



MULTICRITERIA EVALUATION OF SUPERVISORY BOARDS EFFECTIVENESS

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Abstract: Corporate governance system in Bosnia and Herzegovina is based on two-tier model. Supervisory board presents the key corporate body. It is worth to find out what type of the supervisory board is associated with the companies having best financial results. Thus the paper evaluates results by different selected criteria and ranks companies using multicriteria ranking method. Earnings before interest, return on assets and return on equity were selected as key criteria to measure performances of companies. Multicriteria ranking was performed using complex VIKOR method. Results are indicative for conclusion on preferable constitution of Supervisory board.

Key words: multicriteria ranking, supervisory board, financial reports, two-tier corporate governance model

1. INTRODUCTION

The separation of ownership and control in publicly held corporations induces conflicts of interest between managers and shareholders for many years. A number of governance mechanisms may help to align the interests of managers with those of shareholders. The role of a supervisory board is to find balance between them.

In two-tier corporate model supervisory board presents the key corporate body. There is continues discussion about relationship between corporate governance and degree of influence of certain types of variables which determinate supervisory board characteristics.

Supervisory boards with members that have relevant knowledge, skills, and abilities have the potential for proffering unique tactical and strategic advantages to corporations (Beekes, Pope, and Young, 2004).

They can contribute to a firm's success through three primary roles: the resource role wherein they enhance access to critical external resources, the service role in which they provide important advice to executive management, and the control role in which they provide governance oversight and determine incentives for executive performance (Chatterjee & Harrison, 2001). However, the optimal board size and its structure is function of characteristics of directors and corporations (Raheja, 2005).

The most frequently used performance variables used in similar research studies are basic financial indicators such as return on assets, return on equity and EBITDA - Earnings before Interest, Taxes, Depreciation and Amortization (Brennan, 2006).

In this research different variables and criteria are used to figure out relationships between supervisory board structure and selected financial performances. Large number of indicators which determine this problem are used and evaluated using multicriteria tanking method.

2. METHODOLOGY

In order to assess the qualities of a supervisory board (SB) leading to companies' success, the first analysis included 32

criteria evaluated from a list of 102 companies from Bosnia and Herzegovina. Variables values were provided for three consecutive years, from 2007 to 2009.

After matrix of variables values for 102 companies was designed, multicriteria ranking using complex VIKOR method (Opričović, 1998) was performed. The method assumes that as compromise decision maker would accept a solution that is the closest to the "ideal" solution. In this case the vector solution consisting of optimal variables values for the selected criteria within the set of 102 companies. VIKOR has been successfully used as multicriteria decision making tool. Examples of VIKOR refer to selection of industrial robots (Athawale et al., 2010) or selection of materials under aggressive environments (Cristóball et al., 2010).

And the last step was to evaluate which criteria values were leading to the most successful companies and to give recommendations on the SB composition.

3. CRITERIA SELECTION AND VALUATION

During the first step, all 102 companies were ranked based on their financial success, and selected key criteria in this paper were EBITDA, ROA and ROE as the most comprehensive, descriptive and complementary financial indicators out of other considered criteria described later in the paper. They are considered with the same weight. The first twenty two companies and related criteria values are presented in table 1.

No.	Company	EBITDA	ROA	ROE
1	Bosna sunce osig.	0,0666	0,0465	0,0497
2	Croatia osiguranje	0,0545	0,0211	0,0272
3	Grawe	0,0162	0,0044	0,0047
4	Lido osiguranje	0,0117	0,0072	0,0091
5	Triglav BH osig.	0,0918	0,0551	0,0583
6	Uniqa osiguranje	0,0639	0,0413	0,0480
7	VGT osiguranje	0,0567	0,0433	0,0538
8	Zovko osiguranje	0,0300	0,0000	0,0200
9	ABS Banka	0,0854	0,0045	0,0366
10	Bosna Bank Inter.	0,0808	0,0045	0,0147
11	BOR banka	0,1204	0,0057	0,0137
12	Fima banka	-2,4696	-0,060	-0,157
13	Hypo Alpe Adria B.	0,1285	0,0077	0,0952
14	NLB Tuzlanska B.	0,1490	0,0087	0,1166
15	Privredna banka S.	0,0564	0,0016	0,0055
16	Postbank BH	-4,0058	-0,089	-0,248
17	Raiffeisen Bank	0,1358	0,0080	0,1091
18	Unicredit bank	0,0000	0,0138	0,0973
19	Union banka	0,0477	0,0026	0,0093
20	Intesa Sanpaolo B.	0,0355	0,0016	0,0191
21	Vakufska banka	0,0815	0,0038	0,0121
22	Volksbank BH	0,1211	0,0078	0,0642

