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 Multiliniar 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.

JEL Codes: G21, G30, G33.
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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 litterature 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 litterature 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 Multiliniar 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 discrimantion process of the ratios (Campbell, 2004).

Ohlson (1980) has elaborated his own model which includes the following ratios: log(Assets), financial leverage, Working Capital/Current Liabilities, Turnover/Total Assets, Opeartional 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 Multiliniar Discriminant Analyis, Ohloson, 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 unstability 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), Bâilesteanu (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 assembley 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 defualt modelling are considered to be external financing costs and assets value.

Thus although a firm can go through a liquidity crisis we can not appreaciate 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 finnacial 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:

Total Assets < DTS + 0.5 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 deafult 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.

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

$$d_2 = d_1 – \sigma_V \times \sqrt{T}$$

If at the maturity T, the value of the enterprise is superior to the debt value, creditors will be disrebursed 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 disrebursed 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).

Mantaining 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 ist value reach it (Bharath, Shumway, 2004).

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

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

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 trigerred automatically the moment when the entreprise 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 hystorical information regarding ROE (Return on Equity) by whch there will 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 Scoles approach and implemented a corporate default risk prediction model by the intermediary of the options mechanism which integrate also informational asymetry 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 = {[Market value of assets] – [Default point]}/[Market value of assets] × (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 rigurous 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 ca o replica la modelul KMV elaborat de 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 negociation between debtors and creditors. This renegociation 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 pinted 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 unitarly 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, Bulgary, 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 assembley 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 (developped 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) (developped 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 (developped 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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