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of companies in Poland

Marek Gruszczynski
Warsaw School of Economics

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Corporate governance and financial performance of companies in Poland

Marek Gruszczyński
Warsaw School of Economics
marek.gruszczyński@sgh.waw.pl

Abstract

The research presented in the paper is aimed at examining the relationship between the level of corporate governance and the financial performance of listed companies in Poland. The corporate governance degree is expressed by the outcomes of a rating of 2003 performed by Polish Corporate Governance Forum. The attempted models are of ordered multinomial type. Endogenous variable represents the rating outcome (A-, B+, B, B-, and C+), while the exogenous variables include various financial indicators evaluated on the basis of the 2002' financial statements. The estimated ordered logit models show that the level of corporate governance of companies in Poland is associated by their ability to cope with the financial distress, as expressed by the degree of liquidity, profitability and the financial leverage variables.

Keywords: corporate governance, financial indicators, rating, ordered logit

JEL codes: C10 and O57 and G30

1. Corporate governance ratings for Polish companies

From the perspective of a company, the corporate governance means: independent and efficient supervising body, transparent and accurate books, strong shareholders' rights and equal treatment of all owners groups. Mechanism of corporate governance minimizes the agency costs, i.e. reduces the company's market value loss resulting from a potential conflict between the managers and the owners (Shleifer and Vishny [1996]).

In Poland, the corporate governance questions have been addressed since the beginning of the first decade in 21st century, both legally and operationally. Good source of information on current issues in this area is Polish Corporate Governance Forum (PCFG) founded in 2000 by the Institute for Market Economics (<http://www.pfcg.org.pl/>). Warsaw Stock Exchange (WSE) has adopted the corporate governance principles on the Polish market since 2002, with all listed companies declaring that they would observe most of the best practice rules (<http://www.gpw.com.pl/>). Since then, the new document, entitled Best practices in public companies 2005 has been accepted for implementation. The Best practices express the corporate governance standing of WSE based on practical experience, opinions and suggestions of market participants over the period of 2003–2004 and the recent European Commission recommendations in this field.

Polish Corporate Governance Forum performed two ratings of the companies quoted on Warsaw Stock Exchange, the first in 2001 and the second in 2004 (see: Tamowicz, Dzierzanowski, Lepczynski [2001] and Dzierzanowski, Przybylowski, Tamowicz [2004]). These two ratings are not really comparable, since the authors significantly changed the scope and methodology for the second rating.

The last rating of 2004 was carried out for 53 companies with largest capitalization on WSE. The data on legal standing of the companies' corporate governance issues were collected as of November 2003. According to the authors' description, the 2004 rating was based "on the analysis of statutes, internal regulations (by-laws) concerning functioning of supervisory and management boards and shareholders' meetings and content of the companies websites. The very important sources of information were the companies' declarations of compliance with the Warsaw Stock Exchange Code and especially the commentaries to particular rules".

Authors of PCFG rating indicate at least 60 characteristics that were taken into account for each company in order to obtain appropriate picture of company's corporate governance level. The indicator variables for the rating were taken from the following areas:

- composition and competence of supervisory board incl. independent board members,
- supervision over party-related transactions,
- general shareholders meeting accessibility,
- functioning of the management board,
- auditor’s independence,
- lack of anti-takeover defences,
- regulations on trading in own shares,
- companies’ declared goals and intentions,
- transparency arrangements incl. information available from the companies’ websites.

The disclosed rating uses 5 categories: from A– to C+. These were assigned to 53 companies. The authors indicate that the full range of categories include ratings from A to E. Rating is presented in Table 1.

