THE ANALYSIS OF THE RELATION COUNTRY RISK – MULTIPLE VALUE

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Abstract*: Financial theory state that high expected growth, low risk in the company's sector and low interest rates will push multiples higher. In this respect the goal of the empirical work is to examine country risk-multiple value relation, for the companies from emerging and frontier markets such as Central and East European ones. Specific control variables have been included in the model as proxy for growth opportunities, profitability, capital structure, and asset utilization. Using panel data analysis for period 2010-2015 as well as other financial variables for a sample of Central and East European countries during 2010-2015. The results partially support financial theories, mainly the significance of country risk and debt ratio and reject the growth opportunities hypothesis.*

Keywords: multiple value, country risk, growth, profitability, capital structure, asset utilization

JEL classification: C 58, G 32

1. Introduction

For being able to analyze the financial situation of a certain company, a decisive role in the process is assigned to the firm's value. Obviously, firm's value, better its position on the market and more attractive is the company for possible investors.
Firm value can be examined from different approaches. According to one of the approaches, a company's value in the balance sheet represents the value of its assets, based on the income statement. At the same time, a firm's value can be calculated by using the value of sales, earnings, and several other indicators.
More comprehensively, a firm's value represents the entire economic value of an entity, often used as an alternative to market capitalization and a measure of the theoretical takeover price that investors have to pay to buy a company. In the event of acquisition, an investor would also have to take on the company's debt. According to Aswath Damodaran (2015), `the conventional measure of firm value is obtained by adding the market value of equity to the market value of debt`.
A firm's value differs significantly from the simple market capitalization in several ways, and may be considered a more accurate representation of a firm's value.
Along with the increasing of its value, the company can benefit from accessing more capital funding sources from the financial market or an attractive selling price when the company is acquired or merged. A firm's value is critical for its stakeholders, mainly for its shareholders, because it affects the value of their fortune on the market.

Financial theory state that high expected growth, low risk in the company's sector and low interest rates will push multiples higher. For the purpose of testing such relation, the goal of the paper focus on country risk-valuation relation, as well as other financial variables for a sample of Central and East European countries during 2010-2015. The results partially support the theory, mainly the significance of country risk and debt ratio and the insignificance of growth opportunities.
The remainder of the paper is organized as follows. Section 2 revisit literature review concerning the determinants of firm value. Section 3 describes the data collection, variables used in the model, and methodological framework. Section 4 reports and interprets the results. Section 5 provide some conclusions.

2. Literature review

Considering the benefits along with enhancing a firm's value, one has to determine the factors that play a decisive role in affecting its market price. According to several authors, a plurality of factors can be pinpointed, among them: capital structure, Net Sales, Profit, Fixed Assets.
In this line, Damodaran, A. (2009) investigated the economic determinants of equity risk premiums, including investor risk aversion, information uncertainty and perceptions of macroeconomic risk.
The strategic management reveals four major determinants of value creation at the company`s level, namely: `human resources, technology, and innovation, unit costs economics, and the infrastructure and strategy of the firm` (Pitelis, 1998, 2009).
In this regard, the authors Pitelis, C.N. and Vasilaros, V. (2010) developed a local, mezzo and national frame on the firm's value determinants of value/wealth, by including 17 OECD countries in their analysis. The authors refer to sustainability as a requirement of internal and external, institutional and global controls. Also, a sustainable creation of corporate value needs nationally regulated corporate governance, by considering environmental, social, and economic factors.
Starting from the argument that a correct evaluation of firms is essential for potential investors, the author Wang, C.J. (2014) divided the key factors affecting a firm's value into internal and outward macroeconomic factors.
As well as the authors mentioned above, the researcher emphasizes the great importance of corporate governance mechanisms, in offering indispensable information for investors, since sound governance facilitates the benefits of shareholders. The author has chosen to use a pooled estimation regression and Differential Slope Estimation to identify the macroeconomics and corporate governance factors influencing firm value in Taiwan's green technology industry. The results suggest that return on equity, the foreign investor stockholding rate, and board size were significantly and positively related to the firm's stock price, unlike the firm's credit rating.
Following a similar idea and using as main research method the Partial Least Square, the researchers Putu, N.N.G.M., Moeljadi, Djumahir and Djazuli A. (2014) investigated the impact of social responsibility, Corporate Governance and Firm size on firm value in 42 selected manufacturing firms listed on Indonesia Stock Exchange. Their study was based on using as an exogenous variable: social responsibility, Corporate Governance, and Firm size, as an endogenous variable the firm value, and as intervening variable the profitability. The results revealed that Corporate Social Responsibility, Corporate Governance, and Firm size have a

positive effect on Profitability, and Corporate Social Responsibility, Corporate Governance, Firm size, and Profitability have a positive effect on Firm value.

