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# Determinants of transparency and disclosure – evidence from post-transition economies

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## ABSTRACT

In this paper, we examine the patterns of behaviour of companies from former socialist countries related to the application of good corporate governance practices. We try to assess the level of transparency and to determine if there are any factors that systematically influence corporate behaviour in this regard. Using a sample of 145 companies from Croatia, Macedonia, Slovenia and Serbia, we apply Standard & Poor's (S&P) methodology for assessment of transparency and disclosure levels and find that the companies in these countries generally lag in terms of transparency behind their peers worldwide as measured one decade ago. Additionally, using the same sample, we apply a regression analysis and conclude that the level of transparency is positively related to the size of the company and the need for external financing, but negatively to the concentration of ownership and we also observe important country effects. We do not find a statistically significant relationship between transparency and profitability and relate this finding with the prevailing attitude of the companies towards the stock market. Having in mind the different scores by country and by area of disclosure, we believe that there is still scope for improvement using proper advising and public policy measures.

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Transparency; disclosure; corporate governance; stock market; transition

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## 1. Introduction

There has been a lot of research on the issue of corporate transparency, analysing the costs and benefits that the higher degree of transparency generates to a company and its shareholders. Starting from the value maximisation proposition, the prevailing line of thought is that disclosure is beneficial from the point of view of company valuation, although these findings are based on different grounds: lower investors' uncertainty (Durnev & Kim, 2005; Hail, 2002; Healy, Hutton, & Palepu, 1999) increased market interest (Lang, Lins, & Maffett, 2012), better protection of investor rights (Bebchuk, Cohen, & Ferrell, 2009; Östberg, 2006); lower cost of capital (Botosan, 2006; Frost, Gordon, & Pownall, 2005), etc. Lai, Liu, and Wang (2014) find that increased disclosure reduces information asymmetry, which induces

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managers to act in the best interest of shareholders, and increases the overall efficiency of investments made on the capital market.

On the other hand, research on a sample of Australian companies showed no relationship between the quality and sustainability of a firm's transparency and its default risk, i.e., its cost of external financing (James-Overheu & Cotter, 2009). Enhanced transparency creates unsolicited pressure on the managers whose work is monitored more closely by the market (Hermalin & Weisbach, 2007), the controlling shareholders lose their informational advantage and thus the appeal of their position weakens (Berglöf & Pajuste, 2005), and it also increases the costs to the initial owners in case of a future sale of the business (Verrecchia, 2001). Farhi, Lerner, and Tirole (2013) warn that transparency resulting from product certification provides benefits for the competitors. Leuz and Verrecchia (2000) also point to the mixed international evidence on the benefits from increased transparency.

In the countries of Central and Eastern Europe (C.E.E.), where the majority of the joint-stock companies account for the recently privatised former socialist enterprises, there has been a lack of both the awareness of the need and the willingness to exercise higher degree of transparency. Throughout the years, the situation has been improved to some extent as a result of the huge efforts made by the national stock market regulators, the stock exchanges and the national authorities. These issues are gaining increasing attention and numerous authors have contributed toward the clarification of the specifics of transparency and corporate governance in this setting (Berglöf & Pajuste, 2005). Djankov and Murrell (2002) among other things, find that privatisation to outsiders has the most positive effects on corporate restructuring. Filatotchev, Wright, Uhlenbruck, Tihanyi, and Hoskisson (2003) conclude that insider ownership resulting from the processes of privatisation has had detrimental impact on the learning capabilities of the companies and their organisational restructuring capacity. Korent, Āundek, and Čalopa (2014) find a positive impact of the quality of corporate governance on the overall success of the companies included in the CROBEX stock market index.

Nowadays, the companies in these countries seem to show considerable differences in terms of their transparency levels. For the purposes of our study, we have tried to quantify these levels for the companies in four Balkan countries, Slovenia, Croatia, Serbia and Macedonia, using a sample of 145 companies and applying Standard & Poor's (S&P) methodology. Afterwards, on the basis of these scores, we apply a regression analysis in which we test for the relevance and the impact that certain variables have on the transparency of these companies.

In the first section of the paper we make a brief review of the publicised research on the relationship between transparency and certain company attributes. The second section contains an elaboration of the methodology of research. The empirical results of the regression run on the sample of companies are presented in the third section, after which, the main findings are summarised in the conclusion.

## 2. Literature review

The abovementioned findings on the benefits and costs from transparency and disclosure (T.D.) have become a part of the publicly available body of knowledge on corporate governance, but we still witness significantly variable patterns of behaviour from the company managers around the world.