Table 1. PCFG 2004 rating of corporate governance for the companies listed on WSE

A–	Amica, Agora, BZWBK, Orbis
B+	BPH-PBK, BRE, Computerland, Eldorado, FORTE, KGHM, LPP, Netia, Pekao, Polfa Kutno, Prokom, TPSA, Stomil Sanok
B	Debica, Elektrim, Groclin, Impexmetal, INGBSK, Jelfa, Kety, Kruszwica, Mennica, PGF, PKNOrlen, Polifarb CW, Rafako, Softbank
B–	Bank Handlowy, BIG BG (Millenium), Budimex, Comarch, Farmacol, EFL, Grajewo, Kogeneracja, Kredyt Bank, Krosno, Lentex, Mostostal SDL, Okocim, Orfe, Rolimpex, Sokolow, Sterprojekt
C+	Cersanit, Echo, Hoop, Swiecie, Żywiec

Source: Dzierzanowski et al. [2004]

There are 5 companies rated C+, 17 companies with B– rating, 14 companies with B, 13 with B+ and 4 with A–.

2. Econometrics and the corporate governance

The econometric research on corporate governance concerns mainly the relationships between various categories representing firm’s performance and the variables describing the governance level, such as ownership structure or the composition of supervising body. Surveys of such research are presented e.g. in Bhagat and Jefferis [2002], Börsch-Supan and Köke [2002], Gugler [2001]. Main factors influencing the corporate governance level, which are usually considered in empirical research, are:

- composition of the supervisory board (degree of dependence on management, board's structure),
- ownership structure (diluted ownership, concentration of ownership, corporate owners, institutional owners, managerial ownership),
- acquisitions (incl. managerial acquisitions), CEO changing etc.,
- equity structure (debt structure),
- managerial compensation.

Börsch-Supan and Köke [2002] formulate a number of weak points of econometric research concerning corporate governance, such as:

- *structural reverse causality*; for example, it is not clear what is the direction of causality between ownership structure and firm's performance: more concentrated ownership can improve firm performance, but the reverse relation is also possible – firms well assessed by the market could also attract investors;
- *missing variables*; in the area of corporate governance it is customary that major explanatory variables may not be included into the model; moreover, the linear specification of the equations excludes the presence of higher order terms,
- *sample selectivity*; most empirical studies on corporate governance analyze only the largest companies, usually the listed ones; such samples are selected by the “performance” variable and – in effect – the studies have sample selection bias,
- *measurement error in variables*; for example, the company's performance can be measured by different variables, such as market value, ROA, ROE, EBIT, Tobin's Q; these variables are sometimes uncorrelated, i.e. measure the same performance in different way.

To properly deal with some of this dangers of econometric modelling in corporate governance it is necessary to use panel data on companies. Börsch-Supan and Köke [2002] indicate several such data bases for Germany.

3. Corporate governance and economic performance

The recent survey of corporate governance in OECD countries (*Corporate governance...* [2004]) indicates that “studies what are considered to be best practice econometric techniques indicate that the corporate governance is an important determinant of performance (...). As with all regression work, the question of “causality” will never be resolved fully to

everybody's satisfaction...". Survey authors quote three studies showing significant association between the level of governance and the firms' performance.

In another study, Bøhren and Ødegaard [2001] analyse the relationship between Tobin's Q for the companies quoted on Oslo stock exchange in 1989-1997 (217 companies by the end of 1997) and several variables representing corporate governance. Their results indicate e.g. that ownership concentration has negative effect on performance, while the effect of insider ownership is positive. Increasing board size and the use of non-voting shares decrease performance. The direct ownership has stronger effect on performance than institutional or state ownership.

Similar outcome is presented in a study by Lehman i Weigand [2000] for the sample of 361 German companies in 1991-1996. In their research, company's performance measured by ROA is related to a number of corporate governance variables. The panel regression results confirmed that ownership concentration has negative effect on ROA , while the positive impact of ownership concentration is found for firms with financial institutions as large shareholders.

Corporate governance indices constructed for various countries also have been examined with respect to their association both with economic and market performance of companies. The examples may be found in Gruszczynski [2003]. In the next section, an attempt is made towards examining the relationship between the corporate governance rating and company's financial performance.

