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Corporate governance and firm performance with special reference to the banking system: empirical evidence from Monetengro

Abstract: The importance of corporate governance is gaining its momentum due to volatile business environment. The financial crisis showed that an efficient corporate governance practice, which can align and balance conflicting interests of various stakeholders (shareholders, creditors, customers, workers, suppliers, etc) nowadays represent the key requirement in the best interests of corporates themselves. This especially refers to the banking system where poor corporate governance practices, especially those referring to CEO compensation schemes, contributed to the financial crisis escalation. The aim of the research is to assess the quality of corporate governance practice in Montenegrin corporate and banking systems. Based on the OECD questionnaire on corporate governance, we surveyed 43 joint stock companies in Montenegro, with the aim of constructing the Corporate Governance Rating (CGR) for Montenegrin companies and banks. The CGR provided a better prospective on the difference of corporate governance mechanisms developed in parallel with the corporate and banking systems of Montenegro. Using OLS, Probit and Logit models, we show that the general corporate governance practice in the banking system can be considered better compared to the corporate sector. However, the difference is not significant.

Key words: corporate governance rating, firm performance.

JEL classification: G34, G21.

1. Introduction

Concerning the quality of corporate governance practice and the institutional framework, Montenegro still lacks a comprehensive analysis of its main properties. This does not come as a surprise. As Klapper and Love (2006, p.3) argue, most of the existing literatures using "firm level corporate governance provisions" have been studied in the context of OECD countries and the USA. However, limited attention has been paid to emerging markets and its corporate governance characteristics. Only recently have authors shed additional light on the corporate governance practice in emerging markets (Black, 2000).

The corporate governance practice in Montenegro relies heavily on the existing legal framework, which includes several laws and bylaws, sets of decisions, directives, codes and rules enforced mainly by Governmental bodies (the Ministry of Finance and the Ministry of Justice) as well as independent bodies such as the Securities and Exchange Commission of Montenegro and the Central Bank of Montenegro. However, against the backdrop of the underdeveloped and shallow capital market, almost nonexistent market for managers, underdeveloped incentive and monitoring schemes for managers, implementation gap in the corporate governance framework appears to be the fundamental weakness of the Montenegrin corporate system. Nonetheless, taking into consideration that the process of transition started rather late in Montenegro (after 2001), it is rather unreasonable to expect that the transfer of ownership through the process of privatisation would lead toward immediate development of the corporate governance practice.

After the process of privatization, various foreign investors invested in Montenegro, introducing corporate governance mechanisms characteristic for the corporate governance practice from the country of their origin. In addition, the Mass Voucher Privatisation (MVP) in Montenegro created dispersed owners who had limited knowledge regarding their role and responsibilities and rights. The process was followed by a quick ownership concentration with the creation of large-block owners in the time span of five years (2002-2005). Consequently, the current ownership concentration of Montenegrin joint stock companies is very high (the largest owner holds on average more than 60% of ownership in 2011). High ownership concentration, *inter alia*, signals that complementary corporate governance mechanisms do not exist or they might not be sufficiently efficient.

High ownership concentration is not rare in the case of transition economies. As Gutierrez and Tribo (2003) argue that ownership concentration, especially in the case of closely-held corporations, with control shared by a small number of shareholders, is "a mixed blessing." With concentrated ownership, a large owner

can easily monitor and control behavior of managers, however in case when they can obtain private benefits at the expense of minority shareholders they will be keen to divert decision in order to achieve those private benefits (Shleifer and Vishny, 1986 and Burkart et al., 1997).

As for the banking system in Montenegro, there is a clear difference between the corporate governance practice in the corporate and banking sectors. According to Mehran et al. (2011, p.3) the most prominent difference is the fact that banks have far more stakeholders compared to the corporate sector. Namely, every shareholder may be considered as a stakeholder. The magnitude of stakeholders reflects as well as a divergence in interests of different stakeholders in the banking system. While shareholders are more interested in short term benefits such as dividends i.e. achieving efficient financial result, deposit holders have a much forward-looking perspective, being primarily interested in bank stability. There is an obvious conflict of interest between stakeholders that can be efficiently aligned only through potent corporate governance mechanisms.

The research has two aims. First, creation of the Corporate Governance Rating for Montenegro provides an assessment of the quality of corporate practice analyzed through prospects of its convergence with the OECD principles. Second, using Probit and Logit models we analyze whether the corporate governance practices in the corporate sector and the banking system diverge. The assumption is that due to the fact that the banking system in Montenegro is almost entirely foreign-owned, with imported corporate governance practice, supervised by the special institution unlike the corporate sector, governed by a different legal framework (the Banking Law) and international practices (Basel principles), the corporate governance practice might be more advanced when compared to the corporate sector.

The paper is organized as follows. After this introductory part, the second section provides data properties of the survey results. The third and fourth subsections describe results obtained using OLS, Probit and Logit models and where results of the econometric investigation are analyzed, together with the main limitations of the empirical models. Subsection five summarizes key findings from this investigation and concludes the chapter.

2. Corporate Governance Ratings and Firm Performance in Montenegro: Empirical analysis

In this section we will investigate the quality of the corporate governance practice in Montenegro with special reference to the banking system. Using the an-

nual survey conducted in Montenegro by representatives of the Central Bank of Montenegro, we obtained responses from 39 joint stock companies in Montenegro. The questionnaire was distributed to 107 joint stock companies listed on the Montenegrin Stock Exchanges - *Nex Montenegro Stock Exchange* and *Montenegroberza Stock Exchange* during the period February-May 2010. The interviews with enterprises were conducted personally by the researcher and her colleagues from the Central Bank of Montenegro, or via e-mail and fax. The response rate was relatively low, 36.8% or 39 of 106 companies replied to the questionnaire. Nevertheless, it is important to accentuate that all A-listed joint stock companies (12) replied to the questionnaire. Moreover, one should take into consideration that there were only 172 listed joint stock companies on both Montenegrin stock exchanges. Detailed information regarding the sample properties, quality of response, and design of the questionnaire, due to space limit can be obtained upon request. On the other hand, all 11 banks replied to the questionnaire.

The main survey output is the assessment of quality of the corporate governance practice in Montenegro with special reference to the banking system, and evaluation of the practice in the light of the basic OECD corporate governance principles. Replies of the corporate and banking sector were used for generating the Corporate Governance Rating (hereinafter: CGR) for Montenegro. The main idea was to assess if there is a significant discrepancy in the quality of the corporate governance practice between the corporate sector and the banking sector in Montenegro. The procedure as well as the methodology of generating CGR is explained in detail in subsection 2.2. An important contribution of this analysis will be to quantify the quality of the corporate governance practice in Montenegro, with special reference to the banking system and to assess its possible impact on firm performance.

The analysis is restricted by the characteristics of our (unavoidably) small sample cross-section data set. Among the well-known limitations of such data is the inability to address potential endogeneity in the model, to investigate dynamics existing among the variables, or to control for unobserved heterogeneity as well as the limited number of variables that can be used. Accordingly, the results will be used just as an additional indicator, to be interpreted in the light of theory and other empirical findings, to contribute to better understanding of the focal point of the research – assessment of the relationship between ownership concentration and firm performance in Montenegro.

2.1. Types and quality of Corporate Governance Ratings - a Short Note

"Way back in 1970, there was a Motown record that had as its catch phrase, "War, what it is good for? Absolutely nothin'!" Today, there are researches that suggest that the same can be said about corporate governance ratings."(John Palizza, 2010)

The corporate governance industry, which rapidly developed in the last decade, plays an important, if not a major, role in the corporate governance policymaking of companies. The main purpose of the corporate governance rating systems is to provide a useful indication of the corporate governance quality of a specific company that should (at least, this is what the rating agencies claim) over time cause better economic performance and lower the cost of capital. At the same time, the corporate governance rating industry plays an important if not "a major role in corporate governance policymaking and, due to its impact on institutional investors, it effectively acts as de facto corporate governance regulator" (Calomiris and Mason, 2009). However, existing empirical literature that examines links between corporate governance ratings and firm performance remains highly inconclusive, showing substantial heterogeneity of findings and no robust evidence that corporate governance ratings contribute to increase of the firm value or to the quality of corporate governance practice (Black, 2001; Klapper and Love, 2004; Durnev and Kim, 2005; Black et al., 2006; Mehdi, 2007; Larcker et al., 2007; Bhagat and Bolton, 2007; Daines et al.2008, Bauer et al.2004, Renders et al., 2010; Garay and Gonzalez, 2008 etc.).

