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THE RELATIONSHIP BETWEEN THE QUALITY OF CORPORATE GOVERNANCE AND PROFITABILITY OF BUSINESS OPERATIONS

Review

Abstract

The quality level of corporate governance can be defined as the degree of compliance with set corporate governance standards defined at the international and national institutional levels. Guided by previous theoretical and empirical findings, Bosnia and Herzegovina has characteristics of a closed corporate governance system in both entities and, for this reason, the models that measure corporate governance in countries with typical closed corporate governance systems are selected as the basis for developing a model for measuring the level of corporate governance. Measuring the quality of corporate governance provides a clear picture of the internal strengths and weaknesses of the corporate governance system in corporations in Bosnia and Herzegovina. The quality of corporate governance is one of the non-financial indicators of business operations and shows the degree of compliance with international standards of corporate governance. A significant number of studies show that corporations that achieve higher standards and better practices of corporate governance also have better financial results and thereby higher value in the capital market. This means that corporations with a higher level of corporate governance also have a better financial result of business operations, easier access to financial capital and higher value in the capital market.

The subject of the study is to determine the relationship between the quality of corporate governance and profitability of business operations of corporations, and considering that this is historical data, the study will determine whether corporations that had good corporate governance also had greater business profitability

and vice versa. The mean objective of the study is to determine the relationship between the quality of corporate governance and business profitability indicators and the direction of this relationship.

Keywords: *corporate governance, corporate governance system in entities of Bosnia and Herzegovina, quality of corporate governance in Bosnia and Herzegovina, LCG index, RKU index, business profitability, ROA, ROE, net profit margin*

JEL: G28, G34, K20

1. INTRODUCTION

Corporate governance shows how rights and responsibilities are distributed among different stakeholders in corporations. Corporate governance provides the answer to the question who controls corporation and how. Corporate governance is defined as a set of processes and procedures for management and control of corporations.

A significant number of studies show that corporations that achieve higher standards and better practices of corporate governance also have better financial results and thereby higher value in the capital market. This means that corporations with a higher level of corporate governance also have a better financial result of business operations, easier access to financial capital and higher value in the capital market. In other words, higher level of corporate governance provides easier access to capital and lower costs of capital on the one hand and improvement of financial performance of business operations on the other hand (Haque, F., Arun, T. and Kirkpatrick, C., 2008, pp. 264 – 277). Corporate governance indices measure the quality of corporate governance by measuring the rate (percentage) of compliance with set criteria, which are classified into categories. The higher the value of the final rating (closer to 100%), the higher the quality of corporate governance and vice versa.

The subject of the study is to establish the relationship between the quality of corporate governance and profitability of business operations of corporations. Considering that this is historical data, the research will determine whether corporations that had good corporate governance also had higher profitability of business operations and vice versa. The mean objective of the study is to determine the relationship between the quality of corporate governance and business profitability indicators and the direction of this relationship.

2. MEASURING THE QUALITY OF CORPORATE GOVERNANCE IN BOSNIA AND HERZEGOVINA

The quality of corporate governance will be assessed with six categories of set criteria. The corporate governance quality assessment categories are:[1]

I.   Commitment to the principles of corporate governance and social responsibility,

II. Shareholders' meeting,

III. Supervisory board/non-executive directors,

IV. Board of Directors – Management,

V. Audit and internal control mechanisms,

VI. Transparency of business operations.

The index developed for the analysis of corporate governance in BiH is called LCG (*abbrev.* Level of Corporate Governance).[2] It is developed and tested on the model of the index Scorecard for German Corporate Governance, intended for German corporations whose shares are traded on the German capital market.

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[1]   The number and types of categories, and their weights in the overall assessment are adjusted to the 2004 OECD Principles of Corporate Governance, then to the Corporate Governance Standards in RS from 2011 and the Corporate Governance Code for companies listed on the market of the Sarajevo Stock Exchange 2009. The measurement model and analysis of the obtained results were formed on the model of the Scorecard for German Corporate Governance and experiences related to indices created on the basis of the Sarbanes - Oxley Act in the United States, Combined Code in Great Britain, as well as other attempts to measure the quality of corporate governance. The weight value was defined based on existing experiences and results of studies of the significance of individual evaluation components for social interest groups and of their influence on the overall quality of corporate governance.

[2]   The LCG (*RKU*) index (the first version was called BHCoG) was developed and tested as part of the author's research for the purposes of scientific master's thesis of the author Nikola Papac on banks in BiH, and was subsequently revised and adapted to changes in the institutional framework (the second version of the index was named the LCG Index). The LCG index was developed on the model of the BHCoG index developed by the author for the purposes of analyzing the quality of corporate governance in banks in BiH in 2009, and for the purposes of the scientific master's thesis defense. The BHCoG index, like the LCG index, was developed on the model of the *DVFA Index - Scorecard for German Corporate Governance*, which was created for the needs of corporate governance analysis on German capital markets. The BHCoG index was created entirely on the model of the DVFA index, while the LCG index took into account the policies and rules of the DVFA and BHCOG indices, but for creating the criteria, the corporate governance codes of the Sarajevo and Banja Luka stock exchanges were precisely taken into account.

