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# CEO Duality and Firm Profitability. Evidence from Emerging Europe

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## ABSTRACT

*The aim of this paper is to analyze the effects of corporate governance characteristic, CEO duality, on firm profitability using as measures of profitability return on assets ratio (ROA) and return on equity ratio (ROE). Our sample is composed of listed companies from Central and Eastern European countries for a ten-year period, from 2004 to 2013. The financial data for companies was retrieved from Orbis database and the corporate governance characteristic, CEO duality variable, was hand-collected from the Annual Reports of the companies in our sample. For a panel data of Central and Eastern European listed companies, we employed OLS regression to estimate the relationship between CEO duality and firm profitability. Our results offer evidence that CEO duality has a negative and statistically significant sign on both measures of firm profitability (ROA and ROE). Our results are robust and consistent with agency theorists in that CEO duality inhibits the transfer of information between management and administrative and produces conflict of interests and management opportunism leading to reduced profitability. Furthermore, we provide empirical evidence regarding the corporate governance practices in transition countries, especially regarding the separation of power between management and administrative, and deliver proposals for better corporate governance practices.*

**Keywords:** Corporate Governance, CEO Duality, Financial Performance, Central and Eastern Europe.

**JEL Classification:** G34, L25, C33.

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## 1. INTRODUCTION

Central and Eastern European (CEE) countries have experienced significant changes in terms of accelerated privatization in the 1990s, which has led to some shareholder-manager issues (Meyer, 2003). There are situations in which either shareholders or managers tend to interfere with each other in terms of authority and power as well as interfere with the rights of other shareholders (Meyer, 2003).

The effectiveness of the Board in achieving its mission of monitoring and disciplining functions depends on the Chief Executive power in relation to the Board (Finkelstein et al., 2009). The European Parliament resolution of 2012 highlights that companies should have the separation of power between executive and administrative as well as ensuring the independence of the Board of directors. Therefore, we consider that separation of power between management and administrative, the Chief Executive Officer (CEO) and Chairman of the Board, is important for companies in order to avoid conflict of interests and that can influence firm profitability.

Assessing the impact of CEO duality (representing the same person that is CEO and Chairman of the Board), on firm profitability in Central and Eastern European (CEE) emerging countries is an important issue for private sector, regulatory authorities, investors, researchers and academics. We consider that our analysis, using hand-collected data by analyzing the Annual Reports of listed companies from CEE transition countries, provides empirical evidence regarding the corporate governance practices in these countries, especially regarding the separation of power between management and administrative, and delivers proposals for better corporate governance practices. Therefore, our paper contributes to economic literature by analyzing the effects of CEO duality on a sample of listed companies from Emerging Europe with direct implication on firm profitability. The analysis could be important for investors, companies and other institutions in assuring long-term development and added value.

This paper is organized as follows: Section 2 delivers literature review regarding the relationship between CEO duality and firm profitability; Section 3 provides data description and methodology used in our paper; Section 4 presents results and discussions of our analysis and Section 5 delivers conclusions.

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## 2. LITERATURE REVIEW

The agent theory argues that the CEO duality increases the power of the Chief Executive Officer (CEO) on the Board and inhibits the independence and objectivity between the management and the Board and that leads to negative effects on firm profitability (Jensen and Meckling, 1979, Fama and Jensen, 1983). Consequently, as a result of lack of independence, the responsibility of the Board in monitor and supervise the management is reduced and the presence conflict of interests increases.

Haniffa and Hudaib (2006) analyzed the impact of CEO duality on firm profitability, using ROA and Tobin Q as measurements, of 347 Malaysian listed companies. They found that CEO duality has a negative and statistical effect on return on assets ratio (ROA). Therefore, CEO duality increases the power of the individual who is more likely to pursue strategies in personal interests and not in the company's interest.

Tang (2017) analyzes the implications of CEO duality on firm performance, measured as total shareholder return, using a sample of 82 listed firms from US computer industry. The results showed that CEO duality has a negative effect on firm performance.

Duru et al (2016) analyzes the impact of CEO duality on firm profitability, using ROA, ROE and ROS as measures, on US firms from 1997 to 2011 period using the GMM model. Their results suggest that CEO duality negatively influences the firm's profitability and that non-executive directors play a disciplinary role in the entity leading to limitation of management opportunism.

Chen (2014) analyzes on a sample of 56 listed companies from 10 European countries such as England, Austria, Italy, Denmark, Germany, France, Netherlands, Luxembourg, Spain and Norway. The results suggest that the CEO duality does not have a significant impact on company performance, measured through profit margin.

Arslan et al (2014) analyzed the impact of CEO duality on company performance expressed by return on equity ratio (ROE) and profit margin of 11 listed companies in Pakistan. They have found that the CEO duality has a negative impact on ROE but did not find a significant relationship to the profit margin.

Issarawornrawanich (2015) analyzed the implications of CEO duality and Board independence on company performance, measured through return on assets ratio (ROA) and Tobin Q in an emerging country Thailand. The results suggest that the CEO duality has a negative effect on company performance expressed by return on assets ratio (ROA).

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Kao et al., (2018) analyzed the effects of CEO duality on firm performance, measured through ROA, ROE, Tobin Q and market-to-book value of equity, using a sample of 151 Taiwanese listed companies from 1997-2015 period. Their results suggest that CEO duality has a negative and statistically significant effect on firm profitability expressed through return on assets ratio (ROA) and return on equity ratio (ROE).