One of potential reasons why empirical literature fails to find a significant impact of corporate governance ratings on firm performance is due to the fact that "there are a very few reliable metrics of corporate governance" (Ertugrul and Hedge, 2009, p.139). The critique of the corporate governance indices or corporate governance ratings is that it is extremely challenging to reduce the complexity of corporate governance practises into an integrated, reliable and informative quantitative indicator.

An additional critique refers to the prominent discrepancy in designs of corporate governance indices, usually focusing on only one dimension of corporate governance practice, which in turn may contribute to an increase of "white noise" for the potential investors in the decision-making process. The overall design of corporate governance ratings and, more importantly, the way in which the commercial rating companies are financed, according to recent literature, is a source of bias, contributing to increase of the agency problem and asymmetric information between companies and final investors.

The most prominent commercial service companies providing metrics ranking the quality of the corporate governance practice of public companies are International Shareholder Services (ISS), the creator of the "Corporate Governance Quotient" (CGQ); Governance Metrics International, the creator of the "GMI"; the Corporate Library producing TCL index; and Standard and Poor's (S&P).

Table 1: The main characteristics of rating agencies in the United States

Corporate Governance Services	Scoring System	Information Sources	Access to Reports
Governance Metrics International -- GMI	1-10 (1=low, 10=high) rating relative to other companies in 7 categories plus an overall score; 600+ variables in areas of board accountability, financial disclosure & internal controls, reputational and social responsibility, executive compensation, market for control, ownership base and potential for dilution and shareholder rights.	Basic Rating: based on public data including regulatory filings, press releases, news articles, company Web site. Comprehensive Rating: public and non-public data, including company policies, confidential documents, board and management interviews provided by the company.	After their first rating, and with a signed non-disclosure agreement, GMI will send a company their full report free of charge. After the second rating period, GMI will send numerical scores, but the company must pay approximately $1,000 for the report. Subscribers have access to every company's ratings.
Institutional Shareholder Services -- Corporate Governance Quotient (CGQ)	0-100 (0=low, 100=high) rating relative to other companies in the market cap and industry peer groups (2 scores); 61 variables in areas of board of directors, audit, charter and bylaw provisions, laws of the state governing incorporation, executive and director compensation, qualitative factors, ownership and director education.	Public information such as regulatory filings, company Web site and press releases.	Access to scores available at no charge to company only (not advisers) and within reasonable limits (a couple of times per year), as well as after significant company changes. Subscribers have access to all company scores.
Standard & Poor's – Corporate Governance Scores	1-10 (1=low, 10=high) rating of 4 areas -- ownership structure & influence, financial stakeholder rights & relations, financial & information disclosure, and board structure and process -- as well as an overall company score.	Public data and confide internal information provided by the company and interviews of directors, management and other key individuals.	A report is supplied to the company requesting and paying for the score and report. If the company agrees to make the score public, it is available at no cost on the S&P website. Otherwise, the score and report are available only to the company. Note: A downgraded score may not be withdrawn.

Source: Investor Relation Update on Corporate Governance, 2009

On the other hand, Core et al. (2006, p.141) argue that the relationship depends upon the awareness of investors. In case investors are familiar with poor performance or poor corporate governance in a company, this knowledge will be already incorporated and reflected in the stock price of the company. Consequently, one would expect not to find any significant relationship between corporate governance ratings and firm performance. However, if investors are surprised by the poor performance of a company, or its poor corporate governance practice, then one would expect a significant relationship between corporate governance rating and firm performance.

In the context of transition economies, Black (2001) argues that in developing countries where the corporate governance institutional environment is not developed, good corporate governance practice stands out and contributes to the better corporate governance practice generally. On the other hand, Black argues that the weak impact of corporate governance practice in developed economies might be due to the fact that the quality of the corporate governance behaviour of companies is at the very start of their existence very high, restricted and moulded by the comprehensive set of "securities law, corporate law, stock exchange rules, and general behavioural norms" which are unanimously accepted. However, in the environment where this behaviour is rather the exception than general practice, beneficial effects of corporate governance practice on firm performance can be expected. Similar findings are reported by Chong et al. (2009), arguing that better firm level practices in Mexico contribute to better firm performance. Similarly, Klapper and Love (2004) argue that in the case of emerging economies, firm-level corporate governance characteristics matter more. In a bad corporate governance environment (reflected mainly in a poor enforcement of the existing corporate governance legal infrastructure), it is more likely that the companies with better corporate governance practice would have obvious advantage in terms of better firm performance in comparison to those companies that lack corporate governance practice. Similar findings as well as similar arguments can be found in broad literature assessing the quality of corporate governance.

Taking into consideration existing empirical literature, it is evident that the link between the quality of corporate governance and the firm performance remains open for further discussion. However, although highly inconclusive, the literature provides enough evidence that in developing economies those companies with better corporate governance practices might experience greater added value in terms of better firm performance in comparison to companies in developed corporate governance systems where good corporate governance practice is standard. Consequently, thinking of Montenegro as a young, developing transi-

tion economy, one might argue that a positive effect of the corporate governance on firm performance might be expected.

2.2. Sampling methodology: Creation of the Corporate Governance Rating (CGR) for Montenegro

Commercial corporate governance services provide various corporate governance indices with the leading idea to use a quantitative approach - i.e. a single number or a grade - to assess the quality of corporate governance practice in a company. Nevertheless, although aiming only to analyze, the outcome of the agencies' assessing process was that they became an active policymaker, using actively their advisory role to mould and change the corporate governance of companies, thereby affecting the corporate governance practice at the national level. Thus, their relative importance and social responsibility increases, especially if we take into consideration, as described in Section 4.5.1, that the existing literature argues that corporate governance indices are imperfect tools, used as proxies for corporate governance quality, with existing differences in the used methodologies, imperfection of designs, and samples used. A part of the empirical literature is highly suspicious concerning the quality of the corporate governance rating, arguing that even if they were in a position to make a choice between one variable and some index as a proxy for corporate governance, they would rather select one variable instead of the index (Bolton et al., 2007, p.5). Nonetheless, we do find it rather unlikely that one variable could reflect the quality of corporate governance at the national level. Moreover the corporate governance indices currently represent the only tool that can be used for the comparison of corporate governance practices across companies. Aware of all imperfections, especially regarding the fact that a single number cannot capture the specific circumstances in which a company works, corporate governance indices still present the widely used tool that can be used to proxy for corporate governance quality (Black et al, 2001; Black et al. 2006a; Black et al., 2006b; Chong and Lopez de Silanes, 2006; etc.)

One of the main challenges is to create a corporate governance index that will efficiently assess the quality of corporate governance at the national level. As seen in subsection 4.5.1., at this point there is no consensus on the quality, methodology and design of corporate governance indices. Moreover an additional question is whether the "one size fits all" approach to the assessment of corporate governance practice is a viable approach (Drake, 2003 p.25). Taking into consideration that a tailor-made, i.e. unique approach of creation of corporate governance does not exist, the principles and recommendations introduced by the supranational

authorities, the OECD and the World Bank (IFC), were chosen as the basis for the corporate governance index used in the empirical in this Chapter. At the same time, we are aware that the OECD principles do not directly apply in case of developing countries such as Montenegro. Namely, according to Van der Berghe and Leavray (2003, p. 78) implementation of the OECD principles relies on three preconditions: (i) existence of a good legal corporate governance legal infrastructure, which can enforce a rule of law; (ii) existence of a good communication and information flow among market participants (investors, owners, managers, etc.); and (iii) a good educational structure of investors who are informed, know their rights and possess full capacity to enforce them.

The questionnaire that was used in the survey is relatively extensive and consists of 86 questions (the content of the Questionnaire is available upon request). The choice of questions on the corporate governance practice assessment in Montenegro is based on the questionnaire that has been developed for the *Country Reports on the Observance of Standards and Codes* (hereinafter: ROSC) by the *International Finance Corporation* (IFC). It benchmarks the country's observance of corporate governance against the OECD Principles of Corporate Governance. With the questionnaire we try to assess the compliance of Montenegrin enterprise corporate governance practice with each OECD Principle of Corporate Governance. Simultaneously, the questionnaire included the three dimensions of the corporate governance rating systems that represent global criteria, included in all corporate governance rating designs. These global criteria refer to: a company's attitude toward basic shareholders rights and antitakeover defences, a company's board structure; and a company's level of disclosure (Berghe and Levrav, 2003, p.76).

