

The cycles of the dilemma

"Society does worse in manipulating its myths
than myths do in manipulating society."

Edgar Morin

From a principled point of view it is hard to establish the cause of the present economical crisis. And this not just because it is a global crisis. The analyses, from the scholarly to the emotional, blame everything on an excess of the human nature: greed. Searching for facts is a way of avoiding the possibility of looking for the root of the causes.

The dilemmatic part in the identification of the cause cannot be hidden. In fact, it is a double dilemma: should the cause be searched for in the murkiness of human nature or in the excrescences of human behavior? If we're attracted by emotional explanations, with a moralizing finality, we lose ourselves in the meanders of the first dilemmatic territory. If we strive to keep contact with the rational then we venture on the intricate paths of the second dilemmatic realm.

Either way, the explicative turbulences are unavoidable due to the diversity of the propensities. It makes no difference whether these are being stimulated, interested or lacking in self-consciousness. What is left behind is just the risk of not learning anything or of supporting a cyclical amnesia which is in counter-step with the economical cycles. When we benefit from the cyclical advantage, we forget that this will end, and when the energy of the economical cycle is spent our memory is belatedly restored.

The drama is in the impossibility of conciliating the ideality of human nature with the imaginative of human nature. The ideal which structures human nature should be touched by the creative imagination specific to human nature. Wanting for the better is realized as an act by wanting to be more.

In the economic perspective, power – as a motif of human nature – is attained through a value of the human condition: wealth. Which means that a method is replaced by an instrument, a vision by a phenomenon. The spirit is covered by matter.

The ideality, as a functioning form of the absolute, does not differentiate or discriminate. It is, essentially, the state of equilibrium reached only in the founding utopias. Mother nature does not calculate proportions. By nature, we are all equal. In exchange, the human condition – centered on wealth after the first modernity – obeys the centrifugal force – of a Paretian type – with regard to property, for instance. Postmodern society exhibits the law of "20 versus 80" and generalizes the Brzezinskian method of the tittytainment.

A serene state such as human nature cannot constitute the placenta of a cause for an economical crisis. No matter how much Pavlovian stimulation of the greed for spending through credits is done, the root of the crisis does not lie in the will for the better held by humanity. The will for more, trained on the principle of power legitimized by wealth, triggers the aggression of the human condition over human nature.

The present crisis is the derailing of human nature by the human condition, motivated by wealth-at-any-cost. The root of causes resides in forcing the principles, the methods and the instruments through which wealth-at-any-cost substitutes power-at-any-cost. The human condition as an universe of differentiation dislodges human nature as the initiator of the identifying with the proportions.

The global crisis brings to light a crossroads of human experience. A path opened by the mechanic and quantitative Enlightenment, got bogged down into its own residues and so, another path – that of the second modernity, with its sensible proportions between the human condition and human nature – gets woven into the universal conscience. The more it is insisted on going forward on the first path the crisis becomes more violent, the more the option is hurried on the other path, the crisis will be one of renewal – which makes it worth taking. All in all, economic cycles mirror the seasons: after the slumber and cold of winter the chores of spring follow together with nature awakening to exuberance.

Marin Dinu

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Corporate Rating. Multidimensional Perspective in the Context of the Differentiation in Terms of Localization Criteria. Empirical Perspective on Developed versus Emerging Countries

■

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***Abstract.** This paper focuses on corporate rating delivery process in terms of localization criteria differentiation. Corporate rating is conceived as a default predictor. We conduct a comprehensive study of the existing literature on the corporate default models, outlining the weak and the strong points, especially from the point of view of the methodology by which default threshold is identified. Both classical and modern theories are analyzed; the empirical perspective based on a case study on IT commercial companies is elaborated mainly in order to build up a practical approach on the corporate rating delivery process. Localization criteria is a key-element. There will be followed up a potential differentiation of the corporate rating rationale in terms of financial indicators contribution in accordance with the localization criteria. Corporate rating will be elaborated under the form of a score function using Multilinear Discriminant Analysis. The main preoccupation consists of revealing out potential differences of the corporate rating delivery process according to the localization criteria-emerging versus developed countries.*

Key words: corporate rating; structural models; default; risk exposure; emerging; developed.

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REL Codes: 11C.

1. Introduction

Financial globalization determined credit expansion. In order to accomplish their growth potential, companies have looked for new business segments and finance resources. In the context of the actual borderless world, capital flows have directed towards the most attractive spaces in terms of return. As higher return is equivalent always to higher risk, new techniques have been implemented in order to assess in a more accurate way credit risk.

Credit techniques are bi-dimensionally approached. They have been conceived both as a business development and risk mitigation modality.

Credit derivatives products have appeared as a necessity of credit support for business needs and also as a technique of risk protection/minimization.

Sophisticated finance structured products have been created in order to allow company to attract additional finance resources and also to protect from risk increase.

The actual financial crisis which is deeply rooted into the credit derivative products has drawn attention to the credit risk assessment. Rating agencies have been accused of not being able to predict in an anti-cyclical way corporate default. Once the crisis has appeared, downgrade of debtors has been initiated and self-achieving anticipations have become predominant.

Thus a deeper preoccupation for credit risk modeling is required, especially from the perspective of the implementation of a

powerful model, capable of absorbing enough significant financial information from the internal environment of the enterprise and also integrating it into variables correlated one to another in a statistical founded manner.

The motivation of the keen interest in the credit risk modeling is motivated by their support to portfolio management, credit derivatives pricing and bank regulation.

These three dimensions of the credit models supportive approach have developed precisely in the context of the investing activities at the global level, closely related to derivatives pricing.

As long as more powerful models and techniques will be implemented, default probability will be predicted and quantified in a more accurate manner and derivative price will be correlated with the real financial status of the debtor. Jumping downgrades will be avoided and investors will be more protected. Portfolio managers will base on a more valid model.

Bank regulation is supported by credit-risk models at the level of the capital requirements. Securitization allowed them to avoid excessive capital provisions in the light of Basel II, but meanwhile it determined excessive indebtedness and lack of liquidity.

The basic of all these relationships created between the multidimensional approach of credit-risk models derives from the correlation between credit, equity and business cycle. According to Choe, Masulis and Nanda (1993) theory, firms tend to issue more equity than debt in expansionary

periods of the business cycle. Baker and Wurgler (2002) consider that firms are more likely to issue additional equity when their market values are high relative to past market values, while Marsh (1982) and Taggart (1977) appreciate that firms prefer to issue equity when the value of equity is relatively high, and to issue debt when interest rates are relatively low.

It has already pointed out that there is a correlation between corporate rating and business cycle. Basel II agreement stipulated in 2001 that this correlation index amounts to 20% while in 2002-2003 it has been revised to 12%-24%.

This paper is structured as follows: the section 2 is dedicated to a literature review of the credit risk models, outlining their evolution, section 3 concentrates on the case study performed at the level of the IT commercial companies, section 4 focuses on discussions and section 5 includes final conclusions.

2. Theoretical foundation

Corporate risk default as financial phenomenon represents an interesting topic. The models that have been used within the financial literature in order to quantify the default probability are of three types: quantitative ones, based on accounting information extracted from the Financial Statements such as Balance Sheet and Profit and Loss Account and the structural ones, based on Contingent Claims Methodology which assess corporate risk default by the intermediary of the derivatives and Reduced Form Models which conceive corporate

default as a random variable which is not impacted by the financial structure of the company.

The first stage within credit-scoring models evolution is represented by the Beaver univariate analysis (1960) who considered corporate risk default probability is reflected mainly by the profitability and liquidity ratios.

But the whole financial literature reports on the Altman Z-score (1968) when it comes about credit scoring models; Altman integrated into a function 5 ratios expressing liquidity, solvency and profitability selected by the intermediary of the Multilinear Discriminant Analysis: Working Capital/Total Assets, Total Profit/Total Assets, Equity/Total Debts, Turnover/Total Assets. Having as threshold a value of 1.8, Altman considers that any company which is assessed by a score superior to this value will be placed out of the default danger area while an inferior score to this cut-off will be assessed as out this area.

Meanwhile financial analysts have contested the discrimination process of the ratios (Campbell, 2004).

Ohlson (1980) has elaborated his own model which includes the following ratios: $\log(\text{Assets})$, financial leverage, Working Capital/Current Liabilities, Turnover/Total Assets, Operational Cash-Flow/Total Debts.

Zmijeski (1984) considered that there were necessary only three of these financial variables – financial leverage, Working Capital/Current Liabilities, Turnover/Total Assets – and Shumway (2001) elaborates a corporate default prediction models based on the financial indicators of Altman and

Zmijeski to which he adds company history and the Standard Deviation of the return on equity and of the return on assets.

If Altman selected the financial variables based on the Multilinear Discriminant Analysis, Ohlson, Shumway and Zmijeski have resorted to probit regression regarding the score function build up which implies a dependent binary variable.

Apart from these models, the ones elaborated by Springate (1978), Conan and Holder, CA Score – 1987 model, Fulmer model (1984), Yves Collonques model (1) and Yves Collonques (2) can be added. Although at the global level scoring methodology had a validation rate of almost 75-90%, corporate default prediction using credit-scoring models is very difficult to be made in emerging countries such as Romania. On the other hand, specific credit-scoring models elaboration is difficult to be made in the context of the macroeconomic instability and the impossibility to apply corporate default legislation. From this perspective, there will be impossible to make a clear separation between profitable and falimentary companies. Nevertheless, the models created by Manecuta and Nicolae (1996), Băilesteanu (1998), Ivoniciu (1998), Anghel (2001). Credit-scoring models have been contested by the limited cut-off rationale (Crosbie, 2003).

From the theoretical point of view, an enterprise which has low liquidity, profitability and solvency ratios is considered to be within default danger area. Davydenko (2005) makes a research on the financial indicators which impact in an

essential way corporate default probability valorizing Moody's database CRD – Customer Research Database – and concludes that default probability is determined by alarming ratios. Building up regressions based on the corporate default probability and an assembly of financial ratios, he appreciates that there are enough cases when firms with low liquidity have managee to avoid default while firms with satisfactory liquidity have defaulted. Key-elements for corporate default modelling are considered to be external financing costs and assets value.

Thus although a firm can go through a liquidity crisis we can not appreciate clearly that it is within default area at a low cost.

The dilemma will consist of maintaining an acceptable level of assets, such as positive equity since risky firms imply high finance costs. As all the models imply a static perspective on corporate default, limited to the financial overview reflected into the Financial Statements valid for a certain moment in time, the need to insert the time variable into the quantitative models has been felt. Kahl (2002) elaborates a research based on a group of companies which are close to the corporate default threshold and concludes that only a third of these companies manage to survive independently while the other companies either disappear, are taken over or disappear. Consequently Saretto (2004) creates a model of corporate risk default assessment in a continuous way (Duration model), using financial ratios which reflect both book value – Working Capital/Current

Liabilities, Turnover/Total Assets, Equity/Total Debts and market value – PER. Having as reference a period of time t , it is considered that the enterprise may evolve differently: survival delimited by $S_t = 1 - F(t)$ the function or default – $F(t)$.

Based on the prediction accuracy – ROC and ROA curves it has been pointed out that this corporate default predictive model in continuous time predicts in a more powerful way corporate default in comparison with traditional credit-scoring models, both MLA credit scoring models and probit regression.

Accuracy prediction tests have highlighted out that differentiated credit-scoring models were less powerful than the standard ones implemented by Altman. In order to predict accurately default risk it has been acknowledged that credit-scoring models have to be used complementarily with the other quantitative structural models. Contingent claims models base on Merton model (1974) which focus on the research made by in 1973. Merton structural model aims at identifying default point (Bohn 2005). Statistical tests have outlined that default point may be conceived as:

$$\text{Total Assets} < \text{DTS} + 0.5 \text{DT}$$

where

DTS – short term debts;

DTL – long term debts.

Based on the models elaborated by Merton and Black and Scholes, there has been founded Contingent claims corporate default prediction methodology. In accordance with this theory (Dwyer, 2004), shareholders may consider that they possess

a call on the equity with a strike price equal to the face value of the debts and a maturity equal to the moment the debt is due:

$$E = V \times N(d_1) - e^{-r \times T} \times FN(d_2)$$

where:

E = equity value;

F = face value of the debt;

r = continuous riskfree rate;

$N(.)$ = normal standard cumulated distribution function.

$$d_1 = [\ln(V/F) + (r + 0.5 \times \sigma_v^2)T] / \sigma_v \times \sqrt{T}$$

$$d_2 = d_1 - \sigma_v \times \sqrt{T}$$

If at the maturity T , the value of the enterprise is superior to the debt value, creditors will be disreburced and shareholders will get the residual value, meaning $E = V - D$. But if at the maturity T the enterprise value is inferior to the debt, creditors will be disreburced only to the extent of the available liquidity and shareholders will invoke limited risk clause. In this case, equity is practically zero:

$$E = V - D = 0$$

One of the weak points of the corporate default risk prediction is represented by the temporal restriction on the corporate default, limited to the debt maturity. Black and Cox (1976) have extended Merton model by the incorporation of the corporate risk default not only at the debt maturity, but in any other moment after debt contracting. Model is known within the financial litterature as First Passage Model (FPM).

Maintaining this hypothesis relative to assets evolution as Brown Motion, Black and Cox have introduced the concept of

default threshold $-K$, which is touched by the enterprise whenever its value reaches it (Bharath, Shumway, 2004).

Default threshold is a temporal function which can be expressed as:

$$K = e^{-\phi(T-t)} \times K$$

where:

K = corporate default value;

$T - t$ = the period of time during which the debt has been contracted.

Unlike the previous models where corporate default was triggered automatically the moment when the enterprise was unable to fulfill its financial obligations, the models implemented by have taken also into account the case when financial obligations may be renegotiated with creditors Leland and Toft (1996), Fan and Sundaresan (2000). From this perspective, default threshold was higher than the one forecasted by the previous models (Elizalde, 2005).

Restrictive conditions on assets and equity value distribution determined a keen interest in less limited models. Therefore it has appeared the idea of a Non-Parametric model, based only on the historical information regarding ROE (Return on Equity) by which there will be determined ROA (Return on Assets).

$$r_A = (D/A) \times r_D + (E/A) \times r_E$$

where:

r_A = return on assets;

r_D = cost of debt, meaning riskfree rate;

r_E = return on equity;

A = assets;

E = equity.

This non-parametric model proved to be more powerful in order to assess corporate risk default for companies activating in financial services field – banks, insurance companies – because they imply particularities especially regarding solvency indicators because of the norms regarding risk capital adequacy.

Bellalah and Jacquillat (1999) have refined Black and Scholes approach and implemented a corporate default risk prediction model by the intermediary of the options mechanism which integrates also informational asymmetry costs.

In 1989, Vasicek and Kealhofer have elaborated KMV model acquired by Moody's. KMV focused on the structural Merton approach and assesses corporate default probability (Expected Default Frequency – EDF) based on capital structure, return on assets volatility and also current assets (Stein, 2005).

Distance-to-Default (DD) is determined as:

$$DD = \{[\text{Market value of assets}] - [\text{Default point}]\} / [\text{Market value of assets}] \times (\text{Assets volatility}).$$

KMW is now the most commercial application, being used at world-wide level by multinational companies which base credit management on.

Moody's advantage consists of international credit/corporate default overview. Moody's corporate rating integrates a premium risk relative to industry and country as well (Dwyer, 2004).

Country and industry risk have become important elements of the corporate risk default at the global level. RiskCalc Model success is due to the multinational companies orientation towards emerging countries and international Moody's approach allowed them to perform a more rigorous credit risk management. Excepting emerging countries, Moody's has elaborated models in order to assess Expected Default Frequency (EDF) for every country (Fernandes, 2005).

RiskMetrics has been developed by Standard&Poor's following up Moody's rationale. It is based on a replica of the model of KMV elaborated by Moody's. It focuses on VaR indicator (Value at Risk) reflecting maximum potential loss that creditor can bear because of the debtor default.

First Passage Models (FPM) are followed up by Liquidation Process Models (LPM) from the perspective of which corporate default does not determine automatically company activity cease, but it offers the perspective of the negotiation between debtors and creditors. This renegotiation process focuses on debt rescheduling which permits the company to keep up, meaning to avoid liquidation only if during a period of two years it managed to get over the corporate default threshold; this will be possible only if equity will be positive (François, Morellec, 2004).

The last stage within the evolution process of the structural models is

represented by the State Dependent Models (SDM) where corporate default is exogenously determined, idea reflected by the macroeconomic variables. During the recession periods, it has been pointed out that corporate profitability decreases since cash-flows are positively correlated with the economical cycle (Hackbarth, Miao, Morellec, 2004).

Reduced Form Models ignore the existence of a correlation between corporate default probability and the financial structure of the company reflected by the corporate rating, considering that corporate default risk is exogenously determined. Specialists have concentrated recently on a relationship between reduced form and structural models (reconciliation models) which integrate unitarily the two types of financial information – book value and market value (Elizalde, 2006). The multitude of corporate default prediction models has determined numerous studies regarding the way one model is superior to another, taking into account two fundamental criteria – ROC and AR curves. It has been pointed out that KMV model is superior to Merton model, but also to Altman Z-score (Bohn, 2005). Non-Parametric model (Chen, 2006) proved to be more powerful than the models implemented by Black-Cox and Merton. After Enron's failure in 2001, most of the models have been contested because they have not been able to predict more accurately default probability (Chen et al., 2006).

3. Methods and results

3.1. Database and methodology description

The sources the information was obtained from were the following:

- Hewlett-Packard Credit Division containing information relative to the Financial Statements of various companies located both in emerging East European countries (Poland, Slovenia, Slovakia, Bulgaria, Czech Republic, Romania) and developed countries (France, Spain, Germany, Portugal, Austria, Switzerland);
- Economic Intelligence Unit site regarding the macroeconomic environment of the emerging East European countries.

The assembly of financial indicators that will be analyzed is the following: Current Liquidity ratio (I_1), Quick Liquidity ratio (I_2), Short Term Debt Cash-Flow Coverage (I_3), Return on Tangible Net Worth (I_4), Earnings before Taxes/Total Assets (I_5), Operating Expenses/Net sales (I_6), Debt/Tangible Net Worth (I_7), Interest Coverage (I_8), Short Term Debt/Total Debt (I_9), Leverage multiplier (I_{10}), AR turnover (I_{11}), AP turnover (I_{12}), Working Capital Turnover (I_{13}), Total Assets Turnover (I_{14}), Altman Z-score (I_{15}). Using this database, there will be constructed two scoring functions having as operational support the Principal Component Analysis methodology.

The scoring functions will be differentiated according to the corporation localization criteria – emerging and developed countries – and will be valorized as support to the corporate rating delivery process.

3.2. Discussions and results

The next step of the analysis focuses on elaborating a scoring function in accordance

with which there will be delivered a rating to every company included in the sample.

There will be elaborated two scoring functions using the Principal Components Method adapted for companies located in both developed and emerging countries.

In order to elaborate the two scoring functions there will be analyzed the correlation matrices of the financial indicators characteristic to the companies located in both emerging and developed countries. For the financial indicators characteristic to the companies located in emerging countries there is a high positive correlation between the variables I_1 - I_2 , I_5 - I_{11} , I_{12} , I_{14} , I_{15} , I_7 - I_{10} , I_{11} - I_{12} , I_{11} - I_{14} , I_{11} - I_{15} and a negative correlation between the variables I_2 - I_9 (see annexes no.1).

The earnings before taxes (EBT) indicator is highly correlated with the company activity indicators (AR turnover, AP turnover, Total Assets turnover).

As for the financial indicators characteristic to the companies located in developed countries there is a high positive correlation between the variables I_4 - I_{15} , I_4 - I_1 , I_2 - I_3 , I_5 - I_8 , I_5 - I_{11} , I_5 - I_{13} , I_5 - I_{15} , I_7 - I_{10} , I_8 - I_{10} , I_8 - I_{15} , I_9 - I_8 , I_{12} - I_{14} , I_5 - I_{13} , I_{14} - I_{15} - I_{13} , I_{12} , I_{13} - I_{14} , I_{14} - I_{15} , I_5 - I_{15} , I_6 - I_{15} , I_8 - I_{15} , I_{12} - I_{15} , I_{13} - I_{15} and a negative correlation between variables I_2 - I_5 , I_2 - I_{11} , I_9 - I_4 , I_6 - I_2 , I_6 - I_{12} , I_6 - I_{14} , I_6 - I_{15} , I_{10} - I_{15} , I_{14} - I_{30} .

It is obvious that the degree of correlation between the variables is a higher one for companies located in developed countries than for the ones located in emerging countries. This phenomenon can be explained by a higher degree of interdependency between the financial indicators due to the lack of dominant influences from the part of external factors which could distort the mechanisms of internal environment of the enterprise.

In order to get a deeper insight regarding the most important financial indicators which should be integrated into a final scoring function, the Eigenvalues will be computed.

**Eigenvalues of the financial indicators
characteristic to companies located into
emerging countries**

Table 1

Eigenvalues (emerging.sta) Extraction: Principal components				
	Eigenval	% Total Variance	Cumul. Eigenval	Cumul. %
1	4.860551	32.40367	4.860551	32.40367332
2	2.42721	16.1814	7.287761	48.58507254
3	2.13325	14.22167	9.421011	62.80673902
4	1.327779	8.851857	10.74879	71.65859587
5	1.061166	7.074439	11.80996	78.73303513

Source: own processing.

As for the companies located into both emerging and developed countries, the final scoring function should contain 5 main financial indicators. If we had limited to only three variables, we would be able to reflect

only 58% of the initial information. Extending the analysis to 4 axes, we would reach 67.01% while 5 axes will permit an information recovery of 74.19% of the initial space.

**Eigenvalues of the financial indicators
characteristic to companies located into
developed countries**

Table 2

Eigenvalues (developed 2007.sta) Extraction: Principal components				
	Eigenval	% Total Variance	Cumul. Eigenval	Cumul. %
1	4.585171	30.56781	4.585171	30.56781
2	2.300322	15.33548	6.885493	45.90329
3	1.782827	11.88552	8.668321	57.7888
4	1.397383	9.315884	10.0657	67.10469
5	1.063543	7.090288	11.12925	74.19498

Source: own processing.

In order to identify which are the most important factors that will be integrated into a final scoring function, we will proceed to a factor loading procedure for both cases.

Factor loading procedure applied to the case of companies located into emerging countries

Table 3

Factor Loadings (Varimax normalized) (emerging.sta) Extraction: Principal components (Marked loadings are > .700000)					
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
VAR1	-0.05682543	-0.13546	-0.87879069	0.189186	0.146971
VAR2	-0.01689646	0.057082	-0.93099764	0.034834	0.074337
VAR3	0.007694462	-0.07853	-0.02471589	0.373825	0.04907
VAR4	-0.07623822	0.37189	-0.08876734	-0.27633	0.728893
VAR5	0.779857989	-0.0273	0.03583305	-0.00501	0.0826
VAR6	0.473625254	0.069669	0.005170129	-0.42014	-0.61299
VAR7	0.00461981	0.933517	0.02052204	0.019621	0.19775
VAR8	-0.04776552	-0.16801	0.010911783	-0.85097	0.147053
VAR9	0.060333561	-0.07116	0.70360751	0.284162	0.434472
VAR10	0.01160606	0.948104	0.022475681	0.019759	0.188291
NEWVAR11	0.974392077	0.046438	0.037869299	-0.00247	-0.1262
NEWVAR12	0.978689721	0.024889	0.021896903	0.07265	-0.06043
NEWVAR13	0.105807189	0.602143	-0.013097049	-0.07165	-0.34889
NEWVAR14	0.975640929	0.049155	0.029965347	0.004396	-0.12172
NEWVAR15	0.976207091	0.04752	0.025833253	0.001456	-0.12044
Expl.Var	4.671287343	2.345349	2.148590226	1.245763	1.398966
Prp.Totl	0.311419156	0.156357	0.143239348	0.083051	0.093264

Source: own processing.

Thus, the first axis is highly positively correlated with the same financial indicators for both cases of companies located in emerging as well as for companies located in developed countries. It represents a synthesis of variables no. 5, 11, 12, 14, 15, meaning

the activity and profitability indicators.

The second axis represents a synthesis of variables no. 7, 10, 13 (solvency ratios) for the case of emerging countries and of variable no. 6 (operating expenses reported to net sales) for the case of developed countries.

Factor loading procedure applied to the case of companies located into developed countries

Table 4

Factor Loadings (Varimax normalized) (developed 2007.sta)					
Extraction: Principal components					
(Marked loadings are > .700000)					
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
VAR1	-0.05586	0.24077	-0.83926710	-0.12226254	-0.108475
VAR2	0.0215046	-0.18532	-0.76437141	0.04381431	0.2903029
VAR3	0.0029756	-0.14462	-0.07974859	-0.12639902	0.5324963
VAR4	-0.068453	-0.09819	-0.54415254	0.36978645	-0.249502
VAR5	0.7711261	-0.07302	0.005976976	-0.00480120	-0.048995
VAR6	0.1577448	0.844536	0.332092509	0.003781518	-0.040428
VAR7	-0.078216	0.340323	-0.14763976	0.740407368	0.0478886
VAR8	-0.014420	-0.16349	-0.10665025	-0.18827425	-0.787663
VAR9	0.1118456	-0.88555	0.284482008	-0.15243316	0.0022389
VAR10	-0.023451	0.100796	-0.09204839	0.89223255	0.0271387
NEWVAR11	0.9816334	0.056396	0.05324519	0.029491733	0.0038475
NEWVAR12	0.9806119	-0.02732	0.007871061	0.018453087	0.065828
NEWVAR13	0.1759165	-0.16481	0.148276367	0.524649519	-0.031218
NEWVAR14	0.9833211	0.037537	0.045923452	0.031821526	0.0191175
NEWVAR15	0.9838006	0.036869	0.042225904	0.028904078	0.0151107
Expl.Var	4.5381166	1.812214	1.852765495	1.850904414	1.0752454
Prp.Totl	0.3025411	0.120814	0.1235177	0.123393628	0.071683

Source: own processing.

The third axis represents a synthesis of variables no. 2 and 9 (liquidity and solvency ratios) for the case of emerging countries and of variables no. 1, 2 and 4 for the case of developed countries (liquidity and profitability ratios).

The fourth axis represents a synthesis of variable no. 8 (interest coverage) for the case of emerging countries and of variables no. 7, 10, 13 for the case of developed countries (solvency and activity dynamics indicators).

The fifth second axis represents a synthesis of variable no. 4 (profitability) for the case of emerging countries and of variable no. 3, 8 (solvency indicators) for the case of developed countries.

It is obvious that the most important financial indicators characteristic to the emerging countries focus on the solvency and liquidity ratios while the most important financial indicators specific to the developed countries are based on profitability.

