



CORPORATE VALUE AND CAPITAL STRUCTURE: A CASE OF CROATIAN, SLOVENIAN AND CZECH LISTED COMPANIES

Eleonora Kontuš¹² & Nataša Šarlija¹³

UDC / UDK: 658.141(497.5)(497.4)(437.3)

JEL classification / JEL klasifikacija: G30, G39

DOI: <https://doi.org/10.22598/pi-be/2022.16.2.77>

Preliminary report / Prethodno priopćenje

Received / Primitljeno: June 28, 2022 / 28. lipnja 2022.

Accepted for publishing / Prihvaćeno za tisak: November 25, 2022 / 25. studenog 2022.

Summary

This paper aims to explore the capital structure issue and corporate value and to investigate the effect of capital structure change on corporate value. Panel data regression was applied in the research. The empirical results show that all proxies of capital structure have a positive but not significant influence on the Sustainable Owners Value Added Ratio (SOVAR) as a performance proxy for joint-stock companies whose financial instruments are listed on the capital market in Croatia. The study indicates that the owners' equity has a negative and significant influence on the value of joint-stock companies in Slovenia while the long-term debt has a positive and significant impact on the value of listed joint-stock companies in the Czech Republic. Future work is needed to extend the analysis across different countries in the European Union and a long time series of data. Although investments are the most significant determinants of corporate value, the results indicate that 29.53% variability of the corporate value is explained by the variables owners' equity and long-term debt which represent capital structure. These results provide evidence that the capital structure decisions affect corporate value as well as capital structure is relevant for corporate value in the selected members of European Union.

¹² Eleonora Kontuš, Ph.D., City of Kastav, Croatia, E-mail: eleonora.kontus@ri.t-com.hr

¹³ Nataša Šarlija, Ph.D., Full Professor, University of Osijek, Croatia, E-mail: natasa@efos.hr

Keywords: *capital structure; owners' equity; retained earnings; long-term liabilities; corporate value.*

1. INTRODUCTION

One aspect of shareholder value creation is implementing a value-based management system, which can be used as an important tool in the decision-making process. A firm value rests more on its investments and operating decisions than on capital structure decisions in the long run. Value based management has generated considerable recent research interest. This paper aims to contribute to the debate by empirically exploring the effect of capital structure on the value of joint-stock companies whose financial instruments are listed on the capital market in Croatia, Slovenia and the Czech Republic. Capital structure includes equity, retained earnings and long-term liabilities and is part of the financing structure which also includes current liabilities. The optimal capital structure is often thought of as the financing mix that maximizes the value of a company. The value of a company is determined by the sum of the future discounted cash flows. Capital structure decisions should be evaluated in terms of their impact on corporate value which offers important economic benefits. Consequently, this research topic is useful and significant as well as challenging area. In this study we test the hypothesis that corporate value can be affected by capital structure decisions in a real world.

The scientific contribution of this research is as follows. Firstly, the findings reveal that capital structure decisions affect the value of joint-stock companies whose financial instruments are listed on the capital market. In contrast to the paper of Modigliani and Miller (1958), our results provide evidence that firm's financing decisions and capital structure influence its value in a real-world setting. Secondly, the findings reveal that equity ratio is a significant determinant of corporate value in Slovenia while long-term debt is a significant determinant of corporate value in the Czech Republic. Although investments are the most significant determinants of corporate value, the results indicate that 29.53% variability of the corporate value is explained by the variables owners' equity and long-term debt which represent capital structure.

The present work is structured as follows. The following section discusses the literature relating to value-based management. It also discusses capital structure issue in relation to corporate value. Section 3 provides a discussion of the methodology and the variable definition as well as the results of empirical analysis and the discussion. In section 4 some conclusions are drawn.

2. LITERATURE REVIEW

Value based management enables managers to consider both short and long term impact their decisions will have on the value of the firm by helping them identify and quantify the sources of value creation. In order to optimize shareholder value, managers should evaluate the effect all their decisions have on their value drivers (Copeland and Meenan, 1994). The company needs sufficient financial slack so that financing is quickly available for good investments. Debt financing is used to restructure ownership claims and change the managers' aim to maximize the value of corporations (Jensen, 1986). Furthermore, debt financing can be used to reduce equity agency costs as well as debt can have a positive influence on the value of a corporation.