However, as mentioned, the design of the questionnaire was primarily based on the ROSC report of the corporate governance practice assessment at the national level. Argument for using the ROSC questionnaire is that it is designed for the quality of corporate governance practice at the national level rather than for the purpose of commercial, company level usage. This is in line with the aim of the model explained in the Subsection 4.6.3; to quantify the quality of the corporate governance practice in Montenegro at the national (aggregate) level. Additionally, ROSC, in contrast to commercial agencies (Deminor, S&P, ISS and CLSA) that keep their questionnaire designs undisclosed, provides clear and fully explained instructions on its questionnaire design including assessment methodology. Finally, the design of the ROSC questionnaire is comprehensive yet simple, understandable, and firmly attached to the basic OECD principles; in contrast to commercial questionnaires that are usually custom-made, including various categories and multiple variables and information for which a thorough long-term analysis of each company in the sample is needed. This would be difficult

to obtain in a single questionnaire, which was to be the source of information for generating corporate governance ratings.[1]

The questionnaire covers five subsections. The first subsection refers to the basic rights of shareholders. These include the right to: secure methods of ownership registration, convey or transfer shares; obtain relevant information on the corporation on timely and regular basis; participate and vote in general shareholders meetings; elect members of the board; and approve the authorization of additional shares and extraordinary transactions that in effect result in the sale of a company, etc. The second subsection covers the issue of equal treatment of shareholders. This includes equal treatment of all shareholders, including minority and foreign shareholders. In essence, this subsection refers to the issue of whether shareholders have the same voting rights, whether shareholders are well informed, whether they are informed about any changes in voting rights, etc. Also, the questionnaire examines the practice with respect to how voting proceeds in the case of nominees, whether all necessary information are disclosed by the board and managers, etc. The third subsection brings up the issue of stakeholders rights and the company's responsibility toward society, stressing the creation of an efficient legal framework which allows for stakeholders` rights to be protected and which enables efficient performance-enhancement mechanisms for stakeholders` participation in the company's activity. The fourth section is usually in the focus of commercial corporate governance agencies and refers to the issue of disclosure and transparency. This subsection covers the topics concerning the ability of the company to disclose: "The financial and operating results of the company, firms objectives, major share ownership and voting rights, members of the board and key executives, and their remuneration, material foreseeable risk factors, material issues regarding employees and other stakeholders, governance structures and policies", covering at the same time the issue of auditing (external and internal) of financial accounts (Reports on the Observance of Standards and Codes (ROSC) initiative). Lastly, the fifth component refers to the responsibility of the Board. This subsection covers the subject of the governance framework that should ensure "the strategic guidance of the company, the effective monitoring of management by the board, and the board's accountability to the com-

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[1] For example GovernanceMatrics International (GMI) has more than 600 variables in 7 different categories within its scoring system, and their average analysis of a single company may take up to three months.

pany and the shareholders"[2] (*ROSC Corporate Governance Country Assessment Manual*, 2004).

Each statement (question) is given a grade, based on the company's level of observance of the principle. However, contrary to the ROSC practice of having 5 different grades[3], in our assessment we included only three grades: **observed, partially observed** and **not observed**. **Observed** means that all essential criteria are generally met, with potential minor shortcomings and the ability to achieve full observance in the short term. **Partially observed** means that an implementation gap is present: while the legal and institutional framework is set to comply with the OECD Principles, practices as well as enforcement diverge substantially. Finally, **not observed** means the lack of full compliance with the OECD Principles and that no substantive progress toward observance can be achieved in the medium term horizon. With a view to obtaining a corporate governance index, qualitative grading has been quantified. Hence, to the grade Observed has been assigned grade 2, to the Partially Observed grade 1 and, finally, to the Not observed grade 0.

Another issue is the weighting of the corporate governance criteria, and then the scoring procedure. Namely, it is assumed that corporate governance indicators are weighted based on the priorities that are usually determined by discrete par-

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[2] "The board should fulfil certain key functions, including (1) Reviewing and guiding corporate strategy, major plans of action, risk policy, annual budgets and business plans; setting performance objectives; monitoring implementation and corporate performance and overseeing major capital expenditures, acquisitions and divestitures. (2) Selecting, compensating, monitoring and, when necessary, replacing key executives and overseeing succession planning. (3) Reviewing key executive and board remunerations, and ensuring a formal and transparent board nomination process. (4) Monitoring and managing potential conflicts of interest of management, board members and shareholders, including misuse of corporate assets and abuse in related party transactions. (5) Ensuring the integrity of the corporation's accounting and financial reporting systems, including the independent audit, and that appropriate systems of control are in place, in particular, systems for monitoring risk, financial control, and compliance with the law. (6) Monitoring the effectiveness of the governance practices under which it operates and making changes as needed. (7) Overseeing the process of disclosure and communications." (ROSC Corporate Governance Country Assessment, Macedonia, 2004)

[3] According to the ROSC gradation, each response in respect to the level of observance of a certain principle can obtain one of five different qualitative grades: "**Observed** means that all essential criteria are generally met without any significant deficiencies. **Largely observed** means that only minor shortcomings are observed, which do not raise any questions about the authorities' ability and intent to achieve full observance in the short term. **Partially observed** means that while the legal and regulatory framework complies with the OECD Principles, practices and enforcement diverge. **Materially not observed** means that, despite progress, the shortcomings are sufficient to raise doubts about the authorities' ability to achieve observance. **Not observed** means that no substantive progress toward observance has been achieved.", (ROSC *Corporate Governance Country Assessment Manual*, 2004)

ties (commercial services). The usual division of the "relative importance" of the corporate governance criteria are provided in Figure 1:

Figure 1: Hierarchical Framework of Governance Typology
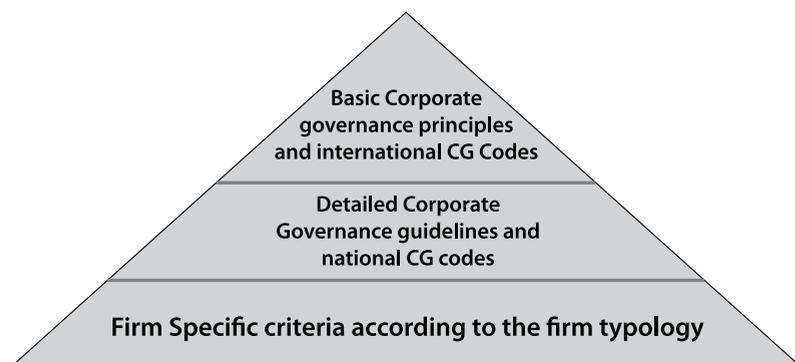
Source: Scorecard for German Corporate Governance

Taking into consideration that the questionnaire emphasis was on the basic corporate governance practices and international (OECD) codes, the adopted strategy for weight assessment is based on the principle that each question (Principle) has the same importance. Namely, the underlying assumption is that some basic shareholders rights are enforced by the Law, and they are generally observed across the corporate governance practice of enterprises in Montenegro. However, some more subtle principles that are less seen in the case of transition economies (especially those that are referring to the rights of stakeholders and treatment of minority shareholders), are just partly observed. Consequently, the principle of the grading system is to ascribe equal importance to each issue and not, for example, to give less importance to more subtle and less expected properties of the corporate governance practice in Montenegro. In this way is created a more clear distinction between companies that do not have developed corporate governance behaviour and those companies which implement more advanced corporate governance practice.

To sum up, although today we have a growing body of corporate governance services, still there is no unanimous "one fits all" rating that could be used as standard at national and company level. As Daines et al. (2009, p. 11) argue, there have been "many attempts to develop a rating that would reflect the overall quality of a firm's governance". However, the conclusion is that the corporate governance is a subjective concept and that a "one fits all" approach is neither realistic nor desirable. The strategy chosen for the assessment of the Montenegrin corporate governance practice in the corporate and the banking sector follows the design

and scoring of the internationally recognized questionnaire created on the basis of internationally recognized corporate governance principles. However, the weighting process is based on the discrete assessment of the researcher, taking into consideration the current national corporate governance system in Montenegro. Aware of all limitations that the aggregate corporate governance ratings have for more comprehensive analysis, the composite rating still represents a viable tool for the quantification of the corporate governance practice.

3. Corporate governance rating and corporate performance in Montenegro - Linear regression

Based on the replies from the questionnaire that was distributed in the CBM survey and knowledge of the empirical literature, an initial list of variables was created to be used in the econometric analysis of the relationship of the corporate governance rating to firm performance. The list of variables, including short descriptions is presented in Table 2.