Adapted from: Matić, B. and Papac, N.: *Measuring the quality of corporate governance in the banking sector of Bosnia and Herzegovina*, Economic Research-Ekonomska Istraživanja, Vol. 27, No. 1, 2014., pp. 784.–798., Published by Routledge - Taylor & Francis group, link: http://dx.doi.org/10.1080/1331677X.2014.974338

For the purposes of this study, the first version of the index is completely changed and adjusted to the criteria set out in the 2004 OECD Principles of Corporate Governance, then the Corporate Governance Standards of RS from 2011 and the Corporate Governance Code for companies listed on the market of the Sarajevo Stock Exchange from 2009. The final structure of the index is given in Table 1.

Ser. No.	Description and method of criterion evaluation	Number of criteria in category	Share/weight in overall assessment
	Table 1. The structure of the level of corporate governance index in BiH - LCG index		
I.	Commitment to the principles of corporate governance and social responsibility	7 criteria	15%
II.	Shareholders' meeting	9 criteria	15%
III.	Supervisory board/non-executive directors	7 criteria	10%
IV.	Board of Directors – Management	9 criteria	20%
V.	Audit and internal control mecha-nisms	5 criteria	10%
VI.	Transparency of business opera-tions	9 criteria	30%
	TOTAL	**46 criteria**	**100%**
	Source: author		

The total and final assessment can be expressed in a number of ways, the first certainly being in the original form and values achieved by the analysis, and the other possibility is through a set of classes of the achieved values (three, five, seven or ten). The achieved ratings will be accompanied by the associated comments on the meanings of ratings, as well as identification of the factors that may affect the evaluation.

The final rating is determined by summing the values achieved by each individual category in the overall rating, which could be presented in the form:

"Category 1" + "Category 2" + … + "Category 6" = assessment of the corporate governance quality of the company according to the LCG index

Evaluation is conducted once a year and is valid for a period of one business year (12 months), or for a period between two shareholders' meetings. Ratings can be categorized in a number of ways; in most cases they are ten-level or five-level ratings, but they can also be descriptive assessments of the achieved level of corporate governance. The structure of rating levels and descriptions is shown in Table 2.

Table 2. Categorization - corporate governance rating levels

Degree of fulfilment of the set criteria	Rating mark (1 - 10)	Rating description (10 levels)	Rating description (5 levels)
0 – 15 %	F	exceptionally poor	E – poor
16 – 25 %	E	very poor	
26 – 35 %	D	poor	D – weak
36 – 45 %	+ D	weak	
46 – 55 %	C	weak to medium	C – medium
56 – 65 %	+ C	medium	
66 – 75 %	B	medium to good	B – good
76 – 85 %	+ B	good	
86 – 93 %	A	very good	A – very good
94 – 100 %	+ A	exceptionally good	

Source: author

As shown in Table 2, the level of corporate governance is presented by the rate of fulfilment of the set criteria, which can be categorized in this case into five or ten levels. The rating of corporate governance, as an important non-financial indicator of business operations, in any case is not a replacement for financial business indicators, nor will it ever be; it is primarily its supplement aimed at creating and increasing confidence in the observed corporation.[3]

3. STUDY SAMPLE

The study uses data from 87 corporations from the territory of Bosnia and Herzegovina whose shares were traded on capital markets during the study period, of which 49 corporations are located in FBiH and 38 are situated in RS. The current ratio and stability ratio (dependent study variable) are measured with collected data, and the independent variable of the study is analysed using the level of corporate governance (LCG) coefficient as a special indicator, which can range in value from 0 to 100%. The time scope of the study or the period for which the study was conducted are 2014, 2015 and 2016. Corporate governance codes for companies listed on the Sarajevo Stock Exchange market, as basic documents for corporate governance in FBiH, were adopted in 2009 and have been in active use since 2010, while the Joint Stock Company Management Standards in the Republic of Srpska have been in use since 2006, and were revised, i.e. the Corporate

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[3] Haque, F., Arun, T. and Kirkpatrick, C. (2008), Corporate governance and capital markets: a conceptual framework, Corporate Ownership and Control. Retrieved from: http://www.virtusinterpress.org/additional_files/ journ_coc/full-text-papers-open-access/Paper012.pdf , pp. 264-277.

Governance Standards were adopted, in 2011. Therefore, taking a methodological view, it is justified to observe the period of selected years since both entities at that time had standards in place based on which they could adjust their own management policies.