Chow and Wong-Boren (1987) make one of the earliest attempts to explore the determinants of voluntary disclosure, using a sample of Mexican firms and firm size, financial leverage and proportion of assets in place as independent variables. The study only finds a significant positive relationship between firm size and disclosure.

Durnev and Kim (2005) find that firms with broader growth opportunities and a higher need for external financing choose better governance and disclosure practices. This is especially true in countries with weaker legal protection. The companies in these countries try to bridge the gap between themselves and the potential investors created by the legal uncertainty, through the use of enhanced disclosure practices.

The paper by Berglöf and Pajuste (2005) is one of the early attempts to explore the determinants of corporate transparency in the post-transition economies of C.E.E. They make a cross-country analysis of the level of voluntary disclosure to test their hypotheses and conclude that despite the country differences, higher transparency is exhibited by companies with large controlling owners, less leveraged firms, larger firms, slower growth firms and firms with higher market-to-book ratios. Contrary to Durnev and Kim (2005), they don't find a support for the hypothesis that companies that need more external financing voluntarily disclose more.

Another useful contribution for the emerging markets is the paper by Hanifa and Rashid (2005). They use a sample of 100 Malaysian companies and find support for the positive relationship between transparency and size, growth prospects of the company, leverage and concentrated ownership. They also prove that the companies with significant foreign ownership are more transparent as a result of the need to provide more information to the distant shareholders.

Trabelsi, Labelle, and Dumontier (2008) explore the determinants of transparency using a sample of Canadian companies. They apply an innovated procedure, considering only disclosure provided through company websites as voluntary. They find positive relationship between corporate transparency and the liquidity of their shares, the expected performance of the firm and the level of its R&D expenditures and a negative impact of the level of market competition.

Aksu and Espahbodi (2016) investigate the behaviour of the companies listed on the Istanbul Stock Exchange to determine if mandatory or voluntary regulation provides better results in terms of disclosure quality. They find out that the mandatory implementation of International Financial Reporting Standards (I.F.R.S.) have had positive impact on the T.D. practices of the Turkish firms. Marginally positive impact of the I.F.R.S. adoption on disclosure has been found by Bokpin (2013) in his study on the capital market of Ghana. According to this study, firm size, financial leverage, age of the company, its profitability and the audit quality have been found to be significant firm level characteristics determining corporate disclosure.

Mendes-Da-Silva and Onusic (2014) analyse the link between certain firm characteristics and the web-based disclosure which is taking prevalence over other methods of disclosing data and changing the entire disclosure ambiance. Although the size of the company and the acceptance of best corporate governance practices have proven their expected positive impact on transparency, somewhat surprising outcome has been the negative impact of the length of the period of company listing on the stock exchange.

In a more recent study, Ahmed (2015) explores the determinants of the quality of disclosed earnings in ten European transition economies. He finds significant cross-country

differences of the relevant factors, where the ownership structure plays important role in determining the quality of disclosure in most transparent countries, while financial factors are a more significant determinant in the countries with poorer disclosure practices.

Although these findings to some extent contradict each other, on the basis of the existing literature we can make a general conclusion that the companies with large controlling ownerships, larger firms and companies with higher growth prospects are more willing to disclose.

### **3. Methodology**

#### ***3.1. Measuring the level of transparency***

In order to find if there are any variables that have a systematic impact on the level of transparency, we need an appropriate measure for the level of T.D. which is needed to serve as a dependent variable. There is no exact quantitative measure for this purpose, so we have checked into the existing literature for the possible candidates.

The first problem that the researchers face is related to finding an appropriate measure of something which is not directly quantifiable and consists of multiple components of various kinds. Two general approaches have been suggested to overcome this problem. The first approach is based on subjective valuation, using the opinions of experts organised in panels. The second approach focuses on individual observation of the disclosure practices of the corporations. This is mostly done through the examination of their publicised information.

The second problem is related to the determination of the quality of transparency. Namely, the mere publicising of information might be a result of mandatory rules, rather than a voluntary disclosure for the sake of improving corporate governance. Although this disclosure is beneficial to the general public, it is not an indication of the company's awareness or willingness to disclose.