Tab. 1. Matrix of criteria values for first 22 companies

Selected criteria in this paper relating to a company financial success and to a SB composition and effectiveness are

as follows: total assets value (values expressed in BAM, local currency unit), fixed assets value (in BAM), current assets value (in BAM), accounts receivables (in BAM), net book value (in BAM), EBITDA - earnings before interest, taxes, depreciation and amortization (in BAM), stock value on December 31st (in BAM), stock number, total market value (in BAM), Tobin's Q ratio, net profit (in BAM), stock dividend (in BAM), ROA - return on assets, ROE - return on equity, number of SB members, number of SB members with PhD or MSc, number of SB members representing state owned capital, number of female SB members, number of independent SB members, number of SB meetings per year, compensation to SB members depending on achieved results, participation in ownership of a company by SB member, management ownership of a company, is the company part of the holding, number of stockholders, private or state owned companies, number of management members, membership of foreigners in SB, number of employees, major ownership block, major foreign or domestic ownership and number of employees as members of SB.

During the next step the matrix was normalized and L_1 and L_∞ distance norms to ideal point were calculated in order to get respective S and R distances. These values were again normalized towards respective QS and QR values and their linear combination $\lambda QS + (1-\lambda) QR$ (or "compromise"), where λ is so called strategy weight, and used value is $\lambda=0,5$. Derived matrix, at level of first 22 companies, is depicted in table 2.

Altern.	S	R	QS	QR	VIKOR
A1	0,6235	0,3097	0,5214	0,8548	0,6881
A2	0,6137	0,3092	0,5072	0,8518	0,6795
A3	0,6066	0,3087	0,4967	0,8487	0,6727
A4	0,6076	0,3088	0,4982	0,8493	0,6738
A5	0,6272	0,3099	0,5268	0,8560	0,6914
A6	0,6215	0,3096	0,5186	0,8546	0,6866
A7	0,6222	0,3098	0,5196	0,8553	0,6875
A8	0,6056	0,3090	0,4953	0,8508	0,6730
A9	0,6086	0,3094	0,4996	0,8530	0,6763
A10	0,6080	0,3089	0,4988	0,8501	0,6744
A11	0,6091	0,3089	0,5004	0,8499	0,6752
A12	0,5361	0,3051	0,3934	0,8268	0,6101
A13	0,6117	0,3107	0,5043	0,8610	0,6826
A14	0,6129	0,3112	0,5060	0,8638	0,6849
A15	0,6063	0,3087	0,4963	0,8488	0,6726
A16	0,4963	0,3031	0,3352	0,8145	0,5749
A17	0,6123	0,3110	0,5051	0,8628	0,6840
A18	0,6117	0,3107	0,5042	0,8612	0,6827
A19	0,6066	0,3088	0,4968	0,8493	0,6731
A20	0,6063	0,3090	0,4962	0,8507	0,6734
A21	0,6077	0,3088	0,4984	0,8497	0,6740
A22	0,6110	0,3100	0,5032	0,8568	0,6800

Tab. 2. Matrix of S, R, QS and QR values, first 22 companies

Final ranking by VIKOR values provided "success table", as shown in table 3.