4. LEVEL OF CORPORATE GOVERNANCE MEASURED BY THE *LCG INDEX* IN CORPORATIONS IN BOSNIA AND HERZEGOVINA

The level of corporate governance quality was measured by the LCG index for 87 corporations in BiH, of which 49 from the Federation of BiH and 38 from the Republic of Srpska. For each corporation, measurement was conducted in three time periods, so it can be said that there were a total of 261 measurements or observations. Data for assessment of corporate governance quality in corporations in BiH were obtained from corporate governance reports that were adjusted to corporate governance regulations and codes at entity levels.[4]

Table 3. Level of corporate governance quality measured by the LCG index in Bosnia and Herzegovina

| Ser. No.	Index category	Weight value	FBiH (49)	RS (38)	BiH (87)
I.	Commitment to the principles of corporate governance and social responsibility (7 criteria)	*15%*	5.49%	6.63%	**5.99%**
II.	Shareholders' meeting (9 criteria)	*15%*	8.60%	8.26%	**8.45%**
III.	Supervisory board (8 criteria)	*10%*	4.35%	3.72%	**4.07%**
IV.	Board of Directors - Management (9 criteria)	*20%*	10.62%	10.95%	**10.76%**
V.	Audit and internal control mechanisms (5 criteria)	*10%*	5.41%	5.23%	**5.33%**
VI.	Transparency of business operations (9 criteria)	*30%*	17.18%	18.55%	**17.78%**
	TOTAL		*51.66%*	*53.33%*	*52.39%*

Source: *author*

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[4]   In the Federation of Bosnia and Herzegovina it is the Corporate Governance Code of the Sarajevo Stock Exchange, which was adopted by the Supervisory Board of the Stock Exchange at the 80th session held on 23 March 2009, after which they have been in use, while corporate governance reports are made in a document called Corporate Governance Questionnaire. In the Republic of Srpska, on 29 December 2005, the Securities Commission of the Republic of Srpska adopted a document titled Joint Stock Company Management Standards and they are nothing else but a version of the Corporate Governance Code for RS. Application of this document started on 1 January 2006. This document was modified in 2011, when the Securities Commission together with the Banja Luka Stock Exchange issued and published new Corporate Governance Standards (Official Gazette of the Republic of Srpska 117/11).

The overall rating of corporate governance quality in BiH according to the LCG index is a 52.39% fulfilment of the prescribed criteria, so we can say that the overall rating for Bosnia and Herzegovina is **weak to medium (C)**. This shows that only half of the total prescribed criteria are met. The first and third category are significantly below, at almost one third of fulfilment of the set standards for that category, while in all other categories, half of the total prescribed criteria are met.

With regard to the comparison of entities, Figure 1 clearly shows that the level of corporate governance quality in both entities is almost the same.

Graph 1. Level of corporate governance quality measured by the LCG index in Bosnia and Herzegovina
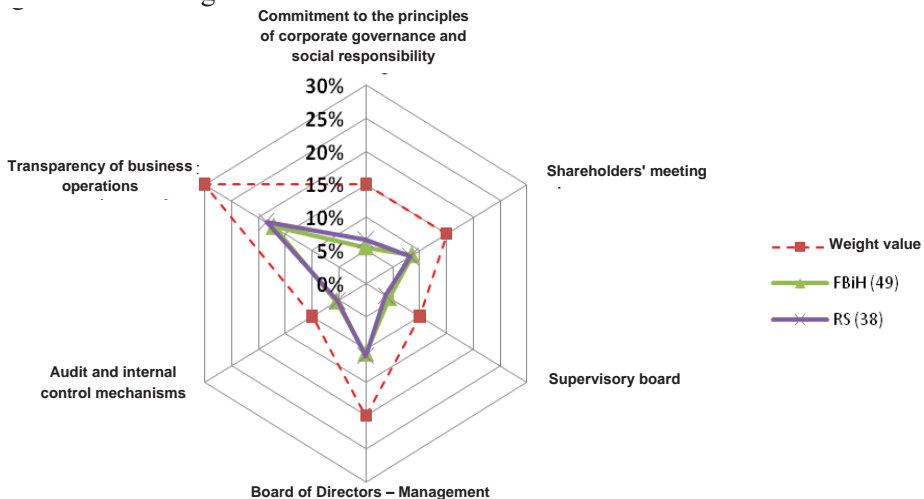
Source: author

When analysing Figure 1 in more detail, it can be concluded that the level of corporate governance quality by individual categories is very similar in both entities, and the existing differences for individual categories are less than 10%. The only significant difference is related to the first category "Commitment to the principles of corporate governance and social responsibility", and the authors believe that the mean reason of this difference (the value is greater in RS) is the fact that the Republic of Srpska earlier joined the process of developing an institutional framework for corporate governance (the first index in RS was adopted in 2006, and in FBiH in 2009). If we observe only the descriptive statistics, we can see that values of the level of corporate governance range from 0 to 100%, and the study was conducted on 87 corporations (49 in FBiH and 38 in RS) in three time periods, so that we can say that 261 project observations were examined. Table 4 shows the descriptive statistics for the LCG variable.

