefore, the process (the system) can be had four "atomic" features (predicates) the size M (the level, possibly, quantitative), degree of through ness A (the developmental structural domestic degree), the communication intra-system C (the informational capacity dissolved the perturbations of feed-back positive type) and the redundancy R (the property had parallel constitutive, homo-functional). Conjunct degree of through ness with the communication intra-system generates the predicate differentiation D (A kind of customize the process, in economic environment), the conjunct differentiation with the size generates the predicate autonomy I (degree of functional independence in report with economic environment) and the conjunct autonomy with the redundancy generates the predicate reliable ness F witch, without else search distinctions too analytic, is associated with the predicate sustainability S. We can conclude about:

a. Any process has a number of basic predicates (atomic predicates) and we consider that they are four one mentioned excelsior;

b. Another predicates of the process are compound predicates (units) from the basic predicates or, after case, from compound predicates of inferior ranks;

c. The reliable ness (sustainability) or a process is his maximal predicate, which maybe a compound predicate of orders 1, 2, 3 etc., depending on the nature of the analysis process

The logical calculus of the compound predicates for an economic process (system), on the strength of his

---

[22] We develop and we personalize, here, a suggestion from Emil Dinga, Inertial phenomenon in the economic process, Economic publishing house, Bucharest, 2001, 109 p.

simple predicates, up to the acquirement of the feature of sustainability, is next:

$$(A \& C) \rightarrow D;$$
$$(M \& D) = (M \& (A \& C)) \rightarrow I;$$
$$(R \& I) = (R \& (M \& (A \& C))) \rightarrow F \leftrightarrow S$$

Obviously, the strength or the intensity (either the degree) for each compound predicate is depending on the strength of atomic predicates components (or of the strength of compound predicates of inferior ranks, after cases).

In thirdly, we develop, supplementary, the concept of financial source. Is obvious, we expect from all what we presented by now, that through financial source we apprehend an institutional device, a mechanism destined to convert an economic output process (don't matters if he is the word about the economic level or macroeconomic level) in coin. We explained already, the fact that indifferent if the transforming in coin is adverted to current output (possibly physical) or to one future (for instance, a credit) or just to the credibility of the process (of the system) economically (what is all output, in the last resort), the financial device in cause operates after same general these general principles. The principles for the financial source are adverted to next:

a. the financial source is free, from structural viewpoint, and functional, in report with the economic process. Explanation: It is sufficient as the financial source to assure the informational circuit between output of process and the monetary source wherewith is achieved the transformation of output in coin; in this sense, it is possible as a financial source to ascribable for many process, frequently correlated functionally (on horizontal line or on vertical);

b. the financial source is, as a matter of fact, a scheme of finance. Just as we specified still more high, the financial source, as scheme of finance, comes into existence to the interface among the economic process and economic environment. Explanation: The financial source carries out a communication function sui-generis, assuring, au fond, the “metabolism” of economic process, in the monetary form;

c. The financial source isn’t unique for an economic process, this have else many financial sources which can operate concomitant or alternative; or redundant[23]; here we have, from theoretical viewpoints, financial atomic sources (that is elementary which sources build a direct connection between output of economic process and the monetary source) and financial molecular sources (units of financial atomic which sources communicates between they in the attempt assured the economic resources which to take again the economic loop of the process in question). Explanation: The network of financial sources must assure minimizing risk of non finance.

