PROFITABILITY DURING THE FINANCIAL CRISIS EVIDENCE FROM THE REGULATED CAPITAL MARKET IN SERBIA

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Abstract

This paper investigates how large and medium-sized companies listed on the regulated market segments of the Belgrade Stock Exchange manage their profitability during periods of recession, over the four-year period (2008-2011). The study shows that bigger and more liquid companies demonstrate higher profitability. As to growth opportunities, asset efficiency and institutional ownership, these profitability determinants are statistically significant only in the case of return on asset as a profitability measure. The analysis reveals evidence of the transitional character of the Serbian corporate environment and indicates the need for additional ways to gain profitability and improve companies' performance during crisis periods.

JEL Classification: L21, G10, G32
Key words: profitability, financial crisis, firm-level determinants, Belgrade Stock Exchange.

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1. Introduction

The crisis of the Serbian economy has a long term character and, with certain variations, has lasted over two decades. Its causes are both internal and external in nature. The important feature of the Serbian economic environment is that the current crisis in the Serbian economy would exist despite the impact of the global crisis. At the beginning of the global crisis in 2008, the characteristics of the Serbian economy were: uncompleted privatization process, unfavorable economic structure, high unemployment rate, market distortions in the form of monopoly and oligopoly, large and growing trade deficit, large (relative to GDP) and growing external debt. Unfortunately, not much has changed for the better since then.

The negative effects of the global economic crisis that influenced the Serbian economy have been observed in many fields, such as: the decline in GDP and foreign demand and exports (hence in domestic production, especially industrial), the growth in the trade deficit and balance of payments deficit, the decline in foreign direct investments and the inflow of foreign capital investments in general. The level of unemployment has remained high and competitiveness has declined.

Negative trends on the Belgrade Stock Exchange in 2008 (when the effects of the crisis were the strongest) continued in 2009 and 2010 as well (see Spasic and Denčić-Mihajlov, 2013).

Unfavorable macroeconomic trends, caused by slower transition and the global economic crisis are, as expected, reflected in the real sector performances. The companies from the real sector are faced with insolvency problems, pressure of high indebtedness (which is predominately of a short-term nature) and negative financial leverage, inefficient asset and equity management, difficulties caused by financial imbalance and lack of net working capital (Malinić and Milićević, 2011). Negative values of return on equity and very low return on asset have been reported over the whole crisis period. According to the recent study done by Malinić and Milicević (2012), the problem of low profit margins, being a characteristic of the Serbian economy in times of crisis, is not only the consequence of low profit achievements and small range of activities, but also a result of inappropriate indebtedness and negative effects of exchange rates.

The processes of liberalization and privatization initiated in 2000 in Serbia provided substantial opportunities to Serbian companies to grow, develop and improve their profitability. In this context, understanding the effects of financial crisis on a company's profitability is especially important to Serbia as a country in transition.

This study has been undertaken in order to specify the characteristic features of Serbian listed companies which determine their profitability during a period of reduced economic activity. It focuses on the relationship between profitability on one side and company's size, liquidity, assets efficiency, leverage, sales growth and institutional ownership on the other.

The contribution of this paper is twofold. Firstly, it extends the existing empirical literature on the relationship between companies' profitability and analyzed determinants in developing and transitional economies in a crisis period. This is done by focusing the analysis on the Serbian listed companies where, up to now, few researches have been conducted. Secondly, this study contradicts some of the previous findings on the profitability determinants at a company level, and thus broadens the possibilities for cross-country comparisons in this field of profitability research.

The structure of this paper is as follows. Having addressed the theoretical background on profitability determinants, in Section 2 we present the framework of the research problem and develop a research hypothesis. In Section 3, we describe the research method and the sample, and define the measures of profitability and explanatory variables. Finally, we test the potential determinants of profitability and offer discussion on the research results. In the last section, we provide conclusions, emphasize some limitations of the study and propose the objectives of future research.

2. Profitability determinants − theoretical background and hypothesis development

Profitability is the unique measure of corporate success and essential indicator of economic performance. Profits are generators of retained earnings within a firm. Moreover, they are often used as components of the national overall income and competitiveness. Companies' profitability affects the progress of the whole economy, its ability to invest and provide sustainable growth rates as well as its capability to raise employment. Insufficient profitability results in many problems, such as insolvency, companies' deterioration, decrease of employment. Even though profitability is a sufficient indicator of the current competitiveness of a company, it is better if it is measured over an extended period of time.

Economic literature has recognized several important competitive theoretical models that aim to explain a firm's profitability factors (see Slade, 2004). Each theory favors different factors as the key determinants of a firm's profitability.

The structure-conduct-performance (SCP) model, which is incorporated in neo-classical theory, dominated industrial economics until the early 1980s (Chamberlin, 1933; Robinson, 1933, 1953; Bain, 1951, 1956). According to this model, market structure determines the way in which companies in one industry interact, which in turn determines their profitability. The proponents of this model argued that market structure was basically affected by technological factors (e.g. economies of scale and scope), and that the existence of high profit levels in one industry was evidence of the monopoly that a company in a given industry possessed.

During the 1970s, a number of "Chicago–school" economists criticized the SCP paradigm emphasizing that its proponents had the causality backwards (see Demsetz,1973; Peltzman, 1977). The hypothesis of efficiency (Demsetz, 1973) assumes that concentration of the market is the result of a greater efficiency of some companies which, therefore, increase their market share and are more profitable. The industries in which efficiency differences are the most prominent have the most asymmetric market structures and the most intensive horizontal concentration. Since large firms in these industries are usually more profitable and dominate the market, the correlation between concentration and profitability is positive.