Factor score coefficients procedure applied to the case of companies located into developed countries

Table 5

Factor Score Coefficients (developed 2007.sta)					
Rotation: Varimax normalized					
Extraction: Principal components					
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
VAR1	0,028108	0,158033387	-0,47699067	-0,16175	-0,0829
VAR2	0,032351	-0,10209908	-0,42665502	-0,02462	0,275963
VAR3	-0,00309	-0,06076668	-0,06015703	-0,08041	0,500489
VAR4	0,006705	-0,09914599	-0,26761162	0,190575	-0,23907
VAR5	0,173555	-0,04149843	-0,02954401	-0,0043	-0,05983
VAR6	0,022271	0,482981542	0,172967483	-0,07144	-0,03338
VAR7	-0,02338	0,110736952	-0,02274822	0,374806	0,027273
VAR8	0,017749	-0,08166680	-0,06337233	-0,07107	-0,72974
VAR9	0,014269	-0,49418067	0,148668605	0,037135	-0,00982
VAR10	-0,01579	-0,04570330	0,020245606	0,494813	-0,00202
NEWVAR11	0,217375	0,029526125	-0,01119303	-0,00105	-0,0141
NEWVAR12	0,218166	-0,01622239	-0,03749276	-0,00332	0,043597
NEWVAR13	0,025044	-0,15795037	0,119043008	0,332146	-0,05389
NEWVAR14	0,217758	0,01865176	-0,01520904	0,001375	-0,00012
NEWVAR15	0,218141	0,018585372	-0,01747767	-0,0004	-0,00373

Source: own processing.

Factor score coefficients procedure applied to the case of companies located into emerging countries

Table 6

Factor Score Coefficients (emerging.sta)					
Rotation: Varimax raw					
Extraction: Principal components					
	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
VAR1	0.032898	-0.04542256	-0.43579	0.067558	0.142933
VAR2	0.027902	0.030680563	-0.44458	-0.01306	0.032118
VAR3	0.014824	-0.03106414	-0.03471	0.271662	0.116824
VAR4	0.048303	0.191208866	-0.09125	-0.43365	0.419236
VAR5	0.191166	-0.01870064	-0.02607	-0.07785	0.167986
VAR6	0.037089	-0.00669371	0.061757	-0.13922	-0.48222
VAR7	-0.00696	0.395443175	0.006227	0.046224	-0.01062
VAR8	-0.00084	-0.05956541	0.027123	-0.74529	-0.017
VAR9	0.047737	-0.01248532	0.271293	0.080303	0.408061
VAR10	-0.00686	0.400908778	0.008032	0.050859	-0.01925
NEWVAR11	0.211797	-0.00114827	-0.01187	-0.00558	0.02504
NEWVAR12	0.221936	-0.00706896	-0.02976	0.028433	0.091437
NEWVAR13	-0.03223	0.230815454	0.037817	0.122959	-0.36466
NEWVAR14	0.212787	0.000185215	-0.01633	-0.00163	0.029139
NEWVAR15	0.213184	-0.00041499	-0.01833	-0.00472	0.029858

Source: own processing.

Analyzing the factor score coefficients procedure (see table 9) applied to both cases, we could build up the final scoring function.

For the companies located into emerging countries, the scoring function in accordance with which there will be assign a rating is:

$$Rtg_{CEC} = 0.2 \times Var\ 5 + 0.4 \times Var\ 7 - 0.44 \times Var\ 2 + 0.27 \times Var\ 9 - 0.75 \times Var\ 8 + 0.42 \times Var\ 4$$

where:

Var 5 = Earnings before Taxes/Total Assets;

Var 7 = Debt/Tangible Net Worth;

Var 2 = Quick Liquidity ratio;

Var 9 = Short Term Debt/Total Debt;

Var 8 = Interest Coverage;

Var 4 = Return on Tangible Net Worth;

Rtg_{CEC} = corporate rating assigned to companies located into emerging countries.

For the companies located into developed countries, the scoring function in accordance with which there will be assigned a rating is:

$$Rtg_{CDC} = 0.2 \times Var\ 5 + 0.48 \times Var\ 6 + 0.16 \times Var\ 1 + 0.38 \times Var\ 7 - 0.73 \times Var\ 3$$

where:

Var 5 = Earnings before Taxes/Total Assets;

Var 6 = Operating Expenses/Net sales;

Var 1 = Current Liquidity ratio;

Var 7 = Debt/Tangible Net Worth;

Var 3 = Short Term Debt Cash-Flow Coverage;

Rtg_{CDC} = corporate rating assigned to companies located into developed countries.

The two scoring functions contain two common indicators – Var 2 and Var 7 (liquidity and solvency ratios) while the other ones are different.

The scoring function relative to emerging countries located companies focuses on solvency and liquidity ratios while the second one relative to developed countries located companies is more keen on profitability and activity dynamics indicators.

These findings reveal out the fact that companies based in emerging countries are more focused on ensuring a sufficient level of available liquidity since the probability to face a liquidity crises is higher. They practice also a more conservative financial management, based on opportunity cost since higher liquidity reflects missed investment opportunities.

3.3. Conclusions

The research aimed at elaborating two scoring functions for companies based both in emerging and developed countries.

The scoring functions have been conceived as support to corporate rating delivery process rationale.

There has been remarked a differentiation in terms of localization criteria. Corporate rating for companies which are based into emerging countries focuses mainly on liquidity and solvency indicators while corporate rating for

companies based into developed countries is concentrated especially on asset management and profitability indicators.

The corporations based in developed countries practice a more active financial management which aims at profitability ensured especially by powerful asset management strategies.

As for the companies based in emerging countries, their financial management is more focused on the short-term strategies, meaning that they do not have the capacity to focus on the long term approach.

For the period to come, in the context of the capital market development, financial management strategies characteristic to the corporations based into emerging countries will pass through a mutation in terms of financial strategies. They will be more active, capable of valorizing the capital market opportunities, and more focused on the long term approach.

The limitations of this paper refer to the database dimension. The conclusions must be interpreted in the context of the valorized database. For the future, our research will be concentrated on database extension.

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Optimality, Rational Expectations and Time Inconsistency Applied to Inflation Targeting Strategy

■

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***Abstract.** The purpose of this paper is to analyse the characteristics of an inflation targeting strategy, using the Barro-Gordon model specific tools. This paper uses the initial Barro-Gordon concepts of inflationary social costs and benefits, adding a new dimension generated by the cost of output deviating from the potential level. The main contribution of this paper is the exhaustive study of the time inconsistency problem generated by the very existence of a policymaker-established inflation rate. The mathematic simulation of a model allowed a complete analysis of several parameters' influence (parameters such as the optimal rate of inflation, the discount rate, the importance structure of inflationary social cost) on the applicable range of the target inflation rate, range that guarantees that the policymakers have no incentive to break their own rules, or at least this incentive is somewhat inferior to the future cost of doing so.*

Key words: optimal inflation rate; inflation targeting strategies; the Barro-Gordon model; output gap; central bank credibility.

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JEL Codes: E31, E52, E58.

REL Codes: 8F, 8J.

Inflationary costs function

In the first chapter of this paper, we have elaborated a mathematical function for inflationary costs, altogether with a policymaker reaction function to the private agents' inflationary expectations as well as the optimal inflation rate.

Inflation is generally viewed as one negative monetary phenomenon, due to its tendency to distort the economic processes in one country by the reallocation of income (more or less arbitrary), by generating a general state of uncertainty at macroeconomic level that may limit the capital investment (both foreign and national), and finally the general state of private agents' distrust in the national currency. Through this paper, though, we will not assume that inflation is only a negative economic process, as it is generally known that zero inflation may be considered a lack of economic growth. Furthermore, as the Barro-Gordon model suggests, it is not rational for the private agents to expect a zero level of inflation.

One first inflationary cost to be analyzed is the difference between the present inflation rate (r_i^p) and the optimal inflation rate (r_i^*). Therefore,

$$C_1 = \frac{a}{2} \times (r_i^p - r_i^*)^2. \quad (1)$$

The “ a ” parameter is greater than zero and represents the relative importance of this particular inflationary cost in the general structure of inflationary costs⁽¹⁾. The higher the present inflation rate is compared to the optimal one, the higher the social cost will be.

Another inflationary cost is generated by the difference between the present unemployment rate and NAIRU, a difference

that, through Okun's law, may be correlated with the difference between the present output and the potential one, as follows:

$$C_2 = b \times (Y_p - Y^*)^2 \quad (2)$$

(where b is greater than zero, suggesting the relative importance of the output differential inflationary cost in the general structure of inflationary costs).

As the real output (Y_p) is more different from the potential one (Y^*), the resources will be in a greater degree misused at macroeconomic level, fact which will generate a certain variation of the inflation rate from its target. To formalize this second cost and express it as depending of the inflation rate, we have used an expectation function stated by Lucas (1981):

$$\begin{aligned} Y_p &= Y^* + c \times (r_i^p - r_i^a); \\ Y_p - Y^* &= c \times (r_i^p - r_i^a) \end{aligned} \quad (3)$$

Lucas considers that the output gap is directly related to the differential between the present inflation rate and the expected one. Combining equations (2) and (3) we derive a mathematical formalization of a second inflationary cost (depending on the public expectations regarding the inflation rate):

$$C_2 = b \times c^2 \times (r_i^p - r_i^a)^2 \quad (4)$$

Adding the (1) equation to (4) we obtain a total inflationary cost (C):

$$\begin{aligned} C = C_1 + C_2 &= \frac{a}{2} \times (r_i^p - r_i^*)^2 + \\ &+ b \times c^2 \times (r_i^p - r_i^a)^2 \end{aligned} \quad (5)$$

A potential benefit from high inflation can result from the reduction of the public debt's real value. As the present inflation rate is higher than the expected one, the public

debt instruments' yields will appear much more appealing to the private agents than they will be in reality. From this point of view, we can analyze a specific inflationary benefit gained by the government:

$$B = d \times (r_i^p - r_i^a), \quad (6)$$

(d is greater than zero, suggesting the relative importance of the inflationary benefit).

Costain (2004) elaborates a mathematical function of the general inflationary cost, considering that a more precise formalization will take into account the negative inflationary cost represented by the aforementioned benefit (6). Thus, we will express the general inflationary cost as in (7) for the rest of the paper:

$$C^* = C - B = \frac{a}{2} \times (r_i^p - r_i^*)^2 + b \times c^2 \times (r_i^p - r_i^a)^2 - d \times (r_i^p - r_i^a) \quad (7)$$

The Central Bank's reaction function

Every Central Bank's objective is to minimise the inflationary cost, by reducing the standard deviation of present inflation rate from the optimum level and from the private agents' expected inflation level. The only directly controllable parameter by a monetary authority is the present inflation rate: r_i^p . The expected inflation rate can only be indirectly influenced by the previous Central Bank's actions and its general level credibility (as related to the price stability goal). Minimising the total inflationary cost, we will obtain:

$$\frac{\partial C^*}{\partial r_i^p} = 0 \Rightarrow$$

$$a \times (r_i^p - r_i^*) + 2 \times b \times c^2 \times (r_i^p - r_i^a) - d = 0$$

Rearranging, we obtain a Central Bank's reaction function of the present inflation rate:

$$r_i^p = \frac{a \times r_i^* + 2 \times b \times c^2 \times r_i^a + d}{a + 2 \times b \times c^2} \quad (8)$$

Thus, the inflation rate that leads to a minimal inflationary cost depends on the expected inflationary rate. Furthermore, as the optimal inflation rate is higher, the Central Bank will have incentives to set a higher inflation rate. Under these conditions, the policymaker will have incentives not to take steps in order to reduce inflation, as the real public debt will decrease. If the Central Bank's decision to set the inflation rate to zero is credible, then the inflation rate that leads to the minimum level of inflationary costs will be positive, which leads to the conclusion that it is irrational for the private agents to expect a zero level of inflation:

$$r_i^p = \frac{a \times r_i^* + d}{a + 2 \times b \times c^2} > 0 \quad (9)$$

The Central Bank's reaction function demonstrates that a present inflation rate higher than the optimal one will lead to a restrictive monetary policy that will result in decreasing inflation rate expectations. Costain imagined three basic scenarios of analyzing the private agents' inflationary expectations, scenarios that we used in order to compare the inflationary costs.

I. The Central Bank announces the optimal inflation rate to be applied

We assume that this inflation target is credible for the private agents. Under these conditions, the expectations are equal to the

optimal rate: $r_i^a = r_i^*$, and the reaction function will consequently be:

$$r_i^p = r_i^* + \frac{d}{a + 2 \times b \times c^2} \quad (10)$$

When the expected inflation rate is equal to the optimal one, the present inflation rate will be greater than the optimal one. Replacing (10) in the inflationary costs equation (7) we obtain:

$$\begin{aligned} C^* (\text{scenario 1}) &= \\ &= \frac{-a \times d^2 - 2 \times b \times c^2 \times d^2}{2(a + 2 \times b \times c^2)^2} < 0 \end{aligned} \quad (11)$$

In this case, the inflationary cost has a negative value; in fact it represents a social benefit. The reason behind this is the reduced level of taxes due to a lower level of real public debt. Furthermore, an inflation rate higher than the optimal level leads to a higher economic output than the potential one, resulting in a lower unemployment rate compared to NAIRU.

II. The private agents have rational expectations

This scenario studies the situation where the private agents' expectations can be considered rational. If they would expect an inflation rate equal to zero, then the Central Bank will set a positive inflation rate, so this expectation level is not rational. Furthermore, if the expectations will equal the optimal rate of inflation, the Central Bank will set the inflation rate according to the first scenario, so this expectation will not be a rational choice either. To conclude, the

expected rate of inflation can be considered rational if the private agents will accurately foresee the policymaker's intention (the present inflation rate): $r_i^a = r_i^p$.

Generally speaking, the economists consider that the private agents act rationally when they accurately foresee the rational choices of other economic agents. Regarding inflation, the rational expectations equilibrium occurs when the Central Bank's inflation rate choice is resulted from the reaction function and the private agents expect the very same inflation rate. ($r_i^a = r_i^p$):

$$r_i^p = \frac{a \times r_i^* + 2 \times b \times c^2 \times r_i^p + d}{a + 2 \times b \times c^2} \quad (12)$$

From the previous equation we obtain an expression of the inflation rate given the private agents' rational expectations:

$$r_i^p = r_i^* + \frac{d}{a} \quad (13)$$

From (13) we find that the rational expectations inflation rate (r_i^p) is higher than the optimal inflation rate. This is true in the hypothesis that the Central Bank will set an inflation rate higher than the expectations (the Barro-Gordon model hypothesis). Therefore, expecting the optimal inflation rate will lead to the actual inflation rate from the first scenario. Furthermore, rational anticipation of the Central Bank's behaviour will lead to second scenario's inflation rate. Consequently, the inflation rate resulting from the second scenario will be higher than the one in the first scenario, as shown in (14):

$$\begin{aligned}
 r_i^p(\text{scenario 2}) &= r_i^* + \frac{d}{a} > \\
 &> r_i^p(\text{scenario 1}) = \\
 &= r_i^* + \frac{d}{a^2 + 2 \times b \times c}
 \end{aligned} \tag{14}$$

The two inflation rates (from the first and second scenario) will be equal when the benefits of the lower public debt are very low, the case of a non-zero, low rate of inflation.

Due to rationality of expectations, private agents are as aware of the real economic evolution as the Central Bank is and consequently, if the Central Bank targets an unemployment rate different from NAIRU, while announcing a zero inflation target, the latter is not credible (as private agents expect a positive inflation rate, high enough to considerably influence the unemployment rate).

The inflationary cost function for the second scenario presents as follows:

$$\begin{aligned}
 C^*(\text{scenario 2}) &= \frac{a}{2} \times \left(\frac{d}{a} \right)^2 = \\
 &= \frac{d^2}{2 \times a} > 0.
 \end{aligned} \tag{15}$$

There is a social loss due to the inflation rate higher than the optimal one. Comparing the two scenarios from the inflationary costs criteria, we notice that the higher cost occurs in the rational expectations scenario when the Central Bank's targets credibility is evaluated by the private agents. One possibility to reduce this cost is the Central Bank's consistent behaviour in targeting a credible monetary policy rule.

III. Setting an inflation rate target rule

We assume that the Central Bank targets a low differential between the present inflation rate and the optimal one. The price stability target is of uttermost importance, the Central Bank neglecting the importance of the output differential. Therefore, the Central Bank will apply an optimal inflation targeting strategy. The private agents will expect exactly the amount of inflation targeted by the Central Bank, and the present inflation rate, the expected and the optimal one will be equal: $r_i^a = r_i^p = r_i^*$. One important additional condition for the existence of the aforementioned equality is represented by a fiscal policy consistent with the Central Bank's monetary policy (although the benefits from the lower public debt will decrease).

The inflationary costs function for this third scenario will consequently be:

$$\begin{aligned}
 C^*(\text{scenario 3}) &= \frac{a}{2} \times (r_i^p - r_i^*)^2 + \\
 &+ b \times c^2 \times (r_i^p - r_i^a)^2 - \\
 &- d \times (r_i^p - r_i^a) = 0.
 \end{aligned} \tag{16}$$

Comparing the three scenarios, we will obtain that

$$r_i^p(\text{scenario 2}) > r_i^p(\text{scenario 1}) > r_i^p(\text{scenario 3}) = r_i^*$$

Therefore, as long as the Central Bank has discretion over the inflation rate the differential between the present inflation rate and private agents' expectations will be positive. This is the hypothesis that the policymaker has the incentive to deceive the private agents and is higher in the

rational expectations scenario. A welfare-based comparative analysis of the inflationary costs from all three scenarios will show the following result:

$$\begin{aligned} C^*(\text{scenario 2}) &> C^*(\text{scenario 3}) = \\ &\quad \text{(Loss)} \qquad \qquad \text{(Gain)} \\ &= 0 > C^*(\text{scenario 1}) \end{aligned} \quad (17)$$

The most beneficial scenario will therefore be the first one, but it is not applicable in the long run. The Central Bank may succeed in deceiving the private agents only for a limited period, but in the long run, the private agents will anticipate this behaviour. Therefore the Central Bank has only two viable options: setting an inflation rate rule or choosing the inflation rate according to the reaction function. If it chooses discretion rather than rule, then the economy will face a social loss (scenario 2 – rational expectations). Otherwise, following an inflation rate rule, there will be no social losses or no social gains.

The problem of dynamic inconsistency when approaching the monetary policies

In the previous subchapter, we have analyzed the importance of anticipating the private economic agents upon the inflation rate, which will be adopted by the monetary authorities, by analyzing the possible scenarios, which could take place in such a situation. If, on a short term, the population's misleading, through promises regarding the adoption of the optimal inflation rate, can yield a social benefit (a negative cost), on a long-term, because of the central authority's loss in reputation, only the adoption of rule of targeting the inflation can diminish the social cost⁽²⁾. However, adopting a rule represents a

disadvantage solution regarding the moral hazard. The compliance with a rule does not represent a certainty for any economic agent, especially under the terms in which its non-compliance would bring a certain short-term social benefit compared to case in which the inflation rate would be the *ex-ante* established one. The other side is represented by the future cost of this decision, a supplementary cost which occurs because of the authority's loss in reputation and because of the modifications in the economic agents' expectances. In case the central bank, which follows a strategy of targeting the inflation, does not obtain a legal current inflation with a target (or which could be in compliance with the foreseen fluctuation interval), then its credibility will get diminished and the result of this fact will be the intensifications in the future inflationary anticipations.

Modelling the economic agents' behaviour during the period t , according to the compliance or the non-compliance with the inflation targeting during the period $t-1$, the following system will be obtained:

$$\begin{cases} r_{i/t}^a = r_i^* \Leftrightarrow r_{i/t-1}^p = r_{i/t-1}^a \\ r_{i/t}^a = r_i^p \Leftrightarrow r_{i/t-1}^p \neq r_{i/t-1}^a \end{cases} \quad (18)$$

We have noted with r_i^* the inflation rate targeting, proposed by the monetary authority. Thus, the system (18) will be explained as it follows: if, during the previous period, the effective/current inflation rate corresponds to the population's expectances, and automatically to the target, the expectances for the current period will be equal to that target. Otherwise, the central bank loses its reputation and the anticipations will modify, following the scenario of the rational expectances.

The temptation of non-complying with the rule – mathematic formalization

We shall note the temptation of non-complying with rule of inflation rate (r_i^*) with T and we shall consider a function, depending on the inflation targeting. *The temptation of non-complying with the target will be equal to the social cost corresponding to applying this rule, out of which we subtract the social cost of its non-compliance.* The higher this difference is, the more the stimuli to ignore the rule get increased. According to the relation (7), and taking into account the fact that the economic agents' expectations are equal to the inflation rate target, the cost of the compliance with the rule will be equal to:

$$C_{rule}^* = \frac{a}{2} \times (r^* - r_i^*)^2 \quad (19)$$

On the other hand, the private economic agents' disappointment will have as a result another cost, that of the compliance with the inflation targeting. This one is formed on the basis of a current inflation rate which differs from the rule and, according to the expectations (in case the expectances correspond to the inflation targeting), according to the equation (8):

$$\begin{aligned} r_{i / non-compliance}^p &= \\ &= \frac{a \times r_i^* + 2 \times b \times c^2 \times r_i^* + d}{a + 2 \times b \times c^2} \end{aligned} \quad (20)$$

Thus, the cost of non-compliance with the rule, under the terms of the expectances corresponding to the rule, is as it follows:

$$\begin{aligned} C_{non-compliance}^* &= \frac{a}{2} \times (r_{i / non-compliance}^p - r_i^*)^2 + \\ &+ b \times c^2 \times (r_{i / non-compliance}^p - r_i^*)^2 - \\ &- d \times (r_{i / non-compliance}^p - r_i^*) \end{aligned} \quad (21)$$

Accordingly, the temptation of non-complying with the rule according to the inflation rate which represents the rule will be as it follows:

$$T(r_i^*) = C_{rule}^* - C_{non-compliance}^* \quad (22)$$

The updated future cost – mathematic formalization

We shall note the updated future cost of the non-compliance with the inflation rate rule with CVS and we shall consider it, as in the temptation case, to be dependant to the inflation rate rule.

The updated future cost can be treated as a difference between the future social costs, in the case in which the rule had been complied with in the present, everything updated with an discount rate (r).

In the future period, in case the rule would have not been complied with in the present, according to the system (18) which explains the anticipation choices of the economic agents, the social cost (not updated up for the present moment) will follow the reasonability scenario presented in the previous subchapter and it will be as it follows:

$$C_{non-compliance}^{future} = \frac{d^2}{2 \times a} \quad (23)$$

The future social cost of the compliance with the rule (not updated) will be equal to the cost of the compliance with the rule calculated according to the equation (19), because of the fact that neither of the conditions modifies. Thus, updating of the future cost to the interest rate we shall obtain another function of r_i^* corresponding to this value:

$$CVA(r_i^*) = \frac{1}{1+r} (C_{non-compliance}^{future} - C_{rule}^*) \quad (24)$$

After defining the terms of temptation of non-complying with the rule and of future updated cost, it is relatively simple to estimate that an inflation rate targeting is applicable only in case the temptation of non-complying with it is inferior to the future updated cost of this action. Otherwise, the authorities will always be stimulated not to comply with their own decisions, because the current benefit will always be superior to the future loss, but such behaviour cannot be assimilated to a rule and the result will be that of irrecoverable credibility losses of the monetary authority. *Thus, in order that an inflation rate rule (r_i^*) could be considered as applicable, the following condition must be complied with:*

$$CVA(r_i^*) \geq T(r_i^*) \quad (25)$$

Is the optimal inflation rate an applicable rule?

First of all, we shall verify if the optimal inflation rate (r_i^*) is applicable in an economy in case of the *current temptation – future updated cost*. If the rule is complied with, then the current inflation rate, as well as the population's expectances and the optimal inflation rate are equal, and this will lead to a null social cost, according to the equation (7).

$$r_i^p = r_i^* = r_i^a \Rightarrow C_{rule}^* = 0 \quad (26)$$

If the rule is not complied with, the current inflation rate can be calculated according to the relation (20), under the terms in which the inflation targeting will be equal to the optimal inflation:

$$\begin{aligned} r_{i / non-compliance}^{pl} &= \frac{a \times r_i^* + 2 \times b \times c^2 \times r_i^* + d}{a + 2 \times b \times c^2} = \\ &= r_i^* + \frac{d}{a + 2 \times b \times c^2} \end{aligned} \quad (27)$$

The obtained result corresponds to the first scenario which has been analyzed in the previous chapter (the population's expectances were equal to the optimal inflation); the cost of the non-compliance is negative and it has the following form:

$$C_{non-compliance}^* = -\frac{d^2}{2(a + 2 \times b \times c^2)} \quad (28)$$

According to the equation (25), the temptation of not-complying with a rule of the inflation, equal to the optimal inflation, will be as it follows:

$$\begin{aligned} T(r_i^*) &= C_{rule}^* - C_{non-compliance}^* = \\ &= 0 - \frac{-d^2}{2(a + 2 \times b \times c^2)} = \\ &= \frac{d^2}{2(a + 2 \times b \times c^2)} \end{aligned} \quad (29)$$

On the other hand, the future updated cost will be equal to:

$$\begin{aligned} CVA(r_i^*) &= \frac{1}{1+r} (C_{non-compliance}^{future} - C_{rule}^*) = \\ &= \frac{1}{1+r} \left(\frac{d^2}{2 \times a} - 0 \right) = \frac{d^2}{2 \times a + 2 \times a \times r} \end{aligned} \quad (30)$$

The optimal inflation rate will be considered as an inflation targeting if the following inequality, deduced from the equation (25), will be complied with:

$$2 \times b \times c^2 > a \times r \quad (31)$$

Taking into account the significance of the positive parameters a , b , c , the previous inequality can be rearranged as it follows:

$$b \times c^2 > \frac{a}{2} r > \frac{a}{2} \quad (32)$$

In the function of the inflation social cost, $b \times c^2$ represents the importance of the cost of the output gap according to the Lucas function, and $(a/2)$ represents the importance of the costs of redistributing the incomes generated by the variation in the

inflation rate compared to the optimal rate. From the previous inequality, it results that the optimal inflation rate is estimated as being higher than the importance of the costs of redistributing the incomes, supposition which is very difficult to be made in the modern economies, where the governors' attention, and especially the audience's attention, directs towards the second inflation cost factor.

Analysis of several parameters influencing the optimal inflation rate

To discuss this economic model we have built the mathematic functions of present temptation to disregard the rule and the future costs of disregarding the inflation rate regulation (equations 29 and 30). The software application MATLAB was used in order to simulate different scenarios and to analyze the influence of several parameters: the relative importance of income redistribution cost, output gap social costs, and benefits resulting

from lower public debt; discount rates and optimal inflation rate.