Table 2:   List of variables used in empirical models with summary statistics

Description of variables	Variables-dummy and continuous variables used in empirical models	Mean	Standard Deviation	Max	Min	Dummy variables- % of observations that take a value of 1
Corporate Governance Rating for Montenegrin companies. Range of the Rating is 0-160	CGR_ MontenegroSIZE	63.3	12.09	89	35	n/a
LNSIZE- Natural logarithm of the book value of assets in 2009 in Euros*		17.06	2.16	20.84	11.77	na
BOARD_SIZE - the number of Board members in 2008	BOARD SIZE	4.02	2.13	12	4	n/a
Financial ratio ROE (Return on Equity) - shows how profitable a company's assets are in generating revenue. Calculated as ROA=net income/total equity**	ROA	0.0052	0.034	0.098	-0.06	n/a
MEETINGS- the number of Board meetings during 2008.	MEETINGS	9.78	4.96	18	3	n/a
PRESENCE- Dummy variable takes value 1 if 50% of the Board members (quorum) at the half of the Board meetings was present, 0 otherwise	ABSENCE	0.63	0.48	1	0	42%

* Source: Commercial Court of Montenegro
** To assess the impact of the corporate governance index on operating performance, we follow Core, Gray, and Rusticus (2006) and regress measures of future operating performance (2009) on governance ratings in 2008.
Source: Author's calculations

The variable LNSIZE controls for the impact that the company's size might have on the firm performance. The value of the natural logarithm asset, denominated in Euros, is used as a proxy for the size of the company in the model. Following Core at al. (2006) and Ertugrula and Hedge (2003), we use the natural logarithm of the company's book value from 2009. According to the literature, the sign can go both ways. According to the Law of Proportionate Effect (or so called the Gibrat's Law) a firm's growth rate is independent of its size; on the other hand, Baumol (1959) argues that the rate of return increases with the size of the firm. However, the size, together with the significance of the coefficient in front of the variable, is not of primarily interest for our research.

The variable BOARD SIZE is an additional variable in the model that should explain whether the size of the board of directors of Montenegrin companies contributes to a better firm performance. There is a very broad and heterogeneous empirical literature on this topic alone. One part of the empirical literature argues that larger boards impede good communication due to the increased costs of arranging meetings, achieving decisions with consensus; i.e. the problems that poor communication and slow decision making process in the large Board is prevalent over other potential positive features of large Boards (Jensen, 1993 and Lipton and Lorch, 1992, Yermack 1996, Esineberg et al., 1998, Guest, 2009). Moreover, according to Lipton and Lorch (1992) and Magnet (1992), board directors in the large Boards hesitate to criticize managers, which leads to a worse firm performance. Moreover, Lipton and Lorch (1993) argue that despite of the firm size, "one fits all" approach should be implemented, i.e. the size of the company is not important because 8-9 board members is the optimal size of a board. However, according to the latest empirical literature, the board size is affected by firm specific characteristics such as firm performance itself (Tobin's Q) and firm size (Lehna et. al, 2004, Coles et. al, 2008, Linck et al., 2008, Wintoki, 2007). Consequently, if the endogeneity is taken into consideration, empirical research finds no significant impact of board size on a firm`s performance (Wintoki, 2007, Frick and Berming, 2009); or, in the case of large firms, it finds a positive impact of large board size on a firm`s performance (Coles et.al, 2008). Moreover, according to Shelifer and Vishny (1997), the board size is just one of the corporate governance mechanisms that depend on the set of other corporate governance mechanisms.

One of the most prominent external corporate governance mechanisms that affect the quality of the board size and its impact on a firm`s performance is the market for corporate control. Based on the existing literature, the market for corporate control can substitute or complement board monitoring. According to the *complement hypothesis*, in the environment where the market for corporate con-

trol is active, this external corporate governance mechanism can be used as an active monitoring tool for the board of directors. Namely, according to Harford (2003), directors are not retained when the takeover process is over, so it is more likely that the board members will be more active in the environment of loose antitakeover laws (i.e. developed market for corporate control) decreasing free riding behaviour among board members, increasing his/her participation in the board meetings and, finally, better monitoring managers, which in turn should contribute to a better firm performance (Cheng et al., 2007, p.121). On the other hand, the *Substitute Hypothesis* argues that the importance of the board decreases with the increase of importance of the market for corporate control. Namely, according to Mayers et al (1997), in the case of the insurance industry at least, the market for corporate control is a very powerful means of external management monitoring almost to the extent that the presence of the Board can be considered as literally excessive.

In the case of Montenegro, it is important to stress that in the sample, as well as in the overall market of publicly traded companies, most of the firms are small joint stock companies. More precisely, in the sample only three companies ("Elektroprivreda AD Niksic", "Telekom Douche AD" and "Aluminijski Kombinat Podgorica AD") can be considered as large joint stock companies. Furthermore, in an environment where the overall market consists of 348 joint stock companies, and with limited corporate governance legal infrastructure, the market for corporate control does not represent a viable instrument that might affect the behaviour of the board. Moreover if we look at the range of the variable BOARD SIZE it ranges from 4 to 9, with the mean of 4,02, and standard deviation of 2,13 which means that BOARD SIZE could hardly have the negative coefficient, showing that the board size might have negative effects on a firm`s performance in case of Montenegrin companies.

The variable ABSENCE explains whether the attendance of directors at the board meetings positively affects a firm`s performance. Recent (or the so called "after Enron") empirical literature deals with the problem of multiple directorship and the impact that it has on a firm`s performance. According to Booth and Deli, (1996); Loderer and Peyer, (2002); Carpenter and Westphal, (2001), multiple directorship has a beneficial impact on corporate value contributing through enhanced executive skills and diversified networking that "multi-directors" have. On the other hand, according to Fich and Shivdasani (2006) and Ferris (2003) directors who hold multiple board seats are not able to pursue efficient monitoring, because they become too busy. Consequently, the firm`s performance will suffer. Following the example of Jiraporn et al (2009, p.1163), the variable ABSENCE is constructed as the binary variable taking a 0 value if in the case of 50% of Board

meetings at least one director was absent. The reason for such a "strict" division[4] is the very fact that the problem of distance, which is usually mentioned as one of the most important obstacles to director's attendance, does not hold in the case of Montenegro. Namely, all 37 companies from the sample have headquarters in the capital city of Montenegro, so distance cannot be taken into consideration as an obstacle to director participation.

The variable BOARD MEETINGS shows whether the number of the board meetings held in the previous year impacts a firm`s performance. According to Vafeas (1999), the annual number of board meetings is inversely related to a firm`s value. In general, it is difficult to assess what the "optimal number of board meetings" is or whether it can be unified as a single number applicable for all types of companies. It is more correct to say that the optimal number of meetings is the one which assures the normal supervisory activities of the Board. This number does not have to be large, because having an excessive number of meetings might imply that the company faces extraordinary difficulties which need additional Board involvement, such as debate on acquisition or a restatement of financial statements (Brick and Chidambaran, 2010, p. 533) and that may send a negative signal to investors which, in turn, might decrease company value. Simultaneously excessive Board meetings might indicate that the Board is over monitoring managers, affecting their initiative, which in turn might contribute to a firm`s devaluation (Ma and Tian, 2009). On the other hand, board meetings that are "involved and motivated should provide greater levels of monitoring for any given board structure" (Evans et al, 2002, p.6). Similar findings are presented in the recent literature (Brick and Chidambaran, 2010; Chhaoccharia and Greinstein, 2007). With the mean value of 9.76 and a range between 3 and 18 in the case of Montenegrin companies, one might assume that the number of the Board meetings in the sample is larger than in similar studies (the highest observed value in the empirical literature dealing with this issue has a mean number of board meetings of 7,26), which might imply potential negative impact of the board meetings on firm performance.

The variable FIRM PERFORMANCE is the dependent variable in the model. As a proxy for firm performance we use accounting measures for profitability: Return on Asset (ROA); and Return on Equity (ROE). Firstly it has to be stressed that firm performance is a very complex category, being an outcome of various interlinked factors, of which corporate governance is just one of the elements (Berghe and Lavrau, 2003, p.72). An additional issue represents the measurement quality of a firm`s performance. Namely, the current literature argues that Tobin's

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[4] Jiraporn et al. (2009, p. 1163) create a binary variable

Q might be a better proxy for company valuation, because it comprises investors' forward looking expectations (Demsetz and Lehn, 1985).Nonetheless, this might hold for economies with developed, liquid and deep secondary markets. But in the case of Montenegrin economy, which has 172 joint stock companies, and a very shallow underdeveloped capital market, with undiversified market products, and capitalization that is under 10% of the value of real GDP, Tobins'Q would distort the quality of a firm`s performance. Existing empirical literature assessing the relationship uses various measures of a firm`s performance, which can be grouped into two groups : (i) accounting measures of a firm`s performance such as ROA and ROE used in numerous empirical researches (Black, 2001; Klapper and Love, 2004; Larcker et.al, 2007; Mehdi, 2007) and (ii) market measures of a firm`s performance, i.e. Tobin's Q (Drobetz, 2004; Daines et al., 2008; Gompers et al., 2001). Consequently, we created three different measures of a firm`s performance: ROA, ROE and Tobin's Q. Taking into account the properties of these three proxies, the decision of the author was to abandon Tobin'Q as a proxy for firm performance. Namely, during 2009, the financial crisis had a strong impact on Montenegrin economy[5]. One of the consequences of the financial crisis was that the real sector experienced a strong shortage of external demand (mainly from the EU market) which contributed to the deterioration of their financial positions . This effect was strong concerning the capital market in Montenegro.. Market capitalization of the Montenegrin stock exchanges dropped by 71% y-o-y. Moreover, the shares of 12 out of 36 companies in the sample were not subject to trade on either stock exchange during 2009. This additionally complicates the calculation of Tobin's Q for the purpose of estimation. Accounting measures have been used in the process of estimation. Although aware of the limitation of the accounting measures of firm performance, especially in the light of the still poorly implemented International Accounting Standards (IAS) in the accounting practice of Montenegrin companies, the preferable choice in the main results under this subsection remains the accounting measures of a firm`s performance.