According to Porter (1980), who laid down the cornerstones of the market-based concept, firms can realize profitability above average if they manage to position themselves in an attractive industry. However, even though the attractiveness of industry is regarded as an important determinant of a firm's performance, the market-based view also identifies the value of strategic positioning within the market as the cause of persistent firm-specific deviations from the average industry profitability.

The fundamental assumption of the firm effect models (or resource-based models) is that heterogeneity in profitability results from the persistent differences in characteristics across companies (Rumelt, 1991; Hawawini *et al*., 2003; Grossmann, 2007). On the basis of heterogeneity in resource endowment, as the main assumption of the model, above-average profits are considered to be the result of the usage of tangible and intangible resources that are rare and costly to copy or imitate (Barney 1991). The firm effect models generally anticipate persistent firm-specific variations speaking from the view of general level of industry economic return. Within this school, Demsetz (1973) assumes that firms differ in their level of prod-

uctivity and that these inter firm differences are the major causes of profit hetero-geneity.

Another theoretical model was developed by financial economists. In their model, the return on investments in firm assets fluctuates significantly depending on the firms' characteristics, such as systematic risk. An asset with higher systematic risk should demand a higher return. According to the capital asset pricing model (see Sharpe (1964) and Lintner (1965)), it is a firm's risk class that determines profitability level, not the structure of the market within which it operates.

A firm's profitability is, therefore, affected by numerous factors which can be firm-specific, industry-specific (business cycle, entry and exit barriers, intensity of competition, the threat of substitute products and services, concentration level, etc.), and country-specific (law system, accounting practice and disclosure, investor protection, development of capital market etc.). From the empirical point of view, the above mentioned schools of thought are not mutually exclusive. More specific-ally, empirical findings rather indicate the dominance of firm effects compared to relatively small contributions of year, country, and industry effects (e.g., Schmalen-see, 1985, Rumelt, 1991, McGahan and Porter, 1997, Mauri and Michaels, 1998, Hawawini *et al.* 2004, Brito and Vasconcelos 2006). Moreover, a number of studies found that less than 5% in profitability variations can be explained by the industry-level factors (Rumelt, 1991, Claver *et al*., 2002, Hawawini *et al.* 2004, Brito and Vasconcelos 2006, Szymański *et al*. 2007, Schiefer and Hartmann, 2009). Having in mind this argument, this study examines the impact of the major firm level factors on firm profitability during a crisis.

The review of recent studies on the firm profitability determinants, undertaken by different authors in different periods and countries is presented in Table 1. The dependent variables most used by the researchers are return on equity, return on assets and return on sales. Among independent variables at the firm level, the most used are: firm's size, leverage, age, capital intensity, skill, capacity utilization, mar-ket share, advertising intensity, R&D intensity, liquidity, turnover ratios, ownership characteristics, working capital management, etc. (see Chander and Priyanka, 2008). The studies on firm's profitability determinants mainly adopt multiple re-gression analysis and are usually undertaken in developed countries during the periods of normal economic activity, i.e. during non-crisis periods.

Table 1. Determinants of corporate profitability – review of recent empirical studies

Authors	Time period/Sample/Country	Dependent variable
Geroski *et al.* (1997)	1976-1982, 271 large quoted British firms	Return on Sales
Fenny and Rogers (1999)	1993-1999, 653 Australian firms	Return on Assets and Return on Equity
Kaen and Baumann (2003)	1990-2001, 64 industries in the USA	EBITDA margin and EBIT margin
Hawawini *et al.* (2003)	1987-1996, 562 firms drawn from top 1000 listed firms across 55 3-digit industries in the USA	Economic Value Added Total market value ROA
Claver *et al.* (2006)	2001-2003, 444 Spanish firms	Average annual Return on Assets and Return on Sales
Ito and Fukao (2006)	1989/2002, 2000+parent Japanese firms and their affiliates	Return on Sales
Chander and Priyanka (2008)	1995-1996 to 2004-2005, 50 Indian drugs and pharmaceutical companies	Average return on capital employed
Asimakopoulos *et al.* (2009)	Greek non-financial firms listed on the Athens Stock Exchange for the period 1995-2003	Return on Assets
Goddrad *et al.* (2009)	1996-2000, 11 European countries	Return on Assets
Raza *et al.* (2012)	2004-2009, 151 firms from Karachi stock exchange	Return on Assets and Return on Equity
Pervan *et al.* (2012)	2003-2010, listed Croatian firms	Return on Assets

This study examines the impact of major factors of a firm's structure − firm size, liquidity, debt ratio, asset efficiency, ownership structure and sales growth − on its profitability during the crisis period. In order to test for the sector impact on profitability variations, we include sector dummy variables in the separate regression models. In the following section we discuss possible relations between each mentioned factor and profitability and develop the hypotheses accordingly.

2.1 Firm size and profitability

The type of correlation between firm size and profitability is unclear. Some empirical studies point to a negative relationship (Shepherd, 1972; Goddard *et al*., 2005; Banchuenvijit, 2012), some researchers provide evidence of positive correlation (Hall and Weiss, 1967; Fiegenbaum and Karnani, 1991; Jonsson, 2007; Lee, 2009; Dogan, 2013), while some studies suggest that the relationship between firm size and profitability can become negative beyond the firm size threshold.

There are many theoretical arguments which are in favor of positive correlation between firm size and profitability. Higher profitability is inherent to large companies primarily owing to economies of scale, and secondly owing to the fact that total assets size may act as an entry barrier to smaller firms. Baumol (1959) hypothesizes that the rate of return rises with the size of the firm. According to Fama and French (1993), with rational pricing, the bigger a firm is in size, the more able it is to capture the common risk factors in returns. Smaller firms are challenged with higher capital costs and financial barriers in comparison to larger firms. Berk (1997) theorizes that investor returns are in positive correlation with size when measured with non-market indicators (i.e. number of employees, asset value, etc.).