Table 4. Descriptive statistics for LCG

		LCG
N	Valid	261
	Missing	0
Mean		52.3898
Median		53.7500
Std. Deviation		13.26799
Skewness		.027
Kurtosis		-.732
Minimum		25.60
Maximum		86.20

Source: author

The LCG indicators range from 25.60 to 86.20 with arithmetic mean of 52.39. The skewness and kurtosis indices indicate that the distribution of the LCG variable frequencies has an approximately normal pattern, which can be seen on the histogram (Graph 1).

Graph 2. Histogram of LCG index results in Bosnia and Herzegovina
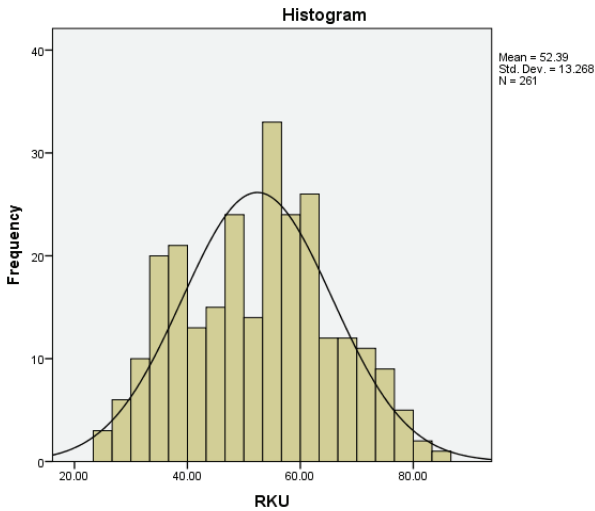
Source: author

By checking the boxplot graphics, not a single outlier (extreme value) was observed for this variable, which could be assumed based on the presented form of frequency histogram (Graph 1), so it can be concluded that the distribution of frequencies of the LCG index values for both entities in Bosnia and Herzegovina has a normal form.

5. THE RELATIONSHIP BETWEEN THE QUALITY OF CORPORATE GOVERNANCE AND PROFITABILITY OF BUSINESS OPERATIONS - MLM MODEL DEVELOPMENT

The relationship between the quality of corporate governance and the liquidity of business operations will be shown by a multilevel regression model or MLM model. Multilevel models (also known as hierarchical linear models, linear mixed-effect models, mixed models, nested data models, random-effects models, random parameter models, or split-plot designs) are statistical models of parameters that vary at more than one level. These models can be viewed as generalizations of linear models (in particular, linear regression), although they can also extend to nonlinear models. Multilevel models are particularly appropriate for research designs where data for participants are organized at more than one level (i.e., nested data). The units of analysis are usually individuals (at a lower level) who are nested within contextual/aggregate units (at a higher level). As such, multilevel models provide an alternative type of analysis for univariate or multivariate analysis of repeated measures. Furthermore, multilevel models can be used as an alternative to ANCOVA, where scores on the dependent variable are adjusted for covariates (e.g. individual differences) before testing treatment differences (Hox, J. 2010).

As already mentioned, the MLM model uses several tests or models to test the set hypothesis, and it can be concluded that there is no model or test that we can say is the best for all situations. Instead, each model or test is useful under certain circumstances. In addition, it is useful to compare all indicators generated in the MLM model and analyse the changes taking place.

The first step of analysis in MLM is to centre independent metric variables. Centring brings some advantages over the use of "raw" data, of which the following are the most commonly mentioned: reduction of potential problems when estimating (developing) the model, easier interpretation of the obtained parameters and reduction of problems caused by multicollinearity. In our case, the *LCG* variable does not have a natural zero (i.e., there is no level of corporate governance that could be rated zero). For this reason, in order to facilitate the interpretation of the obtained results, the variable is centred by subtracting from each individual observation the arithmetic mean of the group, or of the corporation to which the observation belongs (Xi - $\overline{x}_j$). The result is a *cLCG* variable for which the arithmetic mean is at zero. This is the so-called centring of the variable with respect to the arithmetic mean of the group (Group Mean Centering). Another way in which the *LCG* could be centred is to subtract the arithmetic mean (i.e. Xi –52.3898) from the value of each individual observation of a given variable. In this case, we would be talking about Grand Mean Centring.