Later on, the author Winarto, J. (2015) also explored the determinants of the business value of 32 listed manufacturing companies at Indonesia Stock Exchange, for the period 2005 - 2010. The authors divided the factors into policy (financing, investment, and dividend policies) and performance (liquidity, profitability, activity, and size). On one hand, the results showed that the funding, dividend policy, and profitability had the positive and significant influence on firm value. Also, investment policy had a positive impact and significant to firm value at 10% level. On the other hand, liquidity had a meaningful negative influence on firms' value, while activity and size had no effect to firm value.

According to Reis, P., and Augusto, M. (2013), the most important variables in determining the terminal value of a firm are: Earnings per share (EPS), free cash flow (FCF), average life expectancy, R&D, Manageability, Liquidity of social parts of the company, Capital structure, Dividends per share (DPS) and Book value per share (BVPS).

Reis, P.M.N., and Augusto, G.A. (2014) estimated the value of a firm in two stages, by using final survey answers: the first stage comprising a specific analysis period and the second stage being based on an unlimited number production period, by using the terminal value. By having included 123 valid responses, the authors concluded that importance may be conferred to life expectancy, liquidity and operating performance, innovation and ability to allocate resources to R&D, management capacity and capital structure.

The authors Rajhans, R.K. and Ka, K. (2013) investigated the determinants of firm value creation comprising 16 companies of four sectors, namely: Metal, Fast Moving Consumer Goods, Information Technology and Automobile industry listed on Bombay Stock Exchange (BSE), for the period 2002-2011. The authors have included as financial variables the following, by using the Pooled Regression Model to identify the significant factors: Net Sales, Profit, Fixed Assets, dividend pay-out ratio and capital structure. The results confirm Modigliani and Miller`s theory, in the sense that capital structure does not influence a firm`s value. At the same time, WACC, fixed assets, net sales and profit had a significant impact on a company`s value.

Special attention was granted to the banking sector by the authors Aloys, A. and Wamalwa, F. (2015), by examining the determinants of the firm value of commercial banks listed on the Nairobi Securities Exchange (NSE), for the period 2002-2012. The results reported assets, capital structure, cash flows, dividend ratio and intangible as not statistically significant individual effects on the firm value and, at the opposite side, the market capitalization.

Lins Karl V. (2003) investigated whether management stock ownership and large non-management block holder share ownership are related to firm value, by including a sample of 1433 firms from 18 emerging markets. The author found out that when a management group's control rights exceed its cash flow rights, firm values are lower, and that large non-management control rights block holdings are positively related to firm value. The effects were found to be more notable in countries with low shareholder protection.

By using a sample of 988 privatized Czech firms, Makhija, A.K. and Spiro M. (2000) found that share values are positively related with the ownership stakes of foreigners, insiders, and constituents. On the other hand, the authors revealed that

property of the fund with the largest stake is not significantly related to sharing value, suggesting that the value of external blocks depends on the identity of the owner. However, when the fund is also the largest block holder in the company, it hurts share value.

3. Data and methodology

For the firm level data have been collected from Infinancials database whereas for the country level data have been collected from the Damodaran's website (www.damodaran.com). For the purpose of constructing the sample, two main criteria have been considered. First, it were selected only companies from central and eastern Europe (CEE) countries, given that for the developed markets there is a consistent empirical body. In this respect we focus on the firm behavior in emerging and frontier countries. Second, we select public industrial companies which have available information for the period 2010 to 2015 to examine the post-crisis period. Therefore, the final sample includes 1092 observations, with 182 companies from 10 CEE countries.

The dependent variable used as proxy for valuation is price-to-book ratio (PB) It's worth to be mentioned that by using a market approach for dependent variable in respect with independent variables we deal with the endogeneity issue for the econometric model.