However, the opinion of Rajan and Zingales (1998) is that smaller companies are not necessarily predisposed to be less profitable than larger firms in a given institutional environment. In the model developed by Rajan and Zingales, the crucial factor that makes a firm profitable is adequate control over intangible assets. According to these authors, higher importance of intangible factors in a firm's operation implies slower growth of the firm.

Prior empirical studies on the relationship between firm profitability and size use different measurements of size such as value of assets, sales, numbers of employees and value added. Having in mind earlier statements, it is predicted that the influence of this variable on the company's profitability is as follows:
Hypothesis 1: Firm size positively affects profitability.

2.2 Liquidity as profitability determinant

Liquidity ratios measure the ability of a company to meet its short-term debt obligations. High liquidity reflects a firm's ability to pay off its short-term liabilities when they fall due and it is valuable for additional borrowing. Liquidity level reflects a management team's propensity for using its cash and other short-term assets in an efficient way.

Working capital management can affect a firm's profitability and one of the major goals of a firm is to maintain an optimal level of liquidity. Regarding the relationship between liquidity and profitability, theories generally state that profitability rises with decreased liquidity. If a firm maintains high levels of current assets, as a result of this strategy a lower profitability is expected due to its holding costs. Ross (2000) as well as Gitman (2003), indicate negative relationship between profitability and liquidity. They point to the fact that high investments in current assets tend to induce costs for maintenance, and thus do not contribute to generating profitability and financial health of the company.

However, keeping current liquidity at a too low level may result in difficulty in maintaining the continuity of the production process. Low liquidity companies are sensitive to sudden changes in cash flows, for example in cases of increased working capital requirements. Lack of liquidity is often a determining generator of business failure. According to Hirigoyen (1985), the relationship between liquidity and profitability could become positive in the medium and long-term period. Low liquidity would generate a lower profitability due to greater need for loans, while low profitability would not result in sufficient cash flow.

The positive relation between profitability and liquidity is proven in the study done by Benito and Vilanghe (2000) on a sample of 1000 UK firms as well as in the research done by Rajčaniova and Bielik (2008) on a sample of enterprises in Slovakia. The results of the studies conducted in India by Chander and Priyanka (2008) and in Croatia by Pervan *et al.* (2012), also support the above mentioned positive correlation between liquidity and profitability. Taking into account the transitional feature of the Serbian economic environment as well as the importance of liquidity for profitable operating of firms in times of crisis, we expect that:
Hypothesis 2: Liquidity positively affects profitability.

2.3 Asset efficiency and profitability

Asset turnover ratio describes a firm's efficiency at using its assets to generate sales / revenue. Higher values of this ratio imply better managing of overall firm assets. Asset turnover ratio also signals which pricing strategy the company uses: firms that operate with low profit margins usually have high asset turnover, while those with high profit margins tend to show low asset turnover. According to Ezeamama (2010) total assets turnover ratio expresses the number of times the value of assets was utilized by the firm and generated into sales.

Changes in the firm's productivity may lead to changes in asset turnover, which consequently reflect changes in the firm's current profitability. As a result, asset turnover and its variations will predict possible future fluctuations in the firm's profitability. The empirical study by Salman and Yazdanfar (2012) indicates a significantly positive relationship between assets turnover and profitability, implying that a higher level of asset turnover is connected with more profitable firms. Okwo *et al*. (2012) also document positive relationship of total assets turnover ratio with net profit margin as a profitability measure. Based on the theoretical framework and the review of literature, we propose the following hypothesis:

Hypothesis 3: The efficiency of a company measured by asset turnover ratios positively influences its profitability.

2.4 Leverage as profitability determinant

The issue of impact of financial leverage on firms' profitability attracts substantial attention in financial literature, mainly because of controversy surrounding the relationship between these variables. The level of financial leverage influences the average cost of capital, and thus firms' profitability and stock prices (Miller, 1977; Myers, 1984). It is documented that a firm's decision on capital structure is determined by the trade-off between interest tax shields and costs of financial distress (Kim, 1997; Sheel, 1994; Titman and Wessles, 1988).

In line with the trade-off theory, there is an optimal capital structure which is the result of trade-offs between tax advantages from interest and costs of financial distress. The more intensively a company exploits its debt capacity, the less income tax it pays and the more net profit it earns, but it is exposed to greater financial risk. The findings of Brealey and Myers (1992) show that as long as the cost of the debt is lower than the cost of equity, the high leverage firms tend to exhibit higher profitability indices.

Empirical evidence on the relationship between leverage and profitability generally indicates that profitability is negatively related to total gearing. Graham (2000) as well as Titman and Wessels (1988), show that big and profitable companies usually do not have high debt levels. Fama and French (1998) point out that significant leverage level produces agency problems between shareholders and creditors, and therefore they anticipate negative relationship between debt level and profitability. Myers (1984) shows that profitable firms borrow less because they finance their growth and development with retained earnings. Cassar and Holmes (2003)

support Myers' opinion. Lincoln *et al.* (1996) are also of the opinion that firms with higher gearing level earn less. On the other hand, the study done by Hall *et al.* (2000) indicates that profitability is not statistically significantly connected to long-term debt. Jordan *et al.* (1998) also do not support the idea of the negative impact of debt on profitability.

From the above, it can be concluded that the results of the most empirical studies support the general idea that lower debt level decreases the insolvency risk and increases a firm's profitability. In order to test the relationship between leverage and profitability and having in mind the characteristics of capital markets during the crisis period, we postulate the following hypothesis:

Hypothesis 4: Leverage negatively affects firm's profitability.