Centring selected variables before modelling is a standard procedure and its effects have been dealt with by many authors (Kreft, Leeuw and Aiken, 1994, pp. 121 - 138), (Kreft and Leeuw, 1998, pp. 106 - 114), (Enders and Tofighi, 2007, pp. 121 - 138). The biggest dilemma regarding centring is which of the two possible centring methods to use and when: *grand mean centring* or *group mean centring*. The choice primarily depends on the type of research question. Enders and Tofighi (2007) provide general guidelines on the choice of centring method stating that models aimed to examine the differential influence of a variable at two levels in the hierarchy (in our case these are observations within corporations - *level 1* and differences between corporations - *level 2*), can use both data centring methods equally well because they give equivalent estimated parameters. Moreover, Kreft and Leeuw (1998, p. 109) state that in studies with repeated measures, the models in which either of these two centring forms was used are equivalent regarding all estimated parameters. It should be noted here that equivalent parameters do not mean identical parameters. Namely, in the model that uses group mean centring, the estimated parameter that measures the influence of a variable at a higher level (in our case it is the group average - *meanLCG*) will incorporate only the influence on the dependent variable between groups. Still, the differential difference can be obtained by simply calculating the difference between the value of the *level 1* parameter (*cLCG*) and the level 2 parameter (*meanLCG*). This difference will be identical to the estimated differential effect of the Level 2 parameter (*meanLCG*) in the model where *grand mean centering* is used. Therefore, the parameters are said to be equivalent (Enders and Tofighi, 2007, pp. 121 - 138).

In his notes, Newsom (2013) states that *group mean centring* is the preferred method for situations where we are primarily interested in the influence of one variable at two levels since it provides a slightly more specific interpretation of the estimated effect of the given variable for level 2. Also, performing *group mean* centring completely eliminates the correlation between *level 1* and *level 2* predictors. Due to this, we selected *group mean* centring.

And the *meanLCG* variable is centred. Thus, the arithmetic mean for this variable is 0 and corresponds to the level of average corporate governance for the 87 corporations in the sample. For level 2 variables centring is always around the grand mean (Enders and Tofighi, 2007, pp. 121-138).

6. PROFITABILITY AND RETURN INDICATORS

Profitability and return indicators are calculated based on data from the balance sheet and the profit and loss account. Net and gross value are different here too, and this difference is related to the coverage of income tax in the numerator. Table 5 shows this group of indicators and the method of their calculation.

Table 5. Profitability and return indicators

Indicator name	Numerator	Denominator	Coefficient value
net profit margin	*net profit + interest*	*total income*	*it is desirable that the value of the coefficient is* **as high as possible**
gross profit margin	*profit before tax + interest*	*total income*	*it is desirable that the value of the coefficient is* **as high as possible**
net return on assets	*profit before tax + interest*	*total assets*	*it is desirable that the value of the coefficient is* **as high as possible**
return on private equity	*net profit*	*private equity (principal)*	*it is desirable that the value of the coefficient is* **as high as possible**
ROA (''rate of return on total assets'')	*net profit*	*total assets*	*it is desirable that the value of the coefficient is* **as high as possible** *(15% is a good value)*
ROE (''return on equity'')	*net profit*	*total capital*	*it is desirable that the value of the coefficient is* **as high as possible**

Source: *Žager, K., Mamić, I., Sever, S.* and *Žager, L.*: Analiza financijskih izvještaja, MASMEDIA, Zagreb, 2008, p. 255.

Coefficients of net profit margin and indicators ROA, ROE and net profit margin will be used for the purposes of this study.

(Net or gross) *profit margin* is calculated based on profit and loss account data, and net profit margin differs from gross profit margin. If these two indicators are compared, the comparison result indicates how much is the tax burden relative to income.

ROA or Return on Assets is expressed as a percentage and it simply shows how efficiently the company earns money per unit of assets. ROA can also help in assessing the profitability of some new projects that the company plans, namely a new project is profitable if the ROA is higher than the amount of interest rates on loans.

ROE or Return on Equity shows how much is the profit per currency unit of invested capital. ROE is also a good indicator of a company's growth rate as it is believed that total revenues cannot grow at a rate higher than the current amount of ROE, except by borrowing from banks. A ROE of 15% is generally considered to be the average for a good company.

The first step is to show descriptive statistics, given for this variable in Table 6.

Table 6. Descriptive statistics for profitability coefficients

Mark	Indicator	effect	Min	Max	Mean	Median	SD
PNP	net profit margin	+	-11.47	.79	-.10	.01	.84
PROA	ROA	+	-.80	.23	-.01	.00	.10
PROE	ROE	+	-7.37	35.72	.06	.00	2.27

Source: author

To test the presented relationship, it was not necessary to transform the data for an **individual profitability coefficient** because there was no deviation of the variable's frequency distribution from the normal distribution, so all profitability coefficients were included in MLM model testing as explained in Chapter 5.

7. RELATIONSHIP BETWEEN THE LEVEL OF CORPORATE GOVERNANCE AND PROFITABILITY OF BUSINESS OPERATIONS OF THE OBSERVED CORPORATIONS

The relationship between the quality of corporate governance and profitability of business operations will be tested in three steps in which each of the three selected profitability indicators will be analysed (net profit rate, ROE and ROA and their relationship with the level of corporate governance quality).

