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IMPACT OF FINANCIAL STRUCTURE ON RETURN ON EQUITY: EVIDENCE FROM WHOLESALE OF MOTOR VEHICLE PARTS AND ACCESSORIES INDUSTRY

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Abstract

A widely debated topic during the last years is represented by the choice of financial structure of companies, especially in developing or emerging countries, characterized by economies without a tough and a mature financial system. The purpose of this research is to determine whether there is a relationship between capital structure and firm performance of firms active in Romania in the wholesale of motors vehicle parts and accessories (NACE 4531). Capital structure refers to how a firm chooses to finance their assets and future growth by dividing debt into subcategories (bank, commercial) and time horizon, while firm performance is evaluated by the return on equity (financial return). By determining this relationship, firms in these sectors should have a better understanding of how to select the financing for their future growth. The main output of the study consists in the fact that the financial structure divided by debt components of the companies does not influence significantly the return on equity during periods of low interest rates, like the case of Romania during 2016.

Keywords: Capital Structure, Return on Equity, Financial Leverage, EBIT

JEL Classifications: G30, G32

1. Introduction

The current paper aims to evaluate the impact of financial structure on the return on equity. According to the literature review presented in the following section, it is very important to understand the principal drivers of the return on equity to understand the going concern of the subject company and long term solvency. The importance of financial return is driven from its multiplication effect on the sustainable growth rate on long term for companies, the latter being dependent on the reinvestment rate of capital and financial return. Hence, the financial return can be used as a proxy to understand shareholders cost of opportunity, critical in the capital structure decisions. Linked to this, modest financial return (or negative values) are found to be one of the most important explanations for companies' insolvency risk, due to lower long term going concern. Furthermore, in the literature review, several researches have focused on determining the

principal drivers of the financial return. Among the most common variables used to explain the evolution of the financial return are: profit margins (operating, gross margin, net result after tax), financial burden, operating leverage balance sheet structure and capital structure (financial leverage).

Methodology and sample description are presented in the third section, providing further details on the multifactor regression initial and adjusted model. The first model is adjusted due to multicollinearity issues among financial structure independent variables. The results are presented in the fourth section for both the initial and adjusted model. According to the multifactor regression equation results in E-Views, we conclude that subcomponents of financial structure are less important in explaining the return on equity. Instead, we conclude that general leverage, together with new independent variables included (operating margin and asset turnover) are more important in structuring the evolution of financial return. Results can be explained by the particular situation of the general business environment active in Romania. More specifically, companies active in Romania register the higher indebtedness among the European Union, due to intensive decapitalization trend fueled by lower tax on dividends and increasing frequency of dividend distribution from annual to quarterly. Bank loans are rather stable, despite the decreasing interest rates during 2009-2016 with low inflationary pressures. This is explained by the propensity of Romanian companies to finance working capital and long-term investments with trade credit (extended payment terms to suppliers).

Conclusions are provided in the end, by highlighting the principal findings in the literature review and comparing the results of both econometric models. We conclude that future research to evaluate return on equity sensitivity under stress test scenarios would be very useful to provide an insight of financial return amid increasing interest rates and different fiscal tax on dividend. This is very necessary especially given the very unpredictable fiscal environment in Romania, with pro-cyclical fiscal measures casing high volatility in the overall economic growth and the financial return of companies.

2. Literature review

Return on equity (ROE), or the financial return, is one of the most important indicators that shareholders use to evaluate the return of the capital invested in the company (Cace *et al.* 2011). According to Alcock and Steiner (2017), higher financial return coupled with increased reinvested capital will accelerate the future growth of any company. If shareholders decide the lower dividends on short term, and the management will invest the additional capital in projects with positive net present value, this will increase the long term sustainable growth rate (Vijayakumaran, 2018). On the other hand, higher distribution on dividends can satisfy shareholders on short term, but limit the future growth of the company due to additional leverage necessary to finance long term investments (Muradoglu and Sivaprasad, 2012). On the other hand, Miglo (2014) found that financial return should exceed the cost of opportunity (second best option) that shareholders have when deciding the invest the available capital in the company. The objective expectations of the shareholders should be set according to the three prime: country risk (in which company is located), the sector risk (operating company) and the risk of the company (Wibowo, 2005). Some researches have found that modest return on equity are the principal cause of companies insolvency risk increase on the long run, because shareholder's support and interest decrease to provide long term going concern (Ting, 2012). If this happens, financial cash will depend only on borrowed funds from credit institutions, increasing the leverage and fueling pressure over the operating cash flow (Anthony, 2011). This creates additional risk for companies active in countries with high inflation and, therefore, increasing interest rates, making them more vulnerable amid high cost of capital (Vintila *et al.* 2018). On the other hand, several studies indicate that large return on equity values compared to historical average (10 years trend) will generate downsize pressure due to mean reversion pattern, especially in small entry barriers sectors (Skopljak and Luo, 2012). This is due to new competition attracted by high financial return coupled with minimum initial investment (Avci, 2016).