A company's capital structure is mix of long-term debt, common stock and preferred stock. Before Modigliani and Miller's (1958) work, the conventional wisdom was that an appropriate amount of debt rises the value of a firm's common stock as debt financing is less expensive than equity financing (Cheremushkin, 2011). Modigliani and Miller point out that with perfect capital markets, capital structure is irrelevant for corporate value. They find that a firm's operations and not its financing decisions determine its value. As debt financing would balance expectations among all cash claimants, the influence of debt on corporate value can be positive (Harris and Raviv, 1991).

Much research in previous years has focused on capital structure issue and corporate value. The findings of earlier studies related to the effect of capital structure on corporate value are different. Philips et al. (2004) as well as Jiraporn and Lik (2008) argue that the capital structure is unrelated to corporate value. Philips et al. (2004) investigated the dependence between the capital structure and financial performance; their findings suggest that there is no significant relationship between the level of debt and financial performance measured by Tobin's Q. Jiraporn and Lik (2008) explored the impact of the capital structure on corporate value; their results demonstrate insignificant adverse impact on corporate value as a result of excess leverage.

Zeitung and Tian (2007) and Ruan et al. (2011) find that the capital structure is related to corporate value. Zeitung and Tian (2007) explored the influence of capital structure decisions on corporate performance; their results suggest a negative relationship between capital structure and corporate performance measured by Tobin's Q. Ruan et al. (2011) investigated the impact of managerial ownership on financial performance through capital structure choices, using a sample of China's listed companies for the 2002-2007 period. They applied two OLS models and simultaneous equations and the results indicate a nonlinear relationship between managerial ownership and corporate value. The results

of simultaneous regressions imply that managerial ownership influences capital structure which in turn affects corporate value.

Dimitrov and Jain (2008) investigated the effect of debt financing on stock returns in nonfinancial firms; their findings suggest a negative relationship between debt financing and risk-adjusted stock returns. They find that increasing the share of debt in the financial structure will decline the value of shares. George and Hwang (2009) find a significant negative relationship between debt financing and stock returns and explain that it could result from the bankruptcy costs. Sivaprasad and Muradoglu (2009) used the valuation model of Modigliani and Miller on firm's returns and debt financing; their findings suggest that stock returns decline in leverage as well as the relationship is linear. Loncan and Caldeira (2013) examined the relationship among capital structure, cash holdings and corporate value for a sample of Brazilian listed companies. Their findings suggest that short-term and long-term debt have negative influence on the corporate value.

Ha and Tai (2017) investigated the impact of capital structure on the value of joint-stock companies whose financial instruments are listed on the Ho Chi Minh Stock Exchange. Data was collected from 105 listed firms over the years 2009-2014. They used generalized least square method. They point out that short-term debt is negatively related to corporate value while the impact of long-term debt on the corporate value is insignificant. Kontus (2018) explored the relationship between long-term liabilities and financial performance of small and medium sized companies in Croatia. The findings suggest a negative dependence between long-term liabilities and profitability measured by return on assets. Ifada et al. (2019) examined the effect of capital structure on firm value. The findings suggest that capital structure has a positive influence on firm value. Dao and Ta (2020) have conducted descriptive and quantitative analysis to confirm that capital structure decisions have a negative impact on corporate performance. Tien and Thi (2021) explored the effect of capital structure on firm value in Vietnam. The results reveal that the impact of capital structure on firm value is significant and different across industries.

Although the effect of capital structure on corporate value has been extensively studied in recent years, little attention has been paid to the selection of appropriate capital structure components. In this work the following components are selected: owners' equity, retained earnings and long-term debt, to investigate the impact of capital structure on corporate value. Furthermore, there is a gap in the corporate finance literature regarding the corporate value issue of Croatian, Slovenian and Czech joint-stock companies whose financial instruments are listed on the capital market. Consequently, our research aims to bridge this gap.

3. DATA AND METHODOLOGY

Data from three members of the European Union: Croatia, Slovenia and the Czech Republic have been used in the empirical research. Croatia, Slovenia and the Czech Republic have been selected for a comparative analysis due to the fact that all three countries were established as a result of the split of their former countries that belonged to the similar socio-economic systems, and were all three involved in transition processes. This work offers results from empirical research undertaken on a sample of joint-stock companies whose financial instruments are listed on the capital market in Croatia, Slovenia and the Czech Republic with the aim of investigating the influence of capital structure on their value.

The data are obtained from the Financial Agency (FINA), AJPES and Prague Stock Exchange databases. Our initial sample consisted of 228 joint-stock companies whose financial instruments are listed on the capital market. The final sample consisted of a balanced panel of 143 listed companies from year 2009 to 2013 prior to 01 July 2013, when Croatia joined the European Union, as joint-stock companies showing extreme or inconsistent figures in any of the variables were excluded from the sample. Therefore, we cannot consider a longer period of time or attempt to perform the panel data analysis with more current data. Most notably, we believe that our empirical contribution will allow future contributions to compare the effect of capital structure on the value of joint-stock companies whose financial instruments are listed on the capital market across different scenarios after the year 2013.