4. Ordered logit

The corporate governance rating represents a typical dependent variable suitable for ordered response models. The categories are ranked in ascending order and the distances between neighboring categories are not set as equal. For the exposition we assume that the observed corporate governance rating variable y can be equal to one of 5 rating categories, as appearing in the 2003 Polish rating.

It is assumed that this ordinal variable y is related to the continuous latent variable y^* that indicates the company's degree of corporate governance. The values of y^* are unknown.

The values of y^* determine the outcome represented by y in the following manner:

$$y_i = 1 \text{ or C+} \quad \text{if} \quad \tau_0 \leq y_i^* < \tau_1$$

$$y_i = 2 \text{ or B-} \quad \text{if} \quad \tau_1 \leq y_i^* < \tau_2$$

$$y_i = 3 \text{ or B} \quad \text{if} \quad \tau_2 \leq y_i^* < \tau_3$$

$$y_i = 4 \text{ or B+} \quad \text{if} \quad \tau_3 \leq y_i^* < \tau_4$$

$$y_i = 5 \text{ or A-} \quad \text{jeśli} \quad \tau_4 \leq y_i^* < \tau_5$$

The τ 's are thresholds (cutpoints), with the values for extreme categories equal to $\tau_0 = -\infty$ and $\tau_5 = \infty$.

The linear model for the unobserved y^* is as follows:

$$y_i^* = \mathbf{x}_i^T \boldsymbol{\beta} + \varepsilon_i.$$

where \mathbf{x}_i is typical $[(k+1) \times 1]$ vector of values on k explanatory variables (plus constant term) for the i -th observation (i -th company).

The use of the observed y values requires the assumption about distribution of errors ε_i . Let F be the cumulative distribution function (cdf). The probability of outcome $y=m$ ($m=1,\dots,5$) can be written as:

$$P(y_i = m \mid \mathbf{x}_i, \boldsymbol{\beta}, \boldsymbol{\tau}) = F(\tau_m - \mathbf{x}_i^T \boldsymbol{\beta}) - F(\tau_{m-1} - \mathbf{x}_i^T \boldsymbol{\beta})$$

where $\boldsymbol{\tau}$ is the vector of cutpoints. In the equation for $P(y_i = 1 \mid \mathbf{x}_i, \boldsymbol{\beta}, \boldsymbol{\tau})$, the second term on the right-hand side is equal 0. Also, in $P(y_i = 5 \mid \mathbf{x}_i, \boldsymbol{\beta}, \boldsymbol{\tau})$, the first term equals 1.

For the ordered probit model, error ε is distributed normally with a mean of 0 and a variance of 1. For the ordered logit model, error ε has logistic distribution. For the sake of model's identification, either constant term or τ_1 is set as equal 0. In the ordered logit:

$$F(\tau_m - \mathbf{x}_i^T \boldsymbol{\beta}) = \frac{e^{\tau_m - \mathbf{x}_i^T \boldsymbol{\beta}}}{1 + e^{\tau_m - \mathbf{x}_i^T \boldsymbol{\beta}}}$$

The probability p_i for each category of y for the i -th company ($i = 1, 2, \dots, n$) is equal to:

$$p_i = \begin{cases} P(y_i = 1 \mid \mathbf{x}_i, \boldsymbol{\beta}, \boldsymbol{\tau}) & \text{if } y = 1 \\ \dots & \\ P(y_i = m \mid \mathbf{x}_i, \boldsymbol{\beta}, \boldsymbol{\tau}) & \text{if } y = m \\ \dots & \\ P(y_i = 5 \mid \mathbf{x}_i, \boldsymbol{\beta}, \boldsymbol{\tau}) & \text{if } y = 5 \end{cases}$$

The p_i 's lead to form the likelihood function, the maximum of which is attained for the ML estimates of vectors β and τ .

5. Sample and models

For the purpose of explaining corporate governance rating y of Polish listed companies, the ordered logit models were specified. Since the rating of 2004 was based on the November 2003 legal standing, the explanatory variables for financial performance were calculated on the basis of financial statements for the year 2002.