The primary model

The framework of our model consisted of Romania's monetary policy coordinates for early 2008: an optimal inflation rate (r_i) of 5.9% and a discount rate (r) of 9.5% – the monetary policy interest rate set by NBR in March 2008. For the parameters a (the relative importance of income redistribution inflationary cost), b and c (the relative importance of output gap inflationary cost), d (the relative importance of the public debt downsizing inflationary benefit) we have chosen positive values⁽³⁾. The result of the simulation was that the enforceable rate of inflation, therefore a credible inflation rate rule should be greater than 5.47% and lower than 8.41%. The size of this interval, as well as its sensitivity to different parameters variation was analyzed through further simulations.

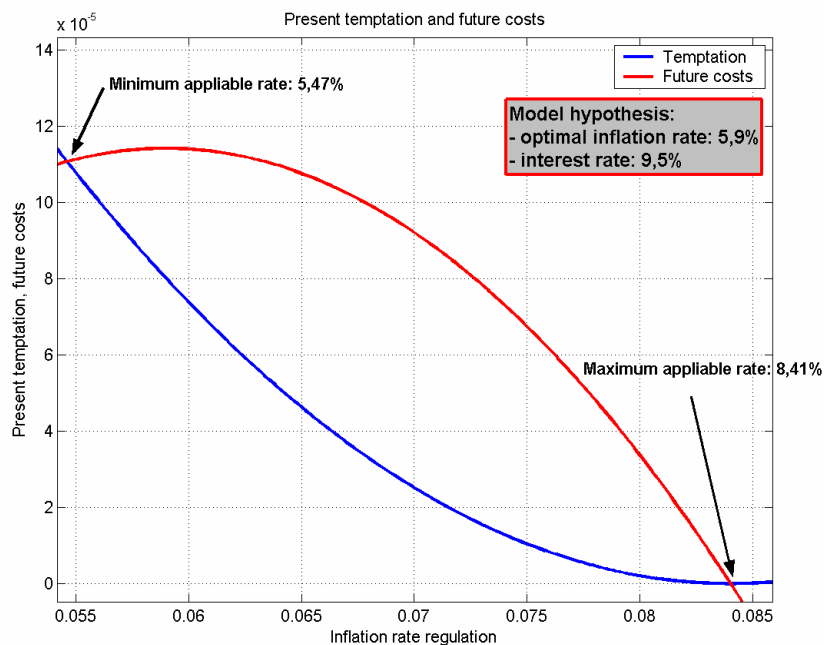


Figure 1. The model results for $r_i^*=5.9\%$, $r=9.5\%$

Discount rate fluctuations

Increasing the discount rate from 9.5% to 12% will result in the increase of the minimum applicable inflation rate rule by almost 0.03 percentage points. Therefore, the minimum enforceable rate is rather not sensitive to the discount rate fluctuations, even to a fluctuation relatively ample such as the one chosen in the model (more than 26%). Also, increasing the discount rate will lead to higher updated costs according to equation (30), thus intersecting the temptation function at a higher minimum enforceable inflation rate.

On the other hand, the upper limit of the enforceable inflation rate interval remains constant at a value of 8.41% (the primary model value), which allows us to conclude

that the discount rate variations have little to no influence over the maximum level of applicable inflation rate rule. Combining the two effects depicted above, we can derive another conclusion: the downsizing of the enforceable inflation rate rule interval as the result of an discount rate increase. Therefore, a restrictive monetary policy applied by rising interest rates will diminish the policymaker's choice of enforceable inflation rate. Furthermore, as we can observe in Figure 2, the future costs of disregarding the rule will decline sharply, increasing the policymaker's incentive of not respecting the enforced rule. Even so, the maximum enforceable rate is higher than the inflation target (the optimal inflation rate).

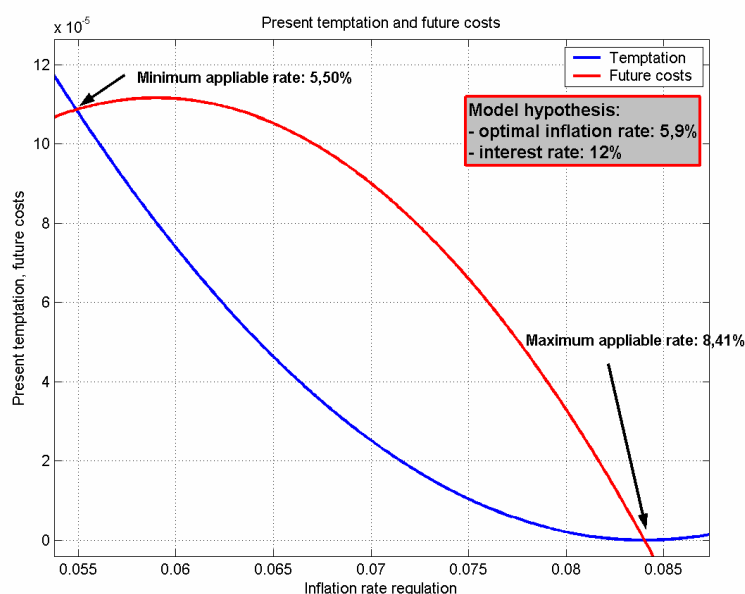


Figure 2. Effects of discount rate increase

Fluctuations in the relative importance of income redistribution inflationary cost

This situation presents the case when, at macroeconomic level, the relative importance of income redistribution inflationary cost is significantly increased. To include this variation in the simulation, we have increased by 50%

the value of parameter a from the inflationary costs function. As it can be observed in Figure 3, there is a relatively small rise in the minimum enforceable inflation rate from 5.47% in the primary model to 5.72%. On the other hand, the maximum applicable inflation rate rule is more elastic to this influence, and

the relation to the importance of income redistribution is negative: the upper limit of the enforceable interval drops from an initial 8.41% in the primary model to 7.58% in this case. The tendency is natural: as inflation becomes more and more socially costly, the policymakers will have an incentive to set lower inflation targets.

Furthermore, as the decrease in the maximum enforceable rate is higher than the

increase in the minimum value of the enforceable interval, the size of the applicable inflation rates interval is reduced to a value below two percentage points, leaving little option for the policymaker to set an enforceable inflation rule. Due to the fact that inflation becomes more socially costly, the present temptation at equilibrium (Figure 3) will be considerably reduced relative to the primary model.

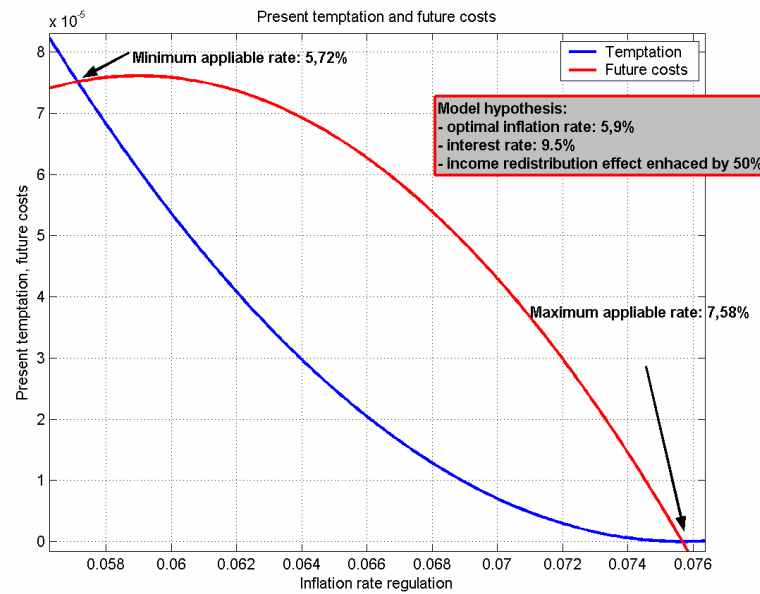


Figure 3. Effects of income redistribution inflationary cost increase

Fluctuations in the relative importance of output gap inflationary cost

Analyzing the case of a fluctuation in the relative importance of the output gap inflationary cost, we notice a relatively small influence of this factor over the model results. Our simulation consisted of increasing the relative importance of output gap by 50%, that meaning increasing the b parameter 1.5 times. The minimum applicable inflation rate is negatively related to the output gap cost, but its elasticity is quite reduced: the minimum enforceable inflation rate drops from the primary model value only by 0.19 percentage points, meaning 3.47% of initial value.

The maximum enforceable inflation rate remains constant to the primary model: 8.41% (see Figure 4), thus resulting an increase of the enforceable inflation rate interval's size. This situation is quite the opposite of the previous one, regarding the importance of the income redistribution cost. Therefore, as the output gap becomes more important as an inflationary cost, the options a policymaker has to set an enforceable inflation rate rule increase, for the applicable interval is also larger. An increased importance of the output gap inflationary cost is helpful in analyzing the inflation targeting strategy. An excessive aggregate demand (on the background of an

already existing inflationary output gap) will enhance the inflationary pressures, which stresses the necessity of coordinating the fiscal and monetary policies in order to respect the

inflation rule. The restrictiveness of such policies will lead to disinflation, and the inflation rule/target can be set in a more credible way.

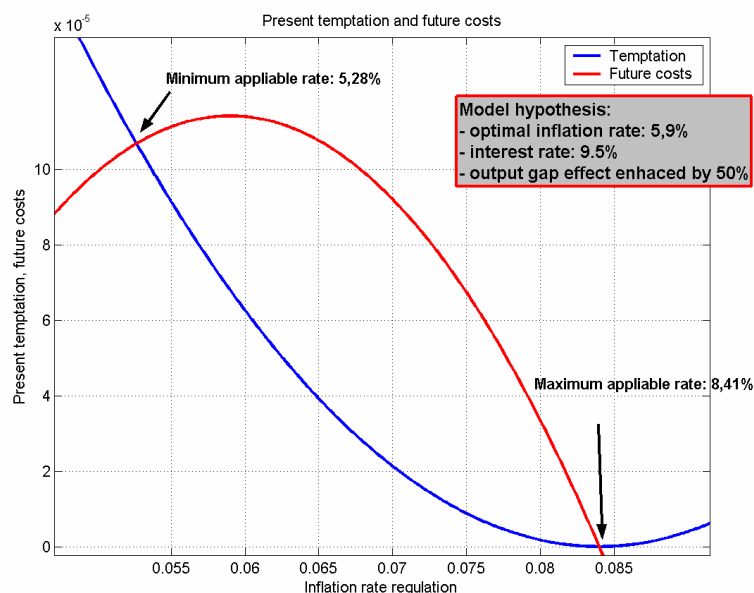


Figure 4. Effects of output gap inflationary cost increase

Fluctuations in the relative importance of reduced public debt inflationary benefit

The last case analyzed in this paper is related to an increase of the relative importance of reduced public debt inflationary benefit, which is synonym at macroeconomic level with a reduced necessity for high taxes having a distorting effect over the economic activity. Our simulation consisted of increasing the relative importance of reduced public debt benefit by 50%, that meaning increasing the d parameter 1.5 times. The model results indicate a decrease in the minimum applicable inflation rate of 4.02% to 5.25% and an increase of the maximum applicable inflation rate to 9.66 percentage points (Figure 5). Explaining this result, we may conclude that while inflation is perceived as a “beneficial” phenomenon for a national

economy – through reduced distorting taxes – the policymaker has the option of setting a higher inflation rate and enjoy the benefits of a reduced public debt. Furthermore, the evolutions presented above lead to a consistent increase in the size of the applicable inflation rate rule interval, offering larger options for the policymakers in their attempt to set the inflation rate rule.

The Barro-Gordon model implies that a higher inflation rate leads to certain governmental benefits through the reduction of public debt. On the other hand, the government already is benefiting from high aggregate demand – and higher fiscal incomes – during the pre-election period. Therefore, if this situation happens on the background of inflationary output gap (such as in Romania), then there are high chances that the inflation rate target will not be

achieved, as long as it is not set to a higher value. Concluding, to continue the process of disinflation, the coordination of monetary and fiscal policy is a *sine qua non* condition.

Like in Stackelberg equilibrium, a Central Bank with an inflation targeting strategy anticipates the governmental reaction, which is adjusted to the very same monetary policy.

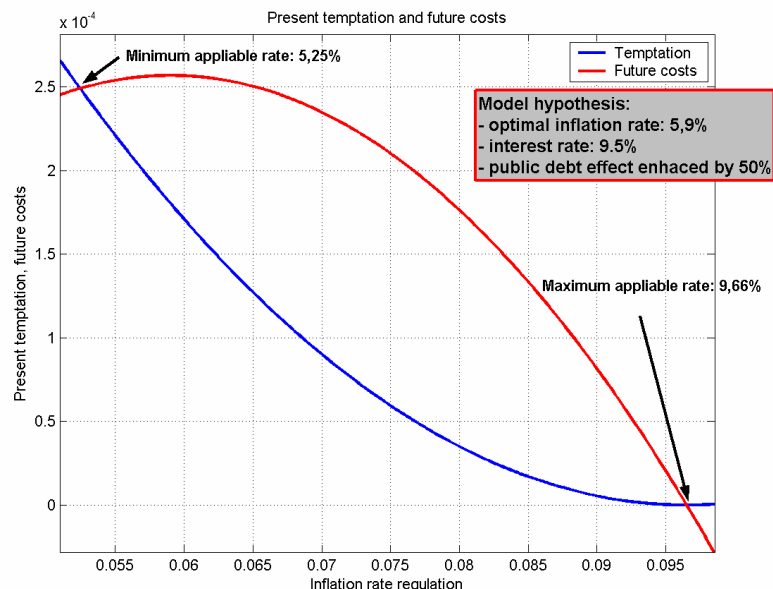


Figure 5. Effects of inflationary benefits increase

To summarize the model conclusions, the influence of all analyzed parameters (optimal inflation rate, discount rate, inflationary costs and benefits importance), which we have considered independent variables, over dependent variables consisting of the enforceable inflation rate interval, we will build the following table. The following table is summarizing the Figures 1 to 5: depending on

the values of present temptation and future updated cost we have shown the enforceable rate interval, which will guide a Central Bank's actions to gain credibility. This interval is significantly influenced by the increases in the income redistribution inflationary cost and the public debt reduction inflationary benefit, the first leading to a lower maximum enforceable rate, whilst the latter to a higher one.

Influence of independent parameters on the optimal inflation rate

Table 1

Independent variables		Dependent variables		
		Minimum enforceable rate	Maximum enforceable rate	Size of enforceable interval
Benefits	Discount rate	Directly related	constant	Negatively related
	Costs			
	Income redistribution importance	Directly related	Negatively related	Negatively related
	Output gap importance	Negatively related	constant	Directly related
	Reduced public debt importance	Negatively related	Directly related	Directly related

Conclusions

According to the Barro-Gordon model, adapted and tested throughout this paper,

setting an inflation rate target represents the only possible choice to minimize the long-run social costs. The only viable alternative of the

policymaker to reduce the social cost to zero is setting an inflation rate rule, which can be respected by using fiscal and monetary policy instruments. The fundamental problem of setting an inflation rate rule is respecting it, function to this compliance of the Central Bank to its own rule, there can be established a certain degree of credibility. This paper shows there is an interval of enforceable inflation rates which can be influenced both by specific inflationary costs parameters and monetary policy instruments.

The simulations realized on Romania's particular case show that the maximum enforceable inflation rate has a close value to the actual inflation rate from the first five months of 2008, but two percentage points above the inflation target set by NBR. The policymaker's credibility shall improve only if there are set inflation targets superior to the precedent levels (for example, the 2008 inflation target had been set to 3.8% eventually

risen to 5.9-6%), but this behaviour will signify but an acknowledgement of the impossibility of continuing the disinflation trend. Further inflationary tendencies, like supply-side shocks at macroeconomic level will lead to failure in reaching the inflation target, negatively influencing the policymaker's credibility. The only effective actions of the Central Bank are influencing the aggregate demand, but for greater effectiveness there is required a closer coordination with the fiscal policy. As our Barro-Gordon model simulation suggests, an increase of the relative importance of the output gap as well as putting an end to the expansionary fiscal policy during elections are necessary. If a Stackelberg equilibrium is to be reached between the Central Bank (acting as leader to set the target inflation) and the Government, there will result a restrictive policy mix, leading to the reduction of inflationary anticipations in the Romanian economy.

Notes

- ⁽¹⁾ Using $a/2$ instead of a leads to simpler further arithmetic.
⁽²⁾ The inflation rate rule would suppose a cost during all the periods of time.
⁽³⁾ We have chosen: $a=0.4$, $b=0.7$, $c=0.4$, $d=0.01$. These values comply with other policymaker's reaction

estimates (such as the Taylor rule), the relative importance of income redistribution being greater than the output gap inflationary cost.

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Optimizing the Banking Activity Using Assets & Liabilities Management

■

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***Abstract.** In the actual study, starting from the international experience, we revealed the role that should be taken by the Assets and Liabilities Committee (ALCO) within the Romanian commercial banks. ALCO became one of the tools used by the executive management of the banks to take decisions regarding the future policy of assets and liabilities management, relying on the synthetic information prepared by well trained technicians but without voting right (usually middle management staff). We consider that the implementation of an assets and liabilities management strategy cannot be done without an appropriate corporate governance structure, even though the bank is having highly specialized staff. Models of some western banking institutions may be considered as benchmarks by the Romanian banks.*

Key words: Assets and Liabilities Committee (ALCO), optimization, gap, corporate governance.

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JEL Codes: G21, G32.

REL Codes: 11C.

1. Techniques and instruments of banking assets and liabilities management

The management of the bank is permanently concerned about the good management of the whole risk profile the organization is exposed to. If the risks (liquidity risk, interest rate risk, foreign exchange risk, credit risk etc.) had been uncorrelated, then they could have been handled separately, by taking appropriate decisions for specific situations, ignoring this way the consequences of the decisions towards the other types of risks. However, there are strong connections, usually cause-effect ones, between all categories of risks.

In our opinion, the main goal of the banking assets and liabilities management (ALM) is the control of the net interest margin. This control can be defensive or aggressive. The purpose of the defensive control is the isolation of net interest margin from the interest rate fluctuations, no matter the course of these variances (positive or negative) for the bank. On the contrary, the aggressive control focuses on maximizing the net interest margin by changing the balance structure of the bank. Both cases analyze the sensitive positions of the bank balance sheet that are sensitive to changes that can appear in the interest rate. The ability to forecast the interest rates represents an important factor, especially within the aggressive control, in ensuring the success of a strategy.

Banks may use a series of available financial instruments to adjust their assets

and liabilities. The most frequent method to adapt the short-term assets is the use of money market. In Romania, there are a few financial instruments and banks do not have too many options regarding targeting this strategic issue. Hereby, the available instruments include: interbank placements, purchasing government securities, reverse repo transactions with treasury bills. Developed markets provide an extended variety of securities, both public and private, which can be directly transacted or used in different transactions as a support of derivatives.

The structure of liabilities can also be modified on long-term, unlike changing the assets' structure. This implies adapting the strategy according to a series of elements:

- anticipated structure of assets;
- interest rates evolution;
- necessity of ensuring an adequate financing, both from the interest rate risk point of view, as well as liquidity risk.

When the banking institution establishes the risk approach (defensive or aggressive approach), the experience and the risk appetite of management factors are essential. Let's do not forget that the banking assets and liabilities management, with a view to ensuring the maintenance of an appropriate position on international financial markets, is supported by sophisticated financial instruments such as: futures, options and swaps which must be very well-known in details in order to be efficiently used.

An aggressive management consists of two parts. The first one is anticipating the

evolution of the interest rate. The second one consists of adjusting the structure of assets and liabilities that are sensitive to interest rate, in order to maximize the net interest margin. Anticipating an increase of the interest rates leads to taking some measures of quantifying a positive gap of sensitive balance elements, while a decreasing trend leads to a negative gap. These measures can be synthesized as follows:

The impact of changing the interest rate over the structure of portfolio

Table 1

Forecasted change of market interest rates	Quantified gap	The change of portfolio
Increase	Positive	Increase of sensitive assets Decrease of sensitive liabilities
Decrease	Negative	Decrease of sensitive assets Increase of sensitive liabilities

If an increase of interest rates is anticipated, the bank that has a positive gap will register an increase of its revenues. This is the ideal situation. If the institution has a negative gap, it should operate some amendments concerning its portfolio. Hereby, it could reduce the remaining maturity of placements by selling the assets with prolonged date of payment and fixed interest rate and purchasing liquid assets with short maturity date. Also, it is necessary the stimulation of floating interest credit, to the detriment of that one with fixed interest rate. In parallel, the bank should try to increase the maturity of

sensitive resources and to try to get them at the current interest rate (smaller than the future one) that should be unchanged on a longer period. If a decrease on interest rate is anticipated, the bank will act opposite.

The aggressive management has a series of disadvantages that, in case of a failure, could lead to major losses for the bank:

- an error within the prevision of interest rates or when an unexpected situation occurs leading to the inversion of their dynamics as an immediate effect could affect the initial objective and cause important losses. In order to avoid these consequences, the previsions must be permanently updated and immediately communicated to the board, usually by ALCO (Assets and Liabilities Committee);
- a certain strategy, once implemented, is difficult to be changed, it requires time and further expenses and its immediate consequences are obvious for banking liquidity and affect the whole banking process.

A defensive strategy tries to preserve the current level of net interest margin by protecting it from any change in interest rates. This type of management tries to maintain a balance between the sensitive assets and liabilities for a certain period of time. If this point is reached, an increase of interest rates generates a change of collected and paid interests in the same way, so the net interest margin remains unchanged.

Both the defensive and the aggressive approach are management extremes and

they are not used in practice. A mix of strategies is often used and its application depends on the market characteristics, the risk appetite of the bank management and shareholders and the management of other types of inter-correlated, but inherent for the bank activity, risks.

In economic emerging markets environments, as the Romanian one is, we consider that the management of the bank must take a series of specific measures in order to protect the portfolio and its market value.

In case of assets it should:

- decrease of the credit maturity and of the investment portfolio;
- adjustment of active interest rates to real positive levels;
- usage with priority of variable interest rates;
- disburse credits with priority for clients who have export activity, that cash in convertible currencies, that register a consolidated demand in real terms, that prove a competition advantage in comparison to other industries or to other competitors, that prove price adjustment ability;
- apply of index interest rates for compensating the inflation erosion of investments value;
- increase the number of credit and investment portfolios reviews to identify the possible problems.

In case of liabilities it should:

- borrow funds, as much as possible, at fixed interest rate,;
- structuring interest margin (the revenue corresponding to borrowed

and then lent resources) according to the credit maturity and the level of risk;

- maintaining a liquid assets stock, for permanent maintenance of adequate liquidity, which is necessary for the reimbursement of borrowed deposits;
- active usage of interbank market facilities on short term (O/N – overnight) to invest the excess of liquidity and to assure the resources for financing;
- ensuring an appropriate safety liquidity level (back-up liquidity);
- diversification of borrowed resources;
- providing access to further credit resources, such as credit lines ensured by other banks or even by Central Bank.

2. Assets and Liabilities Committee – support instrument of banking treasury activity

Nowadays, one of the most important risk management functions of a bank is ALM – Assets and Liabilities Management, generally represented by balance strategic management, whose purpose is optimizing/minimizing the variability of net interest margin and the market value of bank's equity. The literature gave many definitions to this function of banking management, but all of them are correlated with the above description:

- practice of correlating the maturities and the cash-flows of assets and liabilities to maximize the revenues and to reduce the interest rate risk

(Guide to Risk Management: a Glossary of Terms, Risk Publication 1989);

- the process of planning, addressing and the control of flows, level, mix and funds maturity in order to reach the financial objectives and the control of financial risks (Successful Bank/Asset Liability Management, Bitner & Goddard. Wiley 1992);
- financial risks management of every financial institution (Financial Risk Management in Banking: The Theory & Application of Asset & Liability Management, Uyemura & Van Deventer, Irwin 1993);
- coordinated management of bank balance, taking into account alternative scenarios of interest rate, liquidity and anticipated payments (Commercial Bank Financial Management. Sinkey, Prentice Hall, 1999);
- strategic management of balance taking into account all market risks (Asset/Liability Management, Shitnivasulu, Euromoney – DC Gradner workbooks, 2002).

To synthesize, assets and liabilities management responds, both in theory and practice, to the following problems of bank activity:

- liquidity planning;
- interest rate risk management;
- funds internal transfer;
- equity planning and allocation;
- quantifying the profitability.

Recent evolutions of Romanian banking market, represented by reduction

of interest rates correlated with the decreasing trend of inflation, decreasing yield of government securities (banks' preferred option until 1-2 years due to the favorable price conditions and reduced risk), privatization of public banks, opening of some branches of important foreign banks, rising the non-governmental credit, rising of competition, rising of financial flows across borders, all of these require a serious management risks and a special concern on banking assets and liabilities.

An efficient organizational structure is, in our opinion, a general condition for any successful activity and a particular one for assets and liabilities management. In a broader view, the way the activities are organized, the relationships between employees and the relationships with third parties, meaning the whole organizational culture of an institution, represent elements that have a distinct impact on performances. From this point of view, many Romanian banks deficient, and the examples of foreign institutions with a certain vision of business management, a vision built in a developed economic environment, which is different from the Romanian one, could be taken-over and could contribute to desired success.

The way the management defines and operates its decisions, internal communication and internal formalism degree are components of organizational culture and, the more defined and implemented they are, the more mature and defined the company is. In this context, we consider that the implementation of an

assets and liabilities management strategy cannot be realized without an appropriate organization, even though the bank disposes of highly qualified technicians. The models of occidental banking institutions could be taken as benchmarks by the Romanian banks, the most important components of this organization are:

- active coordination/control at the highest level of management (the Board);
- clear establishment of structure and functions of corporate governance: the Board, Assets and Liabilities Committee (ALCO), Management Committee, Risk Committee, Audit Committee;
- policies, procedures, adequate limits;
- correct evaluation, monitoring and management of risks;
- adequate and comprehensive internal control.

From our point of view, the most important component of this structure is the Assets and Liabilities Committee (ALCO) that has the greatest responsibility in building of the general strategy and the supervision of the whole function of assets and liabilities management.

The importance of ALCO in banks is getting greater and greater, and its composition is targeting the high level managers. Generally, the structure of ALCO consists of board members, business lines managers, treasurer and the chief financial officer of the bank. The recent evolutions denote a conflict element in ALCO activity, represented by the

emerging of new, more and more complex financial products and by new technique analysis used in quantifying risks, that require more and more qualified abilities, which belong typically only to the experts in risk analysis. On the other side, the board members have the advantage of a 'big picture' vision of the whole activity, fact that enables them in taking strategic decisions. The compromise in organizing a function, strategic, on the one hand, and technically complex on the other hand, is solved by attending the ALCO meetings by guests too (permanent or not) – highly qualified technicians (usually, from the middle management of the bank) – who can provide explanations and clarifications of technical products, but without the right to vote on ALCO decisions.