Fourthly, on the strength of the previous elements, we extract next predicates which populated the field M_{CS}^{SFS}

1. The analytically (A) represent, with a certain degree, as good as a feast of big of institutional and functional structure for the source of finance. The analytically can advert to "informational the competence" of financial source (for instance, to upkeep a databases considering the monetary sources from economic environment), or to the multitude possibility of combine the monetary sources from economic environment, in the aim built ad, a scheme of finance feasible[24]; the analytically can be, as a matter of fact, a measure for a structural complexity of financial source in cause;

2. The communication intra source (CIS): is adverted to the capacity of financial source for processing, in a temporal acceptable aisle (ideal burn be real-time) any information look, below all the appearances, the transformation of the process output in coin. Here, through intra source it is shall apprehended always a molecular source, therefore, the communication intra source is equivalent, logically, with the communication inter atomic financial sources;

3. The relative autonomy (AR) of the financial source in report with the process (the aspect were identified and to the level of principles project for a financial sources): it is needs this the predicates, because a complete dependency against process inducts the impossibility of financial source counteracted one possible syncopates in the phenomenology of economic process; this means that must accepted a logic interns a financial source (an own grammar) which, although has the economic process attributed as the one of the his free variables, operates, in the same time, relatively free;

4. The continuity (C) for the financial source is adverted to the feature of financial source to have no breaks

---

[23] The problem of the redundancy represents an elemental element of reliable ness of financial source (of sustainability for financial source). The possibly developments of this question is due to takes in the calculus, certainly, the cost of the redundancy, rather said, the cost of opportune ness for assurance of redundancy in finance

[24] Else, can refer, just frequently, to the portfolio of monetary potential sources, which the financial source can them activate (the financial source must be as such portfolio of possibility for convert output the process in coin)

in operation; the continuity of financial source is connected intimately with her relative autonomy[25];
5. The transparency (T) financial source: Is adverted to the feature financial sources were observable[26], from the economic environment view, and, pursuant, were predictable in what looked the decisions of converted output economic process in coin; The feature of observable is still more importance, certainly, from the view of "governmental inspector", because the transparency involves the legality and the regularity, that is the normative accordance of financial sources;
6. The financial source redundancy (R): Is adverted to the feature of financial source contained (pursuant his analytically) alternative devices for convert output the economic process in coin, what permits, how we shall see in the subchapter 2.3., to heads a feature (a necessary predicate) of alternatively, that is the possibility replaced a scheme of financed with another, depending on "drop" of a such schemes of finance, from various reason, of habit, externally the economic process, that is from economic environment of the process in question.
In fifthly, it is necessary the evaluation of the way in which the atomic predicates and compound predicates for the "actors" from the interval of economic process become sufficient predicates (atomic or molecular) for the financial sustainable source, that are the components elements for the field M_{CS}^{SFS}. For of such point out generative appearance, very important from methodological viewpoint, we draw up the scheme from the next table.

The 2nd table

Generative matrix for sufficient predicates of sustainable financial source

				Symbol	**A**	**CIS**	**AR**	**C**	**T**	**R**
The atomic predicates from out of financial source	PE		Integration	${}_{PE}I$				**x**		
			Competition degree	${}_{PE}C$			**x**			
	RE		Isomorphism for the nature	${}^{nf}_{RE}IN$				**x**		
			Functional isomorphism	${}^{nf}_{RE}IF$				**x**		
			Isomorphism of speed	${}^{f}_{RE}IV$				**x**		
	ME	${}^{fb}_{ME}(.)$	Transparency (1)	${}^{fb}_{ME}T$					**x**	
			Anti-cycle competence	${}^{fb}_{ME}Cac$						
			Fiscal dominated degree	${}^{fb}_{ME}DF$						
		${}^{mb}_{ME}(.)$	Transparency (2)	${}^{mb}_{ME}T$					**x**	
			Financial stability	${}^{mb}_{ME}CB$		**x**	**x**	**x**	**x**	**x**
			The degree of monetary sterilization	${}^{mb}_{ME}SM$				**x**		
		${}^{bpe}_{ME}(.)$	The degree of cover the deficit of current account through public external debt	${}^{bpe}_{ME}DPE$					**x**	
Atomic predicates for financial source	Size			M					**x**	
	Analytically			A	**x**					
	Communication intra system			CIS		**x**				
	Redundancy			R						**x**