In order to increase the objectivity of the assessment, we employ the latter approach (observation of corporate disclosure) and try to determine a particular indicator of corporate transparency. An early version of such an indicator is the disclosure score, published by the U.S.-based Center for International Financial Analysis and Research (C.I.F.A.R.) until 1995. Other examples of such applications can be found in Hail (2002), who uses a system of measurement to determine the level of voluntary disclosure by Swiss firms, Durnev and Kim (2005), who use the Credit Lyonnais Securities Asia (C.L.S.A.) assessment of the quality of corporate governance, or Berglöf and Pajuste (2005) who use both the information disclosed on company websites and the information contained in the companies' annual reports to construct a WebDisclosure Index as a measure of voluntary disclosure, and another – ARDisclosure Index – to evaluate the implementation of mandatory disclosure. Boubaker, Lakhal, and Nekhili (2012) develop a set of their own transparency indexes in a similar manner. Sharif and Ming Lai (2015) use a modified transparency and disclosure index based on 22 disclosure items. The index is basically a binary scoring system (it gives the items values of 0 or 1), but they also apply decimal scoring (values between 0 and 1).

One of the most comprehensive systems for measuring transparency was devised by S&P. It is based on a list of 98 items, which have to be checked if they are made available by the company. Patel and Dallas (2002) have applied this method in a study that examines the transparency and disclosure practices of many companies from all the continents. The

**Table 1.** Structure of the companies in the sample.

Industry	Slovenia	Croatia	Serbia	Macedonia
Manufacturing	17	21	23	25
Financial (banking and insurance)	5	7	6	7
Other services	13	6	3	12
TOTAL	35	34	32	44

Source: Authors.

total number of points for a company represents the particular company's score and provides a basis for comparisons among companies, countries and regions, but they have also served as useful inputs in numerous other studies (Durnev & Kim, 2005; Khanna, Palepu, & Srinivasan, 2004) for a robustness check, etc. The weaknesses of the S&P's T.D. scores are that they fail to distinguish between voluntary and mandatory disclosures and do not provide an indication of the quality of the disclosed data and processes (Khanna et al., 2004).

### 3.2. Survey design and data

We have based our study on the determinants of corporate T.D. on a sample of companies from four post-transition economies: Croatia, Serbia, Slovenia and Macedonia. To the best of our knowledge, there has not been any research on the disclosure practices for the countries in this region. These countries have a lot in common. They belonged to same country until 1990, they shared the same economic system (socialist self-management), they all went through a process of privatisation, they all suffered similar economic, political and other turbulences during the 1990s, their economies are relatively small, etc. In all these countries the privatisation process was mainly based on domestic resources and the inflows from foreign investments have been negligible. As a result of these developments, the capital markets are predominantly bank-centred with stock exchanges suffering from a lack of liquidity, relatively few new equity offerings and occasional corporate bond issues.

Our sample includes companies traded on the national stock exchanges of these countries, both listed and not-listed (the definition of a listed company varies widely among these markets). The final sample consists of 35 Slovenian (mostly listed) companies, 44 Macedonian listed companies, 34 Croatian companies (from the official market) and 32 Serbian companies (prime and standard listing and ordinary market), accounting for a total of 145 companies. The global structure of the sample by industry is given in Table 1. These companies represent considerable portions of the total turnover in the respective stock markets, ranging between 40% in Serbia to 98% in Slovenia. We emphasise the relation of the companies with the stock market, because transparency is an issue of highest importance for the current and potential shareholders. Although the companies were selected randomly, the sample includes only companies with higher stock market turnovers. Due to the insufficient representation of the various industries in the sample, we do not investigate any industry impacts, but we differentiate between financial and non-financial companies in the robustness check.

To obtain the necessary data, we have reviewed the websites of these companies in detail. The T.D. scores were manually calculated through a thorough examination of the publicly disclosed data on the basis of the S&P checklist. The checklist contains 98 items classified into three broad areas: (1) ownership structure, (2) financial matters and (3) board and

management composition and processes.<sup>1</sup> The company is given a point for every particular item from the list that has been made publicly available in a reasonable manner (not requiring extraordinary I.T. knowledge). The mandatory disclosures made on other institutional websites (securities and exchange commissions (S.E.C.s), stock exchanges, etc.) were not taken into account in order to obtain an indicator of the purely voluntary transparency and the attitudes of the companies toward disclosing information to the public. The examination was done during 2014. The financial information was taken from their audited financial statements for the period 2011–2013, prepared according to the I.F.R.S. The financial data were converted to euros, using the corresponding exchange rates.

The aggregate results from the survey are presented in Table 2. The T.D. scores by area are calculated as a proportion of the disclosure items from the S&P list which have been made publicly available by the company. The scores by area and the total scores by country are calculated as averages. The other lines in this table contain information regarding the presence on the corporate websites of several disclosure items we have found particularly indicative.

The comparison among the analysed countries can be easily made from the given data. It is interesting to note that the T.D. scores by country increase as we move from the east to the west, but also they increase in line with the level of economic development of the country and its European Union (E.U.) membership status.