In brief, we appreciate that ALCO purposes are:

- the analysis of the impact of changes that appeared in economy and legislation;
- the analysis of interest rate evolution;
- establishing the interest rates, the prices of assets and liabilities products;
- monitoring the liquidity risk and the exchange rate risk;
- analysis of the difference between current and forecasted/budgeted performances (net interest margin, active and passive average interest rates, margins, balance sheet indicators);
- budgeting/ strategic planning;
- implementing new products and their impact on the results;

- analysis/approval of assets and liabilities management policies and risk limits.

The structure of decision flow in an ALCO meeting can be represented in the below graphic:

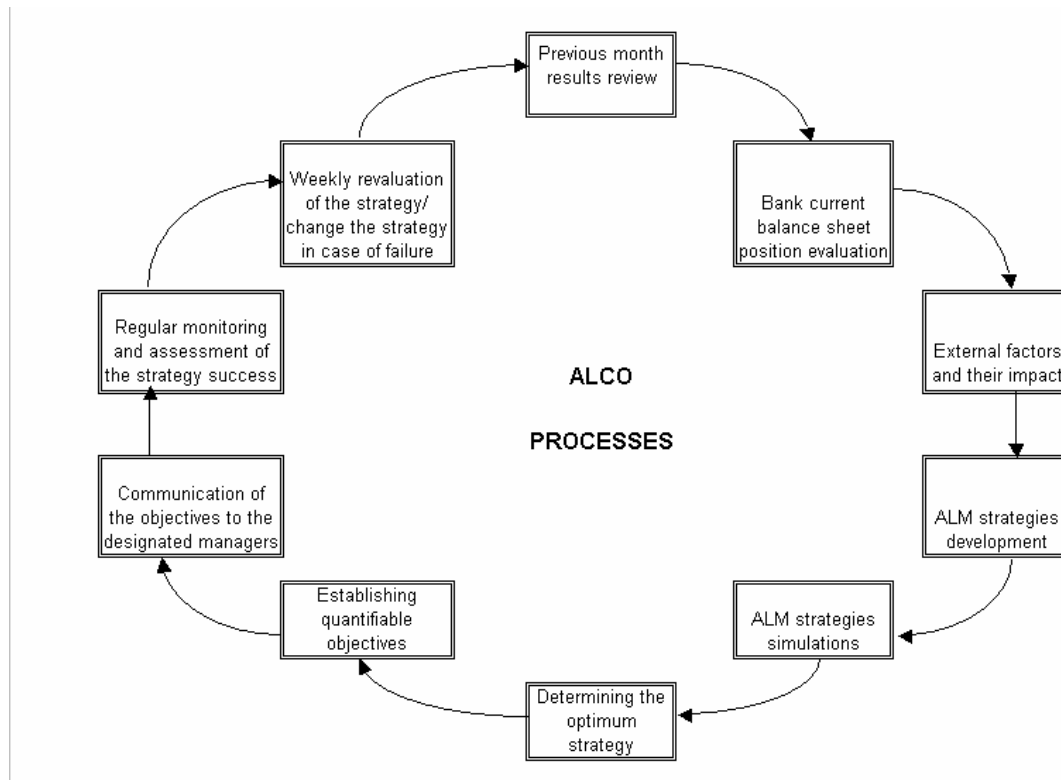


Figure 2. *The structure of the ALCO decisions flow*

Taking into consideration the importance of the activity, the necessary information for adopting the ALCO decisions is of a great extent. Thus, the most common informational needs of ALCO are:

- information regarding the interest rate risk – gap reports, simulations, duration analysis, Value-at-Risk;
- present, past and forecasted financial situations;
- profitability reports by products, units, clients to identify the activity

areas that must be stimulated or excluded;

- analysis of net interest margin dynamics;
- analysis of financial-economic activity, based on balance and profit and losses account: profitability, liquidity, capital adequacy;
- reports regarding the liquidity position of the bank;
- reports regarding the evolution the bank's financial position comparing to the budgeted/forecasted one.

3. Conclusions

The frequency of ALCO meetings is very important in achieving of the established purposes. Without trying to offer a solution, the specificity of the financial markets and of the bank activity seldom impose more often meetings and adopting new strategic decisions. Hereby, a banking institution that has a

stable level of the balance sheet and a well defined mix of products, without a market maker activity in derivatives field or with a reduced portfolio of transacted securities, can be managed by annual or quarterly ALCO meetings. As far as the market is more volatile and the activities of the bank are more exposed to risks, meetings should take place weekly or twice a week.

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The Dimensions of Organizational Intelligence in Romanian Companies – A Human Capital Perspective

■

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***Abstract.** The paper discusses the perceptions of organizational intelligence dimensions in Romanian companies, taking into account the degree of awareness employees have, in relation to this concept, and the overall investments in R&D at the industry level. Starting from the concept of organizational intelligence, the way it is defined in recent literature, we establish seven dimensions which are relevant for its analysis, and test them on a relevant sample, random stratified, of Romanian companies, reflecting the structure of Romanian economy, and all the layers of company size. We examine, thus, the correlation between the quality of the organizational human capital (the individual intelligence) and the learning processes, at the organizational level. The results of the study can be further expanded to analyses of the regions of development, by correlating the dimensions of the organizational intelligence with the macro-economic, developmental indicators.*

Key words: organizational intelligence; human capital; Romanian companies.

■

JEL Codes: D23, M12.
REL Codes: 14C, 17C.

1. The concept of organizational intelligence

For understanding organizational intelligence and its importance for the business environment, we have to consider two perspectives: the Western one, set by Peter Senge (Senge, 1990) and Chris Argyris (Argyris, 1999) in the United States, and the Eastern one, tailored to the Japanese way of thought by Ikujiro Nonaka and Hirotaka Takeuchi (Nonaka, Takeuchi, 1995). Senge's vision on the learning organization, that of a group of people who continually enhance their capacity to create the results they truly desire, proved to vary influential, in the last decade, as Harvard Business Review nominated his book, *The fifth discipline: The art and practice of the learning organization* (1990) as one of the most thought-provoking management works of the last century. According to Peter Senge, in order for an organization to learn, its members have to create new thinking and expression models and have to share the vision of a common purpose.

Although, theoretically speaking, as all have the capacity to learn, the organizational structures in which we activate are not always flexible and open to learning. It is for this reason why intelligent people are necessary, but not enough for an organization to become intelligent. In bureaucratic organizations (Mintzberg, 1997), which are highly reluctant when it comes to stimulating the creativity of their employees, the intelligence of the members of the organization is systematically blocked. More than that, they do not dispose of the adequate structures which should guide their learning,

of the systemic integration both individual and organizational elements which enable learning. These are, according to Peter Senge, systemic thinking, personal mastery, mental models, shared vision and team learning. People can influence the structures they are a part of, on the condition that they don't think narrow, but seize complexity, seeing fractals, not fragments. Thus, from passive executors of organizational routines, they grow into those who create their action framework, building, practically, the structural capital of the organization.

Organizational intelligence is, thus, the integral result obtained in a given organizational environment, due to contextual management (Menkes, 2005). Organizational intelligence, a non-linear system (Brătianu, Murakawa, 2004), fractal, like individual intelligence (Cruse, 2006), has not been, up to this moment, approached unitarily (Glynn, 1996, Akgun, Bryne, Keskin, 2007). The main approaches to individual intelligence, the behaviorist approach (Zuriff, 1985, Melser, 2004), the cognitivist approach (Sternberg, 1984, Walsh, Betz, 1990, Harth, 1993, Jensen, 1998) and the adaptive approach (Laughton, 1990, Plotkin, 1994) are imported in the studies dedicated to organizational intelligence. The behaviorist approach (Zara, 2004) refers to setting some behaviors which are suited to the organizational interests, which the organization should reach based on a given set of inputs. The organization learns which are the behavioral algorithms which yield the desired results and, like a hybrid system, human and cybernetic (Abraham, Koppen, Franke, 2003), it selects the corresponding algorithm each time it comes across a situation which is similar to one in the past.

This is what Argyris (1999) names *single loop learning*. The cognitivist approach (Schlinger, 1992, Schwaniger, 2003) employs the cybernetic modeling of organizations, by equaling intelligence with the information-processing organizational structures. The critique of the cognitivist approach (Rizzello, Turvani, 2000, Perkins, 2003) is structured around its ignoring of the intra- and extra-organizational environment in which information is processed. While the behaviorist approach takes intelligence for a reflex act, whose manifestation depends linearly on the environmental stimuli, the cognitivist approach is an autist one, which ignores contextual positioning. The adaptive approach to organizational intelligence (Desouza, 2006) describes its evolution also under the impulse of the environmental stimuli, but by adopting a non-linear model. The AGIL model (Parson, in Nilsson, 2007) – *adaptation, goal attainment, integration, latency (pattern maintenance)* – illustrates, in a simplified perspective, the way organizations use their intelligence in a manner which targets their adaptation to the environmental conditions and success achievement, in two stages: survival and performance.

The definitions of the organizational intelligence focus on various aspects of this conglomerate of characteristics, out of which we extract:

- The problem of gathering, processing, interpreting, and communicating the technical and political information needed in the decision-making process (Wilensky, 1967).
- Understanding organizations as learning systems and creative systems (Nevis, 1996, Mumford, Gustafson, 1988).
- The organization's ability to deal with complexity, that is, its ability to capture, share, and extract meaning from marketplace signals (Haeckel, Nolan, 1993). Based on the three directions, connection, for attracting knowledge, interaction, for sharing knowledge, and structuring, for extracting meaning, the intelligence quotient of the organization can be computed (Choo, 1995).
- The intelligent behavior of the organizations, as a function of their design (Nonaka, 1995).
- Information processing functions that permit adaptation to environmental demands and are related to innovation initiation and implementation (Glynn, 1996).
- That capacity for computation which can be applied to information that is externally gained or internally generated to meet survival challenges (McMaster, 1996).
- Organizational intelligence is a function of five cognitive subsystems: organizational structure, culture, stakeholder relationships, knowledge management, and strategic processes (Halal, Kull, 1997).

It can be noticed that, in all these approaches, the focus is on processing information for obtaining knowledge. Knowledge possession and knowledge creation are, according to Gregory (1981, 1984) two different processes contained in organizational knowledge. The intelligent organization uses knowledge management as adaptative tool for coping with an environment which is continuously

changing, by identifying in advance opportunities, and early risk avoidance, behavior which identifies itself with the strategic orientation of the company, understood as its capacity to position itself, in the long run, in such a way as to generate and maintain its competitive advantage. Simpler said, an intelligent organization is that organization which, being the best, has success, and reciprocally. Liebowitz's modeling (2000, p. 6) presents a sequence of the knowledge processing functions that organizational intelligence involves, represented in Figure 1:

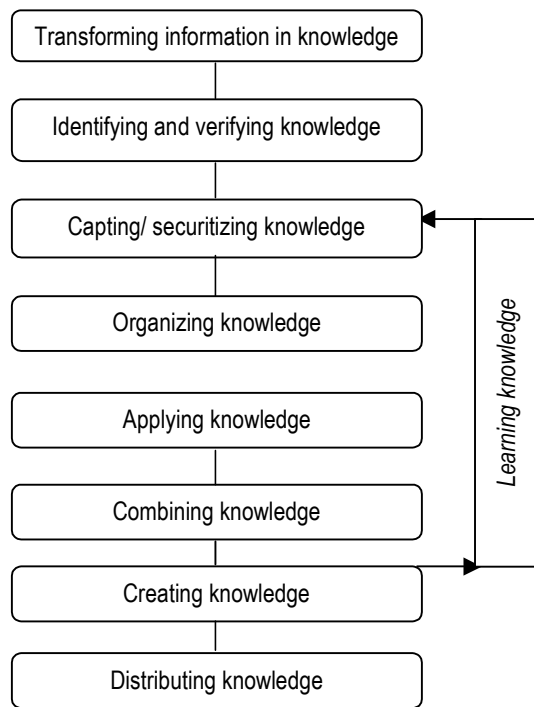


Figure 1. *Assembling the processes of knowledge transformation into organizational intelligence*

All these approaches point at the connection existing between organizational intelligence and the learning process, an intelligent organization being, essentially, an organization able to learn.

The organization's capacity to learn is influenced by the way in which its employees

perceive organizational intelligence, the benefits an intelligent organization offers to its members, and the awareness, or lack of awareness, regarding the level at which the organization is placed on the intelligence scale, and regarding the effort which its employees are disposed of making for improving this level. On the quality and quantity of this effort the success of the learning process depends.

2. The dimensions of organizational intelligence

In order to assess the suitability of the organization for the learning process, and its intelligence coefficient, seven factors have to be monitored: strategic vision, shared fate, change orientation, heart and soul, alignment, knowledge deployment, and performance pressure (Albrecht, 2005, in Prejmorean and Vasilache, 2007).

For *strategic vision*, the matters in focus are:

- The “strategic conversation” in the organization – plus or minus.
- The environmental scanning – plus or minus.
- Annual strategic review – present or absent.
- Value proposition – plus or minus.
- Statement of direction – present or absent.
- Correlation between statement of direction and key decisions – present or absent.
- Leaders' identification and promotion – plus or minus.

Similarly, for *shared fate*, other seven questions have to be addressed to:

- Plans and priorities sharing between management and employees – present or absent.

- Understanding of the organizational idea throughout the organization – plus or minus.
- Information sharing across departments – plus or minus.
- Sense or belonging – plus or minus.
- Employees – management partnership – present or absent.
- Employees' belief in the organization success – plus or minus.
- Projected long lasting relationship with the organization – plus or minus.

Change orientation is accounted for by:

- Issuance of new university services to keep up with the demand – plus or minus.
- Natural mechanisms to encourage innovation – present or absent.
- Employees' stimulation to find creative ways to better do their jobs – plus or minus.
- Permission to question the habitual way of getting things done – plus or minus.
- Bureaucracy – plus or minus.
- Willingness of the management to admit their mistakes and to cancel non-working strategies – plus or minus.
- Openness – plus or minus.

“Heart and Soul” measures commitment in terms of:

- Overall quality of work life, as perceived by the employees – plus or minus.
- Management's interests as perceived by the employees – plus or minus.
- Pride taken in belonging to the organization – plus or minus.
- Willingness, from the part of the employees, to spend extra effort to build organizational success – present or absent.
- Optimism regarding the future of employees' career in the organization – plus or minus.

- Management commitment – present or absent.
- Perception of managers as role models – plus or minus.

Alignment shows:

- Organizational structure appropriateness to the mission – plus or minus.
- Sense-making of rules and policies, as compared to priorities – plus or minus.
- Facilitation of employee performance – present or absent.
- Information systems as facilitators – plus or minus.
- Value creation – plus or minus.
- Authority delegation – plus or minus.
- Alignment of departments missions, as to facilitate cooperation – present or absent.

Knowledge deployment is expressed by:

- Cultural processes of knowledge sharing – present or absent.
- Managers' respect for employees' knowledge skills – plus or minus.
- Porous organizational boundaries – plus or minus.
- Information systems knowledge flows support – plus or minus.
- Continuous study of the new tendencies at the managerial level – present or absent.
- Continuous learning programs support – present or absent.
- Accurate appreciation of employees' tacit knowledge – plus or minus.

Performance pressure takes into account:

- Clear understanding of roles and responsibilities, at all levels – present or absent.
- On-going communication of performance goals and expectations – present or absent.

- Replacement of poorly performing employees – present or absent.
- Removal of failing managers – present or absent.
- Feedback to employees and recognition of their contributions – plus or minus.
- Employees' perception that their work contributes to the organization's success – plus or minus.
- Employees' perception that their career success is determined by their job performance – plus or minus.

Performance pressure, in a society “of excellence” (Lyotard, 2004), where performance is the main legitimating factor, reflects an organization's capacity to shift demand in its favour. Demand, in its turn, is influenced by the marketing and the R&D expenses of the company. Thus, intelligence creation operates both externally, by means of relationship management, and internally, by generating the technological advantage (Yang, 2004). The matrix of the sources of R&D intelligence is presented in Figure 2 below:

	Direct	Indirect
Individual	Networks Individual research Visits Memberships Tradeshows, conferences, etc. Lifelong learning	Consultants Experts Editors Analysts Retired executives
Organizational	Patents and patent citations Marketing material Annual reports	Industry surveys Business associations Government records

Figure 2. Sources of R&D intelligence

Kohli and Jaworski (1990) list as the first element in market orientation the market

intelligence generation. The main sources of market intelligence are:

- *databases*, for relevant indicators regarding companies operating in the field
- *opinion leaders*, who are trend-setters for that particular domain, and who may be consulted as far as the feasibility of an innovation is concerned
- *informal contacts* – keeping the channels open for information flows
- *industry associations, universities*
- *horizontal* (with complementary companies on the market) and *vertical* (licensing agreement with large, marketing skilled companies) *alliances*.

The seven elements listed above are principles of the intelligent organization, a composed competitive advantage allowing it to perform better than firms lacking this architecture do. Synthetically, the organizational synergy behind intelligence is reflected in Figure 3.

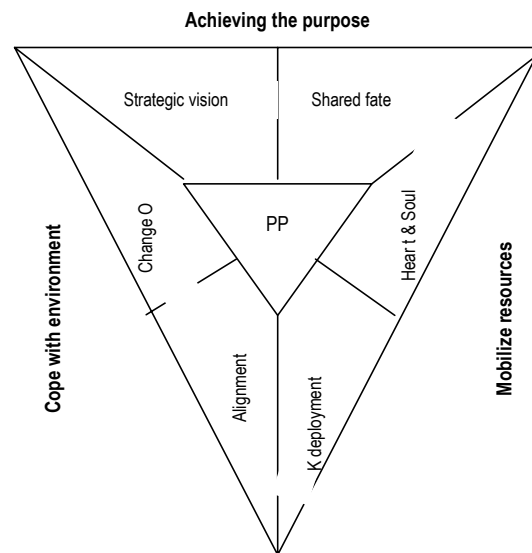


Figure 3. The architecture of the intelligent organization

The triad achieve purpose – cope with environment – mobilize resources is a function

of team-learning. By team-learning the organization becomes a rhizome-like system (as defined by Deleuze and Guattari, 1987), whose relationships with the context are diffuse, and which forms connections spontaneously, relying not only on existing, but also on potential knowledge. Margaret Schneider (2002) advances also the concept of *radix organization*, anchored in the value chain, and taking its intelligence from there. By combining the two views, we add some other radices to organizational intelligence, these being organizational culture and leadership.

Organizational culture can be seen as an organization's "personality", whose relationship with intelligence was thoroughly theorized in individuals. For José Antonio Marina (2004), personality can contribute to the success or failure of intelligence, because it brings about emotional traits, irrationality, safety anchors which prevent individuals from taking risks, even if their intelligent calculus proves that risk-taken to be profitable, inertial mechanisms, etc. Marina defines social intelligence as the sum of the individual intelligences, corroborated with the systems of interaction and with power distribution. Organizational culture accounts for the systems of interaction, while leadership governs power distribution.

The dynamics of every organization is, at the same time, centripetal and centrifugal. Committed to the same organizational culture, people tend to be on the one hand collectivist, on the other individualist. Excellence, in itself, can be interpreted as the performance of the egotists, or as the successful common effort towards accomplishing a common goal. In order to harmonize these contradicting energies, intelligent organizations need to

include, in their cultures, five elements (Wagner-Marsh and Conley, 1999):

- Strong sense of purpose – *why is the organization in place?*
- Preoccupation for individual development – *what do the employees want to become and how the organization supports them to get there?*
- Openness and trust – *mistakes are inherent, and have to be admitted, the focus is not on hiding them, but on preventing, curing and, if possible, never repeating them.*
- Empowerment – *employee learning and employee decision-making are promoted, in order to stimulate employee responsibility and commitment. If the employees recognize themselves, and their individual objectives, in the vision shaped for the company, and in the organizational objectives, they are likely to contribute with increased efforts to the organization's success.*
- Allowance for employees' emotions – *intelligent organizations let their people be themselves, act spontaneously, behave creatively, express their moods.*

These prescriptions for an intelligent culture constitute favourable conditions for organizational intelligence to emerge. Successful organizational culture is some sort of hologram, where every individual becomes a micro-scale representation of the macro-scale "mind" of the organization. The challenge of creating and maintaining an intelligent culture is the one of being able to shape a common ground but, knowing that homogeneity is intellectual death, and that consensus, according to Lyotard (2004), has grown into a suspect value, to encourage, at the same time, creative difference.

3. Research objectives

The main objective of this research was to outline the position of the employees in Romanian companies towards the seven dimensions of organizational intelligence identified in the aforementioned questionnaire, in a pilot research, in order to be, then, able to extend the conclusions to a representative sample of organizations.

We envisaged the analysis of the differences existing between large organizations, with over 150 employees, and microenterprises, starting from the premise that the human resources, as well as the differences in organizational culture and leadership between the two categories can have significant effects on the manner in which the dimensions of organizational intelligence are perceived, and on the way they are put into practice. Also, as an indicator of the profitability of organizational intelligence, we recorded the investments in R&D in each organization, as reported to the average of the sample.

4. Methodology

We used a random stratified sample ($L = 3$), including ten for profit organizations, with Romanian capital. We used part-time students employed in these organizations as interview operators. The average rate of response was of 83.7%, while the weight of the interviewees holding management positions was of 21.4%. The interviews were partly structured, focused on obtaining details on the issues we previously described, and which are included in the seven dimensions of organizational intelligence.

Starting from the identified aspects we intend, in a future research, to interview key persons in each organization, and to organize focus groups, in order to identify and discuss

the problems in perceiving the dimensions of organizational intelligence, and to diagnose differences from the patterns acknowledged in literature.

The structure of the sample, by the number of employees, is presented in Figure 4:

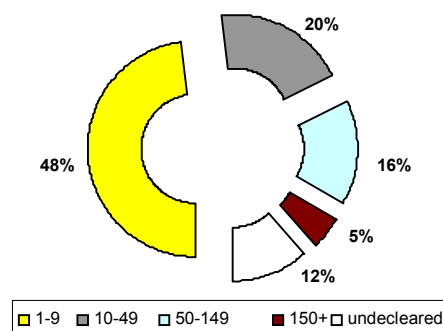


Figure 4. *The structure of the sample by number of employees*

It can be noticed that microenterprises are prevailing, as their percentage in the national economy is also high (85% of the SMEs). The percentage of the organizations employing more than 150 people is low, but it can be seen that a relatively large number of organizations did not declare their number of employees, which affects the precision of the correlations between the human resource and the degree of organizational compatibility with the dimensions of organizational intelligence.

The distribution of the organizations by their object of activity is illustrated in Figure 5, which gives a fair image of the distribution in the national economy:

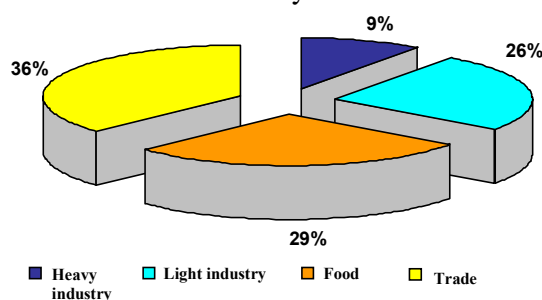


Figure 5. *Sample structure by field of activity*

From the point of view of investment in R&D, at the level of the small enterprises, the medium and the large, we notice the situation presented in Figure 6.

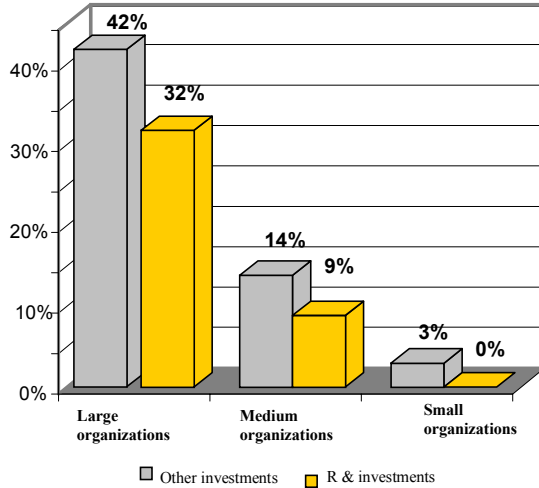


Figure 6. *The comparative situation of R&D investments, related to other priorities*

The results, regarding the investigation of the seven dimensions, are presented in the following section.

5. Results

The analysis of the first dimension, the strategic vision, lead to the results presented in Figure 7:

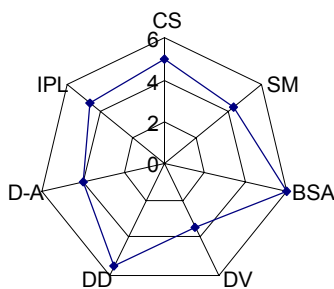


Figure 7. *The average values of the sample for the seven sub-components of strategic vision*

where CS = strategic conversation, SM = environmental scanning, BSA = annual strategic review, DV = value proposition, DD = statement of direction, D-A = correlation between statement of direction and actions, IPL = leaders' identification and promotion.⁽¹⁾

We can notice that, excepting the statement of direction and the annual strategic review, all the other components score around the value of 4, on our scale from 0 to 6, which indicates an average level of complying with these desiderates, in the examined Romanian companies. The lowest scores are obtained in the cases of correlation between the statement of direction and the concrete actions taken, which is not at all surprising, considering the general context of the Romanian companies.

As far as shared fate is concerned, the average scores are presented in Figure 8:

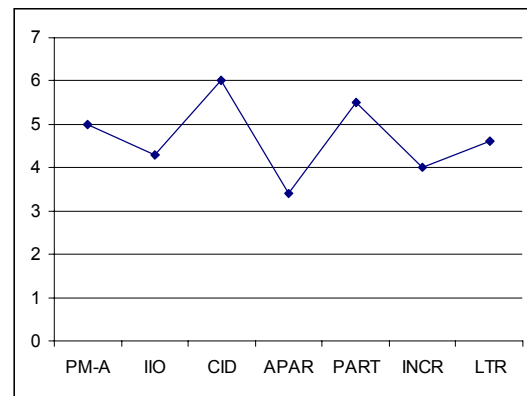


Figure 8. *The shared fate perception of the organizations' members*

where: PM-A = common plans manager-employee, IIO = understanding of the organizational idea at all levels, CID = interdepartmental communication, APAR = feeling of belonging, PART = partnership management-employees, INCR = employees' trust in the future of the organization, LTR = long term relationships in the organization.

On the same scale, from 0 to 6, we notice that the relative maximum levels are obtained by interdepartmental communication and the sense of partnership with the management, which is obvious (although there is the risk of a superficial perception) in the companies with a young management and a low power distance. On the contrary, the Romanian employees included in the

study declare low levels of trust in the future of their organization, and low levels of belonging. The understanding of the idea on which the organization is based and the establishment of long-term relationship reach only an average level.

