DECIPHERING THE DRIVING FACTORS BEHIND RETURN TO INVESTORS: AN ANALYSIS OF CEE COMPANIES

ALEXANDRA HOROBET – BUCHAREST UNIVERSITY OF ECONOMIC STUDIES

STEFANIA CRISTINA CUREA – BUCHAREST UNIVERSITY OF ECONOMIC STUDIES

LUCIAN BELASCU – "LUCIAN BLAGA" UNIVERSITY OF SIBIU

ALEXANDRA.HOROBET@REI.ASE.RO

AGENDA

- Research background
- Objectives
- Research methodology
- Main results
- Conclusions

RESEARCH BACKGROUND

- Different meanings for financial performance: liquidity, efficiency, solvability, performance on the market and profitability
- One of the best known model for assessing firm performance ⇨ DuPont Model
  - based on ratio analysis
  - developed in 1918 by Donaldson Brown, an electrical engineer of DuPont Chemical Company
- The manager can look at concise financial data to see how the business is doing and he can concentrate on the most relevant areas than need improvement
- Despite its simplicity, the Du Pont model puts together information included in the company's balance sheet and income statement in a balanced way and reveals the critical aspects of any business

RESEARCH BACKGROUND

- Selling & Stickney (1989) ⇨ maybe the most influential paper published on the use of the Du Pont model
  - in-depth analysis of the link between the business environment where the firm operates and its financial performance measured by ROA
  - unique examination of 22 US industries over an 11 years' time span
  - their analysis **confirms the link between capacity constraints and asset turnover**
    - US companies with the lowest asset turnovers are heavily capital-intensive and bear significant operating leverage.
  - the same confirmation comes for industries with high profit margins: they have high entry barriers or high capital requirements

RESEARCH BACKGROUND

- Tezel & MacManus (2003)
  - smaller firms, typically riskier, have higher ROA compared to large firms
  - small firms have only slightly higher ROE as compared to large firms
- Penman (1991) tests the forecasting ability of historical values of these ratios
  - in the short-term, given by an approximation of five years, the current levels of ROE tend to persist in the future, but over the long run, ROE display a mean reverting behaviour towards an average "economy-wide" ROE.
- Similar results were achieved by Nissim & Penman (2001) for return on net operating assets (RNOA), asset turnover and profit margins
- Fairfield & Yohn (2001)
  - disaggregating ROA into asset turnover and profit margin does not provide incremental information for forecasting the change in ROA one year ahead
  - but that disaggregating the change in ROA into the change in asset turnover and the change in profit margin might be useful for forecasting the change in return on assets one year ahead

RESEARCH OBJECTIVES

- We investigate the dynamics and trade-offs in the financial performance of listed companies from CEE countries over a five-year timeframe (2012 to 2016)
- Aim: uncovering the main drivers behind return to investors

RESEARCH METHODOLOGY

- Period: 2012-2016; ORBIS data
- Financial performance of listed companies from 11 CEE countries - Bulgaria (BG), Croatia (HR), Czech Republic (CZ), Estonia (EE), Hungary (HU), Latvia (LV) Lithuania (LT), Poland (PL), Romania (RO), Slovenia (SI) and Slovakia (SK)
- 8 manufacturing industries with different degrees of technological intensity and competition burdens
- 428 companies – the selected industries included at least 25 companies each from CEE countries

SELECTED INDUSTRIES, NUMBER OF COMPANIES AND COUNTRIES

NACE Code	*Industry*	*Technological intensity*	*Number of companies*	*Origin countries*
C10	Manufacture of food products	Low-technology	95	BG, EE, HR, HU, LV, LT, PL, RO, SI, SK
C11	Manufacture of beverages	Low-technology	38	BG, CZ, EE, HR, HU, LV, LT, PL, RO, SI, SK
C20	Manufacture of chemicals and chemical products	Medium high-technology	41	BG, CZ, HR, HU, LT, PL, RO, SI, SK
C23	Manufacture of other non-metallic mineral products	Medium low-technology	44	BG, CZ, HR, HU, LV, PL, RO, SI, SK
C24	Manufacture of basic metals	Medium low-technology	28	CZ, HR, PL, RO, SK
C25	Manufacture of fabricated metal products, except machinery and equipment	Medium low-technology	66	BG, PL, HR, LV, HU, RO, SI, SK
C27	Manufacture of electrical equipment	Medium high-technology	44	BG, EE, HR, LT, LV, PL, RO, SI, SK,
C28	Manufacture of machinery and equipment n.e.c.	Medium high-technology	72	BG, CZ, LV, PL, RO, SI, SK