2.5 Institutional ownership and firm profitability

The ownership structure has been regarded as an important factor in a firm's performance in the economic literature. Institutional ownership is related to the ownership stake in a company held by large financial organizations, such as mutual funds, pension funds, hedge funds, private equity funds, etc. Institutions generally hold large blocks of a company's outstanding shares, act as active investors and can have favorable influence upon its management and financial performances. The importance of studying relationship between profitability and institutional ownership arises from an increasing volume of equity which is nowadays controlled by institutions.

According to the „efficient monitoring hypothesis" (Shleifer and Vishny, 1997), the investors improve a firm's financial performance since the primary objective of institutional owners is profit maximization. The hypothesis of "the active investors" by Agrawal and Mandelker (1992) also favors positive impact of institutional ownership on the firm's profitability. On the other hand, Pound (1988), Brickley *et al.* (1988) and Woidtke (2002) provide evidence that instead of monitoring, institutional investors may have an incentive to cooperate with firm's entrenched managers against their own fiduciary. Consequently, the firm value would decrease with increased institutional ownership. Aguilera and Jackson (2003) assume positive correlation between the state ownership and agency cost, and consequently a negative relationship between state ownership and firm performance.

The mixed effect of state and institutional ownership structure is studied[1] in this paper. Therefore, the fifth hypothesis regarding ownership type and profitability ratios in Serbian listed firms is:

Hypothesis 5: Institutional ownership is negatively associated with a firm's profitability.

2.6 Firm growth and profitability

According to Goddard *et al*. (2009), the topics of inter-relation and dynamics of firm growth and profitability are important for both industry practitioners and academic researchers. Yet, the conclusion about precise influence of growth rates on profitability in theories and empirical studies is not unique. Some theories argue that growth rates impact profitability positively (for review see: Jang and Park, 2011). According to the Kaldor–Verdoorn Law (Kaldor, 1966; Verdoorn, 1949), faster growth in output increases productivity owing to increase in profit rates. Furthermore, the concept of economies of scale tells us that firm growth results in firm size enlargement and more intensive activation of the economy of scale, which has, as an outcome, enhanced profits. On the other hand, in line with the neoclassical view, firms initially undertake their most profitable growth opportunities projects, then they take into account less profitable projects until the marginal profit on the last growth opportunity equals zero. In this way, profitable firms maximize their total level of profitability by realizing profitable growth opportunities, and by doing so, they suffer from the decrease in profit rates. The managerial growth maximization hypothesis also supports inverse relation between profitability and growth. Namely, it claims that in the condition of market competition, growth and profitability are in a competing relationship with each other, which could have as an effect that growth sacrifices profit.

Newly empirical studies on the relationship between firm growth and profitability (Cowling, 2004; Coad, 2007, 2009; Davidsson *et al*., 2009; Jang and Park, 2011) are inconclusive. Cowling' study (2004) indicates a significant positive correlation between sales growth and profit rates. On the other hand, Jang and Park (2011) claim that growth has negative effect on profitability, while Davidsson *et al*. (2009) indicate that profitable low growth firms are more likely to reach the desir-

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1. Such a solution is determined by the content of the data disclosed by the Serbian Central Securities Depositary and Clearing House (http://www.crhov.rs), which was used as a source of statistics concerning ownership structure in this research.

able state of high growth and high profitability. Based on the theoretical frame-work and the review of empirical literature, we propose the following hypothesis:
Hypothesis 6: The firm's growth positively influences its profitability.

3. Empirical Analysis

3.1 Sample and Data Description

We tested the regression model of profitability on the sample consisting of real-sector publicly traded companies whose shares are quoted on the regulated market (which consists of the Prime and the Standard Listing as well as the Open Market Segment) of the Belgrade Stock Exchange. We compiled the basis of financial statements (source: Serbian Business Registers Agency) for those publicly-listed companies that were quoted in all segments of the regulated stock exchange market, which met the size criterion in all analyzed years (big or medium-sized enterprises[2]) and operated in real sector (financial firms were excluded from the sample). We excluded companies with consolidated financial statements in all analyzed years, as well as those whose loss exceeded the amount of capital.

The sample contains financial data for 4 years in sequence, for the period from 2008 till 2011. The final sample, representing the basis for the empirical study, consists of a total of 108 large and medium publicly-listed non-financial companies, whose shares are quoted on the regulated segment of the Belgrade Stock Exchange. The most significant share in the sample structure with regard to the business sector belongs to companies from the processing industry (52%), agriculture, forestry and fishing (14.9%), transportation and storage (10.2%) and construction (8.4%)[3]. Fin-

2. According to the law on accounting and auditing, legal entities in Serbia are classified as small, medium and large, depending on the average number of employees, annual turnover and assets value. The law classifies all legal entities as medium, which meet at least two of three following criteria: 1) the average number of employees in the year of annual statement stands from 50 to 250, 2) the annual turnover is from 2,500,000 EUR to 10,000,000 EUR in dinars equivalent, and 3) the average value of assets (at the beginning and at the end of the financial year) is from 1,000,000 EUR to 5,000,000 EUR in dinars equivalent. Legal entities with lower than the lowest index for at least two of the specified criteria are classified as small, while legal entities with higher than the highest index for at least two of the criteria are classified as big legal entities.
3. According to the *Regulation on sector classification* (*Uredba o klasifikaciji delatnosti*, Službeni glasnik Republike Srbije, 54/2010), all companies from the sample are classified in one of the following sectors: A–Agriculture, forestry and fishing, B–Mining, C–Processing industry, E–Water supply and sewerage, F–Construction, G–Wholesale and retail trade, H–Transportation and storage, I–Accommodation and food service activities, M–Professional, scientific and technical activities, N–Administrative and support service activities.

ancial statements of these companies were prepared in accordance with the International Accounting Standards (IAS) or International Financial Reporting Standards (IFRS).