Altern.	Company	VIKOR
A1	Modna konfekcija d.d. Sarajevo	1,0000
A2	VGT broker d.d. Visoko	0,8578
A3	Sarajevska berza-burza d.d.	0,7565
A4	Registar vrijednosnih papira d.d.	0,7538
A5	Tvornica cementa Kakanj	0,7360
A6	BH Telecom d.d. Sarajevo (BHCSR)	0,7191
A7	Hering d.d. Široki Brijeg	0,7071
A8	Fabrika duhana Sarajevo (FDSSR)	0,7015
A9	Bihacka pivovara d.d. Bihac	0,6991
A10	Zavod za vodoprivredu d.d. Sarajevo	0,6930
A11	Bosnalijek d.d. Sarajevo (BSNLR)	0,6918

A12	Triglav BH Osiguranje d.d. Sarajevo	0,6914
A13	UNIS Ginex d.d. Goražde	0,6885
A14	Opresa d.d. Sarajevo	0,6883
A15	Bosna sunce osiguranje d.d.	0,6881
A16	VGT Osiguranje d.d. Visoko	0,6875
A17	Unis d.d. Sarajevo	0,6870
A18	Uniqa osiguranje d.d. Sarajevo	0,6866
A19	GPD Drina d.d. Goražde	0,6863
A20	JP HT d.d. Mostar	0,6857
A21	NLB Tuzlanska banka d.d. Tuzla	0,6849
A22	Raiffeisen Bank d.d. Sarajevo	0,6840

Tab. 3. VIKOR multicriteria ranking, first 22 positions

4. CONCLUSIONS

Multicriteria decision making method was applied in order to rank the most successful companies in a season, based on three key financial indicators. Reviewing in details ranking table it can be concluded that:

- Top ranked companies do not have diversification of the ownership structure.
- Financial institutions (banks and insurance companies) are inside top 30 ranked.
- There is significant presence of foreigners as members in supervisory boards.
- Board meeting frequency is above the average for top ranked companies.
- There is significant presence of SB members with master or PhD degree within the top ranked companies.

Further research will be related to valuations and ranking of companies using other criteria selections and methods so as their comparison, but also to further development of valuation methods for the selected set of criteria, including the refinement of this set.

5. REFERENCES

- Athawale, V. M.; Chatterjee, P. & Chakraborty, S. (2010). *Selection of Industrial Robots Using Compromise Ranking Method*, Proceedings of the 2010 International Conference on Industrial Engineering and Operations Management, January 9-10, 2010, Dhaka, ISBN 978-984-33-0988-4, IEOM, Dhaka
- Beekes, W.; Pope, P. & Young, S. (2004). The Link Between Earnings Timeliness, Earnings Conservatism, and Board Composition: Evidence from the UK, *Corporate Governance*, Vol. 12, No. 1, (January, 2004) pp. 47-59, ISSN 1472-0701
- Brennan, N. (2006). Boards of Directors and Firm Performance: Is There an Expectations Gap?, *Corporate Governance: An International Review*, Volume 14, Number 6, (November, 2006) pp. 577-593, ISSN 0964-8410
- Chatterjee, S. & Harrison, J. (2001). *Handbook of Strategic Management*, Blackwell Publisher Ltd., ISBN 0-631-21860-2, Malden, MA, USA
- Cristóbal, J. R. S.; Biezma, M. V.; Martínez, R. & Somoza, R. (2009). *Selection of Materials Under Aggressive Environments: the Vikor Method*, Proceedings of 3rd International Conference on Integrity, Reliability and Failure, July 20-24, 2009, Porto, ISBN 978-972-8826-21-5, J.F. Silva Gomes & Shaker A. Meguid (Ed.), pp., Paper Ref: S1204_P0266, Porto
- Opričović, S. (1998). *Višekriterijumska optimizacija sistema u građevinarstvu (Multi-criteria system optimization in civil engineering)*, Faculty of Civil Engineering, ISBN 86-80049-82-4, Belgrade
- Raheja, C. (2005). Determinants of Board Size and Composition: A Theory of Corporate Boards, *Journal of Financial and Quantitative Analysis*, Vol. 40, No.2, (June 2005) pp. 283-306, ISSN 0022-10