The differences in the levels of transparency among the countries can be better understood if we look at the national legal frameworks related to the functioning of the stock markets and the issuers' reporting obligations. The stock exchanges in all the analysed countries were founded in the 1990s during the process of mass privatisation, i.e., transition into market economies. The trading in all of them is done in several market segments. The reporting requirements differ by segment and it seems that the companies have not been very eager to list on the highest segments and thus conform to the toughest disclosure standards. The number of listed companies in the first markets in 2013 has been 8 in Slovenia, 10 in Serbia, 23 in Croatia and 29 in Macedonia (excluding the mandatory listed companies).

The reporting requirements slightly differ by country. The regulations in Slovenia and Croatia explicitly follow the E.U. Directives related to transparency and capital markets. In Slovenia, the Guidelines on Disclosure for Listed Companies not only stipulate the publication of Annual Reports, but they also prescribe its content. In Croatia the same matter is regulated by the Law on Securities and the corresponding bylaws. In Serbia, the Law on Capital Markets requires that all the publicly traded companies are obliged to prepare and publish Annual Reports, while in Macedonia the same issue is regulated by a S.E.C.'s bylaw.

**Table 2.** Transparency and disclosure scores and crucial disclosure items.

Area of disclosure	Slovenia	Croatia	Serbia	Macedonia
Ownership structure and investor rights	54.6	43.8	43.8	27.1
Financial transparency	61.4	54.5	43.7	35.1
Board process and structure	32.4	16.7	9.6	9.8
Composite score (weighted average)	49.2	38.1	31.8	23.9
Average stake owned by top 3 shareholders	61.2%	64.9%	69.5%	55.2%
Investor relations section on the website	97%	73%	90%	64%
Annual report on the website	97%	67%	36%	39%
Annual report in English	66%	40%	12%	23%
Reproduction of the auditors' report	94%	93%	90%	82%
Information about management compensation	94%	39%	26%	20%
No. of companies in the sample	35	34	32	44

Source: Authors.

In all of these countries it is required that the Annual Report contains information about the company operations and plans for the future, in addition to the audited financial reports. In Serbia, it is positive that the conditions for listing require that the company maintains an updated website, which regardless of seeming redundant in the twenty-first century, is still not customary in the region. We can see from Table 2 that although regulations exist in all these countries, the companies behave in different manners. In Slovenia almost all of the analysed companies prepare comprehensive annual reports, while in Macedonia and Serbia they mostly stick to the financial information.

### **3.3. Development of the regression model**

From the existing literature in this field we have made a selection of variables most often considered as possible determinants of transparency and narrowed the choice down to the ones that we find most appropriate for the economies in the sample.

Transparency and disclosure score. This is the dependent variable in the model. It was calculated manually, for every particular company in the sample, in the manner described above.

Size of the company. Larger companies are expected to be more transparent, either because they are better able to cover the costs of transparency (Ashbaugh, Johnstone, & Warfield, 1999; Buzby, 1975), or because they have a larger shareholders' base, so that they use disclosure as a tool to reduce agency costs (Jensen & Meckling, 1976). Debreceeny, Gray, and Rahman (2002) find a positive relationship between the size of the company and its I.F.R. practices, while Hanifa and Rashid (2005) draw the same conclusion in the case of the Malaysian companies. Lang and Lundholm (1993), Eng and Mak (2003), Boubaker et al. (2012) have also found support for this hypothesis. We use two proxies to measure size: total assets and total sales of the company, both measured in their natural log forms ( $\ln(\text{assets})$  and  $\ln(\text{sales})$ ).

External capital dependence. One of the reasons the companies need to be transparent is to increase their chances of providing external financing in the form of issuing public securities. This is especially true when the companies are in their growth phase and the profits they generate are insufficient to cover their investment needs. One of the earliest attempts to explore the link between the additional financing needs and the transparency of the company is found in Lang and Lundholm (1993). Berglöf and Pajuste (2005) and Durnev and Kim (2005) also expect the companies in a greater need for external financing to disclose more in order to attract additional investors.

However, in our case we are a bit susceptible as to the expected sign of this variable because of the differences in the financing patterns between the companies in this region and their western counterparts. All the economies in the sample are heavily bank-oriented and the companies mostly rely on bank financing. Since the banks as creditors have access to all the needed information, the borrowing companies are not provoked to disclose their financial data for this purpose. This kind of behaviour has been confirmed in the case of French listed firms by Boubaker et al. (2012) and for the Taiwanese companies by Yang, Han, and Sheu (2008).