Several researches have focused on determining the principal drivers of the financial return. Some studies use multifactor models or panel date with profitability indicators as principal

drivers for the financial return, by including the financial burden reflected by interest charge (Agnihotri, 2014), financial result of the company (or the spread between gross margin and operating result (Picu *et al.* 2009). Operating leverage was also found to positively impact the return on equity during expansionary periods, but act as negative boomerang effect during recessionary periods, due the economies of scale provided by fixed costs. Others focus instead on balance sheet structure and financial leverage (Dima *et al.* 2013). Using the 5-variable DuPont model, we can better understand the financial performance component (Melvin *et al.* (2004), Kasilingam and Jayabal (2012)), where the opposite effect of the leverage effect on financial return (the increase in the indebtedness degree implies the reduction of capitalization and, implicitly, the increase of the financial return by the basis effect) and the degree of the financial burden (the increase of the indebtedness feeds the increase of the interest and implicitly the erosion of the operational profit).

The impact of the capital structure by debt components was found only in the recent research of the literature review. Chadha and Sharma (2015) evaluate the impact of capital structure on firm performance and find that increasing financial leverage has a positive impact over the financial return provided the company has enough operating profit to cover interest costs, and recommend that interest coverage ratio to exceed five time for financial comfort during business cycles, whereas companies with interest coverage ratio bellow 3 are exposed to increasing financial burden that would offset the beneficial effect of leverage and reduce financial return. Tudose (2012) found that companies that higher trade credit (payables with extended payment terms to suppliers) instead of financial debt from credit institutions will generate higher return on equity due to lower financial burden and cost of capital.

3. Methodology and sample description

3.1. Methodology

To capture the impact of capital structure on financial return, the initial model used is a multifactor regression with six independent variables to explain the return on equity:

$$ROE_i = \alpha_1 + \alpha_2 * X1_i + \alpha_3 * X2_i + \alpha_4 * X3_i + \alpha_5 * X4_i + \alpha_6 * X5_i + \alpha_7 * X6_i + \mu_{it} \quad (1)$$

where:
ROE = Net Income / Equity
X1 = Equity / Assets
X2 = Turnover / Assets
X3 = Debt from credit institutions on short term plus long term / Assets
X4 = Commercial debt contracted from non-credit institutions (payables, fiscal, diverse) / Assets
X5 = short term debt borrowed from credit intuitions / Assets
X6 = Interest expense / Debt from credit institutions

Because of the multicollinearity issues and small p-values for the t-test related to financial debt independent variables (coefficients are not statistically significant), the initial model was adjusted with the following adjustments: general leverage indicator was introduced as independent variable to replace the short term debt structure (bank and non-credit institutions components of debt), and two new variables were introduced (operating margin and asset rotation), in line with DuPont model 3 factors.

The second model used is a multifactor regression equation with three independent variables:

$$ROE_i = \alpha_1 + \alpha_2 * X1_i + \alpha_3 * X2_i + \alpha_4 * X3_i + \mu_{it} \quad (2)$$

where:
ROE = Net Income / Equity
X1 = EBIT / Turnover
X2 = Equity / Assets
X3 = Turnover / Assets

As illustrated and explained in the results section, the second improved model generates better results from both coefficient of determination and statistical significance of coefficients.

3.2. Sample description

For the analysis of the components of the financial return according to the variables previously explained in the methodology section, the information in the extended financial statements (particularly with regard to the profit and loss account) is required. For this reason, companies that are active in the wholesale of motor vehicle parts and accessories (NACE: 4531) were selected and for which the financial statements are available in extended format for 2016 financial exercise (the latest available year for large sample of companies at this moment). Thus, 194 companies have been identified that meet the criteria mentioned above, being companies with a turnover of more than 1 mil euro and generating a consolidated market share of about 85% for the entire selected sector. The descriptive statistics for the return on equity and all the independent variables computed for all selected companies are illustrated in the Table 1.