Higgs (2003) suggests the separation of the dual role of the CEO because it leads to prevention in concertation of authority and power in one individual and separates leadership on the board from running of the business.

Employing a sample of US firms included in the S&P 100 Index over the period 1994-2003, Cornett et al. (2008) detected a negative effect of CEO duality on firm performance. Yasser and Al Mamun (2015) analyzed the effects of CEO duality on Australian, Malaysian and Pakistani listed companies' profitability, measured by ROA and ROE from 2011 to 2013 and found a negative but not statistical significant effect. Yan Lam and Kam Lee, (2008) analyzed the impact of CEO duality on firm performance on a sample of public companies from Hong Kong. They found a negative but not statistically significant sing of CEO duality on both ROA and ROE.

In contrast, the stewardship theory (Donaldson and Davis, 1991) and the resource dependence theory (Pfeffer and Salancik, 1978) argues that CEO duality has a positive effect on firm profitability. There are studies that illustrate that founding Executive Directors (CEO duality) solve power and control separation issues, leading to a positive impact on corporate performance (Amit and Villalonga, 2006, Anderson and Reeb, 2003, Palia and Ravid, 2002; Ramdani and van Witteloostuijn, 2010)

Elsayed (2007) analyzed on a sample of Egyptian listed companies the impact of CEO duality on company performance. The results suggested that CEO duality has a mixed and significant impact on ROA and Tobin Q, both measures of firm performance. The results suggest that there are some firms that can benefit from CEO duality, having higher firm profitability, while other firms present a decreasing in firm profitability, while having CEO duality.

CEO duality can provide cost savings in a way in which CEO duality eliminates information transferring and processing costs (Goodwin and Seow, 2000). Furthermore, CEO duality can reduce the time in decision-making leading in improved effectiveness of the decision-making process (Peng et al., 2009).

Empirical studies on CEO duality argue mixed results on the effect of CEO duality on company profitability. Accordingly, we aim to investigate the effects of CEO duality on firm profitability, for listed companies in Central and Eastern Europe, while controlling for firm-specific variables, testing empirically the following hypothesis:

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*H1a. (Agency theory): CEO duality has a negative impact on firm profitability.*

*H1b. (Stewardship/resource dependence theory): CEO duality has a positive impact on firm profitability.*

### **3. DATA AND METHODOLOGY**

Originally, our sample was composed of 118 listed companies selected from Central and Eastern Europe for a ten-year period (2004 to 2013), totally of 1180 observations. Due to the lack of accessing some financial data and the lack of accessing some company annual reports, our sample varies from 767 to 880 observations for listed companies in Slovenia, Hungary, Slovakia, Czech Republic, Latvia, Croatia, Romania, Estonia, Bulgaria, Lithuania and Poland. Data regarding financial characteristics of the companies was collected from Orbis database and data regarding CEO duality was hand-collected data by analyzing the Annual Reports of the companies in our sample.

As dependent variables we have employed two measures of profitability: return on assets ratio (ROA) and return on equity ratio (ROE) in accordance with other studies (Haniffa and Hudaib, 2006; Arslan et al., 2014; Duru et al., 2016; Kao et al., 2018). Short description of our variables, data source and the expected sign is presented in Table no. 1.

**Variable description**

*Table no. 1*

| Variable  | Description  | Data Source                    | Expected sign |
|---|--|--------------------------------|---------------|
| <b><i>Dependent Variables</i></b>                                   |  |                                |               |
| <b>nROA</b>   | The return on assets ratio of the companies. ROA is calculated as net income divided by total assets.              | Orbis                          |               |
| <b>nROE</b>   | The return on equity ratio of the companies. ROE is calculated as net income divided by total equity.              | Orbis                          |               |
| <b><i>Corporate Governance Variable</i></b>                         |  |                                |               |
| <b>dualCEO</b>  | Dummy variable representing the CEO duality, noted 1 if the CEO is also the Chairman of the Board and 0 otherwise. | Hand- collected data           | +             |
| <b><i>Control Variables (Company Financial Characteristics)</i></b> |  |                                |               |
| <b>lnLIQI</b>   | Liquidity ratio  | Orbis                          | +             |
| <b>lnST</b>   | Stocks, calculated as natural logarithm of stocks  | From Orbis and calculated      | +             |
| <b>lnDEB</b>  | Debtors, calculated as the natural logarithm of debtors  | From Orbis and calculated      | -             |
| <b>lnSAL</b>  | Sales, calculated as the natural logarithm of operating revenues   | From Orbis and calculated      | +/-           |
| <b>rCS</b>  | Turnover rate of fixed assets  | Orbis                          | +/-           |
| <b>CASH</b>   | Cash flow / operating income   | Orbis                          | +/-           |
| <b>Zscore</b>   | Z-Score regarding the probability of bankruptcy of the firm.   | Calculated after Altman (2000) | -             |

Source: Authors' computation

Our control variables are used in agreement with (Haniffa and Hudaib, 2006; Zhou et al., 2018) described in Table no. 1. In our analysis, we use seven control variables such as the natural logarithm of liquidity ratio (coded lnLIQI); the natural logarithm of debtors (coded lnDEB), stocks (coded lnST) and sales (coded lnSAL); turnover rate of fixed assets (coded rCS), cash flow divided by operating income (coded CASH) and Z-Score regarding the probability of bankruptcy of the firm.