The first step of the analysis is to develop a model of the effect of LCG on the net profit margin coefficient PNP. Six models were developed to test the relationship between the level of corporate governance and profitability of business operations (Table 7).

Table 7. Development of MLM model of the effect of LCG on the coefficient of net profit margin (PNP)

model structure	model	coef.		-log likelihood
$PNP_{ij}(\_cons)$	**M1**	_cons	(-0.104)	-263.69
	M1s	_cons	(-0.017)	56.29
$PNP_{ij}(cLCG, meanLCG)$	**M2**	cLCG	(0.011)	-257.08
		meanLCG	(0.021***)	
	M2s	cLCG	(0.009**)	79.79
		meanLCG	(0.011***)	
$PNP_{ij}(time, cLCG, meanLCG)$	**M3**	time	(0.020)	-256.95
		cLCG	(0.010)	
		meanLCG	(0.021***)	
	M3s	time	(-0.028*)	82.61
		cLCG	(0.014***)	
		meanLCG	(0.011***)	
$PNP_{ij}(time, cLCG, meanLCG, entity)$	**M4**	time	(0.020)	-256.57
		cLCG	(0.010)	
		meanLCG	(0.020***)	
		entity	(0.132)	
	M4s	time	(-0.028*)	82.61
		cLCG	(0.014***)	
		meanLCG	(0.011***)	
		entity	(0.000)	
$PNP_{ij}(time, cLCG, meanLCG, slope-time)$	**M5**	time	(0.022)	-138.74
		cLCG	(0.008)	
		meanLCG	(0.011***)	
	M5s	time	(-0.028*)	82.71
		cLCG	(0.013***)	
		meanLCG	(0.011***)	
$PNP_{ij}(time, cLCG, meanLCG, slope-cLCG)$	**M6**	time	(-0.009)	-208.30
		cLCG	(0.030)	
		meanLCG	(0.010***)	
	M6s	time	(N/A)	N/A
		cLCG	(N/A)	
		meanLCG	(N/A)	

Standard errors in parentheses

* p < 0.05, ** p < 0.01, *** p < 0.001

In all developed and tested models (6 for full and 6 for shortened sample), the values of the coefficients significant for testing the set hypothesis (*cLCG* and *meanLCG*) were positive and significant. The *meanLCG* coefficient is highly significant ($p < 0.001$) in all cases, while the *cLCG* coefficient is significant only in shortened sample models (M2s, M3s, M4s and M5s), and the required values could not be calculated for the M6s model. The model with shortened sample M2s was selected for drawing conclusions about the tested relationship.

Model M2s shows that an increase in *cLCG* by 1 causes an increase in the net profit margin coefficient within corporations by 0.009, and an increase in *mean-LCG* by 1 causes an increase in net profit margin by 0.011 between corporations. Adding other independent variables to the model (*time, entity, slope-time* and *slope-cLCG*) that are not of interest for relationship testing has never increased the representativeness of the model. Based on all the above, we can conclude that an increase in the level of corporate governance (LCG) leads to an increase in net profit margin (PNP), for which it is desirable to have the highest possible value.

The second step of the analysis involves the development of a model of the effect of LCG on the coefficient of return on assets PROA (Table 8). The coefficient of return on assets represents the relationship between the net profit and the total assets of the corporation, and it is desirable for its value to be as high as possible.

To test the presented relationship, it was not necessary to transform the data for the coefficient of return on assets because there was no deviation of the variable's frequency distribution from the normal distribution.

Table 8. Development of MLM model of the effect of LCG on the coefficient of return on assets (PROA)

model structure	model	coef.		-log likelihood
$PROA_{ij}(\_cons)$	**M1**	_cons	(-0.011)	348.57
	M1s	_cons	(-0.001)	381.46
$PROA_{ij}(cLCG, meanLCG)$	**M2**	cLCG	(0.003***)	367.24
		meanLCG	(0.004***)	
	M2s	cLCG	(0.002**)	405.38
		meanLCG	(0.003***)	
$PROA_{ij}(time, cLCG, meanLCG)$	**M3**	time	(-0.003)	367.70
		cLCG	(0.003***)	
		meanLCG	(0.004***)	
	M3s	time	(-0.005)	406.48
		cLCG	(0.003**)	
		meanLCG	(0.003***)	
$PROA_{ij}(time, cLCG, meanLCG, entity)$	**M4**	time	(-0.003)	367.70
		cLCG	(0.003***)	
		meanLCG	(0.004***)	
		entity	(0.001)	
	M4s	time	(-0.005)	407.21
		cLCG	(0.003**)	
		meanLCG	(0.003***)	
		entity	(-0.012)	
$PROA_{ij}(time, cLCG, meanLCG, slope\text{-}time)$	**M5**	time	(-0.003)	368.65
		cLCG	(0.003***)	
		meanLCG	(0.003***)	
	M5s	time	(-0.005)	409.70
		cLCG	(0.003***)	
		meanLCG	(0.003***)	
$PROA_{ij}(time, cLCG, meanLCG, slope\text{-}cLCG)$	**M6**	time	(-0.005)	370.55
		cLCG	(0.004***)	
		meanLCG	(0.004***)	
	M6s	time	(-0.005)	409.07
		cLCG	(0.004***)	
		meanLCG	(0.003***)	