[25] Among the sufficient conditions of sustainable financial source don't find the feature of efficiency (otherwise, how we shall see, this typically is shall discover among the necessary conditions gifts don't sufficient for sustainable financial source); this acknowledgement is consistent with the specifications made as part as study about to the fact that, in what concerning establishment and keeping the sustainability, the cost don't represents a variable of evaluation. Or, how is know, the efficiency represents an optimum between efficacy and cost. Here, as and in the case of governmental inspection for keeping of voluntary formation to the achievement of normative obligations, the turn-over (the efficiency) don't is put in usual terms, because both situations (the sustainability assurance, respectively the assurance of voluntary formation to norms) contain imponderable (as much to the input level and to the output level), which can't estimated in monetary field

[26] The observable term has the signification from the theory of the systems (rather, from the theory of economic cybernetics)

NB: Through the transparency (1) we noted the predicate in question for the fiscal system and through the transparency (2) we noted the predicate for monetary-banking system

To notice the fact that, from the view of the predicates of sufficiency outwardly the financial source, most „productive", in the sense of who has most large impact about the sufficient predicates of sustainability the financial source is the financial stability, and from the view of capacity for „gathered" the impact of the predicates of sufficiency outwardly the financial source, the predicate most productive, among the predicates of sufficiency sustainability the financial source, is one of continuity.

Thence, the multitude of sufficient predicates for a financial source sustainable shall be next:

$$\mathrm{M}_{\mathrm{CS}}^{\mathrm{SFS}} = \{\mathrm{A}, \mathrm{CIS}, \mathrm{AR}, \mathrm{C}, \mathrm{T}, \mathrm{R}\}$$

2.3. The settlement of necessary conditions

Just as we showed previously, once the conditions of sufficiency are certified, a financial source becomes sustainable financial source (SFS). In the same time, a sustainable financial source generates a series of predicates (necessary new or supplementation predicates) which, append the predicates of sufficiency, represents the multitude of necessary predicates of a sustainable financial sources. Therefore, it is important of analyses what necessary supplementation predicates can appear to a sustainable financial source and which is the logical of this generative activities post-factum (that is after the financial native source certified the conditions sufficiency on which presented them)[27]. In our opinion (and envisaging the conceptual specifications of by now), once a financial source becomes sustainable (through the verification of the predicates of sufficiency from the field M_{CS}^{SFS}) she develops a number of four another molecular predicates (composed), from the predicates of sufficiency. This new predicates (elements of field $\mathrm{M}_{\mathrm{PN}}^{\mathrm{SFS}}$) are stability, alternatively, efficiency and expectative.

1. The stability (S) is adverted to the SFS feature attenuated the shock generate of the variations to the interface among the economic process and economic environment and produced own output in the acceptable interval of variation;

- generated mode: combination of relative autonomy (AR) with continuity (C)
- logical calculus: $(\mathrm{AR} \,\&\, \mathrm{C}) \rightarrow \mathrm{S}$

2. The alternatively (AL): is adverted to SFS feature to "translate" in dynamic and real time way, between atomic elements of own structure, such that the transformation of process output in coin to the danger of possible accidents to the level of monetary sources from the portfolio of financial source;

- generated mode: combination of analytically (A) with the combination intra-system (CIS) and with redundancy (R)
- logical calculus: $AR \,\&\, CIS \,\&\, R \rightarrow AL$

3. The efficiency (E): is adverted to SFS feature to minimize the opportunity cost of transaction for transform an economic process output in the coin;