Table 1. Descriptive statistics

Statistic	ROE	Equity	Turnover	Bank	Debt_3RD	Bank_SD	Interest
Mean	0.2495	0.3693	2.0272	0.1082	0.4461	0.0919	0.0504
Median	0.1800	0.3750	1.7000	0.0950	0.3700	0.0400	0.0500
Maximum	0.9500	0.9700	24.7700	0.6600	6.7900	0.6600	0.1400
Minimum	-0.5700	-5.7900	0.1500	0.0000	0.0300	0.0000	0.0100
Std, Dev,	0.2634	0.5299	2.1716	0.1172	0.5245	0.1108	0.0215
Skewness	0.8417	-8.2851	7.0931	1.2491	9.3442	1.3704	1.3409
Kurtosis	3.9852	95.7351	67.8789	5.5407	111.9013	6.0720	6.8166
Jarque-Bera	30.7550	71.734.5300	35.651.7100	102.6313	98.687.4500	137.0090	175.8853

Note: ROE = Return On Equity (dependent variable); Independent variables (X1, X2,…,X6) are represented by Equity (X1), Turnover (X2), Bank loans (X3), Debt_3^{RD} (X4, nonfinancial debt), Bank_SD (X5, short term debt contracted from credit institutions), Interest (X6, the cost of debt from credit institutions)

As observed, the mean value of financial performance (ROE) is 0.249, above the median value of 0.18, indicating the existence of large values overstating the arithmetic average. The positive skewness value indicate the positive asymmetry, indicating the return on equity tendency to increase in the selected sample of companies. The kurtosis value of 3 .98 is above 3, indicating the distribution is leptokurtotic, with higher probability of extreme events as compared to the normal distribution (higher height). As we will observe further, both positive skewness and leptokurtokic distribution are explained by high values of leverage observed for the appraised companies.

4. Results

Applying the first multifactor regression equation previously described on the data panel in E-Views, we obtain the following results in Table 2. Nevertheless, considering the key assumption tests for the multifactorial regression model, we find that the only significant coefficient is asset rotation (turnover / assets), whereas for the other five variables the corresponding coefficient isn't statistically significant. The explanation for the modest impact of debt components between bank and commercial sources, coupled with the coefficients not relevant from statistical point of view, can relate to the low interest rates environment in Romania during 2016, the financial year considered in the herewith study. As observed in Figure 1, the total new bank loans contracted by all the companies in Romania is relatively stable, although interest rates are very low during 2016, due to low inflationary pressures in that period (as observed in Figure 2 according to NBR public data).

Table 2. Regression Estimations

Variable	Coefficients
EQUITY	-0.0463
	(-0.3099)
TURNOVER	0.0322*
	(3.5918)
BANK	-0.6386
	(-1.1354)
DEBT_3RD	-0.0681
	(-0.4574)
BANK_STD	0.5648
	(1.0311)
INTEREST	-0.2638
	(-0.2995)
Constant	0.2622
	(1.7516)
Observations	194
Pseudo R-square	0.0375
F-statistic	2.2561

Note: t statistics in parentheses, * represent 5% significance level.

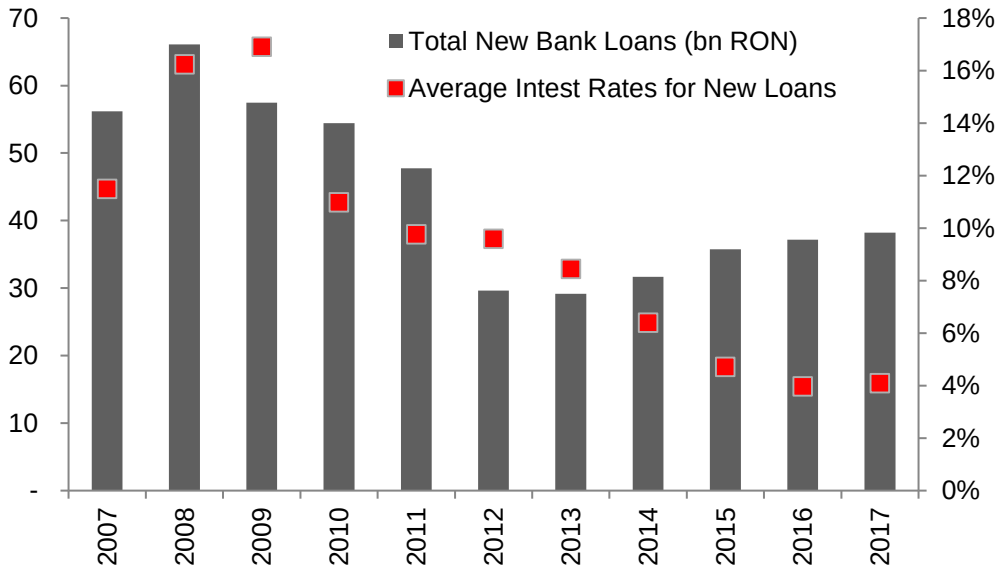

Figure 1. New bank loans – all companies in Romania
Source: NBR (2018)