Research on the impact of capital structure components on the value of Croatian joint-stock companies whose financial instruments were listed on the capital market in the period from 2009 to 2013 represents basic research for Croatian joint-stock companies before the accession of the Republic of Croatia to the European Union. As a result, the obtained research results are relevant for Croatian joint-stock companies whose financial instruments were listed on the capital market before Croatia's accession to the European Union. The results of the research carried out in this paper make it possible to compare the results of various studies of the capital structure and its impact on the value of Croatia's joint-stock companies before and after its accession to the European Union, as well as determine the impact of Croatia's membership in the European Union on operations, capital structure and the value of its joint-stock companies.

Panel data regression was used for research data analysis and we considered three types of panel data models: pooled OLS regression model, fixed-effects and random-effects models. A fixed-effects model is a regression model in which the model parameters are fixed variables. It explores the dependence between predictor and outcome variables.

The equation for the fixed-effects model can be expressed as follows:

$$Y_{it} = \beta X_{it} + \alpha_i + w_{it} \quad (1)$$

where

Y_{it} is the dependent variable observed for individual i at time t ,

β is the coefficient for that independent variable,

X_{it} represents one independent variable,

α_i ($i= 1 \dots N$) is the unobserved time-invariant individual effect,

w_{it} is the error term (Vijayamohan, 2016).

Random effects model is a linear panel model which assumes that the criteria for unit inclusion corresponds to randomness principles. The variation across entities is assumed to be random and uncorrelated with the predictor or independent variables included in the model. Random-effects assume that the entity's error term is not correlated with the predictors which allows for time-invariant variables to have a role as explanatory variables. The random effects model can be expressed as follows:

$$Y_{it} = \beta X_{it} + \alpha + u_{it} + \varepsilon_{it} \quad i=1 \dots N; \quad (2)$$

where

Y_{it} is the dependent variable observed for entity i at time t ,

β is the coefficient for that independent variable,

X_{it} represents one independent variable,

α is a constant that captures the mean of all unit-specific effects,

u_{it} is between entity error,

ε_{it} is within entity error (Vijayamohan, 2016).

The crucial distinction between fixed and random effects is whether the unobserved individual effect embodies elements that are correlated with the regressors in the model, not whether these effects are stochastic or not (Green, 2008). In our panel data set, the pooled OLS regression model has been applied as the reference model for comparing the performance of other models.

The Hausman test is performed in order to decide between a random-effects and a fixed-effects model. The validity of using a random-effects model is carried using the Breusch-Pagan Lagrange Multiplier (B-P/LM) test. The F-test was applied to decide between a fixed-effects and pooled OLS regression model. Panel data analysis was performed using Stata program version 15.0.

Empirical analyses are often performed with slightly different definitions of the variables investigated and periods of time analyzed. Results are sensitive to these choices. Furthermore, we provide an overview of the variables used in our empirical research:

$$\text{Equity to Capital} = \text{Equity} / \text{Capital Employed}$$

$$\begin{aligned} \text{Retained Earnings to Capital} \\ = \text{Retained Earnings} / \text{Capital Employed} \end{aligned}$$

$$\text{Long – term Debt to Capital} = \text{Long – term Debt} / \text{Capital Employed}$$

The corporate value can be determined according to Belak's (2014) formulas:

- *Net Residual Profit Ratio (NRPR)* =
$$\frac{(\text{profit} - \text{Capital and Retained Earnings} \times \text{Interest Rate on Deposits})}{(\text{Capital and Retained Earnings} \times \text{Interest Rate on Deposits})}$$
- *Sustainable Owners Value Added Ratio (SOVAR)* =
$$\frac{\text{Earnings Before Interest and Taxes} \times (1 - \text{Profit Tax})}{(\text{Capital and Retained Earnings} \times \text{Interest Rate on Deposits})}$$

4. RESULTS OF EMPIRICAL ANALYSIS

Based on sample of joint-stock companies whose financial instruments are listed on the capital market in Croatia, Slovenia and the Czech Republic, this study considers the effect of capital structure on the value of listed companies. Net Residual Profit Ratio (NRPR) and Sustainable Owners Value Added Ratio (SOVAR) are utilised as proxies for corporate value. As mentioned earlier, the proxies for capital structure are the following: owners' equity, retained earnings and long-term debt to capital ratios. The effect of capital structure on the value of joint-stock companies in the Republic of Croatia has been analysed, as shown in Table 1.