Our interest variable, dualCEO, is a dummy variable and indicates the presence of the dual position of the Chef Executive Officer, in which he is also the Chairman of the Board (CBO) and is coded with 1 (same person is also CBO) and 0 if otherwise. Descriptive Statistics of data is presented in table no. 2.

## Descriptive Statistics

Table no. 2

| Statistic      | N   | Mean    | St. Dev. | Min      | Pctl(25) | Median  | Pctl(75) | Max     |
|----------------|-----|---------|----------|----------|----------|---------|----------|---------|
| <b>nROA</b>    | 880 | 5.9872  | 6.8129   | -8.1579  | 1.8538   | 5.3315  | 10.1372  | 20.0079 |
| <b>nROE</b>    | 880 | 12.5520 | 13.6751  | -16.0279 | 4.2231   | 11.4685 | 19.8015  | 42.0919 |
| <b>lnLIQI</b>  | 880 | 0.3104  | 0.4957   | -0.6730  | 0.0004   | 0.2733  | 0.6210   | 1.2943  |
| <b>lnST</b>    | 854 | 10.4693 | 1.2983   | 8.1621   | 9.5594   | 10.3968 | 11.4079  | 12.7726 |
| <b>lnDEB</b>   | 865 | 10.8304 | 1.3317   | 7.9625   | 10.0465  | 10.8393 | 11.8838  | 12.9492 |
| <b>lnSAL</b>   | 878 | 13.0846 | 1.0214   | 11.5075  | 12.3977  | 12.8156 | 13.6995  | 15.3472 |
| <b>rCS</b>     | 878 | 0.5816  | 0.5070   | 0.0198   | 0.1764   | 0.4270  | 0.8266   | 1.9315  |
| <b>CASH</b>    | 767 | 0.1109  | 0.1042   | -0.0337  | 0.0356   | 0.0847  | 0.1542   | 0.3544  |
| <b>Zscore</b>  | 820 | 6.3428  | 7.5133   | 0.6672   | 2.4882   | 3.8145  | 6.3364   | 31.8922 |
| <b>dualCEO</b> | 887 | 0.067   | 0.249    | 0.000    | 0.000    | 0.000   | 0.000    | 1.000   |

Source: Authors' calculation

Table no. 2 illustrates descriptive statistics of the unbalanced panel dataset. Our results are comparable with similar results such as Kao et al., (2018) that used 151 Taiwanese listed companies. For example, our dependent variable, nROA, has the mean 5.9872 vs 5.255, standard deviation 6.8129 vs 7.105 and the variation between -8.1579 and 20.0079 vs -22.870 and 27.410. Our second dependent variable, nROE has the mean 12.5520 vs 11.35, standard deviation 13.6751 vs 22.53 similar with Duru et al., (2016) and the variation between -16.0279 and 42.0919.

The panel data model is described through some restrictions such as parameter homogeneity (Croissant and Millo, 2008), for all  $i, t$ , applied to the general model (equation 1), resulting a linear model pooling all the data across  $i$  and  $t$  (equation 2). To model individual heterogeneity, the error term has two separate components  $\mu_i$  and  $\varepsilon_{it}$ ,  $\mu_i$  being specific to the individual and not changing over time (equation 3). In the case of *fixed* or *random* effects models: the estimation depends on the properties of the error component, which may be either uncorrelated with the regressors (*random effects* model) or correlated (*fixed effects, within or least squares dummy variables* model).

$$y_{it} = \alpha_{it} + \beta_{it}^T x_{it} + u_{it} \quad (1)$$

$$y_{it} = \alpha + \beta^T x_{it} + u_{it} \quad (2)$$

$$y_{it} = \alpha + \beta^T x_{it} + u_i + \varepsilon_{it} \quad (3)$$

When time specific components are taken into consideration (e.g. Year) the error has three components:

$$u_{it} = u_i + \lambda_t + \varepsilon_{it} \quad (4)$$

The individual component may be either independent of the regressors or correlated. If it is correlated, the ordinary least squares (OLS) estimator of would be inconsistent, so it is customary to treat  $u_i$  as a further set of n

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parameters to be estimated, as if in the general model  $\alpha_{it} = \alpha_i$  for all t. This is called the fixed effects (a.k.a. within or least squares dummy variables) model, usually estimated by OLS on transformed data, and gives consistent estimates.

**Our fixed effects equation becomes:**

$$nROA_{it} = \beta_1 \ln LIQI + \beta_2 \ln ST + \beta_3 \ln SAL + \beta_4 \ln DEB + \beta_5 rCS + \beta_6 CASH + \beta_7 Zscore + \beta_8 dualCEO + \alpha + u_i + e_{it} \quad (5)$$

$$nROE_{it} = \beta_1 \ln LIQI + \beta_2 \ln ST + \beta_3 \ln SAL + \beta_4 \ln DEB + \beta_5 rCS + \beta_6 CASH + \beta_7 Zscore + \beta_8 dualCEO + \alpha + u_i + e_{it} \quad (6)$$

where:

$u_i$  is correlated with the independent variables

$e_{it}$  is the error term (idiosyncratic errors)