As far as change orientation is concerned, the practical findings are summarized in Figure 9:

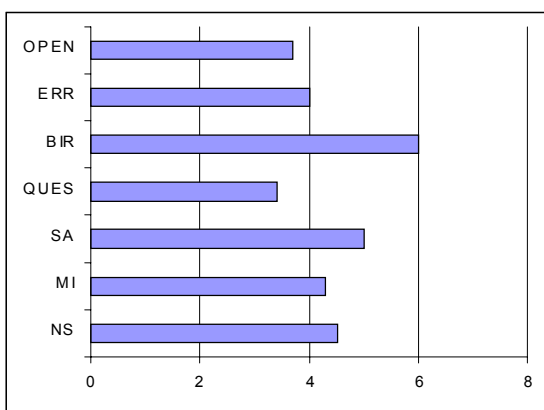


Figure 9. *The change orientation parameters*

where: OPEN = degree of openness, ERR = management tolerance towards errors, BIR = bureaucracy, QUES = the permission to ask questions about management decisions, SA = employees stimulation to change, MI = mechanisms to encourage innovation, NS = new products/ services proposed by the organization.

Not at all surprising, bureaucracy, as a factor which blocks change scores very high, followed only at a large distance by the other parameters, favourable to change. The tolerance towards errors is, generally, high, in the analyzed organizations, which may, on the one hand, indicate an organizational climate which encourages experiments but, on the other hand, may signal a *laissez-faire* atmosphere, in which the results of the actions taken are not sanctioned in any way. Also, the stimulation of the employees to change is perceived as intense, the employees being, thus, motivated to find out methods to become more efficient.

The „heart and soul” is, in its turns, measured by means of seven parameters, included in the graph presented in Figure 10:

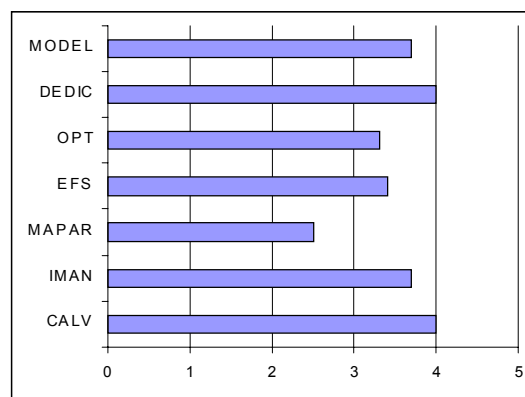


Figure 10. *„Heart and soul”*

where: MODEL = perceiving managers as role models, DEDIC = dedication to the management, OPT = optimism, EFS = willingness to make additional effort to insure organizational success, MAPAR = pride in belonging to the organization, IMAN = management interests as perceived by the employees, CALV = the quality of life in the organization.

We notice that, in this case, the scores are significantly lower than for the previous dimensions. Only the quality of life in the organization is perceived as fairly good, and the degree of dedication is high.

On the contrary, the optimism and the willingness to make additional efforts for the organizational success score poorly. Also, a relatively small number of managers are seen as role models, and the pride to be a member of a certain organization has the lowest score from all the variables recorded. We may, then, ask why people dedicate, if not because they are proud. One hypothesis may arise from a particular understanding of dedication (*doing one's job well*), or from the dedication *in abstracto*, towards a generic organization, combined with a general sense of duty.

When analysing alignment, we came across the situation represented in Figure 11:

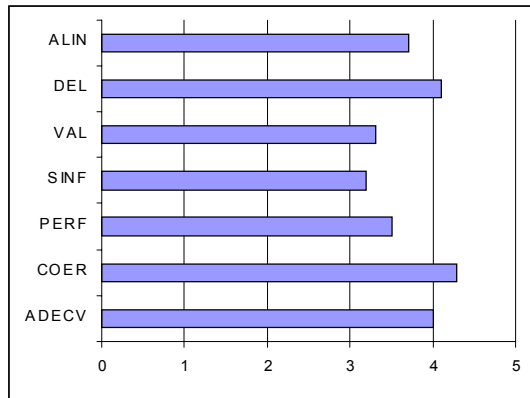


Figure 11. *The degree of alignment in organizations*

where: ALIN = the alignment of departments' missions, DEL = delegation, VAL = value creation, SINF = using IT for facilitating activities, PERF = facilitating employees' performance, COER = coherence of policies and strategies, ADECV = alignment of organizational structure to organizational mission.

From the graph we may infer that the best represented attributes of alignment are delegation and coherence, while the others obtain only medium scores, which are far below the maximum considered, of 6.

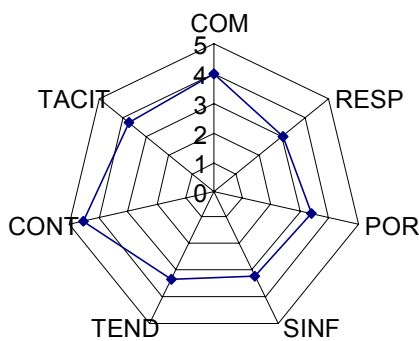


Figure 12. *Knowledge deployment*

In Figure 12 we outline the main mechanisms by which knowledge deployment is produced, at the organizational level. The most important is encouraging continuous learning (CONT), and putting individual knowledge together (COM), as

well as extracting tacit knowledge accumulated by the employees (TACIT).

Finally, performance pressure is illustrated by the indicators presented in Figure 13:

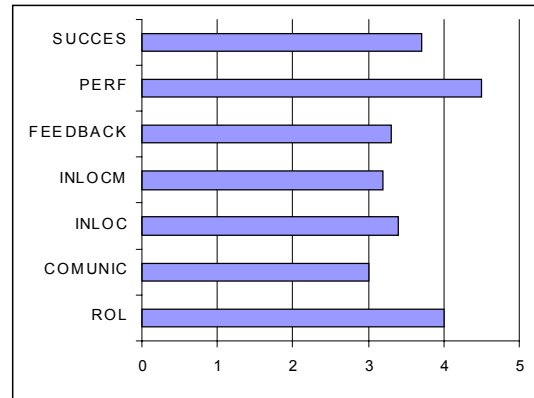


Figure 13. *Performance pressure indicators*

The main indicators are the perception of the employees that their individual performance contributes to the success of the organization (PERF), and the opinion that their success in their career is influenced by their performance (SUCCES). Also, we should take into account a clear understanding of roles and responsibilities in the organization (ROL). A minor importance is given to communicating managerial expectations related to performance (COMUNIC), and to replacing the managers (INLOCM) and the employees (INLOC) who perform poorly. Interestingly enough, replacing managers who don't perform well is seen as less important than replacing employees who don't perform well.

In the end of the interview, the respondents were asked a question referring to how familiar they are with the concept of organizational intelligence. Their answers, on types of organizations, are presented in Figure 14:

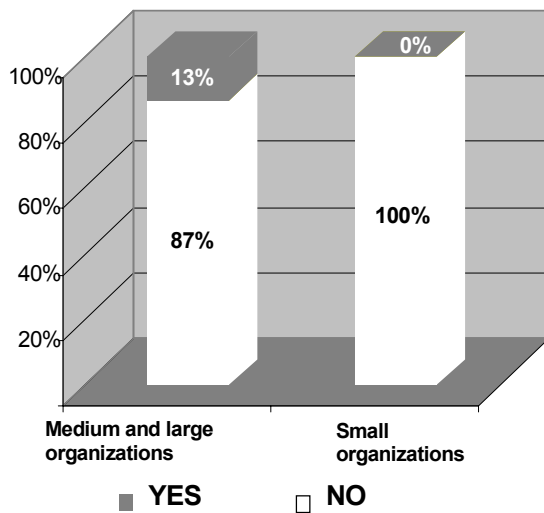


Figure 14. *The degree of familiarity with the concept of organizational intelligence*

We noticed that, at the level of the large and medium organizations, the concept is known in a small proportion, while at the level of small companies the degree of familiarity corresponds to statistical zero. We need, then, strategies of promotion and of proving its efficiency, targeted to the managers and employees, before we can go on to its applying and development in Romanian companies.

Conclusions

The data obtained in this pilot research show that, although organizational intelligence is not new to the world, as many recent studies debate on it, it is certainly new to the market, for Romanian companies. Starting from the answers obtained to the last question included in the interview, we can conclude that the proportion of the employees, even in large and medium companies, which have heard of organizational intelligence (13%) is far from being satisfactory. The employees of the

small organizations totally ignore this concept and, of course, we can't expect that they are ever going to operate with a concept which is unfamiliar to them.

However, the answers to the questions based on dimensions and subdimensions of organizational intelligence, as they were identified by us, indicated average and above average scores, which shows that, although these development efforts are not reunited under the umbrella of organizational intelligence, the analyzed organizations apply elements of human resources management and strategic management in order to reach their objectives, by motivating their employees to remain loyal to them, transmitting the organizational idea at all levels, etc. What it seems, nevertheless, to be missing is systemic thinking, which lies at the base of organizational learning and organizational development. Although these practices are in a germinal stage, in Romanian organizations, they do not belong to a coherent assembly, which should make possible their re-utilization, whenever necessary, their archiving in the manner of an organizational behaviour code, which is more effective than their unsystematic, momentary usage.

The situation which resulted from this research imposes as a priority the harmonization of theory and practice in the field of organizational intelligence. The first step which needs to be taken is the popularization of the concept, at the level of the decision factors in the organizations, as well as at the level of the employees, in order to create a double-direction pressure, which is favourable to applying the principles sustaining the concept of organizational

intelligence. Only after a significant degree of familiarity with the concept is reached, being, thus, created the critical mass of knowledge about organizational intelligence, we can continue with the reevaluation of its components and to stimulating its application, being aware of its meaning and organizational effects. Thus, the scores obtained will be comparable and correlated, not only a series of ups and downs, which may very well be accidents of organizational

life, and not the expression of a systematically pursued method. Intelligence, although it may emerge accidentally, from the organizational subconsciousness, needs, in order to develop and become operational at the organizational level, a strategy, a sustained, systematic practice. The direction which should be followed in order to reach the strategy of organizational intelligence development is what this pilot research pointed at.

Note

- ⁽¹⁾ As the questionnaire was written in Romanian, the acronyms express the Romanian concepts

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An Analysis of Closed-end Fund Puzzle for Emerging Capital Markets

■

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***Abstract.** This paper analyzes the closed-end fund puzzle for an emerging capital market, respectively the Romanian one. Comparatively to more developed markets, as long as small markets are often very illiquid, it has to be used some specific valuation techniques in order to estimate the market values for closed-end funds. Also, one problem is this estimation can be made only in some (punctual) moments.*

Key words: closed-end funds; market efficiency; emergent capital markets; Romania.

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JEL Codes: G14.
REL Codes: 11B.

1. Introduction

The “closed-end funds puzzle” is defined as the empirical finding that closed-end fund shares are typically sold at prices not equal to the per share market value of assets the fund holds (Lee, Shleifer, Thaler, 1991). The closed-end fund puzzle is often explained based on agency costs, tax liabilities, illiquidity of assets, investor sentiment, etc. Also, this issue is often related to the market efficiency hypothesis (see Zweig, 1973, De Long, Shleifer, Waldman, 1990): it can be argued that this difference is an anomaly that can prove the market inefficiency (see, also, Dragotă, Mitrică, 2004, Dragotă, Dragotă, Stoian, 2004). This paper analyzes the closed-end fund puzzle for Romanian capital market. In this context, Bucharest Stock Exchange, due to its small capitalization and low liquidity, can be considered as a proxy for other similar emerging markets.

The state of Romanian closed-end funds has to be analyzed in an historical perspective. Romania was under Communist regime in the period 1947-1989. In December 1989 Romanian citizens claimed their right to democracy and Romania has started reforms in the main sectors. It has to be noticed that, in Romania, at the beginning of 1990 years, Mass Privatization Programme (PPM) had a significant influence on Romanian financial market. In 1991, according to the first law of privatization, were formed five Private Property Funds (FPPs) to which were allocated 30% of the common stocks of the companies owned by the Romanian State,

but not including strategic and utilities companies. At the beginning of 1995, almost 15 millions peoples used their vouchers resulted from PPM in order to receive shares of over 5,000 companies owned by the Romanian State. These companies became opened companies and their shares were traded, mostly, at Bucharest Electronic Market, RASDAQ (BER). Those companies which fulfilled each condition imposed by Romanian National Securities Commission (CNVM) were traded at Bucharest Stock Exchange (BSE), re-opened in 1995.

The five Financial Investments Funds (SIFs), somehow similar, as organization, to closed-end funds in US or investment trusts in UK, are the result of reorganization, in 1996, of FPPs. During PPM, almost 2.2 millions peoples invested their vouchers to SIFs. At this moment, according to Romanian regulations, an individual or a group of investors sharing the same interests can not detain more than 1% from SIFs common stocks. SIFs portfolios are heterogeneous, due to the fact that, during PPM, first it was transferred to peoples the 30% of the common stocks of State owned enterprises held by FPPs. After “spending” the 30%, in order to end the privatization process, there was used the rest of the shares, totally owned by the State, and managed by State Property Fund (FPS). At the end of PPM, the new SIFs had no shares to the most important Romanian enterprises, and their portfolios were formed by compensating the lost shares with new ones from FPS’ stake. The result is that, even at this moment, SIFs hold many

shares, but more than half of them are those of unlisted, small size or having no development potential companies. The most important part of SIFs portfolios is represented by the shares detained at commercial banks (BCR and BRD), which were not an opportunity for the investors at the moment of privatization. Therefore, even until now, the percent around 6% held by each SIF on banking companies represents the most valuable assets.

The rest of the paper is organized as follows. The adjusted methodology used in order to test the closed-end fund puzzle is presented in Section 2. Section 3 offers an example and the concluding remarks of this study.

2. An adjusted methodology in order to investigate the closed-end fund puzzle for emerging markets

In the case of developed markets, the closed-end puzzle consists in an empirical observed anomaly: closed-end fund shares are typically sold at prices not equal to the per share market value of assets the fund hold. In the case of liquid markets, with shares traded daily, this phenomenon is very easy to be found as long as the prices both for the closed-end fund shares and for the shares included in its portfolio are available almost in real time. If one investor on capital markets holds investments portfolios, including shares listed on Stock Exchange, present value of his or her portfolio will be estimated based on market capitalisation of shares included in that portfolio. Practically, the present market

value for a portfolio (MV), at one moment, can be estimated based on equation (1):

$$MV = \sum_{i=1}^n q_i \times P_i - \text{Debts} \quad (1)$$

with:

i = type of the different assets included in the portfolio;

q_i = the quantity of i - type assets;

P_i = price of i - type assets (for unlisted shares can be considered the market value of those shares).

This is the case for a closed-end fund, too. However, some adjustments have to be done. Therefore, the prices should be adjusted by applying different premiums or discounts. For instance, in some cases, if the investors are larger (controller) shareholders, prices taken from the market can not be considered as a proxy an appropriate approximation for their fair market value as long as they quantify a minority shareholders interest. In this case, it has to be applied a control premium, and then the adjusted price will be higher, at a P_i^* level ($P_i^* \geq P_i$). On the other hand, as long as it is considered a large participation, a discount for large portfolios can be taken into account (Evans, Bishop, 2001, p. 201). In this case, the prices should be adjusted by applying a discount, and then the price will be lower, at a P_i^* level (here, $P_i^* \leq P_i$). If we consider such adjustments, the adjusted present market value (MV^*) for the portfolio will be:

$$MV^* = \sum_{i=1}^n q_i \times P_i^* - \text{Debts} \quad (2)$$

On the other hand, institutional investors, like closed-end funds, are themselves listed to Stock Exchange. For an informational efficient market, investors, implicitly considered to be rational, will evaluate shares in a right way. In the case of an efficient market, market capitalisation for these investment funds (MC) will be equal to the present market value of its portfolio itself, so:

$$MV^* = MC \quad (3)$$

On the other side, as long as market capitalisation for these institutional investors (MC) will be significant different from the present market value of its portfolio itself (MV^*), it can be illustrated the closed-end fund puzzle: practically, investors value differently the same asset, in one way if it is listed individually, and in another way if it is included in a portfolio.

As we have mentioned, this test is very easy to be applied for liquid markets, but it become questionable for emerging markets, with low liquidity. In this case, for each asset valuation is very important to use a particular technique. As long as market prices are not available, these techniques are based mainly on International Valuation Standards (2007). In order to estimate these market values, some issues are relatively unambiguous. For instance:

1) Deposits and monetary investments (current accounts, treasury bills, deposits etc.) will be evaluated at market prices, available on the market.

2) Unlisted bonds will be evaluated by taking into account daily interest from the investment moment and the principal. For the listed bonds the evaluation was made at the market price. As long as coupons and principal are specified in the contract, and the risk is not significant different from share to share, this assumption can reasonable hold.

3) Shares held at opened funds will be evaluated at unitary net worth value, which can be considered a fair market value.

4) For the shares constantly traded on Bucharest Stock Exchange, the evaluation was made by taking into account price per share from the last trading session (their value is equal to market capitalization of the shares held by SIFs at the moment of evaluation).

Other issues are still disputable, and in these cases, some assumptions have to be done. For instance, in December 2005, Romanian Government sold 61.88% from the shares of Romanian Commercial Bank (BCR) to Erste Bank at a price of 3.75 billion euros. Therefore, we considered it as an appropriate price in order to estimate the market value of the shares held by SIFs. It was, also, took into consideration a control premium of 30% for majority stakes, and, thus, the value of a package of 6% from BCR shares were estimated at 254.5 million euros. The percentage of shares held by SIFs at BCR is 6%, excepting SIF Oltenia which detains a package of 6.12%. The level of 30% for the control premium can be argued based on the general practice in valuation. Also, in a study made on Romanian over the counter market (BER), Dragotă et al.

(2007) have found that control premium in the period 2002-2004 had a mean of 79.96% and a median of 44.62%. In this case, based on economical assumptions related to the characteristics of Romanian Commercial Bank, the discount premium was adjusted to 30%.

The limits of this test are obvious. Practically, on a capital market with low liquidity, the test can be made for some assets only when information regarding market prices is available.

3. An example and concluding remarks

In order to apply this proposed methodology, the assets of Financial Investment Funds (SIF-s) were valued, based on the firm market values of each category of assets, at December 31st, 2005 (see Table 1 and the notes below). This valuation was made according to the requirements of *International Valuation Standard Committee*. This example is based on Căruntu (2005).

SIFs assets value at December 31st, 2005

Table 1

- mil. euros-

No.	Asset	SIF Banat Crișana	SIF Moldova	SIF Transilvania	SIF Muntenia	SIF Oltenia
1	Deposits and monetary investments (current accounts, treasury bills, deposits, bank certificates) ⁱ⁾	10.9	28.1	11.8	9.9	4.6
2	Bonds (municipal and corporate) ⁱⁱ⁾	3.4	1.0	0.6	1.7	0.0
3	Shares held at opened funds ⁱⁱⁱ⁾	0.2	0.3	0.0	0.3	0.2
4	BRD ^{iv)} (each SIFs held at least 5% from BRD Group Societe Generale)	119.3	131.0	129.8	136.7	138.6
5	Other blue-chips (TLV, SNP, RRC, BIO, ATB, SCD) ^{iv)}	42.9	44.1	13.3	16.5	137.6
6	Other BSE shares ^{iv)}	111.2	2.4	20.9	0.8	20.7
7	BER listed and traded companies ^{iv)}	18.1	17.3	68.8	41.6	42.6
8	BCR ^{v)}	254.5	254.5	254.5	254.5	259.5
9	Other closed banks (Banc Post. Eximbank) ^{vi)}	4.7	4.5	4.5	0.0	4.8
10	Other closed companies ^{vii)}	24.5	5.3	39.1	32.9	12.8
11	Other shares (unlisted traded companies at BSE, opened unlisted companies) ^{vii)}	2.1	11.8	0.4	9.5	8.7
SIFs assets value		379.1	287.8 ^{viii)}	331.1	291.9	413.4

i) Assets from the first category were evaluated at market prices.

ii) Unlisted bonds were evaluated by taking into account daily interest from the investment moment and the principal. For the listed bonds the evaluation was made at the market price.

iii) Assets from the third category were evaluated at unitary net worth value, which is a fair market value.

iv) For assets in 4th – 6th category, the evaluation was made by taking into account price per share from the last trading session in 2005 (their value is equal to market capitalization of the shares held by SIFs at the

moment of evaluation). But, for assets no.7, due to low liquidity on BER, we used the values, official, estimated for these shares, by CNVM regulations.

v) In December 2005, Romanian Government sold 61.88% from the shares of Romanian Commercial Bank (BCR) to Erste Bank at a price of 3.75 billion euros. Therefore, we considered it as an appropriate price in order to estimate the market value of the shares held by SIFs. It was, also, taken into consideration a control premium of 30% for majority stakes, and, thus, the value of a package of 6% from BCR shares were estimated at 254.5 million euros. We emphasize that the percentage of shares held by SIFs at BCR is 6%, excepting SIF Oltenia, which detain a package of 6.12%.

vi) In order to estimate the market value for assets in the 9th category, it was used the regulation of National Bank of Romania (BNR).

vii) Assets from the 10th and 11th category were evaluated according to CNVM regulations. SIFs detain

many shares to unlisted or non-traded companies, and it was difficult to evaluate them to a market price. As a consequence, the value of those shares is estimated according to official methodology by using a correction coefficient applied on total equity of the issuer company, which depends on the percentage of common stocks detained by SIFs to that issuer. The percentage of common stocks held by SIFs is multiplied with total equity of the issuer company and then corrected with 15% if SIFs hold between 33% and 50% from common stocks, 25% if SIFs hold between 5% and 33%, and 50%, if SIFs hold less then 5%. In those cases where SIFs are the major shareholders or detain stakes to banking or insurance companies there is applied no correction coefficient. Basically, the evaluation of unlisted or non-traded shares held by SIFs is made at a book value. This value can be considered prudent.

viii) SIF Moldova total debts comprise also potential debts out the balance sheet are valued at 10 mil. Euro.

Based on proposed methodology, it can be proved the fact that at the moment of the estimation, SIFs portfolio' present market

value did not fully reflect their assets value (see Table 2):

SIFs market capitalization vs. market present value at December 31st, 2005

Table 2

-mil. euros-

Assets	SIF Banat Crişana	SIF Moldova	SIF Transilvania	SIF Muntenia	SIF Oltenia	SIFs (total)
1. Deposits and monetary investments	10.9	28.1	11.8	9.9	4.6	65.4
2. Municipal and corporate bonds	3.4	1.0	0.6	1.7	0.0	6.7
3. Shares held at opened funds	0.2	0.3	0.0	0.3	0.2	0.9
4. BRD	119.3	131.0	129.8	136.7	138.6	655.5
5. Other blue-chips (TLV, SNP, RRC, BIO, ATB, SCD)	42.9	44.1	13.3	16.5	137.6	254.4
6. Other BSE shares	111.2	2.4	20.9	0.8	20.7	155.9
7. BCR (evaluate at price paid by Erste Bank, including a control premium of 30% for majority stake)	254.5	254.5	254.5	254.5	259.5	1,277.6
8. Total liquid assets	542.4	461.4	430.9	420.4	561.2	2,416.4
9. Total debts	51.6	58.2	54.8			289.3
				59.5	65.2	
10. Market present value, based on market value of assets included in SIF-s portfolio = Total liquid assets (8) – Total debts (9)	490.8	403.2	376.1	360.9	496	2127.1
11. SIFs market capitalization	365.7	317.6	311.9	375.3	405.5	1,776.0
12. Difference between market present value and SIFs market capitalization	125.1	85.6	64.2	-14.4	90.5	351.1

Taking into account only the first 6 components of assets portfolio and the market value of BCR shares, SIFs portfolios present market value (corrected by the level if debts) was higher than their market capitalization value (with one exception – SIF Muntenia). For SIF Muntenia, due to its particular portfolio, there was a difference for 14.4 millions euros. However, if there were taken into account participations on BER listed and traded companies, other closed banks or closed companies (see Table 1) its state will be the same as in the other four cases. The closed-end funds puzzle can be proved for the Romanian capital market, too.

Concluding, even the test is not as precise as the similar test performed on

developed capital markets it can be proved that closed-end fund puzzle is present on emerging capital markets, too. Somehow, the state of Romanian capital market is relative similar to the state from developed countries.

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The Influence of the Conjunctural Factors toward the Reengineering of Organization

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***Abstract.** The reengineering of the business processes, considered like a major change within the life of an organization, has a very important role for the success or failure of the said company where the change has occurred. Considered in many cases as a last solution to the major challenges of the market and socio-economic environment, the business reengineering has to follow two main directions: the fulfilment of the business goals and the evaluation of the external factors toward the processes of a company. The influence of each factor should be analysed in detail and projected separately for each organizational process in order to be included in the said process model. This paper presents a formalised approach of the interrelation between a process and the influence of an external factor toward the said process, as well as a case study that illustrates a practical application of this correlation.*

Key words: organizational reengineering; state variable, competitive position; strategic orientation, level of performance.

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JEL Codes: D40, L22.

REL Codes: 7E, 17B.

1. Factors that influence the performance's level of an organization

The development of the processes within an organization or a company, as well as the performance's level fulfilled are affected by two types of factors: internal and external.

The main types of the internal factors that affect in a determinative way the condition and the evolution of an organization are:

- factors related to the human resource, including but not limited to: the human resources policy, the educational level of employees and their educational homogeneity, average age, assignment depending on the sex, etc.
- factors related to the quality of management, including but not limited to: method of management, the way of organizational structure, informational system, communication, the way of taking decisions and how they are applicable, etc.
- factors related to the quality assurance, including but not limited to: certifications, implementation of some high quality management systems, quality policy, etc.
- technological factors, including but not limited to: the technological level of equipment, products, IT and communication systems as well as any other similar factors.

Evaluation of the phase from the life's cycle of each activity's sector of a company

- factors related to financial capabilities, including but not limited to: available financial resources, level of financial dues, etc.
- As regard the external factors, they may be classified in four main categories, such as: economic factors, social factors, factors depending on government, moral factors, etc.

In Figure 1 there are summarised the main categories of external factors and the main elements of each external factor that determines the evolution and the condition of the company.

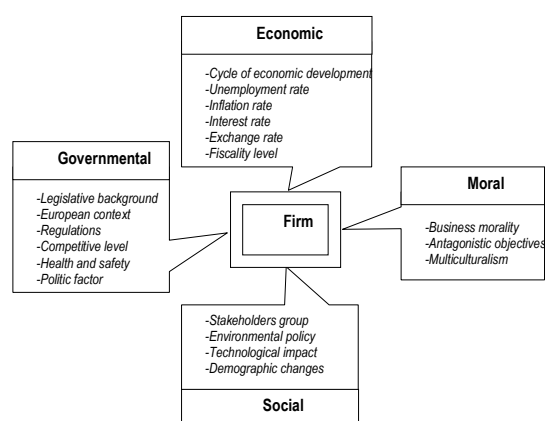


Figure 1. The main categories of external factors affecting a firm

A frequent used method to determine the influences of the external factors toward the processes developing within an organization or a firm is the Arthur D. Litte (ADL) method, that supposes to determine and represent based on some tables, a phase of the life's cycle relating to a certain field of the company's activity (see Table 1) as well as the firm's position on the market (see Table 2).