3.2. Descriptive statistics

The ratio analysis mainly uses two types of profitability measures – margins and returns. Margins ratios (Gross profit margin, Operating profit margin, Net profit margin, Cash-flow margin) describe the firm's ability to translate sales into profits at various stages of measurement. Ratios that calculate returns represent the firm's ability to measure its overall efficiency in generating returns for shareholders (Return on asset, Return on equity, Return on capital, Cash return on assets and so on). Many different measurements of firm profitability have been used in the studies of determinants of firm profitability. The simplest and the most used ratio, which links the profitability of a company with its assets, is Return on Assets.

Two profitability measures are used in this study: *Operating Profit Margin* (OPM), calculated as operating profit divided by total assets and *Return on Total Assets* (ROTA), calculated as earnings before interest and tax divided by total assets. ROTA measures the ability of general management to utilize the total assets of the company in order to generate profits, while Operating Profit Margin shows the profitability of sales resulting from regular business. Operating income results from ordinary business operations and excludes other revenues or losses, extraordinary items, interest on long term liabilities and income taxes.

The descriptive statistics of both profitability measures and explanatory variables are shown in Table 2, while the correlation matrix is presented in Table 3. The profitability measures as well as the explanatory variables (size, liquidity, asset turnover, leverage, and growth), are averaged for the observed period (2008-2011), while ownership structure is calculated as institutional shareholdings at the end of the year 2011. Size (SIZE) is the natural logarithm of net sales. Liquidity (LIQ) is measured by current liquidity ratio (current assets/current liabilities). Asset turnover ratio (ATR) is calculated as net sales divided by total assets. Total liabilities ratio (TFL) is defined as total liabilities divided by total book value of assets. Growth (GROW) is calculated as 1 year growth rate of net sales. Institutional ownership (INST) is the percentage of shares owned by financial institutions, including shares of governmental institutions (state legal-person), such as Shareholder's Fund, Pension and Disability Insurance Fund or other state owned companies/institutions.

The results of dependent variables, Return on Total Assets (ROTA) and Operating Profit Margin (OPM), demonstrate that the mean value of ROTA (OPM) of all analyzed firms is 5% (3.2%). The distribution of ROTA is positively skewed, with kurtosis of 0.553, which indicates that the scores of ROTAs are clustered around the mean value in the right-hand tail. On the other hand, the distribution of OPM is negatively skewed, with kurtosis of 17.716, which indicates that the more peaked distribution is skewed to the left. From the above, it can be observed that the profitability of Serbian companies whose shares are traded on the regulated market is not at a significant level. But, having in mind that the analyzed framework coincides with the crisis period, and that the average ROTA for the whole Serbian economy equals 0.2% in 2010 and 2.1% in 2011 (Serbian Business Registers Agency, 2012), the fact that they still outperform the whole economy is indicative.

Table 2. Summary statistics

	Minimum	*Maximum*	*Mean*	*Std. Deviation*	*Skewness*	*Kurtosis*
ROTA	-0.116	0.285	0.050	0.076	0.559	0.553
OPM	-0.846	0.377	0.032	0.138	-2.883	17.716
SIZE	4.696	7.255	5.864	0.492	0.408	0.016
LIQ	0.234	15.844	2.401	2.479	2.850	9.891
TFL	0.051	0.968	0.423	0.210	0.303	-0.289
GROW	-0.766	1.075	0.108	0.220	0.863	6.393
ATR	0.090	4.810	0.953	0.750	2.700	9.882
INST	0.000	100.000	56.908	36.693	-0.453	-1.435

The average value of current ratio for the whole sample is 2.4 indicating that Serbian listed firms were, on average, liquid during the four-year crisis period. They can pay their current liabilities from current assets 2.4 times over. The examination of financial leverage of companies whose shares are traded on the Belgrade stock exchange shows that the average relation between debt and equity was 42 to 58% in the analyzed period. The dominant share of equity compared to debt indicates that the financial structure of these firms is quite strong, which speaks in favor of their long-term stability. However, the maturity structure of total liabilities is not favorable. The share of long-term debt in total assets is about twice as low as the share of short-term liabilities, which is described by short-term debt ratio.

The average annual sales growth rate in the analyzed period is 10.77%. At the beginning of the crisis period in 2008, the average growth rate for the whole sample was negative (-4.72%). As the crisis progressed from 2008 to 2011, the growth rate started to recover, reaching 0.50% in the last year. The average percentage of shares owned by institutional investors – state's Shareholders Fund, Pension and Disability insurance fund, private pension funds, banks and other financial institutions, was 56.90% at the end of 2011 for all 108 analyzed companies. This percentage ratio is below the value of the same ratio for all registered companies at the Central Securities Depositary and Clearing House, which overreaches 70%.

Table 3 presents correlation coefficients of all variables. The results of the correlation analysis show that firm size, its liquidity, assets turnover ratio and growth positively and significantly relate to return on total assets. This indicates that in the period of crisis a higher level of liquidity and higher efficiency of asset employment could induce higher profitability in Serbian case. Opposite evidence is found in the case of relationship between profitability and firm leverage, and profitability and institutional ownership. The results of correlation analysis show statistically insignificant negative relations between leverage measures, return on total assets and gross operating profit.