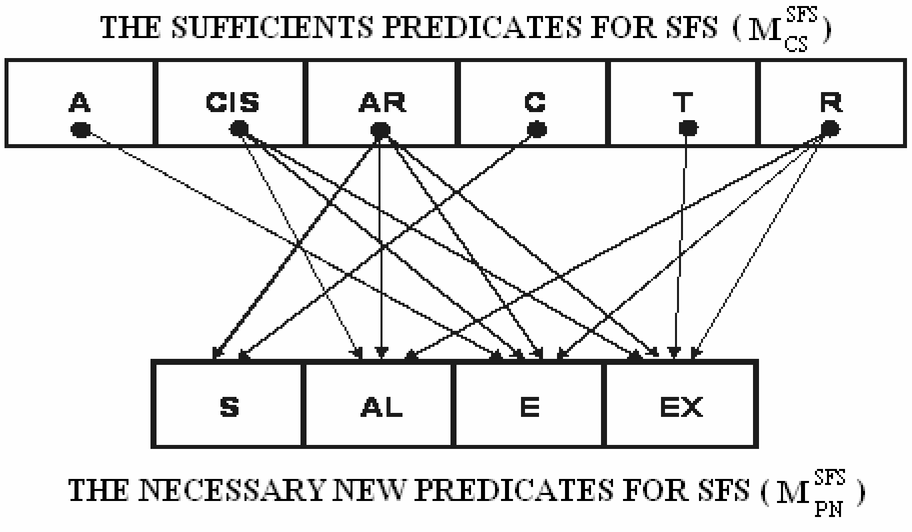
- generated mode: combination of analytically (A) with the alternatively (AL);
- logical calculus: $\mathrm{A} \,\&\, \mathrm{AL} \equiv \mathrm{A} \,\&\, \mathrm{AR} \,\&\, \mathrm{CIS} \,\&\, \mathrm{R} \rightarrow \mathrm{E}$

4. The expectative (EX): is adverted to SFS feature to anticipated the evolutions in the structure and the capacity of monetary sources and, just in the case of sustainable financial sources more complex (for instance, more analytically) to anticipated the evolutions in the case of oneself process whereat is distributed;

- generated mode: combination of alternatively (AL) with transparency (T)
- logical calculus: $\mathrm{AL} \,\&\, \mathrm{T} \equiv \mathrm{AR} \,\&\, \mathrm{CIS} \,\&\, \mathrm{R} \,\&\, \mathrm{T} \rightarrow \mathrm{EX}$

Next, we presented the diagram of generative process.

[27] We remind the previous notations: The field of sufficient predicates for a sustainable financial source $\mathrm{M}_{\mathrm{CS}}^{\mathrm{SFS}}$, the field of necessary predicates for a sustainable financial sources $\mathrm{M}_{\mathrm{CN}}^{\mathrm{SFS}}$ and the field of new predicates (supplementation) for a sustainable financial sources



The 3rd schema. Generative schema for the necessary new predicates of sustainable financial source

Thence, the field of necessary predicates of sustainable financial source will be:

$$\mathrm{M}_{\mathrm{CN}}^{\mathrm{SFS}} = \mathrm{M}_{\mathrm{CS}}^{\mathrm{SFS}} \cup \mathrm{M}_{\mathrm{PN}}^{\mathrm{SFS}} = \{\mathrm{A, CIS, AR, C, T, R}\} \cup \{\mathrm{S, AL, E, EX}\} = \{\mathrm{A, CIS, AR, C, T, R, S, AL, E, EX}\}$$

It is seen immediately the fact that $M_{CS}^{SFS} \subset M_{CN}^{SFS}$, what was a theoretical condition already previous named.

2.4. The consolidated and the alert in sustainable financial source

We showed previously the way in which the sufficient predicates of a sustainable financial source generates necessary new predicates which is added to the sufficient predicates formed the field of necessary predicates. Certainly, it is a question if these necessary new predicates (which don't are sufficient predicates), have some impact (and which namely) about the sufficient predicates and necessary[28]. By virtue the inertial intrinsic mechanisms of the any economic process (systems), it is suppose the fact that the necessary new predicates shall „seek” to keep the sustainable quality for the financial source in cause. We have therefore, here, a default „natural” mechanism for enforcement the sustainability, what prevents the invert commutation the financial source (from SFS in SF).