Table 1

Indicator	Maturity phase of the activity's sector			
	Starting	Increase	Maturity	Decline
Increase rate		> 10 %	0 – 10 %	< 0 %
Number of competitors	Increasing	Maxim	Constant or decreasing	Minim or accentuated decreasing
Distribution of market quota	Fragmental	Is going to concentrate	Constant concentrated	Very concentrated or very fragmental
Stability of customers	Not constant	Stability increasing	Constant	Very constant
Stability of market quota	Not constant	Stability increasing	Constant enough	Very constant
Technology	Quick evolution	Changeable	Constant	Very constant

The competitive position of a firm on the point of view of the success key factors, the products' market is evaluated from the showed in Table 2

Company's competitive position on the market

Table 2

Function	Production	Commercial	Financial	Organization
Success	Productive capacity	Market quota	Financial structure	Flexibility
Key	Experience	Sale price	Financial independency	
factors	Technical skills	Sale level	Profitability	
	Integration level	Distribution network		
	Production cost	Impression		

Depending on the fulfilment of the above mentioned factors requests a firm may be poisoned in one of the following competitive positions:

- dominant;
- strong;
- favourable;
- unfavourable;
- marginal.

Based on the above mentioned information a matrix shall be made, named analyse matrix. The analyse Matrix issued by ADL is illustrated in Table 3.

ADL Matrix

Table 3

Maturity of activity's sector	Starting	Increase	Maturity	Decline
Competitive Position				
Dominant	High profitability: high investments to maintain the position		High profitability: Low investments	
Strong				
Favourable	Medium profitability: high investments to improve the position		Medium profitability	
Unfavourable				
Marginal	Low profitability and high investments to improve the position		Low profitability	

The strategic orientations that have been showed in the above presented analyse of model are those illustrated in Table 4.

Strategic orientations

Table 4

Maturity of activity's sector	Starting	Increase	Maturity	Decline
Competitive position				
Dominant	Natural development			
Strong				
Favourable				
Unfavourable				
Marginal				
		Selective	Development	Abandonment

The factors related to relation of company with the external environment are very important.

2. Evaluation the external factors' influence toward the activity of a firm

The technical-managerial evaluation of the influence of internal and external factors in the

organizational reengineering process in principal assumes the identification of the external factors' groups that influence the processes developed within a company and determination of some state variables or of some indicators at the level of firm and further on at the level of the process to be able to evaluate the technical, economic and financial performance, as well as the

determination of some possible correlations between each factor or group of external factors including the indicators of stable performance (that means to get a business model such as *input – state – output* type).

These correlations, mathematical formalised or illustrated in differently other ways, generally are validated in time by the real evolution of the pair of *external factor – indicator value*, or they are object of some simulations, their goal being the identification of some scenario of evolution, based on some possible and probable values of the external factors. Based on the conclusions due to such simulations, it follows the reengineering of the organizational processes, such that the resulted processes to have an optimal behaviour within the simulated situations or in other situations that are similar to them.

Under these circumstances, there is determinant the identification of some indicators that have to quantify, for each factor or group of external factors, the impact which they have produced at the level of processes developed within a firm and at the same time should be monitorised the value's evolution of those indicators. In this case, finding of some correlations between the involved values and the identification of the variation tendencies of company's state variables, depending on the evolution's prognosis of some key factors, will be in the domain of applications and complex analyse informational systems and data mining.

This way of action presupposes, in order to be applicable, some complex stages, where there are analysed in detail all aspects related to the interaction of a firm and the external environment. The steps that should be followed to use with maximum efficiency the above stated method are:

- *Identification of the sensible zones of the company's activities*, taking into account their importance to get technical, economic and financial results in the company. In some circumstances, besides the main processes that are directly connected with the main field of activity of a firm, other support processes are taken into consideration, depending on the importance which the top management grant to them, such as the processes in relation with the data processing or those related to the managerial decision.

The activity of a company may be seen like a union of sub-activities and processes as it is showed in the following relation:

$$Pr = \bigcup_{i=1}^n Pr_i \quad (1)$$

where:

Pr = the total process of transformation which is developing at the level of the firm;

n = the total number of organizational processes;

Pr_i = processes i under progress; $i=1,2, \dots, n$ under progress processes.

The choice has in view those processes that contribute in a great extent to the creation of value and are going to make the object of a detailed study in order to identify their improvement solutions. In the opinion of some specialists, their choice may be realised based on the ratio between the estimated cost of the reengineering process and the prognosis of the results, while other ones consider that should selected with priority those processes with maximum increase potential.

- *Determination of the way to measure the level of performance* for each process and the state variables that characterise the running up and capacity of that process to fulfil its role within the company. Taking into account the fact that,

indifferently of the nature of organizational processes, they create the value for the customer, under the consumption circumstances depending on the kind of resources, in most cases, two kinds of indicators are taken into account: indicators of effort (or minimum effect), respectively (maximum effect).

It is important how those indicators shall combine each other from the process's level to the company's level as well as the contribution of each process to the final company's result, in other words, which is the contribution of each process to the final result of the firm's activity, under the circumstances of its new value.

In order to have a synthetically illustration of this affirmation, relations (2) and (3) may be used:

$$V = \{V_1, V_2, \dots, V_m\} \quad (2)$$

where:

V = organization state;

m = number of significant state variables.

Therefore, each state variable of those which characterise the firm (V_j) is a function (f_j) of the states of all processes n that are developing within a company

$$V_j = f_j(V_{1j}, V_{2j}, \dots, V_{mj}) \quad (3)$$

where:

V_j represents the state variable (indicator) j .

In detail, it could be said that the state of the organizational system is represented by the amount of states for all processes that is emphasized by relation (4), which is presented like a matrix of values of the main indicators for all processes existing in a firm:

$$V = \begin{pmatrix} V_{11} & V_{12} & \dots & V_{1,n-1} & V_{1n} \\ V_{21} & V_{22} & \dots & V_{2,n-1} & V_{2n} \\ \dots & \dots & \dots & \dots & \dots \\ V_{m-1,1} & V_{m-1,2} & \dots & V_{m-1,n-1} & V_{m-1,n} \\ V_{m,1} & V_{m,2} & \dots & V_{m,n-1} & V_{m,n} \end{pmatrix} \quad (4)$$

There are situations where f_j function, which makes the connection between the value of a state variable at the organizational level and the values of the same variable recorded at the level of processes within the firm, is a formal cumulative one:

$$V_j = \sum_{k=1}^n V_{kj} \quad (5)$$

It's the situation of some indicators such as the total value created by a customer or stakeholders, or the registered costs at the company's level within a period of time. In other situation, such that related to the general technological level, the total indicator, at the firm's level, could be determined as a balanced average of the recorded values within the organizational processes, therefore:

$$V_j = \sum_{k=1}^n p_k V_{kj} \quad (6)$$

where p_k represents the share of process to determine the total value V_j ($\sum_{k=1}^n p_k = 1$).

In addition, there are situations where a j state variable is not influenced by the development of a process i . In this case, within " j " column of the defined matrix by relation (4), the positions corresponding to i process are null.

The level of performance is not always mathematical illustrated, under the form of some numerical values. There are many cases where the performance got by an organization, generally speaking and by its processes, particularly, are illustrated from qualitative point of view using the satisfactory excellence levels, competitive level, etc.

Determination of the factors that influence the evolution of an organization and, particularly, the values reached by the

variables identified in the previous stage. Those ones, both the internal and external ones, are classified in categories and it is determined the way and the rate where the categories and each individual factor influence each of processes and state indicators that illustrate particular process. Further on we shall detail the main categories of factors that could influence the processes of an organization.

Generally, we may suppose that there are a number of “k” groups of factors that determine the works and processes of an organization. Marking with F the multitude of those k groups of factors, then the multitude F of those factors shall be represented as follows:

$$F = \{F_1, F_2, \dots, F_k\} \quad (7)$$

Each group of factors F_i have a number of x_i factors which, at the level of their group is presented as follows:

$$F_i = \{F_{i1}, F_{i2}, \dots, F_{ix_i}\} \quad (8)$$

Marking with FP [l×n] the matrix that shows the influence of each factor toward a distinct process, this matrix will contain elements of 0 or 1, depending on the influence or the absence of influence of a factor toward the said process, under a *fuzzy* approach, this will contain values between 0 and 1, showing the range where one of the factor influences a certain process. The significance of matrix symbols is the following:

k = number of groups of the influence factors;

x_i = number of indicators (factors) of the group i ;

l = the total number of the influence factors, ($l = \sum_{i=1}^k x_i$).

FP_{ij} will represent the influence level of factor i toward the process j , $FP_{ij} \in [0..1]$. In this way, an influence FV[l×m] matrix of the factors toward the state variable may be obtained, determining the performance level of the firm that is expressed by the following relation:

$$FV = FP \times V \quad (9)$$

Having in mind that FV and V are known, the matrix FP will be determined by relation:

$$FP = FV \times V^{-1} \quad (10)$$

This relation will allow us to reconstitute the levels of influence of the factors toward the organizational processes, and these levels of influence may be useful in some circumstances, especially when the reengineering of some processes is required, starting from an estimated state of some factors.

■ *Determination of impact* of the group of factors F_i including each factor F_{ij} , toward a process or toward the general state of a company. Taking into consideration that each of those groups have a P_i share within the activity of a firm (considered as a relative importance of the group of factors F_i comparing with the other groups of factors) it may be assessed that the amount of all groups of factors to be equal with 1:

$$P_i \in (0,1), \sum_{i=1}^k P_i = 1 \quad (11)$$

Each of factors included in a group F_i has a relative importance (share) p_{ij} , $j=1, \dots, x_i$, such that:

$$p_j \in (0,1), \sum_{j=1}^{x_i} p_j = 1 \quad (12)$$

One should be mentioned that this approach, based on the theory of the vague multitudes, assumes that the influence of a

factor or a group of factor toward the state variables of the processes from a firm is constant, expressed through a share that may be assimilated and with the grade of belonging to a factor of the total results of the environment where the firm is acting. Another approach is that one where the share p_j is a function with a variable value in time:

$$p_j = \phi(t) \quad (13)$$

Reengineering of the organizational processes such that the evolution of the total company's performance to be the most favourable relating the prognosis values of the influence factors.

For each possible alternative of processes that are subject of the reengineering, based on some sets of values considered to be more probable for the influence factors it is simulated the level of performance reached at the level of process and at the level of firm, selecting that alternative that provide the total most favourable effect for the prognosis of period.

■ *Simulation of the new processes' operation and the validation of their viability and efficiency* or depend on the case, their reengineering. The last two phases presented above represent the components of a repeated structure, that may also include, in case that a set of alternatives of the reengineered processes can not be identified to meet the effectiveness and efficiency requirements of the management, the previous stages.

It should be noticed that this approach requires a periodical process of managerial reengineering, such as to be taken into account both the level where the known factors determine the performance within the firm, and the possible evolution of the influence factors values.

3. The evaluation fuzzy method related to the evaluation of the external and internal factors toward the total qualitative and performance level.

Case study

Further on we present, an evaluation case proposed by the Chinese specialists Jinying SUN, Youzhi HAO, Yong WU and Zhen DAI, using fuzzy techniques, relating the influence of the internal and external factors toward the total performance of the ecological buildings.

According to the authors, an ecological building is characterised by a heat system, water supply and canalization system, as well as effectiveness and efficient power supply system, rational use of used materials, creating an as much as possible ambient environment within the building and judicious use of the land.

These wishes may be considered like factors that provide the total level of performance and the quality of building, level that may be expressed by one, two, or three stars.

Therefore, the evaluation model assumes the following stages:

1. Determination of categories of the influence factors which are classified in multitude $F = \{F_1, F_2, F_3, F_4, F_5, F_6\}$, where F_1 is assimilated with the group of factors connected with judicious use of the built land and with the impact toward the external environment of the building, F_2 represents the energetic effectiveness and efficiency, F_3 refers to the use and saving of water, F_4 refers to the use and saving of materials, F_5 refers to the environmental quality inside the building, and F_6 refers to the quality of the operational management.

Within each group of factors there are emphasized more individual factors as follows:

- F1 illustrates the rate of rational use of the built land and the impact toward the external environment of the building, and this group of factors includes:

- Share of underground parking from the total parking space. In the illustrated example, the share is about 60%.

- Rate of occupancy with buildings of the land. This is subject to some restrictions pursuant to PUZ (Zone Town-Plan).

- Architectonic design. This should provide the maximum use of solar light and energy as well as very good ventilation.

- Use of the new generation materials instead of those traditional.

- Saving of the built land. This refers to reduction of areas with public destination. (common spaces), using new technologies, techniques and materials.

- Construction of public utility spaces in the basement of building.

- Maximum utilization of the land in slope or less realisable for constructions.

- F2 illustrates the energetic effectiveness and efficiency and includes:

- Orientation of building, its architectural form, obfuscation of some recyclable energetic forms.

- External structure (walls, ceiling, windows), to provide a suitable thermal coefficient.

- Permanent control of temperature.

- Light system and its efficiency, providing some effectiveness and efficient means of lighting and use of some qualitative materials for the transparent and reflected areas.

- F3 illustrates the use and saving of water, taking into account:

- Use of used water.

- Use of pluvial water.

- Design of sanitary equipment such that due to capacity, technology and decreasing of losses those to be included in an upper and efficient class.

- Saving of water in public spaces, designing and judicious sizing of sanitary equipment, use of valves and by-pas valve with automatic cutting-off, etc.

- Use of natural water to irrigate the green zones.

- F4 illustrates the use and saving of materials, including:

- Use of recoverable energetic forms.

- Use of the new architectural and construction techniques. It is recommended to use at least three or four new methods.

- Use of some specific saving techniques of used materials in construction.

- The used proportion of recyclable materials.

- F5 illustrates the quality of the environment inside the building related to:

- Natural light and ventilation of building, as well as assurance of the green zones inside the building.

- Phonic isolation and reduction of noise, by the structure and the composition of the walls, ceiling and windows.

- Existence of a rational ratio between the glass-window areas and the other areas, the windows areas reported to the area of walls.

- Use of internal and external obfuscation and prevention of direct solar radiation toward the doors, windows and wall during the winter time.

- F6 defines the operational management and includes:

- Management of waste, collecting selective and recycling the waste.

- Utilization of automatic equipment both in monitorised zone of operational parameters of the building, and assurance of security.

- General management style.

Under the context of this model, it follows to be determined the shares of groups of factors and distinctly for each factor. For the illustrated example, those shares, are showed in Table 5.

Further are there are determined three distinct levels of building's performance, namely with one, two and, respectively, three stars, as well as the belonging coefficient of each factor (influence) for each level, the total evaluation using fuzzy technology being illustrated in Table 5.

The total evaluation using fuzzy techniques

Table 5

Group of factors	Group share	Factors	Share of factor	Fuzzy evaluation matrix		
				0 star	Two stars	Three stars
Judicious utilization of the built land and the impact toward the external environment of building	0.1	Prop. Underground parking	0.2	0.15	0.25	0.6
		Level of land occupancy	0.125	0.2	0.3	0.5
		Architectural design	0.175	0.2	0.3	0.5
		Materials of new generation	0.2	0.15	0.25	0.6
		Saving of land	0.125	0.1	0.3	0.6
		Level of basemen location	0.125	0.1	0.3	0.6
Energetic effectiveness and efficiency	0.5	Utilisation of land	0.05	0.1	0.4	0.5
		Orientation of building	0.35	0.1	0.2	0.7
		External structure	0.35	0.1	0.2	0.7
		Control of temperature	0.2	0.15	0.25	0.6
		Light system	0.1	0.1	0.25	0.65
Use and saving of water	0.2	Utilisation of used water	0.3	0.3	0.3	0.4
		Utilisation of pluvial water	0.15	0.2	0.4	0.4
		Sanitary equipment	0.3	0.1	0.2	0.7
		Public spaces	0.15	0.25	0.35	0.4
		Utilisation of natural water	0.1	0.15	0.3	0.55
Utilisation and saving of materials	0.1	Utilisation of recoverable energy	0.15	0.35	0.25	0.4
		New architectural techniques	0.5	0.2	0.3	0.5
		Saving techniques	0.1	0.3	0.1	0.6
		Recoverable materials	0.25	0.15	0.35	0.5
Environmental quality inside the building	0.05	Natural light and ventilation	0.3	0.3	0.2	0.5
		Phonic isolation	0.2	0.3	0.2	0.5
		Strained – glass window area	0.3	0.25	0.35	0.4
		Utilisation of shadow	0.2	0.2	0.3	0.5
Operational management	0.05	Management of waste	0.3	0.2	0.25	0.55
		Automation	0.4	0.2	0.3	0.5
		General style of management	0.4	0.2	0.3	0.5

Based on the above mentioned stated, the matrix of shares of groups of factors is the following:

$$P = (0.1 \ 0.5 \ 0.2 \ 0.1 \ 0.05 \ 0.05)$$

Shares for each factor are:

$$P(1) = (0.2 \ 0.125 \ 0.175 \ 0.2 \ 0.125 \ 0.125 \ 0.05)$$

$$P(2) = (0.35 \ 0.35 \ 0.2 \ 0.1)$$

$$P(3) = (0.3 \ 0.15 \ 0.3 \ 0.15 \ 0.1)$$

$$P(4) = (0.15 \ 0.5 \ 0.1 \ 0.25)$$

$$P(5) = (0.3 \ 0.2 \ 0.3 \ 0.2)$$

$$P(6) = (0.3 \ 0.4 \ 0.4)$$

Fuzzy matrixes of secondary evaluation are those matrixes R, obtained according to the below relation:

$$B = A \times R = A \times \begin{pmatrix} R_1 \\ R_2 \\ R_3 \\ R_4 \\ R_5 \\ R_6 \end{pmatrix} = \begin{pmatrix} r_{11} & r_{12} & \dots & r_{1n} \\ r_{21} & r_{22} & \dots & r_{2n} \\ \dots & \dots & \dots & \dots \\ r_{61} & r_{62} & \dots & r_{6n} \end{pmatrix} \quad (14)$$

where r_{ij} represents, conform to fuzzy multitude theory, the level of belonging of the factor I of the performance's level j.

We obtain, in above illustrated example the following matrixes:

$$R_1 = \begin{pmatrix} 0.15 & 0.25 & 0.6 \\ 0.2 & 0.3 & 0.5 \\ 0.2 & 0.3 & 0.5 \\ 0.15 & 0.25 & 0.6 \\ 0.25 & 0.3 & 0.55 \\ 0.1 & 0.3 & 0.6 \\ 0.1 & 0.4 & 0.5 \end{pmatrix}, \quad R_2 = \begin{pmatrix} 0.1 & 0.2 & 0.7 \\ 0.1 & 0.2 & 0.7 \\ 0.15 & 0.25 & 0.6 \\ 0.1 & 0.25 & 0.65 \end{pmatrix}, \quad R_3 = \begin{pmatrix} 0.3 & 0.3 & 0.4 \\ 0.2 & 0.4 & 0.4 \\ 0.1 & 0.2 & 0.7 \\ 0.25 & 0.35 & 0.4 \\ 0.15 & 0.3 & 0.55 \end{pmatrix}$$

$$R_4 = \begin{pmatrix} 0.35 & 0.25 & 0.4 \\ 0.2 & 0.3 & 0.5 \\ 0.3 & 0.1 & 0.6 \\ 0.15 & 0.35 & 0.5 \end{pmatrix}, \quad R_5 = \begin{pmatrix} 0.3 & 0.2 & 0.5 \\ 0.3 & 0.2 & 0.5 \\ 0.25 & 0.35 & 0.4 \\ 0.2 & 0.3 & 0.5 \end{pmatrix}, \quad R_6 = \begin{pmatrix} 0.1 & 0.3 & 0.6 \\ 0.2 & 0.25 & 0.55 \\ 0.2 & 0.3 & 0.5 \end{pmatrix}$$

Using relation (10), $B_i = A_i \times R_i$, it is passed from the secondary evaluation vectors to the primary one as follows:

$$B_1 = (0.16875 \quad 0.285 \quad 0.54625)$$

$$B_2 = (0.11 \quad 0.215 \quad 0.675)$$

$$B_3 = (0.2025 \quad 0.2925 \quad 0.505)$$

$$B_4 = (0.22 \quad 0.285 \quad 0.495)$$

$$B_5 = (0.235 \quad 0.265 \quad 0.4)$$

$$B_6 = (0.17 \quad 0.255 \quad 0.545)$$

It is obtained the total matrix of evaluation:

$$R = \begin{pmatrix} B_1 \\ B_2 \\ B_3 \\ B_4 \\ B_5 \\ B_6 \end{pmatrix} = \begin{pmatrix} 0.16875 & 0.285 & 0.54625 \\ 0.11 & 0.215 & 0.675 \\ 0.2025 & 0.2925 & 0.505 \\ 0.22 & 0.285 & 0.495 \\ 0.235 & 0.265 & 0.4 \\ 0.17 & 0.255 & 0.545 \end{pmatrix}$$

The evaluation result based on the primary indicators is the following:

$$B = A \times R = (0.154625 \quad 0.249 \quad 0.596375)$$

Assuming that the performance's levels are $V = (1 \ 2 \ 3)$, we shall determine the total evaluation value according to the relation:

$$T = V \times B^{-1} \quad (15)$$

Obtaining a value of 2.44175.

Generally, a note (total evaluation) between 1 and 1.7 classifies the ecological building in the class "one star", with a value between 1.7 and 2.4 in class "two stars", while a note between 2.4 and 3 shall be classified in "three stars". Therefore, the ecologic building of our example is classified at "three stars" category.

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Current Approaches to the Establishment of Credit Risk Specific Provisions

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***Abstract.** The aim of the new Basel II and IFRS approaches is to make the operations of financial institutions more transparent and thus to create a better basis for the market participants and supervisory authorities to acquire information and make decisions. In the banking sector, a continuous debate is being led, related to the similarities and differences between IFRS approach on loan loss provisions and Basel II approach on calculating the capital requirements, judging against the classical method regarding loan provisions, currently used by the Romanian banks following the Central Bank's regulations.*

Banks must take into consideration that IFRS and Basel II objectives are fundamentally different. While IFRS aims to ensure that the financial papers reflect adequately the losses recorded at each balance sheet date, the Basel II objective is to ensure that the bank has enough provisions or capital in order to face expected losses in the next 12 months and eventual unexpected losses.

Consequently, there are clear differences between the objectives of the two models. Basel II works on statistical modeling of expected losses while IFRS, although allowing statistical models, requires a trigger event to have occurred before they can be used. IAS 39 specifically states that losses that are expected as a result of future events, no matter how likely, are not recognized. This is a clear and fundamental area of difference between the two frameworks.

Key words: IFRS; Basel II; Basel II targets; provision; depreciation loss; expected/unexpected loss; historical loss; depreciation indexes; significance threshold.

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JEL Codes: 11C.

REL Codes: G21, G32.

1. Provisions policy for potential loss due to credits

According to the traditional approach to credit risk, its management includes as major objective the laying down of a correct crediting policy to secure the selection of secure credits with a maximum repayment probability as the credits corresponding to the needs of the market where the bank operates are extended.

The foundation of a healthy credit risk management consists in the capacity of the credit risk management policies to identify the existent and potential risks, inherent to any crediting activity, and to limit or reduce them. Thus, within the classic credit risk management policies, essential are those aiming at classifying the bank's assets (implicitly the credit portfolio) and to establish specific credit risk provisions⁽¹⁾:

- *Assets classification policies* include the procedures by means of which each asset is assigned a degree of risk depending on the probability of the credit nonpayment, in accordance with the contracting clauses. In practice, credit classification is an essential instrument of the credit risk management, and it is usually determined by the regulatory authorities. If credits in the standard loss categories represent 50% of the bank's capital, the respective bank is regarded by the supervision authority as a problem-bank, as there is a high probability that the bank's solvency and profitability should be affected. In the banking systems in highly developed countries, banks usually use several classification

levels for the credits in the "standard" category in order to improve the quality of the credit analysis, with direct impact on the profitability – classification level relation.

Provisions policy for potential loss due to credits, along with the general reserves established for losses, shows the bank's capacity to absorb them. In order to determine their adequate level, there shall be taken into account all the factors affecting the credit repayment possibility, as well as the quality of the credit policies and procedures, previous losses which affected the bank's profitability, the dynamics of the granted credits, the problem credits collection and recovery procedures, macroeconomic variables volatility and economic trends.

In practice, provisions establishment policies can be discretionary or mandatory, depending on the characteristics of each banking system, and from the accounting point of view, they are regarded by most of the economists as a category of expenses. There are two practices used in the provisions determination: countries which have a developed banking system and which give the banks the freedom to establish by themselves a prudent level for provisions and countries that have fragile banking system and where the supervision authorities impose compulsory levels for provisions in relation with the risk class of the granted credit.

Table 1 shows the provisions recommended by the Basel Committee which might represent guidelines for the level of provisions in the countries with a less stable banking system:

Level of provisions recommended by the Basel Committee to countries with fragile banking systems

Table 1

Class	Recommended provisions	Category
Standard	1%-2%	Level 2 general reserves for losses, if presented
Supervision	5%-10%	Specific provisions
Substandard	10%-30%	Specific provisions
Doubtful	50%-75%	Specific provisions
Loss	100%	Specific provisions

The current methodology for the assessment and registration of provisions for losses due to the credit depreciation, developed depending on the statutory prudential requirements of the National Bank, shall be supplemented by the development of a detailed and comprehensive rating, based on the IAS 39 principle and on the Basel II recommendations.

The implementation of such a methodology shall require significant changes within each bank, not only at the level of IT systems but at the level of the credit risk management function and of the financial control and budgeting processes. Moreover, the transition to the new credit depreciation losses assessment rating according to IFRS shall be coordinated with the implementation of the Basel II recommendations.

2. Basel II approach vs. IFRS approach

In the banking sector there is a continuous debate regarding the similarities and differences between the IFRS⁽²⁾ approach to the credit depreciation provisions and the Basel II approach regarding the calculation of the minimum capital requirements.

Although many of the requirements and, therefore, of the data used as source for analysis are common to both approaches, banks shall take into account the fact that

the objectives of IFRS and Basel II are fundamentally different. The IFRS objective is to secure that financial statements adequately reflect the losses found upon the date of each balance sheet, while the Basel II objective is to secure that the bank has sufficient provisions or capital to cope with the losses expected during the next 12 months⁽³⁾ and the potential unforeseen losses.

IFRS is a rating based on the analysis of the historical losses while Basel II is based on the expected and unexpected losses.

2.1. Expected and unexpected losses

The decision of the Basel Committee on Banking Supervision to give up the taking into account of the expected losses in the Internal Rating approach⁽⁴⁾ has been induced by the conviction that provisions should reflect expected credit losses, while the capital should reflect, in principal, any unexpected loss that might occur.