Table 3. The correlation matrix of profitability and independent variables

	ROTA	OPM	SIZE	LIQ	TFL	GROW	ATR	INST
ROTA	1.0							
OPM	0.676(**)	1.0						
SIZE	0.392(**)	0.436(**)	1.0					
LIQ	0.314(**)	0.405(**)	0.086	1.0				
TFL	-0.094	-0.090	0.088	-0.634(**)	1.0			
GROW	0.218(*)	0.114	-0.005	-0.024	0.226(*)	1.0		
ATR	0.257(**)	0.077	0.150	-0.223(*)	0.267(**)	0.176	1.0	
INST	-0.132	0.066	0.340(**)	0.134	-0.102	-0.032	-0.251(**)	1.0

* Correlation is significant at the 0.05 level (2-tailed).
** Correlation is significant at the 0.01 level (2-tailed).

Thus, the correlation results show the anticipated direction of relation between profitability and selected factors as given in the research hypotheses. A shortcoming of Pearson correlations, stating that they are not able to differentiate the causes from

consequences, will be overcome by the regression analysis presented in the following section.

3.3 Regression model and analysis

The regression analysis used in this study is based on the following equations:

(1) $OPM_{it} = \beta_0 + \beta_1 SIZE_{it} + \beta_2 LIQ_{it} + \beta_3 ATR + \beta_4 TFL_{it} + \beta_5 GROW_{it} + \beta_6 INST_{it} + \varepsilon_{it}$

(2) $ROTA_{it} = \beta_0 + \beta_1 SIZE_{it} + \beta_2 LIQ_{it} + \beta_3 ATR + \beta_4 TFL_{it} + \beta_5 GROW_{it} + \beta_6 INST_{it} + \varepsilon_{it}$

(3) $OPM_{it} = \beta_0 + \beta_1 SIZE_{it} + \beta_2 LIQ_{it} + \beta_3 ATR + \beta_4 TFL_{it} + \beta_5 GROW_{it} + \beta_6 INST_{it} + \beta_7 D_i + \varepsilon_{it}$

(4) $ROTA_{it} = \beta_0 + \beta_1 SIZE_{it} + \beta_2 LIQ_{it} + \beta_3 ATR + \beta_4 TFL_{it} + \beta_5 GROW_{it} + \beta_6 INST_{it} + \beta_7 D_i + \varepsilon_{it}$

where D_i denotes sector dummy variables and assume value of 1 for the i-*th* sector firm, and zero otherwise. The analysis utilizes a fixed effect regression model for the whole sample. Table 4 presents the results of the regression models 1 and 2 (without sector dummy variables), while Table 5 offers regression models' results for two dependent variables including sector dummy variables (models 3 and 4).

The results of regression analysis indicate positive relations between size and operating profit margin, and liquidity and OPM, which are statistically significant at 5% significance level. In addition, there are stronger positive relations between these two independent variables and OPM compared to the relationships between the same variables and return on total assets. In other words, during times of crisis, firm size and liquidity determine more intensively profit resulting from the core business in the Serbian case.

Table 4. Regression model results for two dependant variables:
Return on Total Asset and Operating Profit Margin

Independent variable	Dependent variable: ROTA				Dependent variable: OPM			
	Coeff.	Std. Error	t-statistic	Sig.	Coeff.	Std. Error	t-statistic	Sig.
(Constant)	-0.356	0.073	(-4.903)**	0.000	-0.743	0.135	(-5,489)**	0.000
SIZE	0.068	0.013	(5.059)**	0.000	0.117	0.025	(4,666)**	0.000
LIQ	0.010	0.003	(3.186)**	0.002	0.027	0.006	(4,539)**	0.000
TFL	-0.015	0.038	-0.401	0.689	0.090	0.072	1.255	0.212
GROW	0.069	0.028	(2.460)**	0.016	0.054	0.052	1.026	0.307
ATR	0.017	0.009	(1.981)*	0.050	0.008	0.016	0.475	0.636
INST	-0.001	0.000	(-3.241)**	0.002	0.000	0.000	-1.269	0.207
Weighted statistics								
R square	0.403				0.370			
Adjusted R square	0.368				0.332			
SE of regression	0.060				0.113			
F-statistic	11.376				10.035			

* Significant at 5% level, ** significant at 1% level

Table 4 shows that R-squared value is 0.403 (0.370) indicating that 40.3% (37.0%) variance in Return on Total Assets (Operating Profit Margin) as dependent variable can be explained through six independent variables which were used. The Durbin-Watson value (d = 1.998) is close to the critical value of 2 and therefore we can assume that there is no first order linear auto-correlation in the data.

The positive and significant relationship between size and profitability of Serbian listed companies could be attributed to the economies of scale and scope and consequently cost advantage. Larger companies can employ more experienced managers, new technologies and production procedures, and can also access more (cheaper) capital from external sources, produce better quality products, etc. Therefore, the findings of this study are in line with the previous researches (Hall and Weiss, 1967; Fiegenbaum and Karnani, 1991; Jonsson, 2007; Lee, 2009; Dogan, 2013) stating that a firm's size positively affects its profitability. Thus, hypothesis 1 has been accepted.

Liquidity measured by current liquidity ratio is statistically significant and has positive influence on a firm's profitability. If we compare liquidity of the sample group of companies with the liquidity of the whole Serbian economy, which was measured by current ratio at an average level of 0.95 in 2010 and 0.93 in 2011 (Serbian Business Registers Agency, 2012), we can conclude that large and medium sized Serbian firms greatly outperform the whole economy according to this performance indicator. Since efficient liquidity management supposes planning and controlling current assets and liabilities in a way that both reduce/eliminate the risk of insolvency and avoid excessive investment in current assets, it seems that in the analyzed crisis period managers of Serbian listed firms find the appropriate "model" to achieve optimal liquidity, i.e. to manage current assets and liabilities in a way which positively influences firms' performance. Serbian large and medium listed companies are pressured to keep their funds in liquid form in order to respond to a rapidly changing environment. Thus, our findings are in line with the previous research (Benito and Vilanghe, 2000; Rajčaniova and Bielik, 2008; Chander and Priyanka, 2008; Pervan *et al*., 2012) and support hypothesis 2 that profitability is positively influenced by liquidity.