The sample includes 37 out of 53 rated companies. As many as 16 companies have been excluded from the sample. These are: 8 banks, 1 other financial institution, 2 companies with the first quotation after January 1st, 2002 and 5 companies excluded for other reasons (data not accessible, financial statements with missing information etc.).

The endogenous variable y has been defined as:

- 1) variable CG with all 5 ranking categories appearing in original sample, or:
- 2) variable CG1 with only 3 categories (first two and the last two have been combined).

The reason for considering also simpler ranking CG1 is the small size of the sample as compared to the number of parameters to be estimated in the logit model. The corporate governance rating composition of 37 companies in the sample is shown in Table 2.

Table 2. Composition of the sample for the CG and CG1 variables

CG variable			CG1 variable		
Ranking	Code	No. of firms	Ranking	Code	No. of firms
C+	1	4	C+ and B-	1	16
B-	2	12			
B	3	10	B	2	10
B+	4	8			
A-	5	3	B+ and A-	3	11
Total		37	Total		37

Source: Dzierzanowski et al. [2004] and author's own design of sample

There are 20 financial ratios that have been considered as explanatory variables. The ratios, calculated on the basis of the companies' 2002 financial statements are as follows:

1. Profitability ratios:

P102 gross profit from sales margin, P202 operating profit margin, P302 gross profit margin, P402 net profit margin, ROE02 return on equity, ROA02 return on assets.

2. Liquidity ratios:

L102 current ratio, L202 quick ratio, L302 acid test.

3. Activity ratios:

A102 amount due turnover, A202 inventory turnover, A302 operating cycle, A402 liabilities turnover, A502 cash conversion cycle, A602 current assets turnover, A702 assets turnover.

4. Debt ratios:

D102 fixed assets cover ratio, D202 debt margin, D302 EBITDA/financial expenses, D402 debt/EBITDA.

Proper specification of the models requires that between endogenous variable (either CG or CG1) and the ratios – predictor variables there exists significant statistical association. Simple correlation coefficients between the numerical codes of CG or CG1 serve the purpose. Moreover, in order to overcome multicollinearity problems, from each group of ratios only one variable has been chosen to explain corporate governance variable. It turned out that the following four financial ratios appear to significantly correlate with CG or CG1. These are:

P202 (“+”, i.e. positive correlation with CG and CG1),

L302 (“+”),

A702 (“+”),

D402 (“-”).

The strongest degree of correlation with CG and CG1 demonstrate two variables: net profit margin (P202) and the debt leverage ratio (D402). Such outcome confirms the hypotheses, to be found elsewhere (e.g. Gruszczynski [2003]) that the more profitable and less leveraged companies entertain better provisions for corporate governance.

Both variables, P202 and D402 are included in all specifications. Tables 3 and 4 display the estimation results of two types of models: ordered logit with 5 rating categories (variable CG), and trinomial ordered logit (variable CG1).

Table 3. Ordered logit estimation results for corporate governance rating: variable CG

Variable	Model A		Model B		Model C		Model D	
	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.
P202 op. profit margin	5.4013	0.318	6.3889	0.216	6.1797	0.240	5.1835	0.337
L302 acid test	0.5033	0.414	-	-	0.6202	0.295	-	-
A702 assets turnover	0.0010	0.507	-	-	-	-	0.0015	0.352
D402 debt/EBITDA	-0.0969	0.024	-0.1015	0.015	-0.0898	0.033	-0.1078	0.009
τ_1	-2.3596	0.008	-2.9063	0.000	-2.6224	0.001	-2.4743	0.006
τ_2	-0.1382	0.842	-0.6792	0.185	-0.3951	0.494	-0.2560	0.706
τ_3	1.2931	0.087	0.7002	0.201	1.0171	0.107	1.1544	0.116
τ_4	3.0767	0.002	2.4099	0.002	2.7702	0.001	2.9124	0.002
Log likelihood	-48.882		-50.646		-50.102		-50.211	
Pseudo R-squared	0.098		0.084		0.094		0.092	