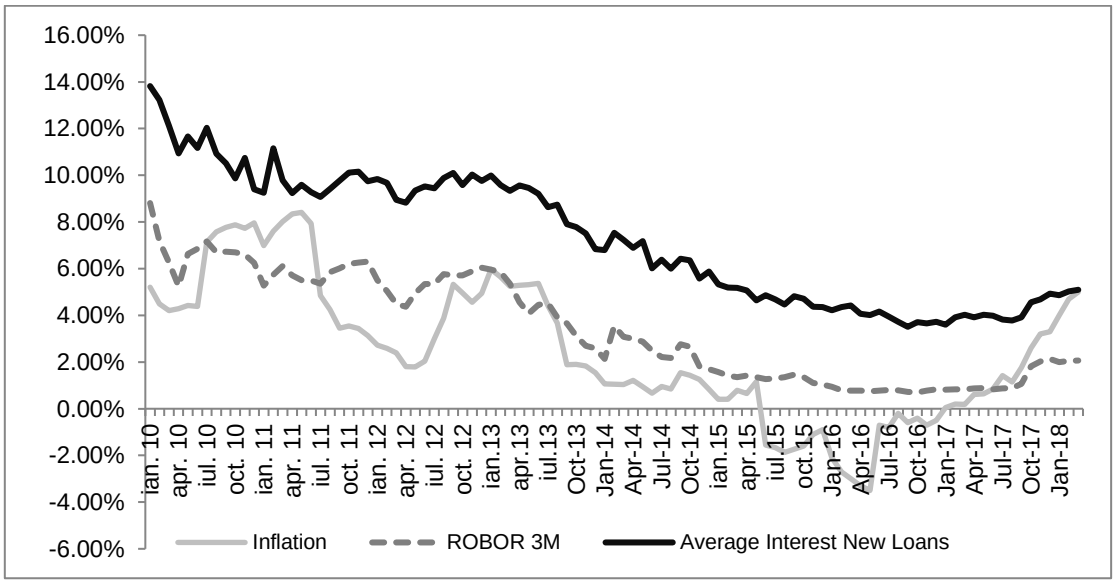

Figure 2. Inflation and interest rates Romania
Source: NBR (2018)

If we consider the balance (end of year figures) of capital structure for all the companies in Romania (illustrated in Figure 3), we observe that total debt and equity remain relatively stable. The equilibrated mix between debt and equity for the appraised companies in the current study can be observed in Figure 4, with capitalization rate of 34% very good for companies active in distribution. Similar to the total active companies in Romania, we observe a preference for trade credit (suppliers) instead of bank loans, which can be one of the explanations why coefficients for bank loans and interest rates are not statistically significant.