$\alpha$  – constant

**Our random effects equation becomes:**

$$nROA_{it} = \alpha + \beta_1 \ln LIQI + \beta_2 \ln ST + \beta_3 \ln SAL + \beta_4 \ln DEB + \beta_5 rCS + \beta_6 CASH + \beta_7 Zscore + \beta_8 dualCEO + u_i + e_{it} \quad (7)$$

$$nROE_{it} = \alpha + \beta_1 \ln LIQI + \beta_2 \ln ST + \beta_3 \ln SAL + \beta_4 \ln DEB + \beta_5 rCS + \beta_6 CASH + \beta_7 Zscore + \beta_8 dualCEO + u_i + e_{it} \quad (8)$$

where:

$u_i$  is uncorrelated with the independent variables

$e_{it}$  is the error term (idiosyncratic errors)

$\alpha$  – constant

The variables employed in equations are:

**1. Firm specific variables (used as control variables):**

lnLIQI (Liquidity ratio),

lnST (Stocks)

lnDEB (Debtors),

lnSAL (Sales)

rCS (Turnover rate of fixed assets)

CASH (Cash flow / operating income)

Zscore (Z-Score regarding the probability of bankruptcy of the firm)



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**2. Corporate Governance characteristic (our interest variable):**  
dualCEO (CEO duality - the dual position of the CEO who is also  
Chairman of the Board)

In order to select the model and check the regression assumptions, we have completed some preliminary tests (available on demand), as suggested by the economic literature (Gujarati et al., 2013). In Table no. 3, we present the Pearson correlation matrix of our dataset.

**Correlation matrix**

*Table no. 3*

|         | lnLIQI | lnST   | lnDEB  | lnSAL  | rCS    | CASH   | Zscore | dualCEO |
|---------|--------|--------|--------|--------|--------|--------|--------|---------|
| lnLIQI  | 1      | 0.182  | 0.089  | 0.008  | -0.117 | 0.249  | 0.347  | 0.011   |
| lnST    | 0.182  | 1      | 0.568  | 0.696  | 0.047  | 0.094  | 0.042  | -0.109  |
| lnDEB   | 0.089  | 0.568  | 1      | 0.75   | 0.196  | 0.234  | 0.087  | -0.169  |
| lnSAL   | 0.008  | 0.696  | 0.75   | 1      | 0.173  | 0.215  | 0.116  | -0.252  |
| rCS     | -0.117 | 0.047  | 0.196  | 0.173  | 1      | 0.534  | 0.06   | -0.041  |
| CASH    | 0.249  | 0.094  | 0.234  | 0.215  | 0.534  | 1      | 0.318  | -0.179  |
| Zscore  | 0.347  | 0.042  | 0.087  | 0.116  | 0.06   | 0.318  | 1      | -0.01   |
| dualCEO | 0.011  | -0.109 | -0.169 | -0.252 | -0.041 | -0.179 | -0.01  | 1       |

Source: Authors' calculation

As the correlation matrix suggests, correlation coefficients were all found to be below 0.8, as suggested by econometric studies, thus there is no correlation problems, as the largest correlation is between variables stocks (lnST) and sales (lnSAL) of 0.696. Additionally, computing the variance inflation factors (VIFs), our results suggest that there are no problems regarding multicollinearity. The variables had been tested for the stationarity using different panel unit root tests commonly operated in unbalanced panels, suggesting that all data series included in the panel shows no stationary issues, according to the outputs of the conducted tests.

## 4. RESULTS

To test the robustness of our results we conducted both fixed and random effects. The full random and fixed effects models are presented in Appendix 1, 2, 3 and 4. Analyzing both models, we conclude that our results are robust. We discuss only the fixed effects as Hausman (Hausman, 1978) tests (available on demand) for all implied equations suggest.

In tables no. 4 we present our result regarding the effects of CEO duality on firm profitability measured by our dependent variables return on equity ratio (nROE) and return on assets ratio (nROA).

**Panel data regression results on dependent variables nROA and nROE**  
*Table no. 4*

|                               | (1)                         | (2)                          | (3)                          | (4)                           |
|-------------------------------|-----------------------------|------------------------------|------------------------------|-------------------------------|
|                               | Random.individual.          | Random.individual.           | Within.individual.           | Within.individual             |
|                               | Dependent                   | Dependent                    | Dependent                    | Dependent                     |
|                               | variable:                   | variable:                    | variable:                    | variable:                     |
|                               | nROE                        | nROA                         | nROE                         | nROA                          |
| <b>VARIABLES</b>              |                             |                              |                              |                               |
| <b>dualCEO</b>                | <b>-4.2571*</b><br>(2.2583) | <b>-1.8487**</b><br>(0.8642) | <b>-8.3582**</b><br>(3.5137) | <b>-3.3332***</b><br>(1.1768) |
| <b>lnLIQI</b>                 | -1.5739<br>(1.0936)         | 1.2476***<br>(0.3874)        | -2.0002<br>(1.2850)          | 1.0011**<br>(0.4304)          |
| <b>lnST</b>                   | -0.2886<br>(0.6224)         | -0.3577<br>(0.2318)          | -0.9737<br>(0.8515)          | -0.4143<br>(0.2852)           |
| <b>lnDEB</b>                  | -2.6298***<br>(0.6895)      | -1.0556***<br>(0.2612)       | -3.4358***<br>(1.0072)       | -1.2044***<br>(0.3373)        |
| <b>lnSAL</b>                  | 1.3540<br>(1.0316)          | 0.9114**<br>(0.3915)         | 4.2464***<br>(1.5541)        | 1.4478***<br>(0.5205)         |
| <b>rCS</b>                    | -15.4892***<br>(1.1908)     | -6.7795***<br>(0.4362)       | -12.8260***<br>(1.6106)      | -6.2395***<br>(0.5394)        |
| <b>CASH</b>                   | 125.1926***<br>(6.3611)     | 65.7706***<br>(2.2696)       | 150.6847***<br>(7.7847)      | 70.9379***<br>(2.6072)        |
| <b>Zscore</b>                 | -0.0960*<br>(0.0581)        | 0.0119<br>(0.0199)           | -0.0870<br>(0.0617)          | 0.0158<br>(0.0207)            |
| <b>Constant</b>               | 23.7530***<br>(8.3721)      | 5.8951*<br>(3.2598)          | -                            |                               |
| <b>Observations</b>           | 702                         | 702                          | 702                          | 702                           |
| <b>R<sup>2</sup></b>          | 0.4080                      | 0.6216                       | 0.4285                       | 0.6238                        |
| <b>Adjusted R<sup>2</sup></b> | 0.4012                      | 0.6172                       | 0.3433                       | 0.5676                        |
| <b>F Statistic</b>            | 477.5729***                 | 1,138.3370***                | 57.1801***<br>(df = 8; 610)  | 126.4198***<br>(df = 8; 610)  |

