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Corporate governance practices and firm performance measured by Croatian Corporate Governance Index (CCGI®)

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The area of corporate governance (CG) determines the way in which a corporation is managed and monitored. The purpose of this article is to investigate whether there is a correlation between company performance and CG practices, while the general objective is to set up regression models of the company success measured by Tobin's Q and CG practices measured by Croatian Corporate Governance Index (CCGI®). Data used for processing the topic were from secondary sources, mostly books and articles, as well available annual questionnaires of CG codex for the period from 2007 to 2010.
Results obtained in this research indicate that CG is an important factor in explaining the business performance of Croatian companies included in the official share index of the Zagreb Stock Exchange (ZSE) CROBEX® (Croatian equity index).

Keywords: corporate governance (GC); Croatian Corporate Governance Index (CCGI); Tobin Q

JEL classification: G18, G30, G34, K29

1. Introduction

Although the literature often defines corporate governance (CG) only as a way to determine the manner in which the suppliers of financial input in the corporation ensure returns on their investments, that is on controlling the managers by the stakeholders, CG still requires a broader definition. If the definition of CG takes into account all crucial stakeholders, then the same can be defined as a kind of process by which the corporations are corresponding to the rights and preferences of its stakeholders. The purpose of research is to investigate whether CG practices influence the success of companies in Croatia.

1.1. Problem of research and overview of published papers

The problem of research is to investigate the correlation of company performance and CG practices, respectively to investigate the measure to which the CG practice of the observed companies influences their performance. The assumption is that CG leads to a higher level of company success. There are different methods of tracking business performance success. One of the most representative methods of measuring business performance success is Tobin Q. If CG is well implemented, it is possible to achieve a better supervision over managers' activities, so that the expenses of the agent[1] are lower.

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However, data on correlation of CG and company performance are still very scarce. (Nam and Nam, 2004) The cause of that can be found in the lack of adequate measures for measuring the quality of CG. Namely, quality evaluation metrics for CG are still in the development stage, therefore it is hard, in spite of an abundance of measures for measuring company performance, to track the relation of the company performance with the practice of CG. By reviewing the literature in the area of CG, the lack of a standardised measure for quality has been determined. Therefore, the authors who need to research this problem area have to develop their own measures for CG quality. Led by this idea, the Croatian Corporate Governance Index (CCGI®) was developed.

For example, within the framework of their research Black, de Carvalho, and Gorga (2009) have on a sample of companies from 2005 formed a Brazilian Corporate Governance Index (BCGI). The authors identified 42 elements which are believed to correspond to the good CG practice, and grouped them into five sub-indexes. For the needs of research conducted by Black, Jang, and Kim (2006) on a sample of companies listed at the Korean Stock Exchange in 2001, a Korean Corporate Governance Index (KCGI) was formed. There is a lot of research in which, despite the fact that CG indexes were not formed, the elements used determine the quality of CG. As an example there is the research on the case of Nigeria by Sanda, Mikailu, and Garba (2005). They analysed the relation of company performance measured by Return on Assets (ROA), Return on Equity (ROE), Price-Earnings Ratio (P/E ratio), Tobin Q and other.

In research conducted by Samontaray (2010) on a sample of 50 Indian companies listed in NIFTY 50 index, the sum indicator of CG was used as one of the independent variables. The sum indicator is composed of the following: financial reporting, corporate social responsibility (CSR), report of the board, risk management and other. The study conducted by Kajola (2008) on a sample of 20 Nigerian companies also included analysing relations of company performance measured by ROE and Profit margin and practice of CG measured by the board size, board composition and status of the director. The study has taken into consideration data for the period 2000–2006.