This sustainability element of sustainability is very important because assures all kinds of an order 2 of analyzing financial source. For this reason, from managerial viewpoint of check up of the behaviours of sustainability for the financial source) the degradation of four necessary new predicates or the appearance of vulnerabilities to their levels represented the first alarm signal considering the danger commutation inversely the sustainable financial source. In this context, the manager of the process (the system) in question must be establishes the „sentries” for sustainable financial source just four these necessary new predicates.

A possible dashboard of the manager of the process shall must, therefore, to comprise these predicates, among monitoring indicators with permanence characters. Thence, the four predicates have a double role: in fore rank (consolidates the sustainable of financial source (consolidation function) and, secondarily, flags the appearance vulnerabilities to the sustainable level of financial source (alert function). In the theory of the systems terms, the first function is of the negative feed-back sort, and second function is of the negative feed-before sort, because both follow continuations state of sustainable for the financial source, just that do it from different views: first function from the existing state, the second from the presumptive future state.

This logical of preserve status quo, as a matter of fact, for any system, is they natural or social (how is the case of financial source) is of big importance for the institutional designers of sustainable financial source, because the nameable functions (consolidation and alert) must does the part from the structural model of a such source. The structural aspect (what is responsible for direct commutation for financial source -$\mathrm{SF} \rightarrow \mathrm{SFS}$- and for the inverse commutation -$\mathrm{SFS} \rightarrow \mathrm{SF}$) must constituted the methodologically and technologically base for projection and maintain the sustainable financial source.

Obviously, the necessary new predicates (or the second order because are generated from the

---

[28] If we shall note with $\mathrm{M}_{\mathrm{CSN}}^{\mathrm{SFS}}$ the field of the necessary and sufficient conditions (of the predicates) for a sustainable financial source, it is obvious that we have $\mathrm{M}_{\mathrm{CSN}}^{\mathrm{SFS}} = \mathrm{M}_{\mathrm{CN}}^{\mathrm{SFS}} \cap \mathrm{M}_{\mathrm{CS}}^{\mathrm{SFS}}$

sufficient predicates) will act with any among two functions, in direct ways about the necessary order first predicates (identically, how is known, with sufficient predicates) which they generated them and just in indirect ways, mediated, about another necessary order two predicates. Therefore, we have, as much from the view of consolidation and from the view of alert about the appearance of vulnerabilities, reactions from the necessary order two predicates about the first order. It is interesting of pointed out the fact that, just as seemed, the „sentries" (the necessary order two predicates) are who take over the role of institutional interface with economic environment, on aside, and with the economic process, on of another part, while the necessary order first predicates pass in second plan of interaction with process and environment.

The obvious conclusion is that, as a matter of fact, the which predicates assures operationally sustainability (or functionally sustainability) of financial source are just the necessary order two predicates, while the necessary order first predicates (or, what is same thing, the sufficient predicates) are who assures structural sustainability for financial source.

2.5. About logical mechanism[29] for sustainable financial source

We shall tray to establish, on the strength of the logical calculus, what is can name the sustainability trail[30]. The sufficient predicates for sustainable financial source can be obtained, logically, on the many compound (molecular) paths. As a starter, we describe the compound (molecular) paths which come into existence the sufficient predicates (that is, still, the necessary order first predicates):

1. The analytically (A): $\mathrm{A} \rightarrow \mathrm{A}$. The analytically is the result of logical network for identity, she is an intrinsic predicate for financial source.

2. The intra system communication (CIS): $(\mathrm{CIS}) \& ({}^{\mathrm{mb}}_{\mathrm{ME}}\mathrm{CB}) \rightarrow \mathrm{CIS}$. The intra system communication is a result of logical conjunction among intra system intrinsic communication (from projection) for a financial source and the consolidation stage for monetary-banking system; we say that intra system communication is a cvasi auto referent predicate[31];

3. The relative autonomy (AR): $({}_{\mathrm{PE}}\mathrm{C}) \& ({}^{\mathrm{mb}}_{\mathrm{ME}}\mathrm{CB}) \rightarrow \mathrm{AR}$. The relative autonomy is a result of logical conjunction among the competitively of economic process and the consolidated stage of monetary – banking system;