Table 1. Panel regression results of the effect of capital structure on the value of listed joint-stock companies in Croatia

Ratios		Net Residual Profit Ratio (NRPR)	Sustainable Owners Value Added Ratio (SOVAR)
Independent variables			
R ²		0.0223	0.107
Model		Random Effects	Random Effects
Equity	Coefficient	1.164028	.726451
	Standard Error	.7352067	1.266565
	p-value	0.113	0.566
Retained Earnings	Coefficient	-.554387	.343699
	Standard Error	.8089584	1.388992
	p-value	0.493	0.805
Long-term debt	Coefficient	-.5265226	.989517
	Standard Error	.9951213	1.716333
	p-value	0.597	0.564

Source: Authors' calculations

Therefore, we examined the effect of capital structure on the value of listed joint-stock companies in Croatia. Using the Hausman and B-P/LM tests, we are able to select random effects model as the efficient and consistent model for the variable SOVAR. The results between the independent variables and dependent variable SOVAR based on random effects are given in Table 2.

Table 2. Regression results with Random-Effects Model for Croatian listed joint-stock companies

Dependent variable: Sustainable Owners Value Added Ratio (SOVAR)

Independent variables	Coefficient	Standard Error	t-Statistic	p-value	95% Confidence Interval Lower	95% Confidence Interval Upper
Equity to capital	.726451	1.266565	0.57	0.566	-1.75597	3.208873

Retained earnings to capital	.343699	1.388992	-0.25	0.805	-3.066075	2.378675
Long-term debt to capital	.989517	1.716333	0.58	0.564	-2.374434	4.353469
Constant	.205555	.802821	0.26	0.798	-1.367944	1.779055

Source: Authors' calculations

R-squared = 0.107

F-test: $F(88, 353) = 1.51$; Prob > F = 0.0052

B-P/LM test: $\text{chibar}2(01) = 6.70$; Prob> $\text{chibar}2 = 0.0048$

Hausman's test: $\text{chi}2(4) = 5.81$; Prob> $\text{chi}2 = 0.2141$

White-test: $\text{chi bar}2(9) = 4.40$; Prob> $\text{chi bar}2 = 0.8832$

Wooldridge-test: $F(1, 88) = 0.085$; Prob>F = 0.7711

The coefficients reported for all proxies of capital structure in random effects model are positive, suggesting that capital structure components have a positive and insignificant influence on our dependent variable the value of selected joint-stock companies measured by SOVAR in Croatia. This indicates that in some cases capital structure may have been related to the value of joint-stock companies in Croatia.

In addition, the study investigated the effect of capital structure changes on the value of joint-stock companies whose financial instruments are listed on the capital market in Slovenia. The results of panel regression analysis of the effect of capital structure on the value of joint-stock companies are summarised in Table 3.

Table 3. Panel regression results of the impact of capital structure on corporate value of listed joint-stock companies in Slovenia

Independent variables	Ratios	Net Residual Profit Ratio (NRPR)	Sustainable Owners Value Added Ratio (SOVAR)
R ²		0.1593	0.2800
Model		Random Effects	Random Effects
Equity	Coefficient	-3.349836	-2.61578
	Standard Error	3.751972	1.460329
	p-value	0.372	0.007

Retained earnings	Coefficient	2.024177	.394310
	Standard Error	3.04764	1.188511
	p-value	0.507	0.740
Long-term debt	Coefficient	2.497344	.063477
	Standard Error	4.166293	1.622094
	p-value	0.549	0.969

Source: Authors' calculations

This study examined the impact of capital structure on the value of listed companies in Slovenia. Using the Hausman and B-P/LM tests, random effects model is identified as the efficient and consistent model for the dependent variable SOVAR. Table 4 presents in detail the results between the independent variables and variable SOVAR based on random effects model modified for heteroskedasticity and autocorrelation.