CG received much attention during the last two decades owing to certain economic reforms, regional market crisis and large corporate debacles. A recent study conducted by Achchuthan and Kajananthan (2013) on a sample of 28 manufacturing firms listed on the Colombo Stock Exchange in Sri Lanka for the periods 2007, 2008, 2009, 2010 and 2011 pointed out that there is no significant mean different between the firm performance among CG practices as board leadership practices, board committees, board meetings and proportion of non-executive directors. Gupta (2012) studied various CG practices followed by companies in India, Japan and South Korea. A sample of five multinational companies from each country is studied based on the CG practices that are being followed by them. This have included parameters like Board Constitution, Board Structure, Different Committees, Independent Directors and their roles, Conflict of interest and Disclosure of information. It has been found in the study that CG practices have limited impact on both the share prices of the companies as well as on their financial performance.

2. Research goals and hypothesis

The general goal of research is to investigate the existence of interdependence that is correlation of company success, measured by Tobin Q, and the practice of CG in Croatian companies included in the CROBEX® index, measured by CCGI®, for the observed years. Also, the goal is to set up regression models of business success dependence on the CG practice. The research task is composed of testing the hypotheses:

The first hypothesis is composed of verifying the claim that the correlation of business success and CROBEX® share index is positive and strong. For testing purposes, Pearson coefficients of correlation between Tobin Q and CROBEX® share index value have been calculated within the framework of correlation matrix.

H_0: correlation of business success movement (Tobin Q) and CROBEX® share index through the period (2007–2010) is not positively significant.

H_1: correlation of business success movement (Tobin Q) and CROBEX® share index through the period (2007–2010) is positively significant.

The second hypothesis is made on testing the significance of CG practice needed to explain the variations in business performance during the observed years. The testing is conducted by a method of simple linear regression.

H_0: corporate governance practice (CCGI®) of the observed companies is not significant for the explanation of variations in the business performance (Tobin Q) of the companies in individual observation years (2007–2010).

H_1: corporate governance practice (CCGI®) of the observed companies is significant for explanation of variations in business performance (Tobin Q) of the companies in certain years of observation (2007–2010).

The third hypothesis is made on testing whether there are and if there are, which aspects of CG (sub-index) are significant for explanation of variation in business performance (Tobin Q) of the observed companies in individual observation years (2007–2010). The testing is conducted by a method of multiple linear regressions.

H_0: none of the $K = 5$ aspects of CG practices (sub-index) is not significant for the explanation of variations in the business performance (Tobin Q) of the companies in individual observation years (2007–2010).

H_1: there is at least one of the $K = 5$ aspects of CG practices (sub-index) that is significant for explanation of variations in business performance (Tobin Q) of the companies in individual observation years (2007–2010).

This article also poses a research question: Is there any progress in the CG practice of the companies included in the CROBEX® share index during the observed time period, measured by the average value of CCGI® for an individual observation year?

3. Research methodology

CG deals with complex, but relatively weakly structured problems. Research presented in the article was conducted with a combination of methods (methods of simple and multiple linear regressions) in order to mitigate some of potential problems. The research sample was made of companies whose stocks were included in the share index CROBEX® during the observation years. This sample was selected primarily because of the clear conditions for the inclusion of company shares in the index and thus the existence of a sort of comparable companies in the sample.

Given that the annual survey from year 2010, the last year of observation, consisted of 68 questions, and for the previous three years the questionnaire consisted of 71 questions, annual surveys of companies for the years 2007–2009 were adjusted to that from the year 2010. The targeted yearly samples did not correspond to real samples due to unavailability of annual questionnaires of certain companies for certain years. The response rate through the period of the four observed years amounts to 80.37%, which is a satisfactory percentage. With the exception of 2009, a positive trend can be noticed in the availability of annual questionnaires of the companies in CROBEX® index. This indicates the growth in the seriousness of the approach to the CG practice.