4. The continuity (C): $({}_{\mathrm{PE}}\mathrm{I}) \& ({}^{\mathrm{nf}}_{\mathrm{RE}}\mathrm{IN}) \& ({}^{\mathrm{nf}}_{\mathrm{RE}}\mathrm{IF}) \& ({}^{\mathrm{f}}_{\mathrm{RE}}\mathrm{IV}) \& ({}^{\mathrm{mb}}_{\mathrm{ME}}\mathrm{CB}) \& ({}^{\mathrm{mb}}_{\mathrm{ME}}\mathrm{SM}) \rightarrow \mathrm{C}$. The continuity is a result of logical conjunction among the integration of economic process, natural isomorphism of economic resources, functional isomorphism of economic resources, the speed isomorphism of financial resource, the consolidated stage of monetary – banking system and the monetary sterilization degree from monetary – banking system;

5. The transparency (T): $({}^{\mathrm{fb}}_{\mathrm{ME}}\mathrm{T}) \& ({}^{\mathrm{mb}}_{\mathrm{ME}}\mathrm{T}) \& ({}^{\mathrm{mb}}_{\mathrm{ME}}\mathrm{CB}) \& ({}^{\mathrm{bpe}}_{\mathrm{ME}}\mathrm{DPE}) \& (\mathrm{M}) \rightarrow \mathrm{T}$. The transparency is a result of logical conjunction among the transparency of fiscal – budgetary environment, the transparency of monetary – banking environment, consolidated stage or monetary – banking system, finance degree of current account debt through extern public debt and the size of financial source (on depending of economic size process);

6. The redundancy (R): $({}^{\mathrm{mb}}_{\mathrm{ME}}\mathrm{CB}) \& (\mathrm{R}) \rightarrow \mathrm{R}$. The redundancy is a result of logical conjunction among the consolidated stage of monetary – banking system and the redundancy of financial source; as the communication intra system predicate, the redundancy is a cvasi auto reference predicate.

Taking count as fact that we talk about sufficient conditions of sustainability for financial source, can write:

---

[29] In practice, it is certainly important the institutional mechanism wherewith a financial source becomes sustainable financial source (and is maintained as such) but itself the institutional mechanism is based on the logical abstract mechanism, which tried in all the contents study, to put in evidence. Just as is know, otherwise, the essence of modelation in economy is the generation of logical model, the instrumental model (for instance, the one institutional) tested or calibrated the logical model.

[30] The problem is similar, as finality, with who is connected with the mission of audit. In this case, is established a so-called trail audit, which is adverted to the road (the succession of structural or operational links continuing with the mission of audit) which, once goed through, is assured the minimum risk in the objective realization of the audit mission in question. In like way, therefore, we can talked about sustainability trail (list and the logical succession of atomic his molecular predicates, from interval of financial source - the process, funds, environment - which generates the sufficient predicates for the sustainable financial source), which represent the which road, once followed, causes as a financial source to become a sustainable financial source.

[31] In the case of quasi predicates, as much negative and positive feed-back, have effects much more beside these effect inverse reactions in the case of the predicates non auto referent

$(A \,\&\, CIS \,\&\, AR \,\&\, C \,\&\, T \,\&\, R) \rightarrow S$

Therefore, this is what can name the sustainability trail in what looks financial source.

From qualitative viewpoint, put in evidence of the logic for form's sake the sufficient predicates for sustainable financial source (and, by default, the logic for form's sake the sustainability trail in matter), raises the next questions whereat in the future researches shall try to formulate answers:

a. The atomic predicates of the process, of economic resources and of economic environment have, certainly, degrees of update (for instance, the degree of fiscal domination, banking consolidated degree or monetary sterilization degree). Contextually, really the necessary predicates, which are logical conjunctions of graduated predicates, generate degrees of sustainability?