FINANCIAL INDICATORS INVESTIGATED

$$ROA = \frac{Net\ profit\ after\ taxes}{Net\ total\ assets} = \frac{Turnover}{Net\ total\ assets} \times \frac{Net\ profit\ after\ taxes}{Turnover} = TAT \times PM$$

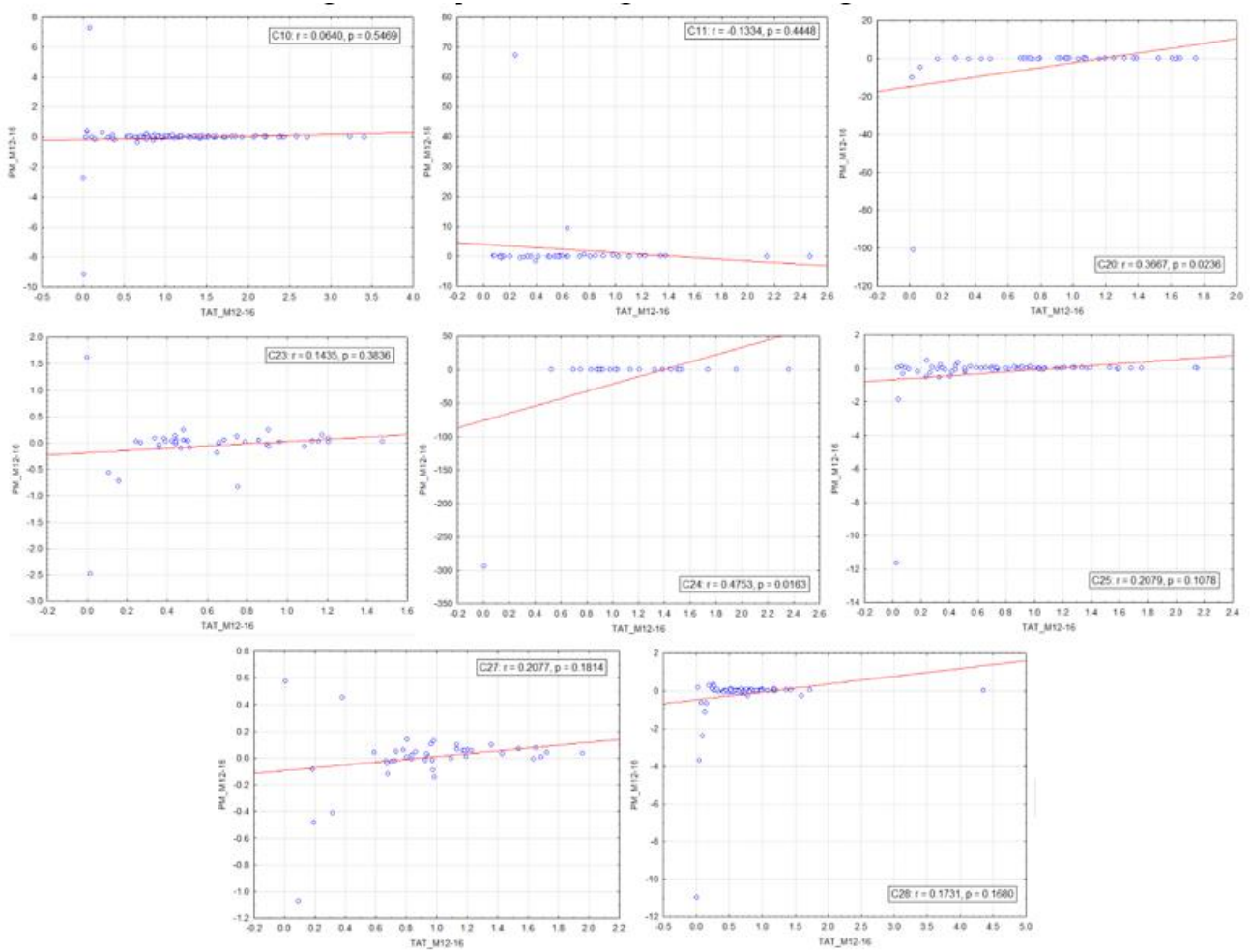
$$ROE = \frac{Net\ profit\ after\ taxes}{Equity} = \frac{Net\ profit\ after\ taxes}{Net\ total\ assets} \times \frac{Net\ total\ assets}{Equity} = ROA \times FL$$