3.1. Croatian Corporate Governance Index

In order to form CCGI®, data and information from annual questionnaires of CG codex (The Zagreb Stock Exchange, Croatian Financial Services Supervisory Agency, 2010) have been used, primarily to ensure objectivity, standardisation and comparability. Annual questionnaire answers are characterised by dichotomy.[2] The questions from the questionnaire are grouped into five mutually heterogeneous, and within themselves homogeneous logical entities, that is sub-indexes. These are: (1) Transparency and business transparency; (2) General Assembly and relation towards stockholders; (3) Supervisory Board; (4) Management Board; and (5) Audit and Internal control. As mentioned, answers to questions from the annual survey were characterised by dichotomy. An affirmative answer to the question is coded with a value of '1' and the negation with '0'. It is important to note that for the purpose of forming the index CCGI® all questions and corresponding sub-questions from the annual survey were reformulated in such a way that the desirable answer is affirmative. When calculating certain sub-indexes each question holds equal value. In that way it is ensured that every sub-index has a value between 0 and 1. If the company has not responded to the question, average calculated value based on answers to the remaining questions in a particular sub-index was used.[3]

Distribution of the CCGI® for 2007 is rather normally distributed, taking into account that the p-value (empirical significance level) for Shapiro-Wilks test is 0.71751, and it is bigger than the theoretical significance level of 5%. P-value, which is bigger than the theoretical significance level leads to the conclusion that the distribution of CCGI® is approximately normally distributed. Testing the normality of CCGI® distribution for the companies from the year 2008 sample shows that the p-value amounts to 0.93247, and that it is bigger from a theoretical significance level. The distribution of CCGI® for the year 2008 sample is approximately normal. Testing the normality of CCGI® distribution for companies for the year 2009 indicates that the p-value for Shapiro-Wilks normality test is bigger than the theoretical significance level, and it amounts to 0.97145. The conclusion is the same as for the two previous years of observation. CCGI® for companies in 2010 sample is also approximately equally distributed. However, in this particular case the p-value for Shapiro-Wilks test is marginally, and it amounts to 0.51938. Despite that, the hypothesis that the index CCGI® is normally distributed is accepted.

Table 1 shows Pearson coefficients of correlation between CCGI® and sub-index, coefficients of mutual sub-index correlation, as well as coefficients of correlation between Tobin Q, CCGI® and sub-index for each year observed. From the Table 1 there is evident the existence of positive and distinctively significant correlation between CCGI® and each individual sub-index. The existence of positive significant correlation is perceived between the performance of company measured by Tobin Q and sub-index 'Supervisory Board' in 2008, 2009 and 2010. Equally, for all the observed years the existence of positive correlation is perceived between the company performance measured by Tobin Q and CCGI® as a whole.

4. Scientific contribution and research results

Scientific contribution can be defined within the context of development of the CCGI®, regression models of company success in relation to the overall CG practice, as well as regression models of company success in relation to certain aspects of CG. The scientific contribution is reflected in investigation of the existence of a logical correlation of CROBEX® index movement and performance of the companies included in the index

Table 1. Matrix of CCGI® index, sub-index and Tobin Q correlation.

Correlations (ANALYSIS) Marked correlations are significant at p <.05000 N = 26 (Casewise deletion of missing data)

	Tobin Q	SUB-INDEX 1	SUB-INDEX 2	SUB-INDEX 3	SUB-INDEX 4	SUB-INDEX 5	CCGI
Tobin Q	1.0000	0.2264	0.0141	−0.0112	0.1509	−0.0326	0.1322
SUB-INDEX 1	0.2264	1.0000	0.7552	0.5104	0.2686	0.1059	0.7765
SUB-INDEX 2	0.0141	0.7552	1.0000	0.2936	0.1521	0.0318	0.6254
SUB-INDEX 3	−0.0112	0.5104	0.2936	1.0000	0.3304	0.1777	0.6943
SUB-INDEX 4	0.1509	0.2686	0.1521	0.3304	1.0000	0.0588	0.6893
SUB-INDEX 5	−0.0326	0.1059	0.0318	0.1777	0.0588	1.0000	0.3904
CCGI	0.1322	0.7765	0.6254	0.6943	0.6893	0.3904	1.0000

Correlations (ANALYSIS) Marked correlations are significant at p <.05000 N = 21 (Casewise deletion of missing data)