Even though positive sign of regression coefficients propose a positive impact of asset turnover on profitability, the influence of this variable is statistically significant only in the case of return on total assets as dependent variable. This finding is not surprising taking into account that operating profit margin describes the profitability of sales resulting from the core business, which is highly influenced by factors such as inventory, accounts receivables and accounts payable management. The efficiency of a firm, measured in terms of assets turnover ratio, has a significant positive correlation with the return of total asset at 5% level. This shows that firms with higher asset turnover ratio tend to record higher profitability, which is consistent with the findings of Salman and Yazdanfar (2012) and Okwo *et al.* (2012).

The relationship between total debt ratio and return on total asset is negative but not statistically significant in the case of Serbian large and medium listed companies. Companies whose shares are traded on a regulated market refrain from higher debt share during the crisis period and their intentions to operate profitably mainly rely on their own internal sources of financing (retained profits). Apart from the impact of the unstable business environment, the absence of strong correlation between financial leverage and profitability in a crisis period could be explained by

other factors, such as underdeveloped capital market (particularly debt market), high costs of debt financing and consequently high exposure to financial risk.

The growth variable is significantly and positively related to return on total assets of Serbian large and medium firms quoted on the regulated market. The profitability level of the analyzed Serbian companies is relatively low in comparison to firms from developed countries (see Goddrad *et al.*, 2009) and other European transitional economies in the period before the crisis. The analyzed time framework, which coincides with the crisis period, explains to a great extent a very low level of growth rates of sales. Other possible reasons for low growth opportunities could be found in the lack of long term strategic orientation, outdated production capacities, uncompetitive products on the international market, etc. Under such circumstances, a higher rate of sales growth of Serbian companies, which predicts stronger revenue generation in future period, is associated with more profitable operations.

This study presents evidence on statistically significant negative relationship between profitability (measured by return on total assets) and institutional ownership. In other words, during the crisis period, institutional shareholdings have not provided firms with competitive advantages by improving their profitability. This type of relationship is expected taking into account that institutional ownership is measured by the percentage of shares owned by financial institutions, including shares of state institutions such as Shareholders Fund, Pension and Disability Insurance Fund. The transition process in Serbia has still not ended. Serbian experience shows that managerial and supervisory boards in the majority of state controlled companies are restricted by political ties and negotiations and are not appointed on the basis of managerial ability. Such a corporate governance environment, characterized by corruption, negatively affects profitability. Therefore, our findings are in line with other researches in transition economies (e.g. Damijan *et al.*, 2004; Pervan *et al.*, 2012) and support hypothesis 6 that profitability, measured by ROTA, is negatively influenced by institutional ownership.

Table 5. Regression model results for two dependant variables:
Return on Total Asset and Operating Profit Margin (with sector dummy variables)

Independent variable	Dependent variable: ROTA				Dependent variable: OPM			
	Coeff.	Std. Error	t-statistic	Sig.	Coeff.	Std. Error	t-statistic	Sig.
(Constant)	-0.317	0.079	-4.005	0.000	-0.743	0.135	-5.489	0.000
SIZE	0.064	0.014	(4.509)**	0.000	0.110	0.025	4.400	0.000
LIQ	0.009	0.003	(2.669)*	0.009	0.023	0.006	3.894	0.000
TFL	-0.027	0.042	-0.634	0.528	0.067	0.074	0.904	0.369
GROW	0.061	0.029	(2.135)*	0.035	0.046	0.050	0.903	0.369
ATR	0.023	0.011	(1.981)*	0.050	0.013	0.019	0.706	0.482
INST	-0.001	0.000	(-3.504)**	0.001	0.000	0.000	-1.486	0.141
Da	-0.006	0.019	-0.337	0.737	-0.012	0.033	-0.361	0.719
Db	0.067	0.062	1.091	0.278	0.089	0.109	0.815	0.417
De	0.050	0.062	0.809	0.421	0.007	0.109	0.065	0.948
Df	-0.029	0.023	-1.275	0.206	-0.048	0.040	-1.184	0.239
Dg	-0.056	0.027	(-2.063)*	0.042	-0.167	0.048	(-3.472)**	0.001
Dh	-0.010	0.021	-0.504	0.615	0.041	0.036	1.122	0.265
Di	-0.057	0.039	-1.456	0.149	-0.155	0.069	(-2.263)*	0.026
Dm	0.008	0.036	0.218	0.828	-0.030	0.063	-0.467	0.642
Dn	-0.058	0.051	-1.145	0.255	-0.034	0.090	-0.376	0.707
Weighted statistics								
R square	0.465				0.495			
Adjusted R square	0.378				0.412			
SE of regression	0.060				0.106			
F-statistic	5.340				6.006			

* Significant at 5% level, ** significant at 1% level

As indicated by regression models 3 and 4 in Table 5, sector effects encompassed by sector dummy variables are present in the Serbian case, but play a minor role. Sector type plays a significant role in explaining firm profitability only in the case of two sectors − *Transportation and storage* and *Accommodation and food service*. Common characteristics of these two sectors' performances are negative

values of the average profitability during the whole four-year analyzed period of crisis. However, the evaluation of real influence of the sector effects on the basis of dummy variables can only be speculative, since employed dummy variables explain a set of industry-level factors, without distinguishing between them. Therefore, it is impossible to say whether the industry effects are related to market concentration, barriers to entry, economies of scale, industry growth or other sector characteristics. In this regard, further analysis suggesting variation in profitability of companies across sectors is required.