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

In all developed and tested models (6 for full and 6 for shortened sample) the values of the coefficients significant for testing the hypothesis (*cLCG* and *mean-LCG*) were positive and highly statistically significant (meanly p <0.001). The M2 model was selected for drawing conclusions about the tested relationship.

Model M2 shows that an increase in *cLCG* by 1 causes an increase in the co-efficient of return on assets of 0.003 within the company, while if *meanLCG* increases by 1 it will cause an increase in the coefficient of return on assets of 0.004 between corporations.

Adding other independent variables to the model (*time, entity, slope-time*, and *slope-cLCG*) that are not of interest for hypothesis testing has never increased the representativeness of the model.

Based on all the above, it can be concluded that an increase in the level of corporate governance (LGC) leads to an increase in the coefficient of return on assets for corporations (PROA), for which it is desirable to have the highest possible value.

__The third step__ of the analysis involves the development of a model of the effect of LCG on the coefficient of return on equity PROE (Table 9). The coefficient of return on equity is the relationship between the net profit and the total capital of the corporation and it is desirable for its value to be as high as possible.

To test the presented relationship, it was not necessary to transform the data for the coefficient of return on total capital of the corporation because there was no deviation of the variable's frequency distribution from the normal distribution.

In all developed and tested models (6 for full and 6 for shortened sample) the value of the *cLCG* coefficient is positive, but it is statistically significant only in the models for the whole sample (M2, M3, M4 and M5), while the value of the *meanLCG* coefficient is positive in the models M2s, M3s, M4s, M6 and M6s, and in other models it has a negative value. The value of the *meanLCG* coefficient is statistically significant for the M2s, M3s, M4s, and M6s models. Here it is important to emphasize that in all situations when the *meanLCG* coefficient was statistically significant, it also had a positive value. The M5s could not be calculated in any way.

Table 9. Development of MLM model of the effect of LCG on the coefficient of return on equity (PROE)

model structure	model	coef.		-log likelihood
$PROE_{ij}$ (_cons)	M1	_cons	(0.059)	-584.17
	M1s	_cons	(-0.062)	-171.78
$PROE_{ij}$ (cLCG, meanLCG)	M2	cLCG	(0.087*)	-582.06
		meanLCG	(-0.001)	
	M2s	cLCG	(0.002)	-169.02
		meanLCG	(0.007*)	
$PROE_{ij}$ (time, cLCG, meanLCG)	M3	time	(-0.147)	-581.74
		cLCG	(0.101*)	
		meanLCG	(-0.001)	
	M3s	time	(0.002)	-169.02
		cLCG	(0.002)	
		meanLCG	(0.007*)	
$PROE_{ij}$ (time, cLCG, meanLCG, entity)	M4	time	(-0.147)	-581.36
		cLCG	(0.101*)	
		meanLCG	(-0.001)	
		entity	(0.245)	
	M4s	time	(0.002)	-168.05
		cLCG	(0.002)	
		meanLCG	(0.008*)	
		entity	(-0.105)	
$PROE_{ij}$ (time, cLCG, meanLCG, slope-time)	M5	time	(-0.147)	-581.74
		cLCG	(0.101*)	
		meanLCG	(-0.001)	
	M5s	time	(N/A)	N/A
		cLCG	(N/A)	
		meanLCG	(N/A)	
$PROE_{ij}$ (time, cLCG, meanLCG, slope-cLCG)	M6	time	(-0.114)	-413.37
		cLCG	(0.080)	
		meanLCG	(0.006)	
	M6s	time	(0.002)	-168.95
		cLCG	(0.002)	
		meanLCG	(0.007*)	

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Model M2s shows that an increase in *meanLCG* by 1 causes an increase in the coefficient of return on total capital of 0.007 between corporations.

Based on all the above, it can be concluded that an increase in the level of corporate governance (LGC) leads to an increase in the coefficient of return on total capital (PROE) and it is desirable for it to have the highest possible value.