Before interpreting the empirical results, the estimation model is explained together with the model diagnostics. The very first step in the process was the investigation of potentially missing data. In the sample, completed questionnaires by two companies were missing more than half of responses.[6] The strategy deployed was to keep only the individuals that have complete information on all 86 questions of the questionnaire, i.e. "list-wise deletion" was executed on two com-

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[5] Estimated real GDP growth for Montenegro in 2009 is set at -5.7%. Source: Statistical Office of Montenegro (MONSTAT, 2010).

[6] Publicly traded company "MONTECARGO, AD" replied to 31 questions and "AUTOBOKA AD" replied to 40 out of 86 questions.

panies that had incomplete answers. List-wise deletion produces a reduced data set, which is amenable to the further estimation procedure allowing a complete case analysis. According to Fitzmaurice (2008, p.200), list-wise deletion has two negative consequences: the first one is significant loss of information, which will impact the quality of estimations, contributing to larger standard errors, wider confidence intervals, smaller test statistics, and larger P values; the second is that deletion results in very inefficient use of the available data, producing biased estimates of effects of interest. However, given that only two observations were discarded, the limitations of list-wise deletion may safely be ignored. Indeed, in such cases, list-wise deletion is the most commonly used approach in dealing with missing data (Allison, 2002).

The next step was to check if there were high simple correlations between explanatory variables. The correlations do not suggest highly correlated variables.[7]

Ordinary least squares estimation (hereinafter: OLS) is used to estimate the model. Using the variables, the initial specification for the OLS model has the following form:

$$FIRM\_PEFORMANCE_i = \hat{\alpha} + \hat{\beta}_1 \cdot ATTENDENCE_i + \hat{\beta}_2 \cdot BOARD\_MEETINGS_i +$$
$$\hat{\beta}_3 \cdot BOARD\_SIZE + \hat{\beta}_4 \cdot CG\_RATING_i + \hat{\beta}_5 \cdot SHAREHOLDERS_i + \hat{\beta}6 \cdot LNSIZE$$
$$+ \hat{\beta}7 \cdot FINANCE + \hat{\varepsilon}_i$$

As previously explained, for the dependent variable FIRM_PERFORMANCE, we use the accounting profitability measure ROA. Concerning the set of explanatory variables, we control for the firm size (LN_SIZE), taking into consideration that vast empirical literature finds a significant impact of a firm`s size on the firm`s performance. Moreover, this is a standard control variable used in previous research assessing the impact of the corporate governance quality on a firm`s performance.

The variable CG_RATING BOARD_SIZE controls for the impact that potentially large boards can have on a firm`s performance. As explained, the majority of existing literature still holds the view that large boards will affect the quality and the decision-making process of the board, which in turn will have a negative impact on the firm`s performance.

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[7] According to a common rule of thumb, if the coefficient of correlation between two variables is above 0.7 it can be assessed as problematic. In case of variables used in the model, coefficients of correlation are far from this threshold level.

The explanatory variable PRESENCE controls for the multi-directors absence, which is evidently present across countries. The general conclusion of the existing literature is that director's absence affects the quality of decision-making and efficient management monitoring, which in turn negatively affects a firm's performance. Regarding the number of board meetings, the explanatory variable BOARD_MEETINGS controls for the potentially adverse effect that the number of board meetings might have on a firm's performance, either through "over-monitoring" of the management (diminishing their initiative) or through signalling to investors that the company experiences some difficulties that can be overcome only through additional meetings of the board, which in turn might affect the company's share price.

The explanatory variable SHAREHOLDERS holds for the number of shareholders and how the number of shareholders affects a firm's performance. At the same time, this variable can be used as a proxy for shareholders activism[8]. As explained, prior studies failed to unequivocally establish an opinion concerning the sign, size and type (linear vs. nonlinear) relationship between ownership concentration and firm's performance. Concerning shareholder activism, the empirical literature hypothesizes that when alternative corporate governance mechanisms are developed, activism of shareholders is less necessary (Wahal, 1996 and Karpoff et al., 1996). On the other hand, in those economies which do not have a broad range of corporate governance mechanisms to monitor managers (shareholders litigation, corporate control, market of managers, managers compensation schemes, etc.) the empirical literature is inclined to find a positive and significant impact of the shareholders activism on a firm's performance (Hilary and Oshika, 2008). Consequently, in the economies where corporate governance framework is not developed, ownership concentration and shareholders activism can be treated as its substitute. This implies that in the case of Montenegro, dispersed shareholders might have a negative impact on a firm's performance, taking into account "shallow" and illiquid secondary market and relatively poorly developed corporate governance institutions.

Finally, the dummy variable FINANCE captures the difference in the corporate governance patterns existing in the legal framework of the corporate and finance (banking) sector. Namely, corporate governance practice in Montenegro is regulated with two steppingstone laws: the Banking Law[9] and the Law on the Central Bank

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[8] Shareholders activism is usually defined as the shareholders that wants " to change the status quo through voice without a change of the control in the firm" (Gillan and Starks, 1998)

[9] The National Gazette, Montenegro

of Montenegro.[10] On the other hand, corporate governance practice of the corporate sector is regulated by the Company Law.[11] Namely, during recent years the World Bank (WB), the International Monetary Fund (IMF), the EBRD, the OECD, the BIS and the EIB, as well as the ECB introduced and implemented initiatives affecting all aspects of banking and financial market development with special stress on the legal, institutional, regulatory and supervisory framework of financial institutions, which contributed to the effective banking reforms (Stubos and Tsikripis, 2004). This organized and systematic approach in the creation of an efficient, well structured legal framework, which included fast implementation of the best practices with special emphasis on Basel II and Basel III pillars was not followed by the corporate sector, which contributed to the obvious discrepancy in the corporate governance practice of the banking sector and the real sector in Southeast Europe. Accordingly, a positive sign on the coefficient on the dummy variable FINANCE is expected.

Table 3: Summary of the OLS results- impact of the corporate governance rating on firm performance in Montenegro, vce (robust)

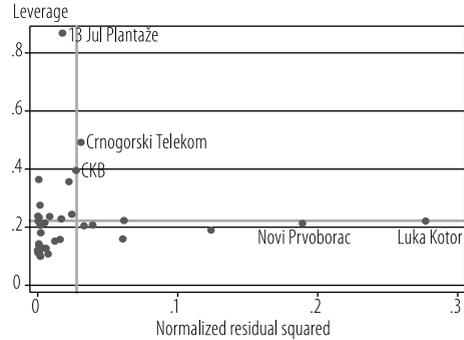| The dependent variable is FIRM_PERFORMANCE (ROE ratio)				
Variable	Coeff.	Std. error	t-stat.	P>|T|
Intercept term	-0.002	0.04	-0.05	0.96
CG _RATINGS-Corporate Governance rating created at the company level, with the 0-160range	0.0004	0.0004	0.96	0.34
BOARD_SIZE-Number of Directors present in the Board of Directors	0.01	0.003	3.33	0.00
PRESENCE-Participation rate of Directors in the Board, Dummy variable takes value1if at least 50% of directors on average is present at the meetings	0.02	0.01	1.54	0.13
SHAREHOLDERS- the number of shareholders	$-70.9*10^{-7}$	$10.5*10^{-7}$	-0.54	0.59
MEETINGS – the number of the Board meetings held in 2009	0.01	0.000817	1.29	0.20
LNSIZE-Natural logarithm of the book value of asset in 2009 in Euros	-0.006	$0.04*10^{-}$	-1.73	0.09
FINANCE-Dummy variable takes value1 if the company belongs to the banking sector, 0 otherwise	0.008	0.016	0.50	0.62
MODEL DIAGNOSTICS				
Number of observations	36			
Wald test (F-statistics)	$F_{(7,28)} = 4.09$, Prob > F = 0.003			
R-squared	R-squared= 0.37			
VIF (Variance Inflation Factors)	VIF=1.67, VIF max=2.09			
Ramsey Reset test	$F_{(3, 25)} = 0.58$ Prob > F =0.6337			

Source: Author's calculations using STATA 11 Regression printout available upon request

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[10] The National Gazette, Montenegro

[11] The National Gazette, Montenegro

In addition to the standard diagnostics test and checks after the linear regression estimation, we check for observations with high leverage. Ideally, one would want each point in the regression to contribute equally to each fitted value. Nevertheless, Figure 2 (leverages against the squared residuals) shows that two observations are more influential than other points in determining the regression coefficients, i.e. it can be observed that two observations have high leverage.[12]

In addition, one observation ("Luka Kotor") has a high value of the standardized residual. Hence, three outliers that may bias estimates are identified in the data set. Deletion is not the preferred solution, having in mind that those observations with high leverage and residuals are rare, but important parts of the sample and population.[13]

Figure 2: Plot leverages against the squared residuals

Source: Author's illustration using STATA 10.