Table 4. Regression results with Random-Effects for Slovenian listed joint-stock companies

Dependent variable: Sustainable Owners Value Added Ratio (SOVAR)

Independent variables	Coefficient	Standard Error	t-Statistic	p-value	95% Confidence Interval Lower	95% Confidence Interval Upper
Equity to capital	-2.61578	1.460329	-1.79	0.007	-5.477972	.246413
Retained earnings to capital	.394310	1.188511	0.33	0.740	-2.723749	1.935129
Long-term debt to capital	.063477	1.622094	0.04	0.969	-3.115768	3.242723
Constant	1.930862	.864678	2.23	0.026	.236125	3.6256

Source: Authors' calculations

$R^2 = 0.2800$

F-test: $F(27, 109) = 2.76$; Prob > F = 0.0001

B-P/LM test: $\text{chibar}2(01) = 8.90$; Prob> $\text{chibar}2 = 0.0014$

Hausman’s test: $\text{chi}2(4) = 10.73$; Prob> $\text{chi}2 = 0.297$

White-test: $\text{chi bar}2(9) = 26.30$; Prob> $\text{chi bar}2 = 0.0018$

Wooldridge-test: $F(1, 27) = 41.807$; Prob>F = 0.0000

The coefficient reported for equity variable in random-effects is negative and significant at the 1% level relationship between equity and the value of listed joint-stock companies in Slovenia. This suggests that the value of examined joint-stock companies increases when the equity to capital variable decreases. The retained earnings and long-term debt variables have a positive and insignificant influence on the value of listed companies measured by SOVAR in Slovenia. The coefficient of determination is 0.2800 indicating that our model with three explanatory variables explains about 28% of the variation in the value of joint-stock company measured by SOVAR.

In the present study we explored the effect of capital structure changes on the value of listed joint-stock companies in the Czech Republic. The results of panel regression analysis of the influence of capital structure on the value of listed joint-stock companies are summarised in Table 5.

Table 5. Panel regression results of the effect of capital structure on corporate value of Czech listed joint-stock companies

Ratios Independent variables		Net Residual Profit Ratio (NRPR)	Sustainable Owners Value Added Ratio (SOVAR)
R^2		0.0881	0.2953
Model		Random Effects	Fixed Effects
Equity	Coefficient	-5.609613	-23.72941
	Standard Error	5.45731	14.79588
	p-value	0.304	0.113
Retained earnings	Coefficient	5.046345	1.165615
	Standard Error	7.256631	24.427
	p-value	0.487	0.962
Long-term debt	Coefficient	2.227752	9.29576
	Standard Error	6.494911	19.63422

p-value	0.732	0.000
---------	-------	-------

Source: Authors calculations

Using the Hausman and B-P/LM tests, we are able to select fixed effects model as the efficient and consistent model for the dependent variable SOVAR. The results between the independent variables and variable SOVAR based on fixed effects model corrected for heteroskedasticity and autocorrelation are presented in detail in Table 6.

Table 6. Regression results with Fixed-Effects for Czech listed joint-stock companies
Dependent variable: Sustainable Owners Value Added Ratio (SOVAR)

Independent variables	Coefficient	Standard Error	t-Statistic	p-value	95% Confidence Interval Lower	95% Confidence Interval Upper
Equity to capital	-23.72941	14.79588	-1.60	0.113	-53.24638	5.787568
Retained earnings to capital	1.165615	24.427	0.05	0.962	-49.89616	47.56493
Long-term debt to capital	9.29576	19.63422	4.7	0.000	53.12656	131.465
Constant	-11.60767	9.591476	-1.21	0.230	-30.74215	7.526796

Source: Authors' calculations

R-squared = 0.2953

F-test: $F(23, 69) = 1.78$; Prob > F = 0.0044

B-P/LM test: $\chi^2(01) = 0.00$; Prob > $\chi^2 = 1.0000$

Hausman's test: $\chi^2(3) = 18.43$; Prob > $\chi^2 = 0.0004$

White-test: $\chi^2(9) = 17.27$; Prob > $\chi^2 = 0.0047$

Wooldridge-test: $F(1, 23) = 233.323$; Prob > F = 0.0000

The coefficient reported for long-term debt variable in fixed-effects is positive and significant at the 1% level relationship between long-term debt and the value of listed companies. The regression results indicate that the value of examined joint-stock companies increases when the amount of long-term debt increases. The retained earnings variable has a positive and insignificant impact on the value of selected joint-stock companies while the equity has a negative and insignificant impact on the value of listed companies in the Czech Republic, suggesting that retained earnings and equity may have been related to the value of listed joint-stock companies. The coefficient of determination is 0.2953 indicating that our model with three explanatory variables accounts for about 29.53% of the variation in the value of company measured by SOVAR. Furthermore, we compare the obtained results for listed joint-stock companies in Croatia, Slovenia and the Czech Republic. These results are summarised in Table 7.