8. NOTE ON THE STUDY

Based on all the above, it can be concluded that a total of twelve models (six for full and six for shortened sample) were developed to assess the effect of corporate governance on profitability of business operations for all three relationships and second level models (M2 and M2s) were selected, and the following conclusions were established:

LCG => PNP: the selected M2s model shows that an increase in *cLCG* by 1 causes an increase in the coefficient of net profit margin within corporations by 0.009, and an increase in *meanLCG* by 1 causes an increase in net profit margin by 0.011 between corporations;

LCG => PROA: the selected model M2 shows that an increase in *cLCG* by 1 causes an increase in the coefficient of return on assets of 0.003 within corporations, while if *meanLCG* increases by 1, the coefficient of return on assets will increase by 0.004 between corporations.

LCG => PROE: the selected M2s model shows that an increase in *meanLCG* by 1 causes an increase in the coefficient of return on total capital of 0.007 between corporations.

It can be concluded that an increase in the level of corporate governance (LCG) leads to an increase in the level of net profit margin (PNP) within and between corporations, then to an increase in the rate of return on assets (PROA) within and between corporations and finally to an increase in the rate of return on total capital between corporations.

9. CONCLUSION

The subject of the study is to establish the relationship between the quality of corporate governance and profitability of business operations of corporations. Taking into consideration the fact that this is historical data, the research will determine whether corporations that had good corporate governance also had higher profitability of business operations and vice versa. The mean objective of the study is to determine the relationship between the quality of corporate governance and business profitability indicators and the direction of this relationship. Synthesis of empirical results of the study conducted on 87 corporations in BiH led to the conclusion that corporate governance affects profitability of business operations, i.e. the empirical research confirmed a statistically significant relationship between the level of corporate governance and selected profitability indicators (PNP - net profit margin, ROA and ROE). The study sample consisted of 87 corporations whose shares were traded on entity stock exchanges during the

research periods in Bosnia and Herzegovina, of which 49 were from the Federation of Bosnia and Herzegovina entity and 38 from the Republic of Srpska entity. All collected and measured data are related to the period 2014, 2015 and 2016.

A complex MLM model was developed to prove it, and second-level models (M2 and M2s) were selected from a total of twelve developed models. We can conclude that an increase in the level of corporate governance (LCG) leads to an increase in the level of the coefficient of net profit margin (PNP) of corporations, an increase in the rate of return on assets (PROA) of corporations and finally an increase in the rate of return on total capital (PROE). Hereby, it can be concluded that an increase in the level of corporate governance leads to an increase in the selected profitability indicators of corporations.

Observing other models, the final conclusion is that there is an effect of the level of corporate governance on the level of net profit margin; a statistically significant effect is evident in all situations for the effect of LCG on the rate of return on assets as well as for the effect of LCG on the coefficient of return on capital.

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ODNOS KVALITETE KORPORATIVNOG UPRAVLJANJA I PROFITABILNOSTI POSLOVANJA

Pregledni rad

Sažetak

Razina kvalitete korporativnog upravljanja može se definirati kao stupanj ispunjenja zadanih standarda korporativnog upravljanja definiranih na međunarodnoj i nacionalnoj institucionalnoj razini. Vodeći se dosadašnjim teorijskim i empirijskim spoznajama Bosna i Hercegovina ima karakteristike zatvorenog sustava korporativnog upravljanja u oba entiteta pa su stoga kao temelj za razvoj modela mjerenja razine korporativnog upravljanja odabrani modeli kojima se mjeri korporativno upravljanje u zemljama s tipičnim zatvorenim sustavima korporativnog upravljanja. Mjerenjem kvalitete korporativnog upravljanja dobiva se jasna slika unutrašnjih snaga i slabosti sustava korporativnog upravljanja u korporacijama u Bosni i Hercegovini. Kvaliteta korporativnog upravljanja spada u nefinancijske pokazatelje poslovanja i pokazuje stupanj ispunjenja međunarodnih standarda korporativnog upravljanja. Značajan broj istraživanja pokazuje da korporacije koje ostvaruju više standarde i bolju praksu korporativnog upravljanja imaju i bolje financijske rezultate te samim tim i veću vrijednost na tržištu kapitala. To znači da korporacije s višom razinom korporativnog upravljanja imaju i bolji financijski rezultat poslovanja, lakši pristup financijskom kapitalu te veću vrijednosti na tržištu kapitala.

Predmet istraživanja je utvrditi odnos kvalitete korporativnog upravljanja i profitabilnosti poslovanja korporacija, a s obzirom na činjenicu da se radi o povijesnim podacima, istraživanjem će se utvrditi dali su korporacije koje su imale dobro korporativno upravljanje imale i veću profitabilnost poslovanja i obratno. Glavni cilj istraživanje je utvrđivanje smjera veze i odnosa između kvalitete korporativnog upravljanja i pokazatelja profitabilnosti poslovanja.

Ključne riječi: *korporativno upravljanje, sustav korporativnog upravljanja u entitetima Bosne i Hercegovine, kvaliteta korporativnog upravljanja u Bosni i Hercegovini, indeks RKU, profitabilnost poslovanja, ROA, ROE, neto profitna marža*

JEL: G28, G34, K20