Source: own calculations

Table 4. Ordered logit estimation results for corporate governance rating: variable CG1

Variable	Model E		Model F		Model G		Model H	
	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.	Coeff.	Prob.
P202 op. profit margin	9.4474	0.104	10.4356	0.067	10.1484	0.074	9.4638	0.106
L302 acid test	0.3146	0.645	-	-	0.4870	0.441	-	-
A702 assets turnover	0.0013	0.494	-	-	-	-	0.0017	0.352
D402 debt/EBITDA	-0.0991	0.082	-0.1139	0.056	-0.0983	0.106	-0.1074	0.050
τ_1	0.1180	0.886	-0.5027	0.369	-0.2457	0.704	0.0763	0.926
τ_2	1.5640	0.075	0.8994	0.121	1.1831	0.086	1.5108	0.083
Log likelihood	-34.180		-34.721		-34.412		-34.286	
Pseudo R-2	0.142		0.129		0.136		0.139	

Source: own calculations

All estimated models have the coefficients' signs coincident with the direction of simple correlation between CG and CG1 and the variables included into equations. In terms of significance of parameters, the best models seem to be F and B, both with only two predictor variables: net profit margin (P202) and the debt leverage ratio (D402 debt to EBITDA).

The predictive power within the sample for the models A-H is shown in Tables 5 and 6.

Table 5. Predictive power of models for corporate governance rating: variable CG

y_i	No. of companies	Sum of all predicted probabilities			
		Model A	Model B	Model C	Model D
1	4	3.783	3.778	3.777	3.783
2	12	11.389	11.516	11.464	11.394
3	10	10.404	10.582	10.448	10.503
4	8	8.352	8.143	8.258	8.305
5	3	3.072	2.982	3.054	3.015
Sum of squared errors		0.713	0.643	0.607	0.761
No. of companies incorrectly predicted		16	17	14	12
Prediction error		0.432	0.459	0.378	0.324

Source: own calculations

Table 6. Predictive power of models for corporate governance rating: variable CG1

y_i	No. of companies	Sum of all predicted probabilities			
		Model E	Model F	Model G	Model H
1	16	15.633	15.751	15.676	15.656
2	10	10.015	9.994	10.007	10.014
3	11	11.352	11.255	11.317	11.331
Sum of squared errors		0.259	0.127	0.206	0.228
No. of companies incorrectly predicted		14	18	12	14
Prediction error		0.378	0.486	0.324	0.378

Source: own calculations

Prediction error in Tables 5 and 6 is calculated as the ratio of incorrectly predicted companies to total sample size.

Among the models explaining five ranking categories, models C and D seem to be the best for predicting. For the models E-F the result is confusing: model F has the smallest errors in terms of predicted probabilities and also is the worst in terms of predicting number of companies. This is the evidence of instability of results in this research.

6. Conclusion

The study confirms, that the degree of corporate governance for listed companies in Poland is to some extent correlated with their financial performance. The significant association has been observed between the governance rating and the operating profit margin and also with the debt leverage ratio. The companies with higher profit margin and lower debt leverage ratio are expected to have better rating of corporate governance.

On the other hand, most financial indicators demonstrate no association with corporate governance level. Therefore, there is no strong evidence, that the governance of Polish companies listed on Warsaw Stock Exchange relies on their financial performance. This result is bound by the type of data and the approach used. The corporate governance rating is a composite variable that might not be relevant for directly relating to financial variables. More decisive results can be expected with the use of single indicators of corporate governance, e.g. the CEO turnovers (Gruszczynski [2003]), managerial remuneration (Aluchna [2004]) or transparency of books (Gruszczynski, Pajdo [2003]).

Further studies on corporate governance in Poland are limited by the accessibility of larger data sets for unlisted companies. Hopefully, the growing number companies quoted on the Warsaw Stock Exchange will also help to extend the scope of research in this area.

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