To proxy this variable, we use the approach applied by Durnev and Kim (2005), measuring the difference between the firm's actual growth rate and its sustainable growth rate. As proposed by Demirgüç-Kunt and Maksimovic (1998), the firm's actual growth rate is



estimated as a 2-year geometric mean of the annual growth rates of its total assets, and the sustainable growth rate as a 2-year geometric mean of the expression  $R.O.E./(1 - R.O.E.)$ . In order to enhance the robustness of the results, we apply 3-year means for the above variables. This proxy is denoted as EXT\_FIN in the regression.

**Company performance.** This variable is expected to reflect the efficiency of the company, on the basis of its profitability or growth rates. Better performing firms should be more inclined toward disclosing their situation to the public (Clarkson, Kao, & Richardson, 1994). Higher profitability is expected to increase the market valuation of the company. Also, the announcement of good financial performance enables the company to attract more external capital. However, this is only weakly supported in Berglöf and Pajuste (2005) and not found significant by Hanifa and Rashid (2005), while the growth prospects are found to have a significantly positive relationship with transparency in Debreceeny et al. (2002). We use two proxies: return on assets (R.O.A.) and return on equity (R.O.E.). In order to overcome the problem of the variability of these ratios throughout the years, we apply 3-year geometric means of these variables in our analysis.

**Concentration of ownership.** The ownership over the joint-stock companies may differ in terms of the number of shareholders, the division of shareholders by country of origin, the existence of a dominant shareholder, etc. It has an impact on the overall quality of the corporate governance in the company. The companies with highly concentrated ownership should not be very eager (or interested) to disclose more, since all the most relevant owners would have an easy access to all the relevant information. This expectation is augmented by the low legal protection of shareholders' rights which is characteristic for all the economies in the early stages of development of their capital markets. On the other hand, in cases of dispersed ownership higher transparency helps reduce agency costs and information asymmetry. The results of Mckinnon and Dalimunthe (1993), Oyelere, Laswad, and Fisher (2003), Berglöf and Pajuste (2005) and Boubaker et al. (2012), among others, confirm this hypothesis. Eng and Mak (2003) find that significant government ownership and lower managerial ownership should result in higher corporate transparency. This variable can be expressed in many different ways: the percentage of shares owned by the largest shareholders; the number of shareholders whose total stake equals 50% of the company's shares; the ownership share of foreign investors, etc. In countries with recently privatised economies, there are also the issues of insider ownership, disguised ownership, etc.

The proxies we apply for this variable take two forms: the first is the total percentage of ownership held by the largest shareholder (TOP1), while in the alternative form, we use a dummy variable which takes a value of 1 when the *three* largest shareholders own more than 50% of the voting shares and a value of zero otherwise (OWN\_D).

**Leverage, indebtedness of the company.** Some of the studies include the ratio of overall debt to assets a probable determinant of transparency. Eng and Mak (2003) find an inverse relationship between leverage and transparency, while Berglöf and Pajuste (2005) find this variable as insignificant. We expect a negative impact of leverage on disclosure, having in mind the mentality of the local managers. Namely, because of reasons of vanity, the managers of debt-burdened companies might not be willing to disclose that to the public. We must also have in mind that the T.D. scores include not only financial, but also many other aspects of disclosure. The proxy we use for this variable is the ratio of total liabilities to total assets (LEVER).

Country of origin. In studies in which companies from several countries are involved, the impact of the country of origin of the companies needs to be assessed. We have seen from Table 2 that the countries differ with respect to the T.D. levels, so we want to test this through the regression model, as well. For this purpose, a country dummy is included, in which, Macedonia is taken as a basis because of the lowest average T.D. score, meaning that actually three country variables are used (Slovenia, Croatia and Serbia) and the values obtained for these variables show their impact on the T.D. scores relative to the Macedonian companies. In addition, to test the importance of the E.U. membership, we have included the E.U. dummy variable in the last model (5), which takes the value of 1 if a company comes from an E.U. member country and 0 otherwise. Note that this variable is not used at the same time with the country variable.

To test the predicted relationship between corporate transparency and firm attributes, we regress individual firms' T.D. scores on measures of size, external financing needs, company performance, ownership concentration, leverage and country. Specifically, we estimate the following cross-sectional regression in its general form:

$$TDS_j = \alpha + \beta_1 SIZE_j + \beta_2 EXTFIN_j + \beta_3 PERF_j + \beta_4 OWN_j + \beta_5 LEVER_j + \sum_{i=1}^{n-1} c_i + \varepsilon_j$$

where  $TDS$  is the estimated transparency score,  $\alpha$  is the intercept,  $SIZE$  is the size of the company,  $EXTFIN$  the need for external financing,  $PERF$  is company performance,  $OWN$  the concentration of ownership,  $LEVER$  leverage, indebtedness of the company,  $c_i$  the country dummy,  $j$  the company and  $n$  the number of countries (i.e., 4).