Instead, robust regression is estimated which should down weight the influence of high leverage observations in the estimation (Yaffee, 2009). Namely, the main purpose of robust regression is to provide valid results in the presence of overly influential observations. Toward obtaining that result robust regression limits the influence of outliers . Historically, three classes of problems have been addressed with robust regression techniques: (i) problems with outliers in the y-direction (response direction); (ii) problems with multivariate outliers in the covariate space (i.e. outliers in the x-space, which are also referred to as leverage points) (iii) problems with outliers in both the y-direction and the x-space (Chen, 2010). In the case presented robust regression is dealing with the problems of outliers with low leverage and leverage points with small residuals (problem ii).

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[12]A rule of thumb indicates that leverage points equal or above 0.4 can be considered as high leverage points. Observation "Plantaze 13 jul" has leverage 0.86 and "Crnogorski telekom" has leverage equal to 0.48, while "Luka Kotor" observation is a potential outlier.

[13]Plantaze 13 Jul is a company with the largest number of shareholders 14400 (the most popular company during the mass voucher privatisation), while "Crnogorski Telekom" is the second largest company in Montenegro, and the most profitable company for 5 consecutive years, measured by ROA and ROE profitability indicators.

Prior estimating robust regression, diagnostics of the linear regression is explained. Firstly, the investigation starts to assess whether the model is a well-fitting regression model, i.e. whether its predicted values are close to the observed data values. Accordingly, the Wald (F) test for the restrictions on parameters is checked. The F-test estimates if the null hypothesis that all regression coefficients are equal to zero vs. the opposite assumption.[14] Consequently, the Wald (F) test does not reject the null hypothesis (p=0.00) that all regression coefficients are equal to zero which means that the existing model has explanatory power measured by the R^2 adjusted.

Assessment of diagnostic properties of the estimated model continues with testing omitted variable bias using the Ramsey Rest test. RESET is a general test for the following types of specification errors:

- Omitted variables; i.e. does not include all relevant variables.
- Incorrect functional form; indicating that some or all variables should be transformed to logs, powers, reciprocals or in some other way.
- Correlation between X and the error term, which may be caused, among other things, by measurement.

Error in, simultaneity or the presence of lagged values and serially correlated disturbances (Gujarati, 2004 p.282). In essence, under such specification errors, least squares estimators will be biased and inconsistent, and conventional inference procedures will be invalidated. The Ramsey Rest test does not reject the null hypothesis, at any conventional level of significance (1%, 5% and 10%), that the model does not have a problem of potential omitted variable bias (p=0.63).

Additional investigation focuses on the potential of multicolineariy existing in the model. Namely, although in the case of extreme multicolinearity this does not violate OLS estimates to remain unbiased and BLUE (Best Linear Unbiased Estimators), multicolinearity still creates a problem of great standard errors, widening confidence intervals', and decreasing t statistics. Consequently, in case of the present multicolinearity, it will be harder to reject the null hypothesis. The problem of multicolinaearity due to the aforesaid properties becomes even harder in case of small samples, as is the case of the sample used in this model. Accordingly, the VIF[15] (Variance Information Factor) checking has been used as

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[14] A significant F-test indicates that the observed R-squared is reliable and is not a spurious result of oddities in the data set.

[15] VIF shows how much the variance of coefficients estimate is being inflated by multicolinearity. A rule of thumb is that VIF above 5 can be considered problematic.

a tool for detecting multicolinearity. The VIF checking on the aggregate level is low VIF=1.67, which provides a proof that the model does not have the problem of multicolinearity.

Despite sound diagnostics of the OLS model, as noted, Figure 2 Plots leverages against the squared residuals, suggests that proprieties of the estimates are not BLUE and, as explained, the robust regression model needs to be implemented. The results obtained with robust regression are presented in Table 4. Comparing the results of a regular OLS regression and a robust regression, differences in the results are obvious. In case when the results between OLS and robust regression estimation are very different, "you will most likely want to use the results from the robust regression" (STATA, Data Analysis Examples, Robust Regression, 2010).

Table 4: Summary of the Robust regression (rreg) results - impact of the corporate governance rating on firm performance in Montenegro

The dependent variable is FIRM_PERFORMANCE (ROE ratio)				
Variable	Coeff.	Std. error	t-stat.	P>|T|
Intercept term	0.03	0.04	0.09	0.927
CG _RATINGS-Corporate Governance rating created at the company level, with the range 0-160	0.01	0.00	1.72	0.09
BOARD_SIZE-Number of Directors present in the Board of Directors	0.01	0.00	2.93	0.00
PRESENCE-Participation rate of Directors in the Board, Dummy variable takes value1 if at least 50% of directors, on average, are present at the meetings	0.02	0.01	1.71	0.09
SHAREHOLDERS- the number of shareholders	$-60.8*10^{-7}$	$20.0*10^{-6}$	-0.34	0.735
MEETINGS – the number of the Board meetings held in 2009	0.0001	0.0009	1.22	0.23
LNSIZE-Natural logarithm of the book value of asset in 2009 in Euros	-0.007	0.003	-2.61	0.01
FINANCE-Dummy variable takes value 1 if the company belongs to the banking sector, 0 otherwise	0.01	0.01	0.52	0.60
MODEL DIAGNOSTICS				
Number of observations	36			
Wald test (F-statistics)	F(7,27) = 2.8, Prob > F = 0.02			

Source: Author's calculations using STATA 11 Regression printout available upon request

Results reported in Table 4 suggest that four estimated coefficients CG_RATINGS, PRESENCE, LNSIZE, and BOARD_SIZE are significant at conventional levels of significance (1%, 5% and 10%). Concerning the signs, excluding the coefficient in front of one variable (MEETINGS), all estimated coefficients have

the expected sign. The sizes of the coefficients vary between different variables, and simultanously provide information concerning the economic significance of the relationship between independent and dependent variables presented in the model.

The coefficient of the variable CG_RATINGS is significant at 10% level of significance and it is positive, indicating that an increase of the corporate governance rating of 10 points increases firm profitability by 0.06 pp, on average. Taking into account that ROE in Montenegro ranges from -0.06 to + 0.098, this effect does not seem to large but is far from marginal. In essence, there is evidence that corporate governance does matter and does contribute to better performance of Montenegrin companies. This result is in line with the larger part of the existing literature, which argues that corporate governance does matter in the context of the firm performance, in emerging economies (Chong and de Salinas, 2006; Leal and da Silva, 2005; Klapper and Love, 2004; Garay and Gonzales, 2010, etc.).

The coefficient of the variable MEETINGS suggests that, contrary to the mainstream empirical literature, the number of meetings is positively related to firm performance. Although insignificant, the size of the coefficient suggests that an additional meeting of the board leads to an increase of the firm performance by 0.01 pp, on average. Analyzing the variable MEETINGS, it is evident that the number of meetings held in 2008 in some companies from the sample refers to the extraordinary problems that some companies of them experienced during that year. These problems were addressed with additional meetings of the board; e.g. in the case of one company, the number of board meetings held in 2008 was 18.

On the other hand, there are 3 companies in the sample that held only three meetings during 2008. In addition, according to the existing Banking Law, banks need to have at least 12 meetings of the Board on an annual basis. The result may suggest that board meetings have a positive effect on the behaviour of managers.