Note: Standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Source: own calculations

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Table no. 4, in columns 1-2 provides the random effects regression results regarding the effects of CEO duality on firm profitability expressed through return on equity ratio (nROE) and return on assets ratio (nROA). Moreover, columns 3-4 provide the fixed effects regression results regarding the effects of CEO duality on firm profitability expressed through return on equity ratio (nROE) and return on assets ratio (nROA). Furthermore, in Table no. 4, the first row is represented by our interest variable CEO duality (coded dualCEO) that refers to the same person that is Chief Executive Officer and Chairman of the Board; the other rows (2 to 8) are represented by our control variables.

On full models (all independent variables included), our results suggest that CEO duality has a negative and statistically effect on both measures of firm profitability nROA and nROE. The presence of CEO duality in companies, from Central and Eastern European countries, decreases nROE (value is lower with 8.3582) and nROA (value is lower with 3.3332), hence, our hypothesis *H1a. (Agency theory): CEO duality has a negative impact on firm profitability* can be accepted. Therefore, CEO duality produces a direct negative effect on firm profitability in Central and Eastern European countries regarding listed companies by reducing both ROA and ROE. Companies that do not have CEO duality develop higher profitability. On reduced models, the sign of duality changes. In our opinion, the results are related to the sample dimensions and variables employed. The results in economic literature are also different regarding data sample size and variables, which also explains the existence of the two theories stated above.

Our control variable such as liquidity ratio (lnLIQI) has a positive and statistical sign on both measures of firm profitability, nROE and nROA. Variables stocks (lnST) has a negative sign on nROE and a negative and statistical sign on nROA, debtors (lnDEB) and turnover rate of fixed assets (rCS) have a negative and statistical sign on both nROE and nROA. Cash flow/operating income (CASH) variable has a positive and statistical sign on both nROE and nROA and Z-Score regarding the probability of bankruptcy of the firm has a negative sign on nROE and a positive sign on nROA but lacks the statistical significance.

Regarding our interest variable, CEO duality, some of our results are in line with the agency theory and with other studies such as (Haniffa and Hudaib, 2006; Arslan et al., 2014; Issarawornrawanich, 2015; Duru et al., 2016; Kao et al., 2018). CEO duality increases the power of the individual who is more likely to pursue strategies in personal interests and not in the firm interest and inhibits the independence and objectivity between the management and the Board and negatively influences the firm's profitability.

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Hence, separation of power is important for the corporate governance system of companies from Central and Eastern European countries in order to assure long-term development and higher profitability.

## 5. CONCLUSIONS

This paper examines the effects of CEO duality on firm profitability, measured by return on assets (ROA) and return on equity (ROE) ratios, on listed companies from Central and Eastern Europe (CEE) countries. Our results partially suggest that CEO duality diminishes the return on assets and return on equity ratios and produces a negative effect on firm profitability in Central and Eastern European countries. Consequently, companies from transition countries in CEE that have CEO duality perform less in terms of profitability than companies that have the separation of power between the Chief Executive Officer and Chairman of the Board.

We consider that CEO duality inhibits the transfer of information between management and administrative and produces conflict of interests and management opportunism leading to reduced profitability, explained by some of our results, in accordance with the agency theory. Furthermore, firms from Central and Eastern Europe must take into account the separation of power between the Chief Executive Officer and Chairman of the Board because it leads to a lower profitability in terms of return on assets and return on equity ratios. Therefore, separation of power is important for the corporate governance system of companies from Central and Eastern European countries in order to assure long-term development and higher profitability.

In order to improve their corporate governance system, companies in Central and Eastern European countries could assure the separation of power between CEO and Chairman of the Board to ensure the effectiveness of the firm's assets and capital management and to avoid conflict of interests. The main limitation of the paper resides in data sample used, and the lack of information available while accessing all the data regarding financial information and the CEO duality. The later can be explained by the absence of transparency in some cases or the deficiency/variety of the statistics in the Annual Reports of the firms. As more data will be available, further research will be conducted using larger samples.