On the basis of this general form, we develop several alternative regression specifications. The variations refer to the interchangeable use of the assets and sales variables as proxies for size and the use of a percentage amount or a dummy variable to proxy for ownership concentration. We apply ordinary least squares (O.L.S.) technique to this model, following the approach of Berglöf and Pajuste (2005), Boubaker et al. (2012), etc.

## 4. Results and discussion

### 4.1. Descriptive statistics and correlations

The descriptive statistics, given in Table 3, indicate somewhat higher skewness of R.O.E., so we use this variable only in the first model. The reason for this is the fact that there are several companies with no or even negative equity capital. We can see that the average profitability of the companies is rather low (mean 3-year R.O.A. = 1%). The ownership is relatively highly concentrated with mean of about 62% and median of 64% for the stake of the three largest shareholders.

### 4.2. Regression results

The results of the regression run in five variations (models 1–5) are presented in Table 4. We have run several models to test the relevance of the same variables using different proxies. The regression results of all the five models are unambiguous. They show that the transparency of the company is positively influenced by its size, while the concentration

**Table 3.** Descriptive statistics.

	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis
TDS	35.86	35.00	77.00	0.00	15.23	-0.02	3.40
Ln(assets)	11.36	11.26	16.61	6.88	1.91	0.39	2.82
Ln(sales)	10.59	10.47	15.19	5.34	1.91	0.01	2.74
R.O.A.	0.01	0.01	0.30	-0.21	0.07	0.07	6.21
R.O.E.	0.02	0.03	0.67	-0.80	0.25	-2.38	10.38
LEVER	0.38	0.36	0.98	0.02	0.26	0.41	2.10
EXT_FIN	0.91	1.23	52.39	-71.83	13.07	-0.51	10.96
TOP1	45.20	41.00	100.00	5.70	27.37	0.43	2.05
OWN_D	0.67	1.00	1.00	0.00	0.47	-0.68	1.47
HRV	0.23	0.00	1.00	0.00	0.42	1.25	2.57
SRB	0.22	0.00	1.00	0.00	0.42	1.34	2.81
SLO	0.24	0.00	1.00	0.00	0.43	1.21	2.46
E.U.	0.48	0.00	1.00	0.00	0.50	0.09	1.01

Source: Authors.

**Table 4.** Regression results – determinants of transparency and disclosure.

	MODEL 1	MODEL 2	MODEL 3	MODEL 4	MODEL 5
Intercept	-1.687 (6.148)	-1.452 (6.054)	-7.236 (6.981)	6.732 (6.113)	6.350 (6.083)
Ln(assets)		3.203*** (0.546)	4.066*** (0.560)		
Ln(sales)	4.350*** (0.574)			2.541*** (0.592)	3.128*** (0.610)
R.O.A.		3.012 (15.993)	-4.867 (18.125)		
R.O.E.	-7.856* (4.592)			-0.269 (4.299)	-2.650 (4.490)
LEVER	-7.884* (4.300)	-4.045 (3.983)	-0.852 (4.538)	-7.29* (3.92)	-9.844** (4.076)
EXT_FIN	-0.143* (0.068)	-0.143* (0.080)	-0.166* (0.091)	-0.175** (0.079)	-0.167** (0.083)
TOP1	-0.121*** (0.040)	-0.102*** (0.035)			-0.099** (0.038)
OWN_D			-3.901* (2.306)	-3.669* (2.091)	
SLO		17.447*** (2.726)		18.355*** (2.947)	
CRO		7.425*** (2.839)		8.417*** (2.970)	
SRB		5.626** (2.65)		5.706** (2.752)	
E.U.					10.144*** (2.349)
Observations	145	145	145	145	145
Adj R <sup>2</sup>	0.307	0.475	0.292	0.426	0.385
D.W.	1.80	2.01	1.517	2.06	1.92
A.I.C.	7.96	7.70	7.979	7.79	7.85

Note: Standard errors in parentheses.

\*Significant at 10%.

\*\*Significant at 5%.

\*\*\*Significant at 1%.

Source: Authors.

of ownership and the leverage have a negative impact. These relationships are very strong and significant at least at the 5% level, regardless of the proxy used. The ownership concentration sign is in line with the theory on asymmetric information and according to our

expectations, the companies with more concentrated ownership do not feel the need or the pressure to disclose more.