The coefficient on the variable BOARD_SIZE is significant at all levels of significance and positive, suggesting a positive relationship between the size of the Board and firm performance. This finding is not in the line with the findings of the dominant literature on this issue. According to the estimated effects, increase of the Board by member improves company performance by 0.02 pp, on average. Aware of the fact that "optimal board size and composition are functions of the directors' and the firm's characteristics" (Raheja 2005), i.e. highly individual, this result may suggest that the current number of board members in most Montenegrin joint stock companies, on average, is fewer than sufficient; i.e. optimal

from the prospective of better firm performance (the mean value of the variable BOARD_SIZE is 6.7, and median value is 6.04).

The coefficient on the variable PRESENCE is positive and significant at 10% level of significance. The positive sign suggests positive relationship between the presence rate of the board members and firm performance. Ceteris paribus, on average, an increase by one in the number of meetings at which at least half of the board members are present contributes to increase of firm performance for 0.018 p.p. This finding is in line with the assumption that the absence of directors contributes to neglecting their role as the monitors of the management, which leads to a decrease of the firm value due to the free ride behaviour of managers.

The coefficient of the variable SHAREHOLDERS is negative and insignificant at all conventional levels. The negative sign is in line with expectations. To wit, Montenegro still does not have developed corporate governance mechanisms and heavily relies on ownership concentration. In the case of diversified shareholding existing in the environment of poorly developed corporate governance mechanisms, it is expected that the minority shareholders will be expropriated for the benefit of large shareholders (Schleifer and Vishny, 1997), which may lead towards suboptimal firm performance. According to this result, with an additional 1000 shareholders, firm performance (ROE) decreases by 0,006 pp, on average.

The coefficient on the variable LNSIZE is negative and significant at conventional levels. The negative sign shows that, on average, profitability of Montenegrin companies decreases with a company size. This result is in the line with expectations, taking into account the properties of the sample that reflects Montenegrin companies. Namely, the largest companies in the sample, which at the same time are the largest companies in the Montenegrin economy, are non-profitable state-owned companies or recreantly privatized companies. These companies have low capacity utilization due to loss of their markets during the war period. On average, they are less efficient in comparison to small service-oriented companies, usually in trade and tourism, two sectors that have become strategic for the development of the Montenegrin economy.

Finally, the coefficient on the variable FINANCIAL is positive and non-significant at the 10% level. This suggests that companies that belong to the banking sector, on average, have better firm performance than the corporate sector. However, this difference is not significant.

3.1. Corporate Governance and Firm performance in Montenegro: Binary Logit and Probit Models

To assess the robustness of results obtained with the robust regression model, we use binary (multinomial) probability estimates – Probit and Logit models.

More discussions on the properties and econometric specification of the Probit and Logit models are not discussed due to space limits.

Due to space constraints and very similar results in the subsection 3, we present estimates from the Probit model only; Logit estimates areavailable upon rquest. Using the variables presented in Table 5, we may write our initial specification for the Binary Probit model in the following form:

$$P(Dummy\_probit = 1) = \Lambda(\hat{\beta}_0 + \hat{\beta}_1 \cdot D3size + \hat{\beta}_2 \cdot D3board\_size +$$
$$+ \hat{\beta}_3 \cdot meetings + \hat{\beta}_4 \cdot CG\_rating + \hat{\beta}_5 \cdot Dummy\_finance + \beta_6 \cdot \Pr esence)$$

As the dependent variable Dummy_probit is a discrete (categorical) variable that takes value of 1 if the ROE is equal or greater than 0; otherwise zero. The distinction between "successful" and "unsuccessful" companies is based on judgements of the Author. Namely, according to the aggregate data for Montenegrin companies in 2009, the Montenegrin economy finished 2009 with a net loss of 277 million euros, while the overall ROE ratio at the aggregate level (national economy level) was -0.10. Moreover, the overall decline of the real GDP for Montenegro in 2011 was -5.7% . Therefore, the decision of the author was to treat even 0 ROE value as a satisfactory financial result.

The results reported in Table 5 suggest that the estimated coefficients on the coefficients PRESENCE and LNSIZE are significant at the 5% conventional level of significance. All estimated coefficients have the expected sign and are consistent with results obtained in the standard robust linear regression. Although the sizes of the coefficients vary between different variables, taking into consideration the properties of the Probit model, the coefficients do not provide useful information for understanding the relationship between the independent and dependent variables in the model.

Table 5: Summary of the binary Probit results - impact of the corporate governance rating on firm performance in Montenegro

The dependent variable is PROBIT ROE - taking value 1 for ROE ratio>=0, and taking the value 0 when ROE <0				
Variable	Coeff.	Std. error	z-stat.	P>|Z|
CONSTANT - Intercept term	2.40	2.70	0.89	0.37
CGR_Monte - Corporate Governance rating created at the company level, with the range 0-160	0.03	0.02	1.29	0.19
BOARD_SIZE - Number of Directors present in the Board of Directors	0.25	0.17	1.45	0.14
PRESENCE - Participation rate of Directors in the Board , Dummy variable takes value1 if at least 50% of directors, on average, are present at the meetings	1.64**	0.75	2.17**	0.03
SHAREHOLDERS - the number of shareholders	0.0004	0.0003	1.45	0.14
MEETINGS – the number of the Board meetings held in 2008	0.07	0.05	1.22	0.22
LNSIZE - Natural logarithm of the book value of asset in 2009 (Euros)	-0.47**	0.20	-2.34**	0.02
FINANCE - Dummy variable takes value 1 if the company belongs to the banking sector, 0 otherwise	-0.09	0.79	-0.11	0.90
MODEL DIAGNOSTICS				
Number of observations	36			
Pseudo R squared	Pseudo R squared=0.25			
Likelihood ratio test (LR) Wald test	LR chi2(7) = 12.48; Prob > chi2 = 0.086 chi2(7) = 8.36; Prob > chi2 = 0.30			
Hosmer-Lemeshow statistics (HL)	Pearson chi2(28) = 32.03; Prob > chi2 =0.27			

Source: Regression printout available upon request

The next step is to proceed with the test for the joint significance of independent variables by conducting the Wald and the Likelihood ratio (LR) tests. Namely, although the two tests are asymptotically equivalent (moreover, which one is better is not clear; Long and Freese, 2006, p.144), they give different results in small samples[16]. As presented in Table 5, both, the Wald and LR tests reject the null hypothesis (the explanatory variables included in the model are jointly equal to zero), respectively p=0.086 and p=0.3.

In order to assess the fit of a regression model the Hosmer-Lemeshow goodness of fit test is applied. This test is applied whenever the data are obtained from a

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[16] Although statistical theory is unclear concerning which test is better, LR or Wald test, according to (Long and Freese, 2006, p.145) most statistician prefer the LR test.

simple random survey.[17] Although this test is easy to interpret, the HL test has disadvantages: low power; and sensitivity sensitive to arbitrary choices of intervals. The HL test does not reject the null hypothesis, at any conventional level of significance, that the model does fit well (p=0.9 i.e. Persaon chi2 (29) =19.27). Taking into consideration that the HL test does not have high explanatory power in a small sample model, Long and Freese, (2006, p. 154) also advise investigation of residuals as alternative way to assess the fit of the regression. Consequently, a classical approach is used - a plot of the standardized residuals obtained after the Probit estimate, presented in Figure 3. The downside of this approach is that the quality of the visual assessment of the residuals is based on discretion of the author. Taking into consideration Hosmer`s and Lemeshow`s (200, p.176) advice that "an assessment of large residual is, of necessity, a judgement call based on experience ant the particular set data being analyzed", we would argue that, as presented in Figure 3, despite a few deviations in the residuals (some downward deviation is present in the upper part of the graph), they appear to be relatively symmetrically distributed around the zero mean.

Figure 3: Plot of the Pearson standardized residuals after the binary Probit
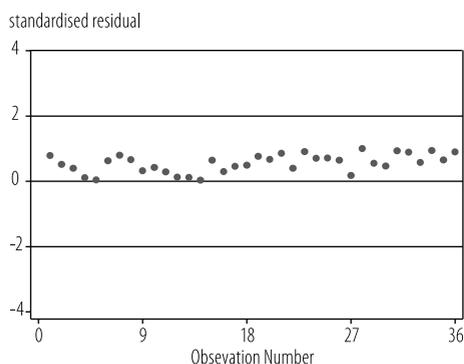
Source: Author's illustration using STATA 11

In addition, the results also show that the predicted probabilities in the sample range from 0.05 to 0.99, with a mean predicted probability of positive impact of the corporate governance index on firm performance in Montenegrin companies of 0.55. In order to present the frequencies of predicted probabilities for individual observations obtained from the Probit binary model, we use predicted probabilities plot presented in Figure 4.