	Tobin Q	SUB-INDEX 1	SUB-INDEX 2	SUB-INDEX 3	SUB-INDEX 4	SUB-INDEX 5	CCGI
Tobin Q	1.0000	0.5062	0.3780	0.5451	0.5284	0.0925	0.5779
SUB-INDEX 1	0.5062	1.0000	0.8065	0.6943	0.6820	0.0477	0.9057
SUB-INDEX 2	0.3780	0.8065	1.0000	0.5462	0.4292	0.1656	0.7883
SUB-INDEX 3	0.5451	0.6943	0.5462	1.0000	0.5180	0.2173	0.7878
SUB-INDEX 4	0.5284	0.6820	0.4292	0.5180	1.0000	−0.0075	0.8012
SUB-INDEX 5	0.0925	0.0477	0.1656	0.2173	−0.0075	1.0000	0.3190
CCGI	0.5779	0.9057	0.7883	0.7878	0.8012	0.3190	1.0000

Correlations (ANALYSIS) Marked correlations are significant at p <.05000 N = 16 (Casewise deletion of missing data)

	Tobinov Q	SUB-INDEX 1	SUB-INDEX 2	SUB-INDEX 3	SUB-INDEX 4	SUB-INDEX 5	CCGI
Tobinov Q	1.0000	0.4472	0.3315	0.5188	0.2752	0.3336	0.4880
SUB-INDEX 1	0.4472	1.0000	0.6736	0.7675	0.5849	0.0996	0.8668
SUB-INDEX 2	0.3315	0.6736	1.0000	0.5406	0.3955	0.2224	0.7505
SUB-INDEX 3	0.5188	0.7675	0.5406	1.0000	0.6076	0.0930	0.8209
SUB-INDEX 4	0.2752	0.5849	0.3955	0.6076	1.0000	0.1487	0.8249
SUB-INDEX 5	0.3336	0.0996	0.2224	0.0930	0.1487	1.0000	0.3444
CCGI	0.4880	0.8668	0.7505	0.8209	0.8249	0.3444	1.0000

Correlations (ANALYSIS) Marked correlations are significant at p <.05.000 N = 23 (Casewise deletion of missing data)

	Tobinov Q	SUB-INDEX 1	SUB-INDEX 2	SUB-INDEX 3	SUB-INDEX 4	SUB-INDEX 5	CCGI
Tobinov Q	1.0000	0.2025	0.2121	0.4218	0.2906	0.3696	0.4198
SUB-INDEX 1	0.2025	1.0000	0.7271	0.4194	0.4522	−0.0734	0.7599
SUB-INDEX 2	0.2121	0.7271	1.0000	0.2498	0.4613	0.0156	0.7390
SUB-INDEX 3	0.4218	0.4194	0.2498	1.0000	0.6457	0.1708	0.7297
SUB-INDEX 4	0.2906	0.4522	0.4613	0.6457	1.0000	−0.0360	0.8336
SUB-INDEX 5	0.3696	−0.0734	0.0156	0.1708	−0.0360	1.0000	0.2318
CCGI	0.4198	0.7599	0.7390	0.7297	0.8336	0.2318	1.0000

Source: Author's calculations, an extract from the software package Statistica 10.

during the observed time period, as well as in the investigation of progress in CG practice of the companies include in the CROBEX® share index during a time period measured by the value of CCGI® for the companies in the sample. Empirical research data are gained by the analysis of the data in Statistica 10 programme package, while the processing and cleaning of the same data was done in MS Excel.

4.1. Correlation of CROBEX® share index movement and company performance

The matrix of correlation shown in Table 2 indicates the existence of significant, strong and positive correlation between the performance of the company and CROBEX® index (on 31 December).

Namely, Pearson correlation coefficient CROBEX® index and Tobin Q amount to 0.9981, and it is significant on the level of theoretical significance of 1%. This leads to acceptance of the alternative first hypothesis. When calculating Tobin Q for an individual year, the average value of Tobin Q for the observed companies was taken into account.