Our findings correspond with those of most of the similar studies. Berglöf and Pajuste (2005) is perhaps the most appropriate case for comparisons since it also uses a sample of countries from C.E.E. They also find that larger firms and firms with less concentrated ownership are more transparent, while regarding the impact of leverage, they find no significance. Boubaker et al. (2012) using a sample of French companies find positive relationship between size and negative relationship between concentration of ownership and transparency. The same result regarding the size variable was obtained by Patel and Dallas (2002) and Hanifa and Rashid (2005).

Additional significant findings are that the Slovenian, Croatian and Serbian companies are more transparent than their Macedonian counterparts, which was an expected outcome, having in mind the calculated average T.D. scores by country. Additionally, the regression coefficients for these countries illustrate the respective overall T.D. scores given in Table 2. Model 5 also indicates that the companies from the E.U. countries have higher average T.D. scores than their non-E.U. counterparts.

In line with our expectations, the companies with higher leverage are less likely to be transparent. Berglöf and Pajuste (2005) reach the same conclusion, while Hanifa and Rashid (2005) obtain an opposite outcome. However, the companies with higher needs for external financing are also less transparent, which is to some extent inconsistent with our expectations. This finding can be explained with the practice of predominant bank financing and the infrequent practice of issuing securities.

The variables related to profitability have been found to be insignificant. In addition to their skewness (R.O.E.), this corresponds to our expectation that the companies in bank-oriented economies understand the capital markets in a way different from their peers in the Anglo-Saxon countries. As mentioned above, in the previous studies, such as Berglöf and Pajuste (2005) and Hanifa and Rashid (2005) there has been only weak support for this variable, as well.

Testing the alternative model specifications, we find that best fit is provided when the country dummies are included, proving that the country of origin has a strong impact on the corporate behaviour related to transparency. This is confirmed by the value of the adjusted coefficient of determination and the lower Akaike information criterion (A.I.C.) compared to the other models.

### **4.3. Robustness check**

In order to check the robustness of the results obtained, we have run the regression with several modifications. For the purposes of differentiation, the results of these regressions are presented in models named with letters (from A to E). The first one refers to the exclusion of the financial institutions and its results are presented in the first column (model A). The rationale behind the first modification is that the financial institutions (banks and insurance companies) are subject to specific mandatory disclosure requirements, so that their inclusion in the sample might cause an upward bias in the T.D. scores, but also because their financial statements significantly differ from those of the non-finance companies which might distort some of the variables used in the regressions, such as leverage or the need for external financing. In models B and C we differentiate between companies originating from

the E.U. member states (Slovenia and Croatia) and those which are not in the E.U. (Serbia and Macedonia). These tests are based on the premise that there could be a difference in the transparency levels among the companies because of the application of the European directives and codes related to corporate governance. The last two tests refer to the size of the companies. For this purpose, we have divided the sample into two subsamples according to the size of the company, measured by the natural log of sales. The purpose of these tests is to check if the relevant variables remain significant regardless of the size of the company.

In these tests, we intentionally reduce the number of alternative proxies for the same variables, to simplify the interpretation of the results.

The results of these regressions are given in Table 5.

The results of the robustness check encourage us to claim that the relationships derived from the regression analysis are stable and reliable. We can see that the size, leverage, concentration of ownership and country of origin variables are significant in most of the models, with the exception of the ownership variable in the case of the smaller companies. However, model C which is applied to non-E.U. companies, does not provide sufficient evidence regarding the need for external financing and leverage as determinants, while in the other models the level of significance of the variables is reduced. It can be attributed to the smaller sample size in these cases. This, coupled with the lower coefficient of determination in the last four models, reassures us that it was a correct approach to create a sample covering companies from all the four countries.

**Table 5.** Robustness check.

	Model A Non-financial companies	Model B E.U. companies	Model C Non- E.U. companies	Model D Larger ½ companies	Model E Smaller ½ companies
Intercept	6.522 (6.385)	11.531 (9.837)	10.535 (8.743)	-2.827 (14.001)	12.896 (7.974)
Ln(sales)	2.571*** (0.671)	3.807*** (0.836)	2.465*** (0.920)	3.691*** (1.201)	0.817* (0.418)
R.O.E.	3.819 (6.261)	-2.706 (4.863)	-2.593 (10.86)	-1.615 (5.418)	-7.068 (22.905)
LEVER	-4.159 (4.914)	-11.287** (5.398)	-9.992 (6.531)	-9.256** (5.501)	-7.269* (4.082)
EXT_FIN	-0.288*** (0.100)	-0.247* (0.139)	-0.126 (0.110)	-0.071 (0.124)	-0.177 (0.110)
TOP1	-0.119*** (0.044)	-0.148*** (0.055)	-0.100** (0.054)	-0.127** (0.052)	-0.034 (0.054)
SLO	17.761*** (3.111)			19.904*** (4.95)	15.721*** (3.653)
CRO	10.082*** (3.307)			8.457* (4.447)	13.497** (5.422)
SRB	8.434*** (3.005)			6.630 (5.217)	6.812** (3.147)
Observations	120	69	76	73	72
Adj R <sup>2</sup>	0.456	0.29	0.08	0.39	0.27
D.W.	2.01	1.79	1.96	1.83	2.21
A.I.C.	7.79	7.79	7.97	7.93	7.70

Note: Standard errors in parentheses.