For analyzing the impact of country risk, total equity risk premium (CR) is used as proxy for variable of interest, given that is a key component of every valuation model. The total equity risk premium reflects fundamental judgments we make about how much risk we see in an economy and what price we attach to that risk (Damodaran, 2009). In this respect, the following hypothesis will be tested:

H_0: "Higher country risk is associated with lower firm value, i.e. $PB = f(ERP)$*"*

For the purpose of robustness, several control variables have been included in the model. According to the financial theories as well as previous works, we included sales growth ratio (SGR) as a proxy for growth opportunities, return on equity (ROE) as a proxy for profitability, net debt to equity ratio (DR) as a proxy for capital structure, and payout ratio (PR) and natural logarithm of cash conversion cycle (CCC) as proxies for asset utilization.

SGR is measured as 1 year growth rate in net sales and the sign of the impact is ambiguous depending on life cycle theory. ROE is measured as ratio of net income to shareholders equity and is likely to have a positive impact on valuation. DR is measured as ratio of net financial debt to equity and channel a signal to the stakeholders. A negative impact support pecking order and risk-return theories while a positive impact support trade-off theory of capital structure. PR is measured as ratio of dividends paid to net income and support signaling theory of dividends. Finally, CCC is a short-term financial decision proxy measured as natural logarithm between inventory period and accounts receivable period minus accounts payable period. Previous findings support a negative association between CCC and performance, i.e. the increase of length of cash lead to a decrease of performance, therefore a negative association is expected.

Regarding the methodology used, the sample structure with both firm level and year level is suitable for panel data. Panel data exhibit the advantage of controlling for unobservable heterogeneity across firm effect. When the hypotheses for consistency and efficiency hold, the coefficients are BLUE and OLS may be used (Baltagi, 2008). However it has been widely discussed in literature the superiority

and utilization of fixed (FE) or random effects (RE) models, either in one-way or two-way error form (Pitelis and Vasilaros, 2010). FE and RE models control for unobservable effects, but also they follow different assumptions and approaches. On the one hand FE models can reduce the omitted variable bias since are eliminated firm specific factors that are constant over time. On the other hand, RE models includes unobservable effects in the error term. In this respect, the step-by-step analysis require to estimate first the OLS model, and then FE and RE models with test for random effects (Breusch-Pagan LM) and Hausman test for selecting the most appropriate model. Given this, the empirical testable model can be expressed as follow:

$$PB_{i,t} = \alpha + \beta_1 \times CR_t + \beta_2 \times SGR_{i,t} + \beta_3 \times ROE + \beta_4 \times DR_{i,t} + \beta_5 \times PR_{i,t} + \beta_6 \times CCC_{i,t} + \varepsilon_{i,t} \quad (1)$$

where:

PB – price to book value
CR – total equity risk premium
SGR – sales growth rate
ROE – return on equity
DR – debt ratio
PR – payout ratio
CCC – cash conversion cycle
i – number of firms, $\overline{1,182}$
t – number of years, $\overline{2010,2015}$
$\varepsilon_{i,t}$- error component

4. Results

Table 1 report summary statistics of the variables used in our model, with panel A reporting descriptive statistics and panel B reporting correlation matrix of the variables.

Table 1: Summary statistics

Panel A Descriptive statistics							
	PB	**CR**	**SGR**	**ROE**	**DR**	**PR**	**CCC**
Mean	1.690	0.072	0.086	0.118	0.250	0.259	3.819
Median	1.110	0.071	0.062	0.092	0.205	0.000	3.873
Maximum	15.290	0.096	0.963	1.494	5.040	8.982	6.821
Minimum	0.080	0.058	-0.935	-0.623	-3.400	0.000	0.788
Standard Deviation	1.867	0.008	0.230	0.169	0.570	0.610	1.071
Panel B Correlation matrix							
	PB	**CR**	**SGR**	**ROE**	**DR**	**PR**	**CCC**
PB	1						
ERP	-0.120	1					
SGR	0.165	-0.052	1				
ROE	0.476	-0.025	0.215	1			
DR	-0.250	0.021	-0.092	-0.245	1		

PR	0.074	0.132	-0.113	0.028	-0.240	1	
CCC	-0.150	-0.107	-0.044	-0.095	0.144	-0.151	1

Source: Author's calculation

The average PB is higher than unity and therefore one can say that the analyzed companies are creating value. Furthermore, these firms are characterized by a quite low profitability (11%), low DR (25%) and short length of cash cycle (nearly 45 days). Furthermore, PB, SGR, ROE, DR and PR present volatility while for remaining variables (CR, CCC)) volatility is not pronounced.