Table 7. Comparison of the results of the effect of capital structure on corporate value

Independent variable	Coefficients	Standard Error	p-value
The Republic of Croatia R ² = 0.107 Random-Effects	Dependent variable: Sustainable Owners Value Added Ratio (SOVAR)		
Equity	.726451	1.266565	0.566
Retained earnings	.343699	1.388992	0.805
Long-term debt	.989517	1.716333	0.564
The Republic of Slovenia R ² =0.2800 Random Effects	Dependent variable: SOVAR		
Equity	-2.61578	1.460329	0.007
Retained earnings	.394310	1.188511	0.740
Long-term debt	.063477	1.622094	0.969
Czech Republic R ² =0.2953 Fixed Effects	Dependent variable: SOVAR		
Equity	-23.72941	14.79588	0.113

Retained earnings	1.165615	24.427	0.962
Long-term debt	9.29576	19.63422	0.000

Source: Authors' calculations

As can be seen, the R squared coefficients for Slovenian and Czech listed companies which amount 0.2800 and 0.2953 indicate that 28% and 29.53% of the variability of the corporate value measured by SOVAR is explained by the owners' equity and long-term debt variables. There is evidence to indicate that inconsistent results of the effect of capital structure on corporate value are obtained for examined joint-stock companies in Croatia, Slovenia and the Czech Republic. Comparing the empirical results in table 7 indicates that the effect of capital structure on corporate value is not identical for listed joint-stock companies in the European Union.

5. DISCUSSION

Although the effect of capital structure on the corporate value was demonstrated in earlier studies, little attention has been paid to the selection of appropriate capital structure components. Previous work related to the capital structure and corporate value has focused only on total debt, long-term debt and short-term debt. Our study has empirically examined the impact of capital structure, measured with owners' equity, retained earnings and long-term debt ratios, on the value of listed joint-stock companies in Croatia, Slovenia and the Czech Republic.

The study proves that the changes in the capital structure affect business performance and corporate value differently in the surveyed joint-stock companies in the European Union. The results seem to indicate that the retained earnings and long-term debt have a positive impact on corporate value, but these variables are insignificant for corporate value in Croatia. In this study we have found that the equity variable has a negative and significant influence on the value of listed joint-stock companies in Slovenia indicating that as value of the equity to capital variable decreases the value of SOVAR tends to increase. Empirically, it seems that the equity is a significant factor in influencing the value of listed joint-stock companies in Slovenia. The negative sign of the coefficient implies that the value of listed companies is inversely affected by the use of owners' equity. The results demonstrate that listed joint-stock companies in Slovenia which use retained earnings and long-term liabilities to finance their business activities and investments increase their value but the impact of these variables on their value is not significant.

Furthermore, we have found that the long-term liabilities have a positive impact on the value of listed joint-stock companies in the Czech Republic which may be an indication that the SOVAR variable of the sample companies increases when the amount of long-term liabilities rises. The regression coefficient indicates that Czech listed companies which use long-term liabilities to finance their business activities and investments can increase their value as the impact of this component on their value is significant. Consequently, we can conclude that joint-stock companies whose financial instruments are listed on the capital market in the Czech Republic may increase their value by using long-term liabilities to finance their activities and investments. These results are not in line with those of Loncan and Caldeira (2013), who noted that short-term and long-term liabilities have negative effects on the firm value.

Empirically, it seems that the impact of capital structure on corporate value differed in examined joint-stock companies in the European Union. The results imply that the retained earnings have a positive impact on corporate performance and corporate value, but all regression coefficients for retained earnings are not significant. Regarding the influence of long-term liabilities on corporate value, we find a positive impact, meaning that a higher level of long-term liabilities leads to a higher corporate performance and corporate value. As the amount of long-term liabilities rises, the expected bankruptcy costs tend to increase. Further, the equity agency cost decreases while the value of companies increases, which makes long-term liabilities a reasonable option to finance the growth of listed joint-stock companies as well as offers important economic benefits. Consequently, financial managers should understand equity agency costs and try to minimize them in an attempt to maximize shareholder wealth.

This study offers an understanding of the relationship between capital structure choice and the value of joint-stock companies whose financial instruments are listed on the capital market in the European Union. The evidence suggests that the capital structure choice can affect corporate value. Thus, capital structure decisions which are not optimal or appropriate can subtract corporate value rapidly. Membership in the European Union may influence the capital structure choice and financial performance of listed joint-stock companies: long-term EU members have greater financial stability, less financing constraints and lower financial risks. Although the selected countries are now also members of the European Union, inconsistent results of the impact of capital structure on corporate value have been obtained for them in this research. The Republic of Croatia became member of the European Union later than the Republic of Slovenia and the Czech Republic, hence the difference in the respective effect of capital structure on corporate value. In the Republic of Croatia, the capital structure has a positive and insignificant influence on the value of listed joint-stock companies, while owners' equity variable is a significant determinant of corporate value in Slovenia and long-term debt is a significant

determinant of corporate value in the Czech Republic. These results are not in line with those of Philips et al. (2004) and Jiraporn and Lik (2008), who noted that the capital structure is unrelated to firm value.