\*Significant at 10%.

\*\*Significant at 5%.

\*\*\*Significant at 1%.

Source: Authors.

## 5. Conclusions

The transparency and disclosure scores, as well as the regression results clearly indicate that the countries with closer links to the west have reached higher levels of corporate transparency. Obviously, the level of economic development and the E.U. membership positively affect the transparency and disclosure patterns of the companies. We link this to the adoption of the E.U. Directives and we would support the implementation of these rules as a step toward improving the overall corporate governance practices. The difference among the countries also suggests that the companies operating in larger and more developed markets feel stronger incentives to be transparent than those from the smaller economies. That could be an additional impetus to intensify the process of integration of the stock exchanges in a common trading platform, which would more directly expose the companies to a larger investing public.

The T.D. assessment also reveals that the companies have earned highest scores in the financial information segment, which is somewhat surprising because of the nature of the data it covers. It could be attributed to the adoption of the I.F.R.S. in all these countries, which makes us conclude that the enforcement of certain rules could be beneficial when the spontaneous processes do not bring the expected results. This outcome and conclusion are in line with the findings of Patel and Dallas (2002) and Aksu and Kosedag (2006).

The regression analysis gives unambiguous results regarding the determinants of corporate transparency in the analysed countries. It has shown that the larger companies and those with more widespread ownership are more transparent. They confirm that in the post-transition economies the larger companies are more willing or better able to disclose, even though the regulations are the same for all the companies. Also, companies with one or several dominant shareholders either find it not necessary to be transparent or they intentionally refrain from revealing too much information to the public.

The results of the study are in great deal consistent with those of similar studies, even with those implemented in developed economies (Ashbaugh et al., 1999; Berglöf & Pajuste, 2005; Debreceny et al., 2002; Hanifa & Rashid, 2005; etc.). We must note that it is a little difficult to find directly comparable studies, because of the fast changing environment of corporate disclosure as a result of the unprecedented trend of advances in the field of information technologies.

Our general conclusion is that the transparent behaviour of the companies in the post-transition period is mostly a result of objective factors (size, model of privatisation, overall economic development, capital market development, legislation, etc.), rather than a thoughtful assessment of the company of its upcoming funding requirements. The insignificance of the profitability variable and the negative sign of the need for external financing indicate the low level of importance of the capital markets when they are illiquid and inefficient. That, however, places higher burden on the governments to look for appropriate measures to stimulate or impose the implementation of the best practices in this field, which is supported in other papers, as well (Aksu & Espahbodi, 2016; Berglöf & Pajuste, 2005; Beekes, Brown, & Zhang, 2015; Östberg, 2006; Satta, Parola, Profumo, & Penco, 2015).

This is the first study that explores the issue of transparency and its determinants in the post-transition economies using a sample covering several Balkan countries and a comprehensive measure of transparency and disclosure. It is particularly valuable that the sample used is international, but still consisting of companies from economies sharing the same

background and which have undergone different processes of transition in the last two and a half decades. This gives the opportunity to determine how different paths of development could have affected the corporate governance practices of these countries and also to derive recommendations that would be transferrable to other similar economies. We also hope that this paper will inspire a widespread use of the applied T.D. scoring system on a regional basis, which would open an opportunity for making comparisons and thus influence the companies to improve their T.D. practices.

Among the limitations of this study are the size of the sample and the short period that it covers. The size of the economies in question limits the number of relevant companies to be analysed. Additional studies should try to extend the research to other countries in the region and broader, but useful insights could be also deduced from studying the change in disclosure practices over time. Also, the increased number of companies per industry would provide basis for analysis of the impact of the industry variable. Another avenue for research could be to inspect the impact of factors such as the level of capital market development or company valuation on transparency, but under the current levels of low market turnover, such studies might remain ill-founded. Finally, the possibilities and media for disclosure rapidly change, so that future research would have to take these in mind.

## Note

1. A more detailed description of the procedure can be found in Patel and Dallas (2002)

## Disclosure statement

No potential conflict of interest was reported by the authors.

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