The provisions calculated according to IFRS strictly refer to the historical losses (already occurred), and it is highly unlikely they should be one with the expected losses. As the Basel Committee considers the capital covers in principal only the unexpected credit losses, there is the risk of a deficit⁽⁵⁾ between the occurred losses and the expected losses, which are not covered by any accounting provisions or by the capital.

TOTAL			
Basel II	← Expected →		← Unexpected →
	← Historical →		
IFRS	← Depreciation provisions →	Deficit ("Shortfall")	← Capital →

Figure 1. Provisions calculated according IFRS and Basel II

Thus, banks shall compare the expected loss calculated according to Basel II with the total level of the established provisions. Any deficit (existing when the expected loss exceeds the provisions) shall be deducted from the capital.

The reviewed IAS 39 standard, issued by the International Accounting Standard Board (IASB) in December 2003, clarified differences between the "historical losses" and the "expected losses" concepts. IAS 39 clearly specifies that the provisioning rating to which it refers is a historical losses - based rating, although it allows for the depreciation provisions to be analyzed based on the credit portfolios supplying data that show that a depreciation of the future income flows at the time of their acknowledgment.

The standard provides two examples of causes determining this deterioration:

- changes in the local or national economic environment;
- changes in the debtors' condition (non-refund risk).

A historical loss found upon the balance sheet date is defined by the existence of an event triggering the depreciation

loss⁽⁶⁾, event that already occurred, while an expected loss is an anticipated loss, regardless whether the triggering event occurred or not until the balance sheet date. Thus, if upon the balance sheet date, a bank expects a certain triggering event to occur (for example, an increase in the unemployment rate), it shall include the consequences of this event (namely, a loss increase) in an expected losses rating and not in a historical losses-based rating.

Basel II uses statistical ratings for expected losses while IFRS, although allowing for statistical ratings, requires that a triggering event should have occurred before it is taken into account.

IAS 30 clearly specifies that the losses arising from future events are not acknowledged. This is a fundamental difference between the two approaches.

2.2. Similarities and differences between Basel II and IAS 39

In order to detail upon the differences between the Basel II approach and the IAS 39 approach, it is necessary to define "loss" in the Basel II rating and "depreciation" in the IFRS rating.

Table 2

Definition of "loss" in the Basel II rating	Depreciations indicators in the IFRS rating
It is determined that the debtor cannot pay in full the debts (principal, interests, commissions).	The existence of objective depreciation signs as a result of one or several events occurring after the initial acknowledgment of the asset ("loss event") and the existence of an impact of these events on the future estimated income flows of the asset .
Any credit loss related to any obligation of the debtor such as: debit registration in the off-balance records, establishment of credit risk specific provisions or credit restructuring (may imply the maturity date setting, the rescheduling of the loan).	The granting of a concession to the debtor regarding the conditions stipulated in the credit agreement.
The debtor registers a debt service exceeding 90 days.	The non-compliance with the contractual conditions (e.g.: nonpayment of an overdue installment)
Initiation of the bankruptcy procedures.	Significant financial difficulties of the debtor or the bankruptcy probability or other forms of financial restructuring of the debtor.
There are no changes in the economic conditions, as triggering event, but specific scenarios need to be determined.	Data showing a quantifiable decrease in the estimated income flows of a group of assets, as of their initial acknowledgment, due to: <ul style="list-style-type: none"> - adverse changes in the debtor's payer condition - deteriorations of the local or national economic conditions correlated to the depreciation of the analyzed assets.

Definition of "loss" in the Basel II rating

Depreciations indicators in the IFRS rating

It is determined that the debtor cannot pay in full the debts (principal, interests, commissions). The existence of objective depreciation signs as a result of one or several events occurring after the initial acknowledgment of the asset ("loss event") and the existence of an impact of these events on the future estimated income flows of the asset .

Any credit loss related to any obligation of the debtor such as: debit registration in the off-balance records, establishment of credit risk specific provisions or credit restructuring (may imply the maturity date setting, the rescheduling of the loan). The granting of a concession to the debtor regarding the conditions stipulated in the credit agreement.

The debtor registers a debt service exceeding 90 days. The non-compliance with the contractual conditions (e.g.: nonpayment of an overdue installment)

Initiation of the bankruptcy procedures.

Significant financial difficulties of the debtor or the bankruptcy probability or other forms of financial restructuring of the debtor.

There are no changes in the economic conditions, as triggering event, but specific scenarios need to be determined. Data showing a quantifiable decrease in the estimated income flows of a group of assets, as of their initial acknowledgment, due to:

- adverse changes in the debtor's payer condition
- deteriorations of the local or national economic conditions correlated to the depreciation of the analyzed assets.

From Table 2 it results that the significant difference between the two definitions refers to the timing. Basel II defines loss when the debtor registers a debt service exceeding 90 days, while IFRS refers to the noncompliance with the contractual conditions (nonpayment of credit installments). The IFRS approach

seems to be more conservative, but, in fact, Basel II takes into consideration all the losses likely to occur during the next 12 months while IFRS acknowledges only the losses found until the date of the balance sheet.

IFRS also allows for the consideration of unfavorable economic circumstances as triggering element for the loss of a group of assets. Thus, banks need to define what they regard as economic phenomena with an impact both on their loss rates and on the probability that their clients incur losses. These phenomena may include economic factors such as interest rate, unemployment level, consumption prices level.

The differences between the Basel II and IFRS ratings in the loss analysis and, thus, in the determination of the credit risk specific provisions include the time when an asset is regarded as a loss (it presents depreciations signs), or the specific elements triggering the “loss”. Within Basel II, the loss is defined as an economic loss and it shall include the direct and indirect costs associated to the exposure recovery. Within IFRS, a depreciation loss is defined as the difference between the bookkeeping value and the current value of the future cash flows, updated with the actual interest rate.

Despite these differences, there is similitude as well between the two ratings. For example, both approaches refer to the taking into account of the collateral (guarantee) when the loss is estimated.

At first sight, it seems that the Basel II approach requires data on losses, while the data required by IFRS refer to the income flows. However, income flows not obtained (within the depreciation loss – IFRS) are similar to the loss defined by Basel II. Thus,

a rating based on income flows expected not to be obtained shall be comparable to a rating based on the income flows still expected to be obtained.

To conclude, the IFRS rating based on historical losses can be condensed as the expected loss of a credit or credit portfolio as a result of a triggering event already occurred. Although it might seem that the database used for Basel II can be used for the determination of the depreciation provisions within the IFRS rating, with the support of specific adjustments and subsequent analyses, the costs necessary for these adjustments might be substantial. However, the cost for the IFRS implementation independently from Basel II might be much higher.

3. Methodology for the calculation of credit risk provisions, according to IAS 39

3.1. IAS 39 Principles

On January 1, 2005, the reviewed version of the International Accounting Standard IAS 39 – Financial Instruments: Acknowledgment and Measurement, issued by the International Accounting Standards Committee in December 2003, became effective. This standard is applicable to all the entities that draw up and publish financial statements compliant with IFRS for the financial exercises beginning as of January 1, 2005 or following this date.

This reviewed version of the standard brings significant amendments with regards to the methodology for the assessment of the *losses from the depreciation*⁽⁷⁾ of the financial assets measured at written-off cost, therefore including the banks’ credit portfolios.

Following a historical analysis, the bank assesses the existence of portfolio depreciation signs, as a result of all the past events, and whether these events have an impact on the future estimated cash flows, related to the analyzed portfolio. The combined influence of a series of events having caused the depreciation⁽⁸⁾ can be found.

In case objective signs of depreciation of the credits measured at written-off cost are found, the related depreciation loss is calculated as follows:

Depreciation loss = accounting value of the credit – recovery value (current value of the future cash flows, updated with the initial actual interest rate of the credit⁽⁹⁾).

Thus, according to this standard, the credit depreciation provisions shall be recorded only when there are signs that the respective assets are written-off as a consequence of a past event. The depreciation signs the reviewed Standard refers to are:

- Financial difficulties of the debtor.
- Non-compliance with the contractual conditions (e.g.: delays in the payment of the principal or of the interest).
- Concessions granted to the debtor by the bank due to financial difficulties of the debtor (e.g.: rescheduling, new repayment spread-out of the credit).
- Probability of initiating the bankruptcy or judicial restructuring procedures.

- Registration of a *depreciation loss* during a previous time interval.

The bank estimates the influence of the depreciation signs on the credit portfolios, by individually analyzing the significant individual credits and individually or collectively the insignificant credits. In this respect, there shall be determined a *significance threshold* delimiting the credit portfolio, the provision being individually assessed for each credit whose exposure on the assessment date exceeds this threshold. For those credits below this significance threshold the bank shall carry out a collective analysis.

The reviewed standard requires that those credits for which no depreciation losses have been identified at individual level (including those exceeding the significance threshold) should be subjected to a collective approach. In this regard, credits are grouped in portfolios with similar credit characteristics, relevant for the debtor's capacity to reimburse the debts according to the contractual provisions (e.g.: depending on the geographical area, the type of credit, debt service, the kind of guarantees).

The future cash flows related to the assets groups with similar credit risk characteristics shall be estimated depending on the historical loss rates determined at the level of each group, adjusted depending on the economic conditions and on the characteristics of the credit portfolio existing on the assessment date.

3.2. Steps in the provisions determination according to IAS 39 approach

Step 1 – Determination of the significance threshold

This significance threshold is determined in view of delimiting the individually significant credits. It can be expressed, for example, as a percentage of the gross profit or as a percentage of the total assets. All the credits exceeding this threshold shall be tested individually for depreciation.

Setting the calculation basis for the significance threshold;

Calculation of the significance threshold;
Identification of individually significant credits (credits that on a certain date of the balance sheet exceed the set significance threshold).

Step 2 – Definition of depreciation indicators

These indicators are aimed at allowing the identification in the database of those credits for which there is depreciation. For example:

- credits with financial performance E new repayment spread-out for the credit agreement
- acknowledgment of a provision for the depreciation of the respective credits during a previous reporting period debt service over 45 days
- clients undergoing the bankruptcy procedure or judicial restructuring.

Setting a set of depreciation indicators to be easily identified in the database drawn up for the statutory prudential reports.

Step 3 – Grouping of credits into portfolios/groups with similar credit risk characteristics

For example:

- retail credits: per types of products (e.g. loan on mortgage, motor vehicle loan, current needs credit, etc.) and per geographical areas (e.g. Muntenia, Moldova and Transilvania).
- corporate credits: per industries (e.g. agriculture, trade, production, transportations, energy, etc.) and per geographical areas (e.g. Muntenia, Moldova and Transilvania).

Definition of criteria for grouping credits;

Credit grouping (except individually significant credits identified under Step 1) per defined portfolios;

Extraction of total principal and total receivables attached to each portfolio.

Step 4 – Collection and centralization of historical data (3 years at least)

A. In view of the collective assessing of the groups with similar characteristics, for each such a group the historical loss data shall be determined using the formula: (sums taken off-balance during the time interval minus recovered sums)/average balance of the credits in the group during the analyzed time interval (e.g. 2005-2007).

B. In view of estimating the future cash flows from the guarantees valuation, there shall be drawn up a database with the following characteristics:

Type of guarantee	Guarantee value in the bank's records	Value recovered by sale (net of the sale related costs)	Time gap between the time of loss identification and the time of guarantee valuation
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Extraction of information from the adjoining table in the database, during the maximum historical time interval during which it can be obtained.

Grouping of the extracted information into the portfolios identified under Step 3.

Calculation of the loss historical rate for each of the portfolios identified under Step 3.

Step 5 – Individual assessment of individually significant credits

For each significant credit, the Bank shall estimate whether there are depreciation signs by checking the previously stipulated conditions as well as other conditions specific to each separate credit. The depreciation loss (provision) shall be calculated as the difference between the recovery value and the net accounting value of the credit on the assessment date. The recovery value is the difference between the accounting value of the asset and the current value of the expected cash flows (excluding future losses not having occurred yet), updated using the actual interest rate of the credit. In the determination of the recovery value there shall be taken into account the current value of the cash flows resulted from the guarantees valuation.

For the individually significant credits for which the recovery value is higher than or equal to the net accounting value, these credits shall be grouped into the portfolio together with credits with similar characteristics to be collectively assessed.

For each of the individually significant credits identified under Step 1, there shall be determined whether there are depreciation indicators (among those identified under Step 2 or other indicators).

For each of the individually significant credits with depreciation indicators, the future cash flows shall be estimated depending on the cash flows forecasts requested from clients and checked by the credit analyst.

The future cash flows shall be updated by using the actual interest rate of the credit and thus the recovery value is obtained.

The recovery value is compared to the net accounting value and for the minus difference the depreciation loss (provision) is calculated.

All the individually significant credits identified under Step 1 which following the procedures under Step 5 do not have a provision calculated from them, shall be transferred to the corresponding portfolio within those identified under Step 3.

Step 6 – Individual assessment of credits below the significance threshold

For each credit below the significance threshold for which depreciation signs have been noted, the Bank shall assess whether there are depreciation losses. If the recovery value is lower than the net accounting value, a depreciation loss shall be acknowledged. If the recovery value exceeds the net accounting value, the credit shall be grouped into the portfolio together with credits with similar characteristics to be collectively assessed.

Out of the credit not individually significant, from the database there shall be extracted those credits for which there are one or several depreciation indicators defined under Step 2.

For each of the credits identified this way, the similar provision shall be calculated using the methodology applied for individually significant credits under Step 5.

The credits for which a provision has been calculated are excluded from the credit portfolios with similar credit risk characteristics.

<i>Step 7 – Collective assessment of groups with similar credit risk characteristics</i>	
All the credits for which no individual losses have been identified shall be grouped into portfolios with similar credit risk characteristics, and then the adjusted historical loss indicator shall be applied to the exposure existent on balance upon the assessment date.	For each of the credit portfolios identified under Step 3 (plus individually significant credits not provisioned under Step 5 minus credits not individually significant and provisioned under Step 6) the historical rate of the loss calculated under Step 4 shall be applied to the balance on the balance sheet date (principal and attached receivables) and thus the loss from collective depreciation (collective provision) shall be determined.
<i>Step 8 – Registration of the depreciation loss</i>	
The total depreciation loss is determined as the sum of the individual and collective depreciation losses and is registered as expense in the profit and loss account in consideration of a credits provisions account.	The total provision shall be calculated as an individual provision (individually significant credits) – Step 5 plus individual provision (credits not individually significant) – Step 6 plus collective provision – Step 7. The provision thus calculated is recorded in the IFRS financial statements in consideration of the expense for provisions.

3.3. Example of determination of depreciation provisions

In order to determine the level of credit depreciation provisions at the level of bank A, for 31.12.2007, the following meanings have been agreed in the working methodology:

- *Time interval.* At bank A level, the historical analysis of the credit portfolio has been performed for 3 years (time interval January 1, 2005 – December 31, 2007)
- *Depreciation indicators* required for the identification in the database of those credits for which depreciation exists have been set for the credit portfolio of bank A as follows:

Objective indicators:	Client's financial performance: D or E, and/or Debt service > 30 days (problem credits)
Subjective indicators:	Rescheduling, new repayment spread-out, reactivation of the credit

- *Significance threshold.* Following the historical analysis of the credit portfolio of bank A, the significance threshold used to delimit individually

significant credits has been set at 0.5% of the bank's net assets on 31.12.2007, namely RON 1,000,000.

- *Foreign exchange rate.* The calculations have been performed in RON equivalent to the closing exchange rate of BNR existing on the date of each balance sheet. In order to determine the RON equivalent of the recovered amounts and of the depreciation losses related to each year and to each analyzed credit group, the annual average exchange rate set by BNR has been used as follows:

Currency \ Date	31-Dec-05	31-Dec-06	31-Dec-07
Euro (EUR)	RON 3.6771 3.6234 ^{*)}	RON 3.3817 3.5245 ^{*)}	RON 3.6102 3.3373 ^{*)}
US Dollar (USD)	RON 3.1078 2.9136 ^{*)}	RON 2.5676 2.8090 ^{*)}	RON 2.4564 2.4383 ^{*)}

^{*)} Annual average exchange rate.

In view of determining the required specific credit risk provisions based on the methodology stipulated in the International Accounting Standard IAS 39, the following stages have been covered⁽¹⁰⁾:

a. Delimitation of the credit portfolio depending on the significance threshold

To analyze the credit portfolio of bank A in view of determining the depreciation losses per categories of debtors, the significance threshold calculated at 0.5% of the bank's net assets on 31.12.2005 (RON 1,000,000) has been used. The credits exceeding this threshold have been individually assessed in order to determine the depreciation losses.

30 clients whose exposure⁽¹¹⁾ exceeds the significance threshold have been identified. The cumulated value of the significant debtors' exposure is RON 70,000,000, representing 50% of the entire credit portfolio.

These clients have been tested in view of identifying the depreciation signs. No objective depreciation signs have been found, all the debtors having financial

performance A or B on 31.12.2007 and not having recorded overdue amounts. Regarding subjective depreciation signs, one debtor was included in this category: SC ALFA SRL, credit amounting to EUR 300,000, reactivated in November 2007, but reimbursed in full on 31.07.2008⁽¹²⁾.

Due to the fact that no depreciation signs have been identified, the significant debtors have been subject to the collective approach.

b. Individual approach

The clients with objective depreciation signs on 31.12.2007 have been analyzed individually in view of calculating the depreciation losses. This portfolio of clients has been analyzed using the 2 categories of clients: natural persons and legal persons.

The exposures related to these categories on 31.12.2007 are shown in the following table:

(RON equivalent)

Category of debtors	Category of credit		Exposure	% of total portfolio
Natural persons	A. Off-balance credits		58,330	0.05
	B. Balance sheet credit	B.1. Credit cards	12,780	0.01
		B.2. Consumption credits	133,564	0.11
	C. Credits reimbursed in full		146,922	0.12
Total natural persons			351,596	0.28
Legal persons	D. Credits reimbursed in full		1,273,130	1.03
	E. Balance sheet or off-balance credits		439,507	0.35
Total legal persons			1,712,637	1.38
Total credits with depreciation signs			2,064,233	1.67

For each of these categories the depreciation losses have been determined based on the following algorithm:

$$P = \sum_{i=1}^n P_i$$

$$P_i = E_{31.12.2005\ i} - VR_i$$

$$VR_i = R_i - VA_i$$

$$R_i = E_{31.12.2005\ i} - E_{31.07.2006\ i}$$

$$VA_i = E_{31.12.2005\ i} \times c_{gar.}$$

where:

P- provisions calculated individually for each credit;

VR - recovery value determined for each credit;

E - credit related exposure⁽¹³⁾;

R - recovery calculated for each credit;

VA - value adjusted depending on the guarantees recovery coefficient;

$c_{gar.}$ - guarantees recovery coefficient, calculated based on the background.

b.1. Credits for natural persons

Category A – credits in the off-balance sheet records on 31.07.2008 and with no significant difference in value on 31.12.2007 and on 31.07.2008 (recorded off-balance after 31.12.2007). These credits have been provisioned in full. Category A Provision – RON 58,330

Category B – credits that on 31.07.2008 are still in the balance sheet. They have been grouped as follows:

- *Category B.X. – Credit cards.* These credits are not guaranteed, only the granted incomes being taken into account. The provision has been calculated as the difference between the principal on 31.12.2007 and the recoveries during January – July 2008. Category B.X. Provision – RON 10,980

- *Category B.Y. – Personal consumption credits, guaranteed by the nonpayment risk policy with insurance companies.* The guarantees adjustment coefficient was calculated based on the historical data (2005 – 2007). During this time interval there has been analyzed the degree of compensation of damage files submitted to the insurance companies, a 90.36% percentage resulting. This percentage arises from the fact that some files have been partially compensated or have

been rejected the compensation, due to the incomplete documentation or due to the noncompliance by the bank with the deadlines and conditions stipulated in the insurance agreements.

In order to determine possible provisions the difference between the credits' value on 31.12.2007 and the recoveries during January – July 2008 has been calculated. Following the calculation of the recovery value there resulted that it was not necessary to create individual provisions, and therefore these credits have been included in the collective approach.

- *Category C – Credits that on 31.07.2008 are no longer in the balance sheet, or in the off-balance sheet records, as they have been reimbursed in full.* These credits have been transferred to the collective approach, as they did not show depreciation signs.

b.2. Credits for legal persons

- *Category D – credits that on 31.07.2008 were not in the balance sheet, or in the off-balance sheet, being reimbursed in full by the clients.* These credits have been transferred to the collective approach, as they did not show depreciation signs. This category includes 2 debtors:

- BETA SRL (depreciation index – financial performance E) – credit recovered in full during January – July 2008

- ALFA SRL (subjective depreciation index – credit reactivation) – credit recovered in full during January – July 2008.

- *Category E – credits that on 31.07.2008 are still in the balance sheet or in the off-balance sheet records.* These

credits have been individually tested in order to determine depreciation. The provision was calculated as follows: the recovery value was calculated = exposure – adjusted guarantees – recoveries. The current value of the recovery amount represents the upgrading of the recovery amount by the guarantees recovery percentage depending on the deadlines. The value of the credit not covered by guarantees (provision) is calculated as the difference between the recovery value and the current value of the recovery amount. If the recovery value is larger than the accounting value, the provision shall not be calculated and the respective credits are transferred to the collective approach.

The guarantees related to the credits in the Category E were the following:

- *Mortgages on natural person house, lands or buildings.*

The recovery percentage of this type of guarantee was calculated based on the historical data (analysis of the credits

recorded off-balance and guaranteed by this type of guarantee).

- *Returns assignments.* The recovery percentage of this type of guarantee was considered 0% following the analysis of the historical data during 2005 – 2007 (the off-balance receivables were recovered from other sources, and not from the valuation of these assignments.). The recoveries were considered to be the difference between the balance of the off-balance credits on 31.12.2007 and the balance on 31.07.2008. If the difference was negative, the recovery was zero.

Due to the fact that most of these credits were credit lines, with a flat management commission of 1% and the interest rate upon the granting of the credits was 10 – 30%, the used interest rate was the rate at the beginning of the credit agreement, and not the actual interest rate.

The debtors included in Category E and the provision assessed for these debtors are shown in the table below:

Client	Foreign currency	Pert fin	Arrears days	Total receivables	Guarantees value	Value of credit not covered by guarantees	Provision RON equivalent
GAMA SRL	USD	B	92	119,992	1,366,055	104,488	324,729.06
OMEGASRL	EUR	A	44	20,998	31,544	577	2,122.90
SVF SRL	RON	E	0	25,875	68,332	-16.143	no provision required
PI SRL	EUR	E	232	3,258	18,659	-8.890	
ABC SRL	RON	A	11	269,383	622,540	-115.932	

Provision category E – RON 326,852

Provision calculated by means of the individual approach – RON 396,161.

e. Calculation of the total provision according to IAS 39

The final provision has been determined as the sum between the provision calculated

by the collective approach and the provision resulted from the individual approach.

(equivalent RON)			
Provision	Sum	%	% of total credit portfolio
Provision – individual approach	396,161	44.3	0.3
Provision – collective approach	500.000	55.7	1.53
Total provision	896,161	100	1.58

4. Current methodology for the calculation of credit risk specific provisions, according to BNR regulations

Regulation no. 5/2002 of BNR with the subsequent amendments and completions regulates the following aspects:

- a. classification of credits granted to clients outside the credit institutions sector;
- b. classification of credits granted to other banks and of investments made by these banks;
- c. establishment, regulation and use of credit risk specific provisions.

a. Credits classification

In view of determining the required credit risk specific provisions, both credits and investments shall be classified in the following categories:

- *standard*;
- *under observation* (only for credits granted to clients outside the credit institutions sector);

- *substandard* (only for credits granted to clients outside the credit institutions sector);

- *doubtful* (only for credits granted to clients outside the credit institutions sector);

- *loss*.

Credits and investments are classified by simultaneously applying the following criteria:

a. *debt service* (number of days related to the unpaid credit installments)

b. *financial performance* (calculated based on a system of quantitative and qualitative indicators. Each individual indicator presents an individual number of points, depending on its calculated level. Depending on the indicator's weight, its final quotation is determined. The sum of individual quotations of each indicator (quantitative and qualitative) represents the final quotation of the client based on which the financial performance category to which the client belongs on the analysis date is determined.

Performance categories shall be marked from A to E in descending order of its quality. The determination frequency of a financial performance category for an economic entity coincides with the frequency of drawing up financial statements.

c. initiation of legal procedures.

The correspondence between these criteria and the classification categories is the following (Table 3):

Criteria for inclusion into classification categories of credits granted to clients outside the credit institutions sector

Table 3

Financial performance	A	B	C	D	E	
Debt service						
0 - 15 days	Standard	Under obs.	Substandard	Doubtful	Loss	No legal procedures were initiated
16 - 30 days	Under obs.	Substandard	Doubtful	Loss	Loss	
31 - 60 days	Substandard	Doubtful	Loss	Loss	Loss	
61 - 90 days	Doubtful	Loss	Loss	Loss	Loss	
minimum 91 days	Loss	Loss	Loss	Loss	Loss	Legal procedures were initiated

b. Procedure for the determination of the required credit risk specific provisions

The calculation of the necessary volume of provisions is made per each separate credit agreement depending on its category. Credit risk specific provisions are determined only for the obligations in the balance sheet assets.

To determine the necessary credit risk specific provisions, the following steps shall be taken:

1. determination of the calculation basis for the credit risk specific provisions, as follows:

- deduction from the bank exposure towards the debtor of the guarantees accepted for being taken into account, according to the Methodological Norms of BNR no. 12/2002 with the subsequent amendments and completions and to the

BNR Norm no. 11/2006, for a credit classified in the “standard”, “under observation”, “substandard”, “doubtful” and “loss” category, in case legal procedures have not been initiated and if all the sums of the respective credit have a debt service exceeding 90 days;

- the taking into account of the entire exposure, regardless of the accepted guarantees, for a credit classified in the “loss” category, in case the legal procedure has been initiated or if at least one of the sums (the principal or the interest) registers a debt service exceeding 90 days. The situation is considered in a similar way with regards to an investment classified in the “loss” category.

2. application of the provisioning coefficient on the resulted calculation basis, according to the table below:

Classification category	Coefficient
standard	0.00
under observation	0.05
substandard	0.20
doubtful	0.50
loss	1.00

In order to determine the credit risk specific provisions for a risk entity the following actions are taken:

- the unadjusted (gross) exposure is determined, by identifying all the balance and off-balance sheet items related to the credit agreement (the active credit value + unused ceiling + related interests) per each credit agreement
- the fair value (accounting value) of the accepted guarantees and established upon the granting of the credit is determined
- the adjusted exposure is determined by deducting out of the unadjusted exposure of the bank in relation to the risk entity (credit and interest) the accepted guarantees at the fair value proportionally

distributed between the guaranteed asset items going through the following steps:

- identify the balance and off-balance sheet items related to the credit agreement; determine the weight of each item in the total gross exposure
- identify the guarantees related to the credit agreement;
- proportionally distribute the weighted guarantees to each balance and off-balance sheet item making up the gross exposure.