4.2. Models of simple linear regression

As shown in Table 3 regression coefficient (b = 3.5372) for 2007 is positive, which indicates to a positive dependence of company performance on CG practice. However, this relation on the theoretical significance level of 5% is not significant, which means that the CG practice is not significant for the explanation of variations in the performance of the observed companies. Therefore, the alternative hypothesis for 2007 is dismissed.

For 2008, the analysis indicates that the CG practice is significant for explaining the variations in company performance on the theoretical significance level of 5% (Table 4).

Table 2. Matrix of correlation of CROBEX® index and company performance for period from 2007 to 2010.

Correlations (Tobin Q vs CROBEX) Marked correlations are significant at p <.05000 N = 4 (Casewise deletion of missing data)		
	Tobin Q	CROBEX
Tobin Q	1.0000	0.9981
CROBEX	0.9981	1.0000

Source: Author's calculations, an extract from the software package Statistica 10.

Table 3. Results of simple linear regression for the year 2007.

Regression Summary for Dependent Variable: Tobin Q (analysis_2007) R=.13221501 R=.01748081 Adjusted R= − F(1.24)=.42700 p						
	b*	Std.Err. - of b*	b	Std.Err. - of b	t(24)	p-value
Intercept			1.1679	3.7560	0.3109	0.7585
CCGI	0.1322	0.2023	3.5372	5.4131	0.6535	0.5197

Note: Obtained model is: Tobin Q = 1.1679 + 3.5372 * CCGI® Representability of model measured by determination coefficient (R^2) amounts to 0.0174.
Source: Author's calculations, an extract from the software package Statistica 10.

Table 4. Results of simple linear regression for the year 2008.

Regression Summary for Dependent Variable: Tobin Q (analysis_2008) R=.57786446 R=.33392733 Adjusted R=.29887088 F(1.19)=9.5254 p						
	b*	Std.Err. - of b*	b	Std.Err. - of b	t(19)	p-value
Intercept			−1.1166	0.6839	−1.6328	0.1190
CCGI	0.5779	0.1872	2.9810	0.9659	3.0863	0.0061

Note: Obtained model is: Tobin Q = −1.1166 + 2.9810 * CCGI® Representability of the model measured by determination coefficient (R^2) amounts to 0.3339.
Source: Author's calculations, an extract from the software package Statistica 10.

P-value amounts to 0.0061 and it is smaller than the theoretical significance level, which indicates to acceptance of alternative hypothesis. Considering that the value of regression coefficient is positive (b = 2.9810) it can be concluded that the success of company performance depends positively on the practice of CG.

Table 5 presents the results of a simple linear regression of companies in the sample for the year 2009 on the theoretical significance level of 5%. The results indicate that the p-value amounts to 0.0551, and that it is bigger than the theoretical level of 5%. It can be concluded that the model is not significant on the previously mentioned level. However, on the theoretical significance level of 6%, the CG practice is considered significant for explaining variations in company performance, which suggests accepting alternative hypothesis for the observed year. Considering that the value of regression coefficient is positive (b = 2.8089), it brings to the conclusion that the success of company performance depends positively on the company's CG practice.

As shown in Table 6, dependence of the company success for 2010 on the CG practice is positively significant, taking into consideration that the p-value is 0.0461, and

Table 5. Results of simple linear regression for the year 2009.

Regression Summary for Dependent Variable: Tobinov Q (analysis_2009) R=.48802864 R=.23817195 Adjusted R=.18375566 F(1.14)=4.3769 p						
	b*	Std.Err. - of b*	b	Std.Err. - of b	t(14)	p-value
Intercept			−0.8444	0.9515	−0.8874	0.3898
CCGI	0.4880	0.2333	2.8089	1.3426	2.0921	0.0551

Note: Obtained model is: Tobin Q = −0.8444 + 2.8089 * CCGI® Representability of the model measured by the determination coefficient (R^2) amounts to 0.2381.
Source: Author's calculations, an extract from the software package Statistica 10.