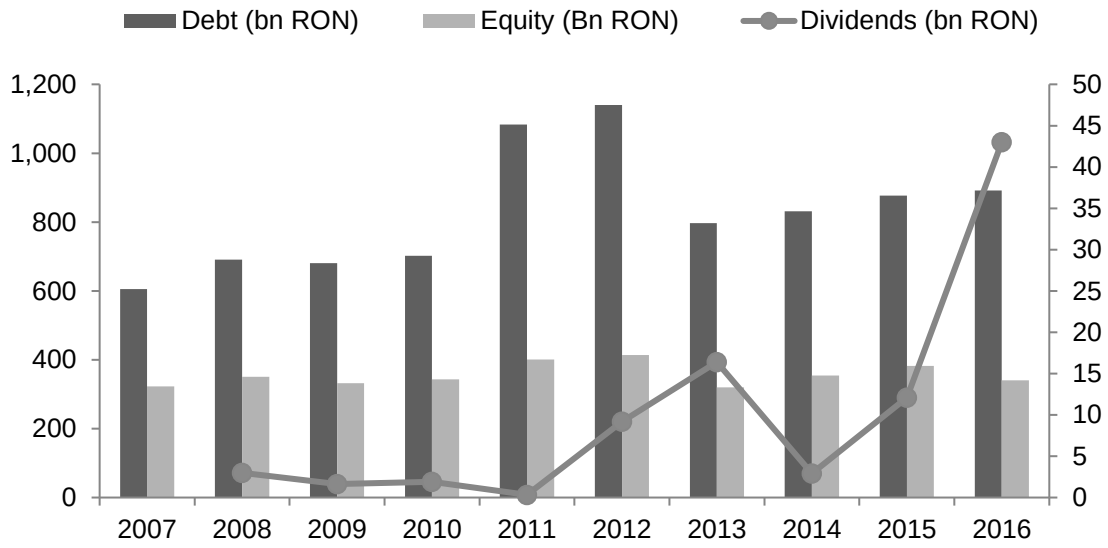

Figure 3. Capital structure companies Romania
Source: NBR (2018)

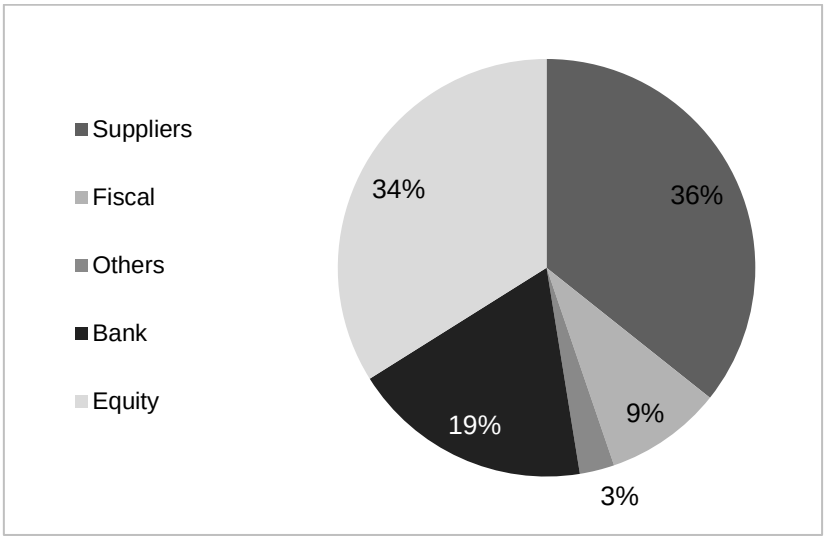

Figure 4. Capital structure (% Asset) for companies active in NACE 4531
Source: NBR (2018)

The higher the value of R-squared aims to 1, the better the model. In our case, only 6.75% of the return on equity is explained by the six independent variables of the model, indicating the model might not be well specified and that debt structure elements have no statistical relevance in explaining the financial return for the selected pool of companies. This can be caused by the hypothesis failure, especially multicollinearity between the independent variables (Gujarati, 2004). The R-squared indicator increases as new independent variables are added to the multifactorial regression equation, but it also causes loss of degrees of freedom. Therefore, an adjusted measure of R-squared is better because it takes into account the number of independent variables included in the regression (Codarlasu and Ghidesciuc, 2008). The latter is calculated using the following formula:

$$\overline{R}^2 = 1 - \frac{n-1}{n-k}\, x\, (1 - R^2) \qquad (3)$$

Where n is the number of observations and k - the number of independent variables included in the regression. The E-Views results indicate a value of only 3.75% for the adjusted R-squared coefficient, below that of the R-squared coefficient.

Considering that the probability associated are above compared to the relevant level employed (5%), then the null hypothesis can't be rejected and the coefficient isn't considered to be significant statistically. Instead, the likelihood associated with the other five independent variables is above the relevant level (5%), which implies that the null hypothesis is accepted and the coefficient isn't statistically significant, (not different from zero value).

The value of the F-test calculated by E-views is 2,2561 , above the critical value determined as follows: $F_c = F_{\alpha;\, m-1;n-m} = F(0{,}05; 5; 187) = 2{,}08$. meaning the null hypothesis is rejected. The same conclusion is reached if we observe that the associated probability is inferior to the level of relevance to which it is being worked (5%). The small values of t-statistic for each variable independently selected, coupled with the relevant F-statistic test (all variable jointly together are different than zero) indicates issues of multicollinearity.