MAIN RESULTS

Descriptive statistics of financial indicators

		Total assets turnover					Profit margin				
Industry	No. of companies	Mean	Median	Minimum	Maximum	Std.Dev.	Mean	Median	Minimum	Maximum	Std.Dev.
C10	91	1.152	1.016	0.006	3.406	0.706	-0.036	0.009	-9.157	7.266	1.268
C11	35	0.685	0.575	0.076	2.467	0.553	2.162	0.043	-1.630	67.319	11.452
C20	38	0.933	0.968	0.014	1.752	0.474	-3.011	0.030	-100.655	0.136	16.367
C23	39	0.605	0.502	0.001	1.476	0.349	-0.056	0.028	-2.479	1.621	0.523
C24	25	1.175	1.037	0.009	2.361	0.511	-11.751	0.011	-293.923	0.098	58.786
C25	61	0.808	0.740	0.025	2.149	0.519	-0.189	0.017	-11.659	0.485	1.500
C27	43	0.964	0.940	0.005	1.958	0.437	0.008	0.032	-1.072	0.576	0.223
C28	65	0.758	0.696	0.005	4.357	0.571	-0.155	0.015	-10.970	0.351	1.370
		Return on assets					**Financial leverage**				
Industry	No. of companies	Mean	Median	Minimum	Maximum	Std.Dev.	Mean	Median	Minimum	Maximum	Std.Dev.
C10	91	0.009	0.007	-0.153	0.092	0.040	2.752	1.900	1.026	20.815	2.575
C11	35	0.037	0.016	-0.109	0.284	0.092	2.752	1.900	1.026	20.815	2.575
C20	38	0.027	0.025	-0.227	0.174	0.077	1.811	1.573	-2.862	5.421	1.188
C23	39	0.009	0.014	-0.132	0.121	0.051	1.966	1.688	-2.558	7.339	1.384
C24	25	0.004	0.011	-0.127	0.100	0.052	2.349	1.724	-1.209	8.416	1.810
C25	61	0.010	0.009	-0.090	0.106	0.040	3.220	1.854	-10.492	80.653	10.313
C27	43	0.031	0.029	-0.137	0.132	0.059	1.818	1.718	-1.764	3.911	0.923
C28	65	0.018	0.012	-0.093	0.140	0.040	1.727	1.595	-3.551	4.139	0.973
		Return on equity									
Industry	No. of companies	Mean	Median	Minimum	Maximum	Std.Dev.					
C10	91	0.056	0.020	-0.318	2.008	0.298					
C11	35	0.026	0.024	-1.890	0.961	0.420					
C20	38	0.076	0.053	-0.263	1.004	0.199					
C23	39	0.028	0.020	-0.492	0.519	0.159					
C24	25	-0.025	0.023	-0.702	0.216	0.189					
C25	61	0.025	0.015	-0.623	1.150	0.189					
C27	43	0.046	0.053	-0.354	0.252	0.108					
C28	65	0.028	0.018	-0.173	0.215	0.068					