Table 6. Results of simple linear regression for the year 2010.

Regression Summary for Dependent Variable: Tobinov Q (analysis_2010) R=.41977027 R=.17620708 Adjusted R=.13697884 F(1.21)=4.4918 p						
	b*	Std.Err. - of b*	b	Std.Err. - of b	t(21)	p-value
Intercept			−0.3217	0.6675	.−0.4819	0.6348
CCGI	0.4198	0.1981	2.0051	0.9461	2.1194	0.0461

Note: Obtained model is: Tobin Q = −0.3217 + 2.0051 * CCGI® Representability of the model measured by determination coefficient (R^2) amounts to 0.1762.
Source: Author's calculations, an extract from the software package Statistica 10.

Table 7. Results of multiple linear regression for the year 2007.

Regression Summary for Dependent Variable: Tobin Q (analysis_2007) R=.40138979 R=.16111376 Adjusted R= − F(5.20)=.76823 p

	b*	Std.Err. - of b*	b	Std.Err. - of b	t(20)	p-value
Intercept			6.1037	4.8342	1.2626	0.2213
SUB-INDEX 'Transparency and Business Transparency'	0.6322	0.3549	10.8738	6.1034	1.7816	0.0900
SUB-INDEX 'General Assembly and Relation Towards Stockholders'	−0.4087	0.3174	−9.3745	7.2812	−1.2875	0.2126
SUB-INDEX 'Supervisory Board'	−0.2473	0.2499	−5.0158	5.0687	−0.9896	0.3342
SUB-INDEX 'Management Board'	0.1279	0.2189	1.4656	2.5087	0.5842	0.5656
SUB-INDEX 'Audit and Internal Control'	−0.0502	0.2084	−0.9736	4.0460	−0.2406	0.8123

Note: Obtained model is: Tobin Q = 6.1037 + 10.8738 * 'Transparency and Business Transparency' −9.3745 * 'General Assembly and Relation Towards Stockholders' −5.0158 * 'Supervisory Board' + 1.4656 * 'Management Board' −0.9736 * 'Audit and Internal Control' + e_i Representability of the model measured by multiple determination coefficient (R^2) amounts to 0.1611.
Source: Author's calculations, an extract from the software package Statistica 10.

that it is smaller than the theoretical level of significance of 5%. In other words, the CG practice is significant for explaining the variations in company performance. Based on that, the conclusion on accepting the alternative hypothesis is made. Having in mind that the value of regression coefficient is positive (b = 2.5001), it can be determined that the success of company performance is positively dependent on the CG practice.

4.3. Models of multiple linear regression

As shown in Table 7, in 2007 none of the aspects of CG practices is significant for explaining variations of the dependent variable on the theoretical level of significance of 5%. However, the sub-index 'Transparency and business transparency' becomes significant at the level of 10%. On the theoretical significance level of 10% mentioned sub-index is considered significant for explaining variations in company performance, which suggests accepting alternative hypothesis for the observed year. Considering that the value of regression coefficient is positive (b=10.8738), it brings to the conclusion that the success of company performance depends positively on the transparency and business transparency.

Results for 2008 suggest that there is no significant dependence of a company's performance on certain aspects of CG practices (Table 8). Based on that, the conclusion on accepting the null third hypothesis is made. However, the regression coefficients (b) of all sub-index are positive, indicating the presence of positive dependence between the dependent and analysed independent variables.

As shown in Table 9, results for year 2009 show that none of the K = 5 aspects of CG practices is significant for explaining the variations in company performance, which suggests accepting null third hypothesis for the observed year. The reason for this can be found in the existence of multicollinearity between individual sub-index.

Results for 2010 are showing the absence of significant dependence of a company's performance on certain aspects of CG practices (Table 10). The decision is made in favour of accepting the null third hypothesis. The cause for this, as well as in 2008 and

Table 8. Results of multiple linear regression for the year 2008.