The predicted probabilities for individual observations broadly range between 0 and 1, where roughly more than 60 percent of observations have predicted probabilities between 0.4 and

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[17] The chi-square test proposed by Hosmer-Lemeshow is equivalent to testing the hypothesis that the observed number of events in each of the groups is equal to the expected number of events based on the fitted model (Shah and Barnwell, 2010). The Hosmer-Lemeshow goodness-of-fit statistic is obtained by calculating the Pearson chi-square statistic from the 2×g table of observed and expected frequencies, where g is the number of groups.

0.8 being distributed roughly symmetrically around the mean (0.55).

Taking into account that the estimated coefficients of the above assessed Probit model does not provide useful information about the relationship between the explanatory and dependent variables, the marginal effects presented in Table 6 will provide a better explanation of the relationships. The marginal effects in the model depend on the level of all other variables included and held at their mean. Accordingly, varying one dummy variable from "0" to "1" is going to change the mean probability, taking into account all explanatory variables.

Figure 4: Plot of the predicted probabilities after the binary Probit
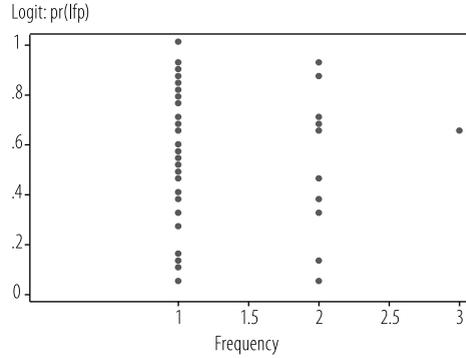
Source: Author's illustration using STATA 11

Table 6:   Marginal effects after the Logit estimate

The dependent variable is LOGIT ROE (taking value 1 for ROE ratio>=0, and taking the balue 0 when ROE <0)				
Variable	dy/dx	Std. Err.	z	P>|Z|
CGR_Monte - Corporate Governance rating created at the company level, with the range 0-160	0.013	0.009	1.30	0.19
BOARD_SIZE - Number of Directors present in the Board of Directors	0.09	0.06	1.38	0.16
SHAREHOLDERS - the number of shareholders	0.00016	0.00011	1.42	0.16
MEETINGS – the number of the Board meetings held in 2009	-0.18**	0.08	-2.29	0.02
LNSIZE -Natural logarithm of the book value of asset in 2009 in Euros	0.025	0.02	1.15	0.25
FINANCE-Dummy variable takes value1 if the company belongs to the banking sector, 0 otherwise	-0.058	0.32	-0.18	0.85
PRESENCE - Participation rate of Directors in the Board , Dummy variable takes value1 if at least 50% of directors, on average, are present at the meetings	0.58***	0.21	2.72	0.00
MODEL DIAGNOSTICS				
Number of observations	36			
Pseudo R squred	Pseudo R squred=0.11			

Source: Author's calculations using STATA 11 Regression printout available upon request

In order to simplify further explanations of the marginal effect in the model, the summary of the main conclusions from binary Logit and binary Probit will

be presented from those variables that are significant at the ten percent level of significance or better. Moreover, the qualitative comparison of the robust linear and Probit and Logit results will be explained in the following paragraphs.[18] Accordingly, both Logit and Probit estimations provide very similar results that are in line with the results obtained from the linear regression estimation. The most notable difference is that unlike the linear model, the significant importance of the corporate governance ratings is not confirmed in the Logit and Probit models, although in both binary Logit and Probit it has a positive sign.

From the results presented in Table 5 and Table 6 there is obvious evidence that at the mean, a 10 point improvement in the corporate governance rating (**CGR_Montenegro**) is associated with an increase in probability of the ROE-measured corporate "success" of 0.13 percentage points. This is an economic effect that is neither so large to be implausible nor so small to be unimportant.

According to the marginal effects in the model, there is a higher probability that a company will have a negative financial result with a higher number of meetings, i.e. at the mean; 1 additional meeting of the Board (**BOARD_MEETING**) is associated with worsening of the firm performance (**ROA**) of around 0.04 percentage points.

In addition, according to the marginal effects in the model, there is a higher probability that the company will have a negative financial result with alarger size, i.e. at the mean; 1% increase of the size of company (**LNSIZE**) is associated with a decrease in the probability of corporate "success", measured by ROE, of around 0.47 pp in the case of Probit or -0.78 in case of the Logit estimation.

This result argues that the effect of the company size strongly affects firm performance, i.e. this effect can be considered as important. Similarly to linear (robust) results, an important effect is observed in case of the board members' presence. Concerning the marginal effects of the presence of the board members at board meetings, there is a higher probability that the company will have a worse financial result with more board meetings which are not attended by at least 50% of the board members. These results are similar to linear robust results.

In essence, both robust linear regression and binary response models yield qualitatively similar results, which suggests the robustness of the main finding; namely that the quality of corporate governance in the case of Montenegro is positively

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[18] Although CGR_Monte estimated marginal effects in the Logit and Probit estimations are insignificant at all conventional levels, we will interpret these results, taking into consideration that the CGR_Monte is the variable of the highest interest of our research.

associated with corporate performance. However, there are serious disadvantages (that need to be acknowledged and discussed) of the used models and they are reported in the foregoing subsection 4.

4. Limitation of the findings

In core, there are two main limitations of estimations that are exogenously imposed by the size of the sample: (i) issue of endogeneity and (ii) validity of Probit and Logit estimation.

As mentioned earlier, the size of the available dataset limits our analysis. Namely, the type of estimation, the choice, as well as the number of explanatory variables are exogenously limited. However, taking into consideration the 38 sample companies (almost one fifth of all joint stock companies in Montenegro), one can argue if our sample is representative. Moreover, Black (2000) in his widely recognized paper on the quality of corporate governance in Russia establishes his empirical work based on 46 companies of several thousands of joint stock companies existing in Russia.

However, the small sample size does prevent us from assessing potential endogeneity in the model. Namely, we acknowledge the potential endogeneity of our variable of interest. It is possible that there is some element of simultaneity – mutual causation – in the relationship between corporate performance and corporate governance rating (Bolton et al, 2007). Moreover, even in the absence of simultaneity, it is possible that both are caused by some unobserved – possibly, unobservable – third factor(s). Unfortunately, within the limitations of our dataset, we cannot address these possibilities using the usual methods (e.g. instrumental variable approach). Hence, the following analysis cannot firmly identify causal relationships. However, it can investigate whether or not there are correlations present in the data that are consistent with the anticipated positive relationship between corporate governance and corporate performance.

Taking into consideration that the Probit analysis is done when categories of the variables are assumed to reflect an underlying normal distribution of the dependent variables, i.e. almost even distribution of both categories. In the case of our sample, this condition is satisfied. Also, it should be noted that both the Logit and Probit models utilize maximum likelihood estimation, which assumes

a larger sample size, which is not satisfied in the case of the sample we used.[19] Accordingly, we claim no more for these estimates that they are indicative with respect to quantitative estimation and inference. However, as we argue above, the main purpose of these estimates is to provide a qualitative comparison with our proffered results.

5. Conclusion

Corporate governance practice in the banking system differs substantially from that in corporations. The difference arises from the fact that banks have far more stakeholders than corporations (shareholders, deposit holders, debt holders, and the Government, the last being the most important) which have different, often diverging interests. Bank shareholders are usually interested in a higher level of risk and short-term perspective, while deposit holders are much more interested in stability and better risk management. Taking into account the importance of adequate risk management and sensitivity to risk of the banking system, the general assumption is that the corporate governance practice in the banking system should be much more advance in comparison to corporate governance practice in corporations. Corporate governance practice in Montenegro is very weak allowing severe violation of minority shareholders` rights, lack of transparency ad questionable corporate social responsibility. Instead, the corporate governance mechanisms have been severely underdeveloped while ownership concentration seems to be created as an efficient substitute for the corporate governance mechanisms.

On average, corporate governance index for 11 banks in Montenegro is higher compared to those achieved in the corporate sector for 4.5 basis points. This is not surprising, taking into consideration that the Montenegrin banking sector has a strong presence of foreign ownership. Thus, one would expect that the corporate governance practice in affiliations is copied from the other banks, i.e. from the country of origin. Using the OLS regression, as well as binary response models, we examine the impact of corporate governance on firm performance.

Both robust linear regression and binary response models yield qualitatively similar results, which suggest the robustness of the main finding; the quality of corporate governance in the case of Montenegro is positively associated with

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[19] A general "Rule of Thumb" to follow is that the sample size in Logit and Probit models should be at least five times the number of cells in the tables, which in the case of our sample would be 250 observations.

corporate performance. Furthermore, the banking sector, have better firm performance, on average, than the corporate sector. However, this difference is not significant.

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