This study is valuable to managers, potential investors and other stakeholders as it fills the gap of corporate finance literature by providing evidence of the effect of capital structure change on the value of joint-stock companies whose financial instruments are listed on the capital market in the selected countries.

6. CONCLUSION

This study highlights the importance of efficient value management for joint-stock companies whose financial instruments are listed on the capital market that can increase shareholder value by creating a sustainable competitive advantage through implementing an appropriate financial strategy.

The findings reveal that owners' equity is a significant determinant of corporate value in Slovenia while long-term debt is a significant determinant of corporate value in the Czech Republic. From an empirical point of view, it is quite likely that a higher level of long-term liabilities leads to a higher corporate value, which is economically important. Our results confirm that the retained earnings have a positive impact on corporate value, but all regression coefficients for retained earnings are not statistically significant. The results obtained in this research lead to the conclusion that the capital structure choices can affect the value of listed joint-stock companies. It was hypothesized in the introduction that corporate value can be affected by capital structure choices. Consequently, our hypothesis that capital structure choices can affect corporate value is partially confirmed.

Our study makes several contributions to the finance literature. Firstly, the findings reveal that capital structure decisions affect corporate value. In contrast to the paper of Modigliani and Miller (1958), we find that a firm's financing decisions and choice of capital structure determine its value in a real-world setting. Secondly, this is the first study, to our knowledge, to investigate the impact of capital structure on corporate value in the Republic of Croatia. The findings reveal that equity is a significant determinant of corporate value in Slovenia, while long-term debt is a significant determinant of corporate value in the Czech Republic. However, a corporate value depends more on investments and operating decisions than on financing decisions. Although investments are the most significant determinant of corporate value, the results indicate that 29.53% variability of the corporate value is explained by the variables owners' equity and long-term liabilities which represent the capital structure. Decisions

on capital structure affect corporate value, and capital structure is relevant for the corporate value in the selected EU member states. Thirdly, we give general recommendations for financial managers on how capital structure decisions should be made in order to improve corporate performance and corporate value. As the amount of long-term debt increases, the expected bankruptcy cost increases as well. However, as the agency cost of equity decreases, the corporate value rises, which makes long-term debt a rational option to finance the growth of joint-stock companies. Finally, this paper gives an answer to how the use of long-term debt and equity affects the value of joint-stock companies whose financial instruments are listed on the capital market. Thus, corporate value is influenced by capital structure decisions in the selected members of European Union. These results suggest that capital structure is relevant for corporate value.

However, some limitations are worth noting. It is important to note that the empirical research is based on secondary data taken from the published financial reports of the joint-stock companies whose financial instruments are listed on the capital market and the research is also based on ratio analysis, which has its own limitations. Future work should focus on different aspects of firm performance, different members of European Union and a long time series of data.

REFERENCES:

1. Belak, V., (2014), *Analiza poslovne uspješnosti*, Zagreb: Računovodstvo, revizija i financije.
2. Cheremushkin, S.V., (2011), *Capital Structure Irrelevance: The Modigliani-Miller Model, Capital Structure and Corporate Financing Decisions*, New Jersey: John Wiley & Sons.
3. Copeland, T., Meenan, J., (1994). AT&T Uses Shareholder Value as a Guide to Strategy, *Planning Review*, 22, 27-34.
4. Dao, B.T.T., Ta, T.D.N., (2020), "A meta-analysis: capital structure and firm performance", *Journal of Economics and Development*, 22 (1), 111-129.
5. Dimitrov, V., Jain, P. C., (2008), "The Value-Relevance of Changes in Financial Leverage Beyond Growth in Assets and GAAP Earnings", *Journal of Accounting, Auditing and Finance*, 23(2), 191-222.
6. George, T. J., Hwang, C. Y., (2009), "A Resolution of the Distress Risk and Leverage Puzzles in the Cross Section of Stock Returns", *Journal of Financial Economics*, 96, 56-79.
7. Green, W.H. (2008), *Econometric Analysis*, New York: Prentice Hall.