- our answered is not, if we accepted degrees of sustainability, it is undermined himself the sustainability concept. The sustainability, as opposed to optimization (which is variable in report of the criterion of optimization and of the involved restrictions), is a qualitative invariant of economic process, thence can't have graduate of foundation. The logical consequence of this result is that, if at least one of which predicates generates the sufficient predicates for sustainable financial source isn't certified, therefore logical formula of resultant predicate is false (this means that the sufficient predicate in cause isn't generate, so, the sustainability, in whole her, is suspended). Much more, it is sufficient as the least one of the which predicates generates the sufficient predicates for sustainable financial source is found out the interval of acceptable variation[32] where through, also, logical formula of resultant predicate is false;

b. Really the sufficient predicates of sustainable financial source don't can be generating of the logical conjunction of antecedent predicates but of their logic disjunction?

- our answered is not, and we propose two agreeable to arguments of our answer:

1. If is accepts the logical disjunction, therefore the quasi auto referential predicates can become auto referential predicates, what decrease from the capacity of compose of many antecedent predicates impact for the generation of sufficient predicates of sustainable financial source, plus this burn breeds very many from the vulnerability of sufficient generated predicates;

2. The logical conjunction, as opposed to the logical disjunction, permits a very important result scilicet the intersection among the effects of antecedent predicates, what drives to a result of structural nature scilicet to a hard nucleus of features for the sufficient generated predicate thus.

Of course, on base of logical formula of necessary order two generated predicates[33] it is possible to develop, now, logical way to describe the completely road for generated the necessary sustainability of financial source, combining generated of necessary order one predicates with generated of necessary order two predicates. But, these developments can be due of concerned reader.

Bibliography

Annicchiarico, Barbara and Nicola Giammarioli, 2004, Fiscal Rules and Sustainability of Public Finance in an Endogenous Growth Model, WP nr 381, august 2004, ECB.

Bansal, Pratima, 2005, Building sustainable value through fiscal and social responsibility, Ivey Business Journal, December 2005.

NBR, 2006, The financial stability report, Bucharest

Dinga, Emil (coord.), 2004, Economic deficit, project into Centre for Financial and Monetary Research – Victor Slăvescu, Romanian Academy, Bucharest

Dinga, Emil, 2005, Fiscal and Budgetary Sustainable Policy (in Durable Development Strategy – horizon 2025 project), Centre for Financial and Monetary Research – Victor Slăvescu, Romanian Academy, Bucharest

Greenwood, Daphne, 2001, Natural Capitalism, Growth Theory and Sustainability Debate, dgreenwo@uccs.edu.

Hees, Ted Van, Francis Lemoine and Arno Haegens, 2002, Putting Sustainable Development First: Why countries' ability to sustain debt should be assessed from a sustainable perspective? European Network on Debt and Development

Ikerd, John E., 1997, Toward an Economics of Sustainability, London

International Monetary Fund, 2006, Global Monitoring Report

International Monetary Fund, 2006, Global Financial Stability Report

International Institute for Environment and Development, 2001, Strengthening Demand: a Framework for Financing Sustainable Development

Meritt, Marks, 2001, The Unsustainability and Origins of Socioeconomic Increase, New York University

Mira d'Ercole, Marco and Andrea Salvini, 2002, Towards Sustainable Development: the Role of Social Protection, OECD

[32] This interval is presumed "preestablished" from the practice or the theory

[33] See also the 2.3th chapter

Takats, Elod, 2004, Banking consolidation and small business lending, WP no. 407, ECB.
United Nations, 1992, Agenda 21, Rio de Janeiro
United Nations, February 2002, Indicators of Sustainable Development, www.unorg./esa/sustdev/indisd/english/worklist.htm.
Yachnin & Associates, Sustainable Investment Group Ltd. and Corporate Knights Inc., 2006, The SDeffect™: Translating Sustainable Development into Financial Valuation Measures. A Pilot Analytical Framework
Yule, Valerie, Economic concepts for sustainable societies, http://www.isosconference.org.au