MAIN RESULTS – SCATTERPLOTS TAT VS. PM

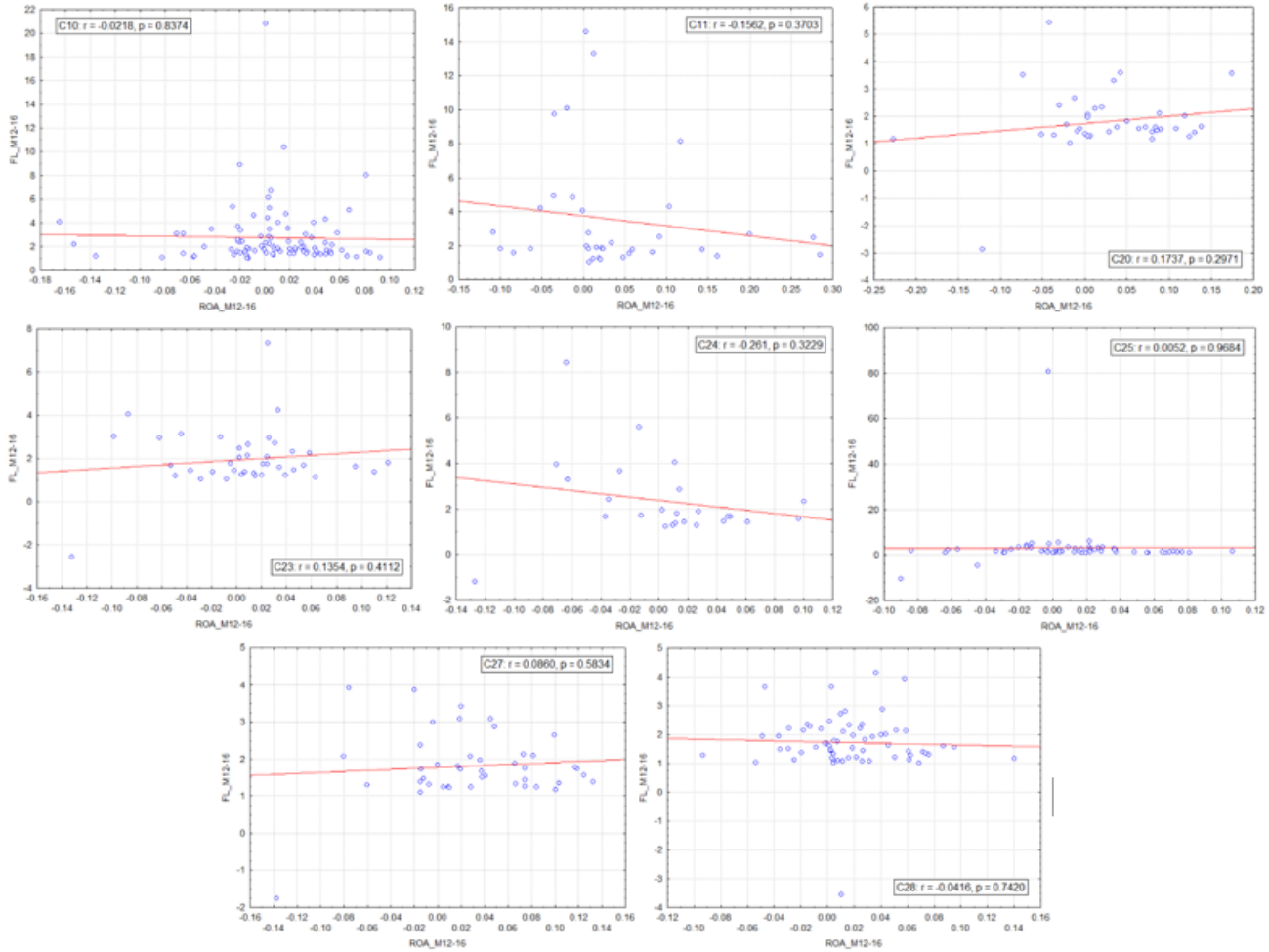


Note: r designates linear correlation and p is the p-value of r.
Source: Authors' calculations

MAIN RESULTS

- The efficiency of using assets (designated by TAT) was the main differentiating factor for CEE companies, regardless of the industry, and the driving influence on return on assets
- TAT and PM seem to be generally positively correlated
  - companies with higher efficiency also enjoyed higher profitability between 2012 and 2016
- CEE companies from our sample of industries seem to have enjoyed between 2012 and 2016 more flexibility in terms of the efficiency of using assets instead of profitability
  - might be explained by the competitive constraints on the manufacturing industry in the region and the need to recover from the crisis years before 2012

MAIN RESULTS – SCATTERPLOTS ROA VS. FL



Note: r designates linear correlation and p is the p-value of r.

Source: Authors' calculations

MAIN RESULTS

- For some industries, FL seems to be more important than ROA as a driving factor for ROE
- For the remaining industries ROA differentiates better between companies
- ROA and FL are not necessarily in a robust relationship
- Companies in the region have positively influenced their ROE mainly with the help of operational performance (designated by ROA) and not through their financial leverage
  - their degrees of indebtedness were, on average, at a maximum 70% level
  - sound approach from the financial performance viewpoint

CONCLUSIONS

- Low returns to investors between 2012 and 2016 (both in terms of ROA and ROE)
  - Mainly driven by the efficiency of using assets and not by profitability
- Might be explained by
  - the more competitive environment for the manufacturing industry in CEE countries following the 2007-2009 financial crisis
  - the need for these companies to adjust their businesses given the losses during the crisis
- Improving return to shareholders (ROE) through operational performance instead of financial leverage is a sound business approach that deserves to be continued by CEE companies