8. Ha, N. M., Tai, M., (2017), "Impact of Capital Structure and Cash Holdings on Firm Value: Case of Firms Listed on the Ho Chi Minh Stock Exchange", *International Journal of Economics and Financial Issues*, 7(1), 24-30.
9. Harris, M., Raviv, A., (1991), "The Theory of Capital Structure", *Journal of Finance*, 46(1), 297-355.
10. Ifada, L.M., Faisal, F., Ghozali, I., Udin, U., (2019), "Company attributes and firm value: Evidence from companies listed on Jakarta Islamic index", *Revista Espacios*, 40(37), 11.
11. Jensen, M., (1986), "Agency Costs of Free Cash Flows, Corporate Finance and Takeovers", *American Economic Review*, 76(2), 323-329.
12. Jiraporn, P., Lik, Y., (2008), "Capital Structure, Staggered Boards and Firm Value", *Financial Analysts Journal*, 64(1), 49-60.
13. Kontus, E., (2018), *Financing Management of Companies*, In: Dominici G., Del Giudice M., Lombardi R. (eds.), *Governing Business Systems*, Cham: Springer.
14. Loncan, T. R., Caldeira, J. F., (2013), "Capital Structure, Cash Holdings and Firm Value: a Study of Brazilian Listed Firms", *Revista Contabilidade & Finanças*, 25(64), 46-59.
15. Modigliani, F., Miller, M., (1958), "The Cost of Capital, Corporate Finance and the Theory of Investment", *American Economic Review*, 48(3), 261-297.
16. Phillips, P.A., Sipahioglu, A.M., (2004), "Performance implications of capital structure: evidence from quoted UK organisations with hotelinterests", *The Service Industries Journal*, 24(5), 31-51.
17. Ruan, W., Tian, G., Ma, S., (2011), "Managerial Ownership, Capital Structure and Firm Value: Evidence from China's Civilian-run Firms", *Australasian Accounting Business and Finance Journal*, 5(3), 73-92.
18. Sivaprasad, S., Muradoglu, Y.G., (2009), "An Empirical Analysis of Capital Structure and Abnormal Returns, <http://dx.doi.org/10.2139/ssrn.948393>.
19. Tien, D.D., Thi, V.T.D., (2021), "Does capital structure affect firm value in Vietnam?", *Investment Management and Financial Innovations*, 18(1), 33-41.
20. Vijayamohan, P. N., (2016), *Panel Data Analysis with Stata Part 1 Fixed Effects and Random Effects Models*, <https://mpra.ub.uni-muenchen.de/76869/>.
21. Zeitung, R., Tian, G.G., (2007), "Capital structure and corporate performance", *The Australasian Accounting Business and Finance Journal*, 1(4), 40-61.

VRIJEDNOST DIONIČKIH DRUŠTAVA I STRUKTURA KAPITALA: ISTRAŽIVANJE HRVATSKIH, SLOVENSКИH I ČEŠKIH DIONIČKIH DRUŠTAVA

Eleonora Kontuš & Nataša Šarlija

Sažetak

Cilj ovog istraživanja je istražiti međuzavisnost strukture kapitala i vrijednosti dioničkih društava te istražiti utjecaj promjena strukture kapitala na vrijednost dioničkih društava. Panel regresijska analiza je korištena za analizu podataka. Empirijski rezultati su pokazali da sve varijable strukture kapitala imaju pozitivan utjecaj, koji nije statistički značajan, na pokazatelj Sustainable Owners Value Added Ratio (SOVAR) kao mjeru performanse vrijednosti za dionička društva čiji su financijski instrumenti uvršteni na tržište kapitala u Republici Hrvatskoj. Nadalje, rezultati istraživanja pokazuju da glavnica ima negativan i statistički značajan utjecaj na vrijednost dioničkih društava u Sloveniji dok dugoročni dug ima pozitivan i statistički značajan utjecaj na vrijednost dioničkih društava u Češkoj Republici. Buduće istraživanje treba proširiti analizu na različite zemlje Europske unije i veće vremenske serije podataka. Iako su investicije najznačajnija determinanta vrijednosti poduzeća, rezultati istraživanja pokazuju da je 29.53% varijabilnosti vrijednosti dioničkih društava objašnjeno pomoću varijabli glavnica i dugoročni dug koje predstavljaju strukturu kapitala. Ovi rezultati dovode do zaključka da odluke o strukturi kapitala imaju utjecaja na vrijednost dioničkih društava u stvarnom svijetu te da je struktura kapitala relevantna za performansu vrijednosti dioničkih društava u odabranim članicama Europske unije.

Ključne riječi: *struktura kapitala; vlasnička glavnica; zadržani dobitak; dugoročni dug; vrijednost dioničkih društava.*