Regression Summary for Dependent Variable: Tobin Q (analysis_2008) R=.61766900 R=38151500 Adjusted R=.17535333 F(5.15)=1.8506 p

	b*	Std.Err. - of b*	b	Std.Err. - of b	t(15)	p-value
Intercept			−1.0032	1.0420	−0.9628	0.3509
SUB-INDEX 'Transparency and Business Transparency'	0.0212	0.4901	0.0718	1.6623	0.0432	0.9661
SUB-INDEX 'General Assembly and Relation Towards Stockholders'	0.0333	0.3666	0.1513	1.6630	0.0910	0.9287
SUB-INDEX 'Supervisory Board	0.3421	0.2941	1.7773	1.5278	1.1633	0.2629
SUB-INDEX 'Management Board'	0.3225	0.2901	0.8424	0.7578	1.1116	0.2838
SUB-INDEX 'Audit and Internal control'	0.0140	0.2162	0.0638	0.9840	0.0649	0.9491

Note: Obtained model is: Tobin Q = −1.0030 + 0.0718 * 'Transparency and business transparency' + 0.1513 * 'General Assembly and Relation Towards Stockholders' + 1.7773 * 'Supervisory Board' + 0.8424 * 'Management Board' + 0.0638 * 'Audit and Internal Control' + e_i Representability of the model measured by multiple determination coefficient (R^2) amounts to 0.3815.
Source: Author's calculations, an extract from the software package Statistica 10.

in 2009, it is possible to look in the existence of multicollinearity between individual sub-indexes.

4.4. Changes in corporate governance practice

To investigate whether there is progress in CG practice in an observed time period, average CCGI® index values, as dependent variable, for each year are being analysed by a simple linear regression method in relation to an independent variable *time*. The average values of CCGI® index are calculated based on arithmetic mean for the companies, according to individual years. The independent variable of time is defined as a

Table 9. Results of multiple linear regression for the year 2009.

Regression Summary for Dependent Variable: Tobinov Q (analysis_2009) R=.60582684 R=.36702616 Adjusted R=.05053924 F(5.10)=1.1597 p

	b*	Std.Err. - of b*	b	Std.Err. - of b	t(10)	p-value
Intercept			−2.1902	1.5597	−1.4042	0.1905
SUB-INDEX 'Transparency and Business Transparency'	0.1694	0.4594	0.6677	1.8107	0.3687	0.7200
SUB-INDEX 'General Assembly and Relation Towards Stockholders'	−0.0510	0.3489	−0.2410	1.6475	−0.1463	0.8866
SUB-INDEX 'Supervisory Board'	0.4696	0.4128	2.7142	2.3855	1.1378	0.2817
SUB-INDEX 'Management Board'	−0.1343	0.3279	−0.3775	0.9215	−0.4097	0.6907
SUB-INDEX 'Audit and Internal Control'	0.3044	0.2604	1.9293	1.6509	1.1686	0.2697

Note: Obtained model is: Tobin Q = −2.1902 + 0.6677 * 'Transparency Business Transparency' − 0.2410 * 'General Assembly and Relation Towards Stockholders' + 2.7142 * 'Supervisory Board' − 0.3775 * 'Management Board' + 1.9293 * 'Audit and Internal Control' + e_i Representability of the model measured by multiple determination coefficient (R^2) amounts to 0.3670.
Source: Author's calculations, an extract from the software package Statistica 10.

Table 10. Results of multiple linear regression for the year 2010.

Regression Summary for Dependent Variable: Tobinov Q (analysis_2010) R = 53367367 R = 28480758 Adjusted R = 07445687 F(5.17) = 1.3540 p

	b*	Std.Err. - of b*	b	Std.Err. - of b	t(17)	p-value
Intercept			−1.1902	0.9599	−1.2399	0.2318
SUB-INDEX 'Transparency and Business Transparency'	−0.0098	0.3277	−0.0317	1.0585	−0.0300	0.9765
SUB-INDEX 'General Assembly and Relation Towards Stockholders'	0.1115	0.3227	0.4116	1.1914	0.3455	0.7340
SUB-INDEX 'Supervisory Board'	0.3077	0.2980	1.4095	1.3653	1.0324	0.3164
SUB-INDEX 'Management Board'	0.0563	0.3010	0.1185	0.6333	0.1872	0.8537
SUB-INDEX 'Audit and Internal Control'	0.3166	0.2176	1.3139	0.9030	1.4550	0.1639