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## Results of fixed effects model on dependent variable nROE

| Data Panel regression Results |                                  |                                  |                                  |                                  |                                  |                                  |                                  |                                  |
|-------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| Dependent variable:           |                                  |                                  |                                  |                                  |                                  |                                  |                                  |                                  |
| nROE                          |                                  |                                  |                                  |                                  |                                  |                                  |                                  |                                  |
|                               | within.individual.nROE.dualCEO.1 | within.individual.nROE.dualCEO.2 | within.individual.nROE.dualCEO.3 | within.individual.nROE.dualCEO.4 | within.individual.nROE.dualCEO.5 | within.individual.nROE.dualCEO.6 | within.individual.nROE.dualCEO.7 | within.individual.nROE.dualCEO.8 |
|                               | (1)                              | (2)                              | (3)                              | (4)                              | (5)                              | (6)                              | (7)                              | (8)                              |
| dualCEO                       | 3.5512<br>(3.7912)               | 3.1523<br>(3.7925)               | 3.0362<br>(3.8442)               | 3.1049<br>(3.8489)               | 2.5145<br>(3.8767)               | -1.2708<br>(3.8316)              | -1.8986<br>(2.8750)              | -8.3582**<br>(3.5137)            |
| lnLIQI                        |                                  | 2.5166*<br>(1.4123)              | 2.8596*<br>(1.5113)              | 2.7846* (1.5374)                 | 2.9881* (1.5414)                 | 2.1167<br>(1.5106)               | -2.8878**<br>(1.2305)            | -2.0002<br>(1.2850)              |
| lnST                          |                                  |                                  | -0.5449<br>(0.8072)              | -0.5561<br>(0.9349)              | -1.2822<br>(1.0717)              | -1.2615<br>(1.0457)              | -1.3032<br>(0.8229)              | -0.9737<br>(0.8515)              |
| lnDEB                         |                                  |                                  |                                  | -0.3428<br>(0.9786)              | -1.3224<br>(1.1670)              | -1.7541<br>(1.1408)              | -3.2475***<br>(0.9775)           | -3.4358***<br>(1.0072)           |
| lnSAL                         |                                  |                                  |                                  |                                  | 2.4805<br>(1.8681)               | 2.0160<br>(1.8243)               | 4.2852***<br>(1.4961)            | 4.2464***<br>(1.5541)            |
| rCS                           |                                  |                                  |                                  |                                  |                                  | 12.1248*** (1.9560)              | -11.5755***<br>(1.5078)          | -12.8260***<br>(1.6106)          |
| CASH                          |                                  |                                  |                                  |                                  |                                  |                                  | 149.5048***<br>(7.3120)          | 150.6847***<br>(7.7847)          |
| Zscore                        |                                  |                                  |                                  |                                  |                                  |                                  |                                  | -0.0870<br>(0.0617)              |
| Observations                  | 880                              | 880                              | 854                              | 844                              | 843                              | 843                              | 742                              | 702                              |
| R <sup>2</sup>                | 0.0011                           | 0.0052                           | 0.0063                           | 0.0066                           | 0.0093                           | 0.0581                           | 0.4300                           | 0.4285                           |
| Adjusted R <sup>2</sup>       | -0.1228                          | -0.1197                          | -0.1212                          | -0.1241                          | -0.1227                          | -0.0689                          | 0.3512                           | 0.3433                           |
| F Statistic                   | 0.8774 (df = 1; 782)             | 2.0276 (df = 2; 781)             | 1.6080 (df = 3; 756)             | 1.2310 (df = 4; 745)             | 1.3908 (df = 5; 743)             | 7.6214*** (df = 6; 742)          | 70.1656*** (df = 7; 651)         | 57.1801*** (df = 8; 610)         |

Note: Standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Source: own calculations