The exposure adjusted per each balance and off-balance sheet item shall be equal to the gross exposure – guarantees (weighted, as the case may be).

The agreement adjusted exposure represents the sum of all the adjusted exposures related to each balance and off-balance sheet item.

- the credit risk provisions requirement is determined only for each balance sheet asset item and it is established by multiplying the provisioning coefficients related to each classification category with adjusted exposure.

Notes

⁽¹⁾ Specific credit risk provisions are the provisions established by the credit institutions in view of covering potential losses due to credits and investments.

⁽²⁾ See International Financial Reporting Standards.

⁽³⁾ The approach that uses the internal models is based on the probability of default (PD) analyzed on average for 12 months and on the most conservative estimation of the loss by nonpayment (LGD - Loss Given Default).

⁽⁴⁾ The used term is Internal Ratings-Based (IRB).

⁽⁵⁾ The term used is “shortfall”.

⁽⁶⁾ The used term is “trigger” event.

⁽⁷⁾ We can talk about depreciation loss when it is foreseen that the bank shall not collect all the due amounts of the future installments (principal + interest) according to the contractual terms or that these due amounts cannot be recovered by exploiting the guarantees.

⁽⁸⁾ The depreciation losses to occur as a result of future events are not acknowledged.

- (9) For variable interest credits, the updating rate shall be regarded as the interest rate existing on the assessment date, determined according to the contractual terms.
- (10) Meaning decision-making flow and the steps taken to calculate the provisions.
- (11) Exposure = current balance + overdue balance.
- (12) Due to the reimbursement of the debt in 2006, the debtor has been regarded as not showing depreciation signs.
- (13) Exposure = credit principal on the date the exposure is calculated (current balance + overdue balance).

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Mobil Digital Management for SME's

■

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***Abstract.** The article presents the company management problems operating into a global environment, on a global market, digital management prospects and a concept concerning mobile digital management that is defined by the author and whose technological basis is the Internet, the mobile network technology and a mobile devices class which are considered to become a fundamental platform for the future applications.*

Key words: business process; business rules; mobil digital management; mobile devices; wireless network.

■

JEL Codes: D83, M15.
REL Codes: 5I, 14B, 14K.

In order to fulfill the Lisboa strategy, as the European Union economy to become one of the most competitive economies after 2010 year, an unitary IT&C infrastructure has to be provided for all the member countries, in order to capitalize on the advantages of a single market, governed by prices, quality of products and services or the connection with unknown partners under security conditions.

The states differentiation as regards eBusiness level is based on broadband Internet penetration. In United States of America, the broadband penetrating degree was of 87.49% in January 2008, in Holland⁽¹⁾ of 33%, in Denmark of 31.4%, in Finland of 28.1%, in Sweden of 27.4% and in United Kingdom of 23.1% and in Romania of 7.9%.

Among the first ten countries with the highest yearly growth rate as regards broadband Internet subscribers, we find also Romania, witch for 2007 year had a growth⁽²⁾ of 104.52%.

The future of digital economy consists in hardware and software innovations for mobile devices and wireless networks.

The information technology investment⁽³⁾ for 2010 year is expected to have a growth of 9.5% yearly.

The number of GSM broadband “wireless” networks⁽⁴⁾ includes over 40 million subscribers with a forecast of 4 million new users till the end of this year, and the broadband “wireless” networks with High Speed Packet Access⁽⁵⁾ dispose of over 740 types of mobile devices, PDA, intelligent telephones, notebooks or monitoring devices, with a high diversification and expansion.

This concept is substantiated on the idea that business rules are implemented as standards (Fugure R 1) into databases, and their execution and control are achieved automatically, according to several procedures, the key factor being the human one who makes the decisions on the business rules to be used, at a certain moment, for the notified business processes.

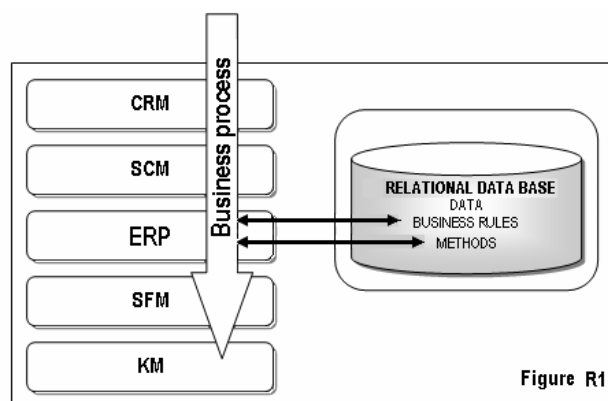


Figure R1

The business processes and rules often transcend the systems, subsystems and the applications and the managerial control is achieved especially on the business process level and not on the subsystems level.

The business process being considered as receipts to achieving a commercial outcome, receipts with business rules stored in databases, these can be modified, changed and aggregated, according to the

company objectives and can be materialized into business models.

Many companies, especially small and medium ones, have refused to invest in technology because of the high costs, the low profit, and the technology complexity and for many other points of view.

The responsibility and the control represent a challenge, because very often these are assigned to technology and not to persons who control it, and any manager has to keep in mind this aspect, if he wants to implement the technology into a real environment.

We define the mobile digital management *through partially or totally achieving of at least one of the management functions, forecasting-planning, organization, decision-making and command, coordination, motivation, evaluation and control, by using the wireless network technology and mobile devices (PDA, intelligent phones, iPhone, GPS devices or solid hard notebooks).*

The mobile digital management is suited for two of the management functions – coordination, evaluation and control – which represent current problems of the executive managers and usually requires notifications and fast decisions.

These two functions are usually fulfilled through compartment reports covering the tolerance limits of the measured parameters.

For the parameters outside the feasible tolerance limits, the notifications to managers are done automatically through mobile devices.

The notifications are done both for the managers who are responsible for the

parameters outside the tolerance limits and for the upper hierarchical level, where an evaluation of the parameters current value evolution and, eventually, an evaluation of the measures to getting the respective parameter into the tolerable limits are transmitted.

The idea to supply managers with very flexible organizing structures, solutions to fulfilling processes or parts of the management functions using mobile devices and technologies, where ever more useful applications to be integrated on, has an important economic justification.

It is a new concept for the decision-making process (Figure R2) and it refers to manager's automatic notification with right information for substantiating the decisions into a certain time interval, regardless his location, by using mobile devices facilities, iPhone, PDA, intelligent phones, "solid state" disk notebooks or complex GPS devices.

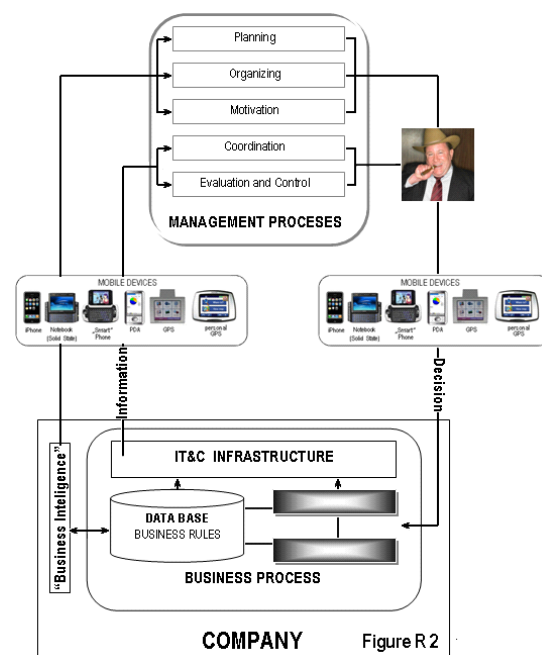
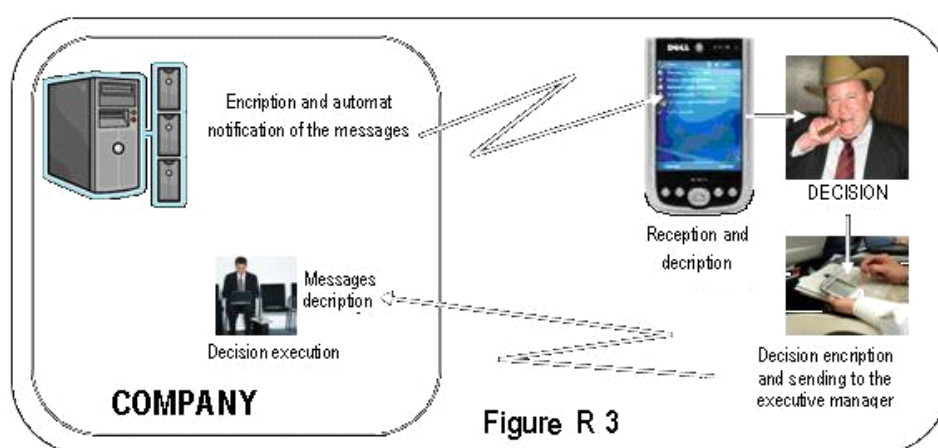


Figure R2

The collection of information has not to be a routine, but it has to be information related to his attributions, strictly referring to the values of the parameters outside the feasible tolerance limits and which require immediate decisions for not affecting negatively the parameters of the working program, with financial or contractual implications.

Data transmission and decision reception must be protected (Figure R 3)

through solutions and encryptions. From the company system, the encryption and notification of the parameters outside the tolerance limits and which require decisions are automatically done with an encryption key established by the manager, and the manager encrypts the notified message and encrypts his decision with a symmetrical encryption key, stored on a memory stick used only for decryption of messages.



The encryption keys can be daily changed or according to manager's own desire, and the key length is evaluated according to the transmitted or received information lifetime. Such a solution is feasible and at the same time useful on the mobile intelligent devices.

The construction and tourism sector, according to the area of geographical, global, regional or local distribution, presents certain similar particularities, of interest for a *mobile digital management*.

Most companies are small and medium enterprises and it is difficult to suppose that these companies will invest important amount of money in IT&C, by taking into account the fact that the downstream

necessary investments for maintenance or personnel is an immobilization of related resources, heavily supported by costs.

The small and medium enterprises are the key actors for transforming the European Union economy into the most modern economy, due to their unique capacity of implementing and adjusting technologies, innovation being a basic element of their strategy.

Also in Romania, small and medium enterprises are the main factor of economic growth and till 2013 year, through running the European financing programs on structural funds, they will get a weight of 80% of the GNP and 75% of providing new working places.

This is one of the reasons why the *mobile digital management concept* aims at the construction and tourism sectors.

A solution of mobile digital management is suggested, which to include the company managerial structure on management levels, management functions, managerial activities, activity efficiency parameters, parameter tolerance limits, activity responding time and a colors code for the emergency of solving the decision-making notifications.

The Web presence of companies requires from managers a fundamental behavioral change, because the rigid and hierarchical structures became out-of-date and the management information is already supplied and received through present and future technological solutions.

The companies will be in a creative challenge in order to develop their vertical structures or to expand the horizontal structures.

We think that it is possible to take place a change as regards the network roles, namely, the programs to become models and life to become a simulation.

This fact will have a major impact upon the training and education processes, as the educational structures of today are insufficiently synchronized with the technological evolution.

Information is available on network, and education should cultivate to students and pupils, knowledge to stimulating innovation and creativity.

Business needs skilled workers, the on-going education being an already assumed life problem.

The global network became a virtual market for the exchange of “products” and services for the training and educational process.

It is a world of networks, where the software solutions allow co-operation among entities and persons spread all over the world, in order to achieve products and services.

There is a profitableness point, similar to a critical mass, that provide the individuals or companies qualifications, in order to get a benefit from the advantages of the new technological platforms, which will connect, in the near future, over 3 milliard persons, in what we call the new economy.

A modern management for the companies working into a compressed world, supposes to disengage the manager from the routine problems pro the innovation ones, remote control, minimum elastic hierarchical structures, to exploiting the facilities supplied by the company navigation into the networks world and to creating innovative solutions for the specific demands of their customers.

In today and tomorrow globalized world, the small and medium companies become worthful partners and competitors for any other small or big partner or competitor.

Romania disposes of a modern legislation, of institutions which to stimulate and to manage the development of IT&C components, it develops its broadband networks and has national programs for introducing the information technology in schools.

We mention as weak points the investments⁽⁶⁾, still very low (2.1% of the GNP in 2007 year with an increasing trend) as against the developed European countries, the slower adoption of the pre-university and university education to the newest technologies, with a number of 10.3 IT&C graduates per thousand of inhabitants⁽⁷⁾ (much under Ireland, France or Great Britain) and with an Internet connecting mean⁽⁸⁾ of 22%, being classified in the European Union hierarchy penultimate place.

The European Union considers small and medium enterprises the engine of the member states economies, as the most dynamic and innovative components which deserve to be supported and developed.

Most companies appraise⁽⁹⁾ the IT&C positive impact upon their activity and consider that also for the future, their companies will be positively affected by IT&C, through introducing new processes and innovative solutions⁽¹⁰⁾.

<http://www.ebusiness-watch.org/>
(Mai 2008)

Notes

⁽¹⁾ See www.ectaportal.com (August 2008)

⁽²⁾ See www.point-topic.com (August 2008)

⁽³⁾ See <http://ce.tekrati.com/> (May 2008)

⁽⁴⁾ See www.internetworldstat.com (May 2008)

⁽⁵⁾ According to HSPA (High Speed Packet Access, with a speed of 1 Mbit&sec)

⁽⁶⁾ See <http://epp.eurostat.ec.europa.eu/> (Iunie 2008)

⁽⁷⁾ See <http://epp.eurostat.ec.europa.eu/> (Iunie 2008)

⁽⁸⁾ See <http://epp.eurostat.ec.europa.eu/> (Iunie 2008)

⁽⁹⁾ See <http://www.ebusiness-watch.org/> (Mai 2008)

⁽¹⁰⁾ See <http://www.ebusiness-watch.org/> (Mai 2008)

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Growth Strategies in the Publishing Industry through the Betterment of Managerial Techniques

■

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***Abstract.** The publishing industry is one of the branches of the national economy which thoroughly follows the rules of efficiency and strategic thinking specific to the economic area. In this context, it is useful for any publishing company to define its own economic strategy based on specific objectives and priorities which would lead to improved performance, market share and notoriety.*

Key words: strategic thinking; efficiency; production factors; investment; strategic policies; market share.

■

JEL Codes: M11, M31.

REL Codes: 14B, 14K.

The emergence of the strategy and its conceptual shaping are linked by the evolution of human nature, by the intensifying of social and economical relations. Under the influence of a developing society and the impulse of the “movement” of individual needs – and in general under the spell of the dynamic environment which made its presence felt starting in the 60’s – certain conditions have been met which imposed *strategic thinking*. As a result, strategies became a challenge for people – with regard to adapting personal actions and activities in the community to the dynamic and unpredictable environment which, in the case of an enterprise, decisively conditions its survival and hopefully, its endurance. There are still major difficulties though, due to the unpredictable nature of some phenomena in the environment, when it is turbulent. Thus, identifying the trajectory on which the environment moves is hard – if not impossible – to reveal, thereby reducing the chances for the enterprise to adapt to its demands.

Strategy is the most important part of the managerial art, having the task of preparing and conducting (coordinating) the “war” in its entirety. Furthermore, beginning with the affirmation that the survival of an enterprise depends – crucially – on its structural organization and cultural values promoted by its adopted strategy, an idea takes shape that strategy can insure an advantage between two enterprises of the same size and characteristics. Even more, the general opinion points that a good strategy will allow a small, lesser endowed enterprise to attain a faster growth than its competitor which has secured its factors of production at a higher

level⁽¹⁾. This affirmation remains viable, even if to a point, as a result of the propagated role of management, this time realized by means of the employed strategy.

1) Regarding the improvement in the efficiency of editorial activity we propose the following:

The associating of local editors in making paper purchases

An auction organized by a group of local editors, to which small and medium sized printers may associate, could lower the cost of paper by at least 8%.

By together offering payment guarantees and a consistently guaranteed volume of purchases, this association could obtain a price of at most 340/t (excluding VAT) and payment terms of at least 6 weeks.

The associating of editors in paying the press column writers

As in the case of sports pages, magazine or external, there is no impediment in splitting the costs of the financial payments offered to column writers. A nationally well-known political commentator will be pleased to receive a consistent wage offered by an association of local publishers. On their part, each of the publishers will thus enjoy lower costs in supporting these dues.

Associating in syndicating the costs of legal-assistance

Apart from minimizing costs, associating publishers in sharing the costs of legal assistance may also bring one substantial benefit: the professional specialization of lawyers – split by region – on specific jurisprudence regarding press offences or even copyright.

Financing software solutions for commercial add exchange for the press

A person from Botoșani in need of publishing a small add in Craiova has at the moment only one sure-fire way of doing it: by taking a trip across the country.

It's the same for the businessman in Alba looking to liquidate a stock of timber in the Port of Constanța. He does not know how to buy some add modules in Constanța's newspapers.

A syndicated exchange of add space among local newspapers would solve such problems and could optimize add-revenues for the associated publishers. To achieve this, software must be acquired to allow for the on-line ordering and administration of add-exchange among local papers.

As in other similar cases, the association of publishers undertaking such a project could also obtain financing in the acquisition of this software through an economic development program tailored for supporting the Romanian press.

Acquiring software through barter

For Business Software Alliance, the prospect of associating with a massive group of Romanian publishers is certainly of interest. In the exchange of a media campaign against software piracy, BSA could offer software products to consistently reduce the investments efforts of the publishers.

The campaign offered to BSA by this group of publishers could be realized through classic publicity patterns, not necessarily by a series of education articles on anti-piracy. In truth, for the effects in dropping the alarming levels of software piracy to be felt on medium term, the campaign should have both length and consistency.

Accordingly, the volume of software products offered by BSA shall be a significant one.⁽²⁾

Strategies for growth in the publishing industry through promotion

Today, we can encounter two editorial policies in Romania: that of the boom and that of the complex editorial program, meaning the physical spread in the market over as many domains as possible. The boom is equivalent to a fleeting (a few months) domination of the market.

Regardless of their size and economical power all publishing houses promote themselves through adds in the written press, TV and radio shows, book fairs, email newsletters sent to potential clients, company websites, book launch events.

At ALL Publishing House for example, the strategy of promotion is projected according to the relevant book collection and the book's title. A new, high-end collection with double-covers being sold at a reasonable price constitutes an "image vector".

Humanitas Publishing House takes up adds in the written press, television, radio, practicing direct-sales and sales bonuses and making use of all the opportunities offered by book fairs.

The selection of the books which end up in bookshop windows is far from being random. The inconspicuous shelf space is one of the most important parts in the sales process of books. The way in which bookshops choose the books for the most prominent shelves and the way in which publishing houses compete for them is a story of strategies, but also of the bookshop keeper's intuition or courage. Cristi Neagoe, the PR representative for Cărturești Bookshop, is

categorically against any sort of product placement strategy. Asked about the criteria on which the shop promotes certain books, placing them in the most visible locations, Mr. Neagoe answered the selection is made by the store owner's after their own principles, paying attention however at their patrons' preferences.

In the Diverta chain of bookshops, the selection of titles for the most exposure is done in accordance with the sales quota of each publisher. The manner in which the editorial products are shown on the shelf is determined firstly by the percentage that they have in the network's overall sales, and implicitly by the public's perceived importance of that publishing house. Publishers such as Rao, Humanitas or Polirom, which hold a great variety of titles sought after by the general public will enjoy a greater visibility on the shelf. There are also certain partnerships for promotion campaigns of certain titles, campaigns which also imply preferential exposure for a fee. Diverta Bookshop holds a suggestion stand for every week with the Top 10 bestsellers.

At Noi Bookstore in case a publisher wants a specific floor location, extra costs are inserted in the contract. Out of 400 publishers at the Noi Bookstore, only Teora has signed such a contract. For the rest of the publishers, preferential shelf space is given in accordance with each publisher's discount.

Only in Humanitas and Cărturești bookshops are the store managers the ones who decide which books to bet on and promote.

Sales success is due to the publisher's luck and inspiration and – in other cases – due to the notoriety of the author whose books must be promoted by all the rules of marketing and

publicity. It is what happened with the volumes by Mircea Cărtărescu and Paulo Coelho – “Why we love women” and “Zahir” respectively, published by Humanitas and which sold in 90,000 copies for the former and 72,000 for the latter, in 2005. Just for the promotion of the Brazilian writer's novel, around 17,000 have been allocated. If we are to consider the number of titles published, for the year 2005, the first two places on the book market were occupied by the Polirom and Corint publishers, each with 500 titles for the period.

We can see that in the book publishing industry, marketing is used less as a study for a product or as a means of forecasting the market potential or as an investigation into the development process of the products; the publishers mainly concentrate on promotional activities.

The place to apply promotion strategies is the book fair. In Romania there are two big, traditional fairs: Gaudeamus and the Bookarest/Bookfest International Book Fair – this being a celebration of the book. In an European context, there are advised opinions placing Gaudeamus amongst the first 10 international book fairs on the old continent, in terms of main statistical indicators: surface, number of participants, visitors and associated events.

Book fairs provide the following benefits:

- Direct contact between publisher and the end-customer;
- Finding new partners among the media, printers, distributors, authors, translators;
- A better sales venue, books being sold at promotional prices;
- Promoting the publishers' image through presentations, book premieres, the presence of celebrities (authors, translators, public figures) in the company stand.

The fundamental problem remaining in the production of books is infrastructure, meaning the lack of a national information system and a national system of distribution. There are few wholesalers and they are not specialized on specific market segments (academic books for instance). Presently there is no intermediary able to cover the book market, to be informed on its contracted publishers' programs at the beginning of each year and on top of that to also have a sales strategy.

The distribution of books continues to remain the vulnerable point of the publishing industry. In the price of a book, the percentage covering the costs of distribution varies between 25 and 45 percent. As Romania has only one big library chain – Diverta (with over 70 shops) – the publishers must conform to its demands. Grigore Arsene, the president of the Romanian Editors' Association (AER) and the director of Curtea Veche Publishing House, said: "The so-called «national system» of Diverta monopolizes the entire system of book distribution and claims a discount of as much as 45% from the price of a volume". The scarce national distribution network, as many voices in the field say, could be one of the reasons for which the large foreign publishers have yet to set up shop in Romania⁽³⁾.

Another strategy for growth applied by companies in the publishing industry is the Profit Impact of Marketing Strategy, or PIMS.

PIMS is a program created by Harvard Business School for analyzing the relations and interdependencies between the realized performance and the strategy employed by the enterprise. Several companies can take part in this program by supplying – for each domain of strategic analysis – information on market environment, distribution circuits,

growth rate, competitor positioning by price, quality, level of vertical integration and information on spending and results.⁽⁴⁾

PIMS, by processing this information, offers the interested parties confidential data on the situation in the market sector, the position occupied by the company according to its results and makes certain recommendations with regard to the employed strategies, suggesting changes it deems necessary. The analysis for the evolution of efficiency was resorted to, with regard to the parameters resulting from the applied strategic policies:

- growth rate in the sector
- relative quality
- intensity of investments
- market share

1. The impact of the sector growth rate on efficiency

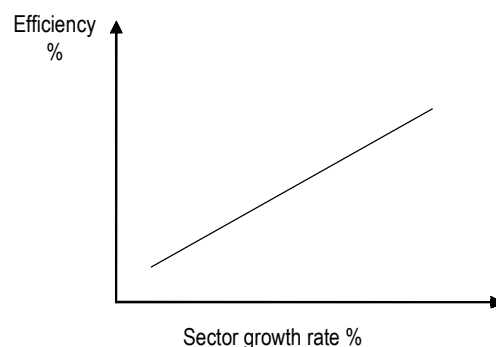


Figure 1. *Growth rate - efficiency relationship*

2. The impact of relative quality on efficiency

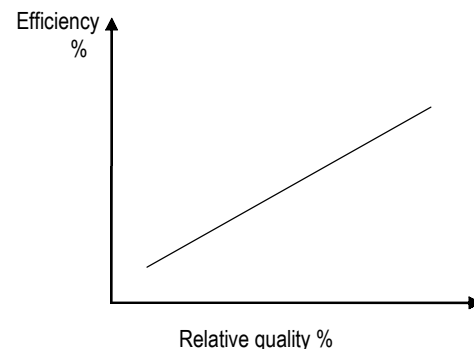


Figure 2. *Relative quality - efficiency relationship*

3. The impact of market share on efficiency

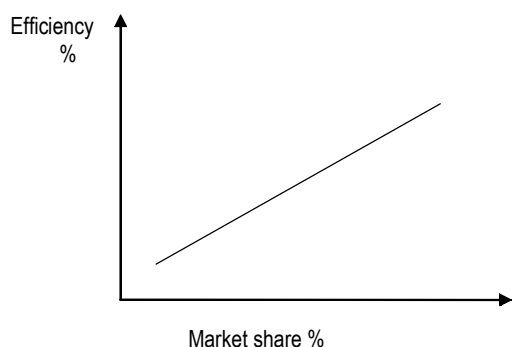


Figure 3. *Market share - efficiency relationship*

4. The impact of the intensity of investment on efficiency

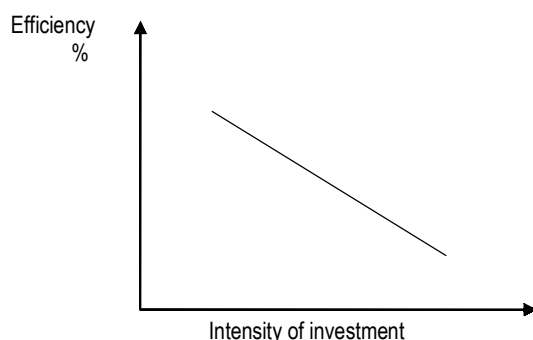


Figure 4. *Intensity of investment - efficiency relationship*

The expansion of the sector of activity, a superior product quality, the increase of market share and keeping investment at an appropriate level (according to sector demand and the financial power of the enterprise) insure an optimal level of efficiency.

For example, the increase in product quality brings about an increase of price and a decrease in waste, all reflected by growing efficiency.

The efficiency of an enterprise increases together with its relative market share. Scientific literature specifies that an increase of 10% in market share brings an increase in the profit ratio of approximately 5%. If a company with a market share of 10% has a profit ratio of around 9%, the company with a 40% market share may attain a 25% profit ratio. Still, the optimal market share for an enterprise is reached at 50% market share; if this level is exceeded, the intensity of investment increases and the efficiency drops.

Notes

- (1) See The Economic Tribune, 2004-2007 collection
 (2) Adapted from The Whitebook of the Press II Economical problems of the press, The Agency for the Monitoring of the Press – Academia Cațavencu.

- (3) According to <http://prolibro.wordpress.com>
 (4) See Niculescu Maria, Lavalette G. – Growth Strategies, Ed. Economică, Bucharest 1999

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