The correlation matrix is reported in panel B and led to the conclusion that none of the pairs, particularly for independent variables, has a very high correlation. This conclusion suggests that the estimation equation may not be affected by multi-collinearity problem. Further, the relation between CR and PB is negative which support risk return trade off.

Table 2 reports the results for all three models considered from equation 1, i.e. ordinary least squares (OLS – columns 2), the fixed effect model (FE – columns 3) and the random effect model (RE – column 4).

Table 2: Firm value determinants

VARIABLES	**MODELS**		
	OLS	**FE**	**RE**
CR	-28.117***	-25.535***	-25.733***
	(6.18)	(4.939)	(4.893)
SGR	0.466**	0.105	0.151
	(0.218)	(0.134)	(0.137)
ROE	4.650***	0.343	0.913***
	(0.302)	(0.221)	(0.222)
DR	-0.378***	-0.222**	-0.310***
	(0.091)	(0.097)	(0.091)
PR	0.128	-0.086	-0.040
	(0.084)	(0.061)	(0.061)
CCC	-0.169***	-0.125	-0.190***
	(0.046)	(0.089)	(0.067)
CONS	3.835***	4.040***	4.241***
	(0.5)	(0.495)	(0.457)
R-squared	0.27	0.12	0.18
F-statistic	67.12	6.98	
Wald chi2			76.29
Hausman test (p-value)		0.23	
BPLM test[a] (p-value)			0.00
# Groups	182	182	182
# Observations	1092	1092	1092

Source: Author's calculation

Notes: Standard errors are shown in parantheses. Significance level at which the null hypothesis is rejected: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$. [a] Breusch and Pagan Lagrangian Multiplier test for random effects.

In the OLS model, barring PR all variables are significant and according to the sign suggested in the correlation matrix. In order to detect multicolinearity a variance inflation factors test have been carried out, the results being reported in table 3.

Table 3: Multicolinearity test

Variable	VIF	1/VIF
DR	1.15	0.87
PR	1.12	0.89
ROE	1.11	0.89
SGR	1.07	0.93
CCC	1.05	0.95
CR	1.03	0.96
Mean VIF	1.09	

Source: Author's calculation

Given the rule of thumb from the literature (VIF higher than four) we are comfortable with the conditioning of our valuation regression model, as maximum VIF is 1.15.

Column 3 and 4 from table 2 reports the results for one way error component model, fixed effects and random effects respectively. Subsequently, a Hausman test was employed to select the most appropriate model. The p-value obtained do not reject of the null, indicating that random effects model is more suitable and efficient (column 4). Supplementary, the Breusch-Pagan LM test do not reject the validity of random effects model.

The results from RE model can be interpreted as follows. First and foremost, CR is significant and negatively associated with firm value, fact that do not reject H_0 (*"Higher country risk is associated with lower firm value"*). Second, DR and CCC are significant and negatively associated with firm value, consistent with pecking order theory. Third, ROE is significant and positive associated with firm value, consistent with general aim of a company and the investors' perceptions regarding the relation between the value of the company and its financial performances. Fourth, SGR and PR are insignificant in explaining firm value creation process, consistent with life cycle theory and irrelevance dividend theory.

Overall, the results support financial theories as well as previous findings from the literature. That is, if country risk is increased it is likely to negatively impact firm value. In addition, if debt ratio increase that favor the increase of financial risk at firm level and therefore the value is decreasing.

5. Conclusions

The goal of the paper was to examine the influence of country risk as measured through total equity premium risk in constructing value creation process for CEE companies. The results suggest that country risk has a significant negative correlation with firm value, which is consistent with risk return trade off. In addition, the negative impact is robust to alternative econometric models employed.

Specific control variables have been included in the model as proxy for growth opportunities, profitability, capital structure, and asset utilization. Among them, debt ratio, profitability and cash conversion cycle are significant in explaining valuation, consistent with pecking order theory of capital structure. Growth opportunities seems to be insignificant in value creation process which can be related to the life cycle of the company, i.e. characterized by a maturity level. It couldn't be ignored that in terms of magnitude, country risk has the highest impact over firm value, highlighting the importance of macroeconomic conditions for business environment.

We conclude that the results extent the existing literature and have implications for practitioners given that valuation through multiple based on equity value indirectly the financial structure of the company.

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