## Results of fixed effects model on dependent variable nROA

## Data Panel regression Results

| Dependent variable:     |  |  |  |  |  |  |  |  |
|-------------------------|--|--|--|--|--|--|--|--|
| nROA                    |  |  |  |  |  |  |  |  |
|                         | within.individ<br>ual.nROA.du<br>alCEO.1 | within.individ<br>ual.nROA.du<br>alCEO.2 | within.individ<br>ual.nROA.du<br>alCEO.3 | within.individ<br>ual.nROA.du<br>alCEO.4 | within.individ<br>ual.nROA.du<br>alCEO.5 | within.individ<br>ual.nROA.du<br>alCEO.6 | within.individ<br>ual.nROA.du<br>alCEO.7 | within.individ<br>ual.nROA.du<br>alCEO.8 |
|                         | (1)                                      | (2)                                      | (3)                                      | (4)                                      | (5)                                      | (6)                                      | (7)                                      | (8)                                      |
| dual                    | 2.1036                                   | 1.6433                                   | 1.5996                                   | 1.6428                                   | 1.2891                                   | -0.6705                                  | -1.1753                                  | -3.3332***                               |
| CEO                     | (1.6030)                                 | (1.5824)                                 | (1.5723)                                 | (1.5767)                                 | (1.5870)                                 | (1.5440)                                 | (0.9645)                                 | (1.1768)                                 |
| lnLI                    |  | 2.9041***                                | 3.3893***                                | 3.3386***                                | 3.4267***                                | 2.9756***                                | 0.7586*                                  | 1.0011**                                 |
| QI                      |  | (0.5893)                                 | (0.6181)                                 | (0.6298)                                 | (0.6310)                                 | (0.6087)                                 | (0.4128)                                 | (0.4304)                                 |
| lnST                    |  |  | -0.7026**                                | -0.7718**                                | -1.0199**                                | -1.0091**                                | -0.5120*                                 | -0.4143                                  |
|                         |  |  | (0.3302)                                 | (0.3830)                                 | (0.4387)                                 | (0.4214)                                 | (0.2760)                                 | (0.2852)                                 |
| lnD                     |  |  |  | 0.0151                                   | -0.3596                                  | -0.5831                                  | -1.2483***                               | -1.2044***                               |
| EB                      |  |  |  | (0.4009)                                 | (0.4777)                                 | (0.4597)                                 | (0.3279)                                 | (0.3373)                                 |
| lnSAL                   |  |  |  |  | 0.8127                                   | 0.5722                                   | 1.6815***                                | 1.4478***                                |
|                         |  |  |  |  | (0.7647)                                 | (0.7351)                                 | (0.5019)                                 | (0.5205)                                 |
| rCS                     |  |  |  |  |  | -6.2768***                               | -5.8112***                               | -6.2395***                               |
|                         |  |  |  |  |  | (0.7882)                                 | (0.5058)                                 | (0.5394)                                 |
| CASH                    |  |  |  |  |  |  | 72.4586***                               | 70.9379***                               |
| Zscore                  |  |  |  |  |  |  | (2.4529)                                 | (2.6072)                                 |
| re                      |  |  |  |  |  |  |  | 0.0158                                   |
|                         |  |  |  |  |  |  |  | (0.0207)                                 |
| Observations            | 880                                      | 880                                      | 854                                      | 844                                      | 843                                      | 843                                      | 742                                      | 702                                      |
| R <sup>2</sup>          | 0.0022                                   | 0.0323                                   | 0.0457                                   | 0.0453                                   | 0.0481                                   | 0.1230                                   | 0.6264                                   | 0.6238                                   |
| Adjusted R <sup>2</sup> | -0.1216                                  | -0.0891                                  | -0.0767                                  | -0.0803                                  | -0.0787                                  | 0.0049                                   | 0.5748                                   | 0.5676                                   |
| F Statistic             | 1.7221 (df=1; 782)                       | 13.0315*** (df=2; 781)                   | 12.0725*** (df=3; 756)                   | 8.8367*** (df=4; 745)                    | 7.5079*** (df=5; 743)                    | 17.3515*** (df=6; 742)                   | 155.9552*** (df=7; 651)                  | 126.4198*** (df=8; 610)                  |

Note: Standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Source: own calculations



## Results of random effects model on dependent variable nROA

| Data Panel regression Results  |  |  |  |  |  |  |  |  |
|--------------------------------|--|--|--|--|--|--|--|--|
| Dependent variable:            |  |  |  |  |  |  |  |  |
| nROA                           |  |  |  |  |  |  |  |  |
|                                | random.indivi<br>dual.nROA.d<br>ualCEO.1 | random.indivi<br>dual.nROA.d<br>ualCEO.2 | random.indivi<br>dual.nROA.d<br>ualCEO.3 | random.indivi<br>dual.nROA.d<br>ualCEO.4 | random.indivi<br>dual.nROA.d<br>ualCEO.5 | random.indivi<br>dual.nROA.d<br>ualCEO.6 | random.indivi<br>dual.nROA.d<br>ualCEO.7 | random.indivi<br>dual.nROA.d<br>ualCEO.8 |
|                                | (1)                                      | (2)                                      | (3)                                      | (4)                                      | (5)                                      | (6)                                      | (7)                                      | (8)                                      |
| dual<br>CEO                    | -0.4940<br>(1.2995)                      | -1.2875<br>(1.2201)                      | -1.4951<br>(1.1890)                      | -1.4845<br>(1.1945)                      | -1.4178<br>(1.1992)                      | -1.9383<br>(1.1945)                      | -0.9067<br>(0.7744)                      | -<br>1.8487** (0.8<br>642)               |
| lnLI                           |  | 3.7510***<br>(0.5200)                    | 4.3606***<br>(0.5343)                    | 4.3419***<br>(0.5411)                    | 4.5264***<br>(0.5417)                    | 4.1054*** (0.5<br>369)                   | 1.0749***<br>(0.3734)                    | 1.2476***<br>(0.3874)                    |
| lnST                           |  |  | -0.4378*<br>(0.2475)                     | -0.4901*<br>(0.2936)                     | -0.8853***<br>(0.3365)                   | -0.9830***<br>(0.3342)                   | -0.3646<br>(0.2267)                      | -0.3577<br>(0.2318)                      |
| lnD<br>EB                      |  |  |  | 0.0316<br>(0.2976)                       | -0.4962<br>(0.3612)                      | -0.4405<br>(0.3587)                      | -1.1211***<br>(0.2565)                   | -1.0556***<br>(0.2612)                   |
| lnS<br>AL                      |  |  |  |  | 1.2646**<br>(0.5576)                     | 1.3302**<br>(0.5544)                     | 1.0793***<br>(0.3818)                    | 0.9114**<br>(0.3915)                     |
| rCS                            |  |  |  |  |  | -3.7395***<br>(0.6136)                   | -6.5907***<br>(0.4184)                   | -6.7795***<br>(0.4362)                   |
| CAS<br>H                       |  |  |  |  |  |  | 67.1102***<br>(2.1333)                   | 65.7706***<br>(2.2696)                   |
| Zsco<br>re                     |  |  |  |  |  |  |  | 0.0119<br>(0.0199)                       |
| Con<br>stant                   | 5.8579***<br>(0.5458)                    | 4.7745***<br>(0.4950)                    | 8.9188***<br>(2.6146)                    | 9.1161***<br>(3.0698)                    | 2.3832<br>(4.5401)                       | 4.2848<br>(4.5362)                       | 4.2256<br>(3.1239)                       | 5.8951* (3.25<br>98)                     |
| Obs<br>ervat<br>ions           | 880                                      | 880                                      | 854                                      | 844                                      | 843                                      | 843                                      | 742                                      | 702                                      |
| R <sup>2</sup>                 | 0.0014                                   | 0.0529                                   | 0.0701                                   | 0.0697                                   | 0.0776                                   | 0.1141                                   | 0.6249                                   | 0.6216                                   |
| Adju<br>sted<br>R <sup>2</sup> | 0.0002                                   | 0.0507                                   | 0.0668                                   | 0.0652                                   | 0.0721                                   | 0.1077                                   | 0.6214                                   | 0.6172                                   |
| F<br>Stati<br>stic             | -2.7759                                  | 48.8372***                               | 63.9194***                               | 62.6535***                               | 70.2272***                               | 107.5180***                              | 1,223.0200***                            | 1,138.3370***                            |