Note: Obtained model is: Tobin Q = −1.1902 − 0.0317 * 'Transparency and Business Transparency' + 0.4116 * 'General Assembly and Relation Towards Stockholders' + 1.4096 * 'Supervisory Board' + 0.1185 * 'Management Board' + 1.3139 * 'Audit and Internal Control' + e_i Representability of the model measured by multiple determination coefficient (R^2) amounts to 0.2848.
Source: Author's calculations, an extract from the software package Statistica 10.

Table 11. Results of a simple linear regression of dependability of CG practice on time.

Regression Summary for Dependent Variable: CCGI (average) = 65933750 R^2 = 43472593 Adjusted R^2 = 15208890 F(1.2) = 1.5381 p

	b*	Std.Err. - of b*	b	Std.Err. - of b	t(2)	p-value
Intercept			0.6868	0.0069	99.6805	0.0001
Year	0.6593	0.5316	0.0031	0.0025	1.2402	0.3407

Note: Obtained model is: CCGI® = −0.6868 + 0.0031 * Year Representability of the model measured by determination coefficient (R^2) amounts to 0.4347.
Source: Author's calculations, an extract from the software package Statistica 10.

dummy variable, in which the year 2007 is replaced by a binary variable 1, year 2008 by binary variable 2, year 2009 by a binary variable 3, and 2010 by a binary variable 4.

The results of regression analysis are shown in Table 11. Since the p-value amounts to 0.3406, and it is bigger than the theoretical significance level, it can be concluded there is no significant difference in the value of CCGI® among certain years, or there is no significant progress in the CG practice viewed from the CROBEX® share index aspect. However, it should be noted that the value of regression coefficient, although small, is positive (b = 0.0031), which indicates to existence of a slight progressive trend.

5. Conclusion

The article gives the results which indicate that CG is an important factor in success of the Croatian companies include in CROBEX® share index. Based on annual questionnaires of CG codex (The Zagreb Stock Exchange, Croatian Financial Services Supervisory Agency, 2010), the CCGI® was developed. Based on testing results of the first hypothesis, the alternative hypothesis is accepted stating there is a positively significant correlation of company performance movement and CROBEX® index. Based on the results of the second hypothesis, the alternative hypothesis is accepted stating that the

practice of company's CG is significant for explaining the variations in the successful performance for company samples from 2008, 2009 and 2010. For the company sample from 2007, the null hypothesis is accepted. Based on testing of the third pair of hypotheses the null hypothesis is accepted stating that none of the K = 5 aspects of CG practices is significant for explaining the variations in company performance success.

The limitations of the research include the existence of a gap between the real and targeted samples, unavailability of data, existence of multicollinearity between individual sub-indexes, questionable representativeness of created models and non-inclusion of the controlled variables. The recommendations for further research include the introduction of a compulsory practice of filling in the annual questionnaires, auditing of the questionnaires from the point of view of formulating the questions and grouping them; all this with a purpose of advancement by research of the created CCGI®. Besides that, it is recommended that future research of this type uses a larger sample. Within the context of scientific contribution, comparison with other countries seems of interest.

Notes

1. The expense of the agent is a form of transaction cost which takes place in a situation in which the principal cannot ensure the action and activities of the manager are in the best interest of the principal.
2. The affirmative response to the question is coded by value '1', and the negative one by '0'. For the purpose of forming the CCGI®, all the questions were rephrased in order to be answered in an affirmative manner.
3. The value is calculated in the following manner: [(the sum of values of the answered questions* overall number of questions composed of sub-indexes)/ number of answered questions]/ the biggest sum achieved for the latter sub-index in the year.

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