Another statistical alternative to determine if the residuals are autocorrelated is to use the Durbin-Watson stat, with the value from the regression analysis of 1.9045 below 2 indicating positive autocorrelation. Jarque-Bera tests is employed for normal distribution analysis of the residuals, by using the difference between the skewness and kurtosis. The null hypothesis is that residuals are normally distributed, which is accepted if the probability is above the significance level (5% used in our case). As the p-value (0,00000) is less than the 0,05 significance level considered, the null hypothesis is rejected, showing that residuals are not normally distributed,

most likely due to statistical outliers (which can be solved by using dummy variables to account for structural changes.

Because of the multicollinearity issues and small p-values for the t-test related to financial debt independent variables (coefficients are not statistically significant), the initial model is modified with the following adjustments: eliminate the short term debt structure (bank and non-credit institutions components of debt) and interest rates, add two new variables are introduced (operating margin and asset rotation), in line with DuPont model 3 factors. The estimated equation is illustrated in Table 3 below.

Table 3. Estimation output

Variable	Coefficients
EBIT	1.0332*
	(6.1921)
EQUITY	-0.0497
	(1.4650)
TURNOVER	0.0339*
	(4.3374)
C	0.1303*
	(4.7012)
Observations	194
Pseudo R-squared	0.2060
F-statistic	17.6949

Note: t statistics are in parentheses, * represent 5% significance level.

As we can observe in the new model, the R-squared value improved and increased to 0.2183, with two out of three independent variables statistically different from zero (operating margin and asset turnover), whereas the equity ratio is statistically not different from zero since the associated p-value is superior to the level of relevance to which it is being worked (5%). F-test value is 17.69, above the critical value and with associated probability below the level of significance, indicating that all independent variables are jointly different from zero (rejecting the null hypothesis).

5. Conclusions

Most of the researchers agree on the critical role that the financial return has over the long term sustainable development of any company. Large return on equity coupled with high reinvestment ratio of profits will support the sustainable growth rate of the business. Although some voices indicate the mean reversion trend of sectors with high financial return, this is documented only in sectors with small barriers of entry. Therefore, understanding the components and key drivers of the return on equity is of principal interest to highlight the future development of any business and reflect shareholders interest. To this respect, two models have been applied to all the companies active in the wholesale of motor vehicle parts and accessories, NACE 4531, with extended financial statements submitted for 2016, resulting a total number of 194 firms with turnover above 1 mil EUR and concentrated market share of 85%. By applying a multifactor regression equation in E-views, we observe that debt components (credit institutions, commercial debt) don't have statistical significance due to multicollinearity issues. Only 6.75% of the return on equity is explained by the six independent variables of the model, indicating the model might not be well specified and that debt structure elements have no statistical relevance in explaining the financial return for the selected pool of companies. Therefore, a second model was used, by eliminating the components of debt, keeping the general leverage indicator and adding two new variables to reflect the operating performance of the company and asset rotation (capability to generate sales). The second model indicate better results, with improved R-squared, coefficients of significance for the estimated slopes of the independent variables and F-test. Similar results have been

obtained by Melvin *et al.* (2004); Kasilingam and Jayabal (2012), which use performance and profitability indicators to better understand the evolution of equity return.

Future research to evaluate return on equity sensitivity under stress test scenarios would be very useful to provide an insight of financial return amid increasing interest rates and different fiscal tax on dividend. This is very necessary especially given the very unpredictable fiscal environment in Romania. The pro-cyclical fiscal measures cause GDP growth to reach 7% during 2017 in Romania, significantly above the potential level of 3%-3.5%. The rapid growth of GDP, coupled with large fiscal deficit of -3% during last year (due to low public revenues (modest VAT revenue increase of only 3% although consumption growth was 10%) and large social expenses (public wage increase by 23%, social help expenses +12%) is fueling increasing inflationary pressure, steaming to almost 5% during the first semester of 2018 and 3.2% Central Bank of Romania latest estimate for 2018 full year. That will force the Central Bank to launch an restrictive pace of the monetary policy, already visible with monetary rate hike from 1.75% to 2% during January 2018, reaching 2.5% in May 2018. Under this context, increasing financial burden of companies with translate in lower operating margins. Moreover, the proposal of dividend tax cut down to zero starting 2019 (according to the latest government plan) would motivate shareholders to distribute profits as dividends and lower the retained earnings, Both factors will have an important impact over the financial return and sustainable growth rates of companies on the long term. Therefore, testing the elasticity of financial return amid such scenarios would be useful to provide an additional insight over the researched topic.

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