Note: Standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Source: own calculations

## Results of random effects model on dependent variable nROE

| Data Panel regression Results  |  |  |  |  |  |  |  |  |
|--------------------------------|--|--|--|--|--|--|--|--|
| Dependent variable:            |  |  |  |  |  |  |  |  |
| nROE                           |  |  |  |  |  |  |  |  |
|                                | random.indivi<br>dual.nROE.d<br>ualCEO.1 | random.indivi<br>dual.nROE.d<br>ualCEO.2 | random.indivi<br>dual.nROE.d<br>ualCEO.3 | random.indivi<br>dual.nROE.d<br>ualCEO.4 | random.indivi<br>dual.nROE.d<br>ualCEO.5 | random.indivi<br>dual.nROE.d<br>ualCEO.6 | random.indivi<br>dual.nROE.d<br>ualCEO.7 | random.indivi<br>dual.nROE.d<br>ualCEO.8 |
|                                | (1)                                      | (2)                                      | (3)                                      | (4)                                      | (5)                                      | (6)                                      | (7)                                      | (8)                                      |
| dual<br>CEO                    | -3.1670<br>(2.6993)                      | -3.6623<br>(2.6465)                      | -3.8941<br>(2.6157)                      | -4.0930<br>(2.6215)                      | -3.7606<br>(2.6572)                      | 4.7080* (2.61<br>23)                     | -2.2122<br>(2.0663)                      | -4.2571* (2.25<br>83)                    |
| lnLI<br>QI                     |  | 3.7549***<br>(1.1718)                    | 4.4403***<br>(1.2199)                    | 4.4281***<br>(1.2301)                    | 4.7204***<br>(1.2391)                    | 3.8971***<br>(1.2224)                    | -2.2667**<br>(1.0498)                    | -1.5739<br>(1.0936)                      |
| lnST                           |  |  | -0.4901<br>(0.5428)                      | -0.3685<br>(0.6443)                      | -1.0108<br>(0.7454)                      | -1.2687*<br>(0.7327)                     | -0.2920<br>(0.6069)                      | -0.2886<br>(0.6224)                      |
| lnD<br>EB                      |  |  |  | -0.3777<br>(0.6480)                      | -1.2237<br>(0.7976)                      | -1.0104<br>(0.7835)                      | -2.5841***<br>(0.6748)                   | -2.6298***<br>(0.6895)                   |
| lnS<br>AL                      |  |  |  |  | 2.0141<br>(1.2264)                       | 2.3099*<br>(1.2045)                      | 1.4481<br>(1.0015)                       | 1.3540<br>(1.0316)                       |
| rCS                            |  |  |  |  |  | -8.0942***<br>(1.3408)                   | -15.0650***<br>(1.1435)                  | -15.4892***<br>(1.1908)                  |
| CAS<br>H<br>Zsco<br>re         |  |  |  |  |  |  | 124.5032***<br>(5.9632)                  | 125.1926***<br>(6.3611)                  |
| Con<br>stant                   | 12.5088***<br>(0.9515)                   | 11.4017***<br>(0.9804)                   | 15.9070***<br>(5.7150)                   | 18.7735***<br>(6.6520)                   | 8.2263<br>(9.8382)                       | 9.7774<br>(9.6620)                       | 21.1939***<br>(8.0252)                   | 23.7530***<br>(8.3721)                   |
| Obs<br>ervat<br>ions           | 880                                      | 880                                      | 854                                      | 844                                      | 843                                      | 843                                      | 742                                      | 702                                      |
| R <sup>2</sup>                 | 0.000005                                 | 0.0097                                   | 0.0129                                   | 0.0135                                   | 0.0173                                   | 0.0580                                   | 0.4110                                   | 0.4080                                   |
| Adju<br>sted<br>R <sup>2</sup> | -0.0011                                  | 0.0075                                   | 0.0094                                   | 0.0088                                   | 0.0115                                   | 0.0513                                   | 0.4054                                   | 0.4012                                   |
| F<br>Stati<br>stic             | -2.0605                                  | 8.2703**                                 | 10.6569**                                | 11.0533**                                | 14.3662**                                | 51.3158***                               | 512.1902***                              | 477.5729***                              |

Note: Standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

Source: own calculations