Conclusion

This study explores the determinants of profitability of companies listed on the regulated market of the Republic of Serbia in the crisis period from 2008-2011. The aim of the study was to test the postulated hypotheses and to offer evidence with respect to the impact of firm structure on firm profitability during the crisis period by examining the impact of factors such as firm size, liquidity, leverage, asset turnover, institutional ownership, growth opportunities and industry sector. The results of this empirical study suggest that the firm-specific factors affecting firms' profitability during a non-crisis period work in Serbia in a similar way as in a crisis period. More precisely, profitability measured by return on total assets increases with company size, liquidity, sales growth and asset management efficiency and decreases with institutional ownership.

Descriptive statistics show that there is a large amount of profit heterogeneity among Serbian listed large and medium-sized companies. The fact that profitability is mainly determined by firm-level factors could be interpreted as evidence that competitive advantages are caused by unique characteristics of the firm. Consequently, this would give support to the predictions of firm effect models. However, industry effects are also present and the creation of any corporate strategy during a crisis period has to be based on a thorough internal analysis complemented by appropriate external strategic analysis of the industry.

The problem of profitability has been neglected in the Serbian economy for years. The results of the applied policies, often short term and inefficient, send disturbing signals in the crisis period. Serbia faced the economic crisis completely unprepared. The profitability of Serbian firms suffered because they cannot adapt to the new market conditions. Even though the selected sample involves a large measure of profit heterogeneity and significant differences in average profitability across the analyzed sectors and firms, a general conclusion is that declining activ-

ities, limited in range, led to unsatisfactory sales revenues and profitability during the crisis period. In addition, low profitability could be attributed to high costs of financing, low level of competitiveness, outdated production capacities, etc. Strategies which could be adopted within the firms to improve profitability should relate to the management of working capital and cash, areas which are usually neglected in times of favorable business conditions.

The findings of this empirical study should serve as the initial point for further research into firms' performance. The fact that the profitability of Serbian firms had been deteriorating over time, even before the crisis occurred, must not be overlooked. It would be interesting to examine the overall profitability of the corporate sector in the previous, non-crisis period. In this way, a comparative approach could be applied and the differences between the non-crisis and crisis periods could be compared and highlighted. Furthermore, this study is based on the data of the Serbian non-financial firms listed on the regulated market, meaning that the results could not be generalized for the whole Serbian economy. In this respect, future research should use a more comprehensive set of explanatory variables (industry and country-level factors, year-to-year fluctuations) and should be based on a larger and comprehensive database (financial sector, private and public companies etc.).

References

Agencija za privredne registre, 2012, Saopštenje o poslovanju privrede u Republici Srbiji u 2011. godini – uporedni podaci iz finansijskih izveštaja za 2010. i 2011. godinu, Beograd.

Agrawal A., and Mandelker, G., 1992, "Shark repellent and the role of institutional investors in corporate governance", *Managerial and Decision Economics*, 13, 15-22.

Aguilera, R. V., Jackson, G., 2003, "The cross-national diversity of corporate governance: Dimensions and determinants", *Academy of Management Review*, 28(3), 447-465.

Asimakopoulos, I., Samitas, A. and Papadogonas, T., 2009, "Firm-specific and economy wide determinants of firm profitability: Greek evidence using panel data", *Managerial Finance*, Vol. 35, Issue 11, 930-939.

Bain, J., 1951, "Relation of Profit Rate to Industry Concentration: American Manufacturing", *Quarterly Journal of Economics*, 65, 293-324.

Bain, J.S. (1956) *Barriers to New Competition*, Harvard University Press.

Banchuenvijit, W., 2012, "Determinants of Firm Performance of Vietnam Listed Companies", *Academic and Business Research Instıtute*.
http://aabri.com/SA12Manuscripts/SA12078.pdf

Barney, J., 1991, "Firm Resources and Sustained Competitive Advantage", *Journal of Management*, 17(1), 99-120.

Baumol, J., and William, T., 1959, *Business Behavior, Value and Growth*, New York: Macmillan.

Benito, A. and Gertjan, V., 2000, "Stylized facts on UK corporate financial health: evidence from micro-data", *Financial Stability Review*, June 2000, 83-93.

Berk, J., 1997, "Does Size Really Matter?", *Financial Analyst Journal*, 53(5), 12-17.

Brealey, R. A. and Myers, S. C., 1992, *Princípios de Finanças Empresariais*, Lisboa: Mcgraw-Hill de Portugal.

Brickley, J.A, Lease, R.C. and Smith, C.W., 1988, "Ownership structure and voting on antitakeover amendments", *Journal of Financial Economics*, 20, 267-291.

Brito, L. and Vasconcelos, F., 2006, "How Much Does Country Matter?" In A. Cooper, S. Alvarez, A. Carrera, L. Mesquita, and R. Vassolo (eds.), *Entrepreneurial Strategies*. Oxford, UK: Blackwell, 95-113.

Cassar, G. and Holmes, S., 2003, "Capital Structure and Financing of SMEs: Australian Evidence", *Accounting and Finance Journal*, 43(2), 123-147.

Chamberlin, E., 1933, *The Theory of Monopolistic Competition: A Re-orientation of the Theory of Value,* Cambridge: MIT Press. Reprinted 1967.

Chander, S. and Priyanka, A., 2008, "Determinants of corporate profitability: an empirical study of Indian drugs and pharmaceutical industry", *Paradigm*, Report on 1. July.

Claver, E., Andrew, R. and Quer, D., 2006, "Growth Strategy in the Spanish Hotel Sector: Determining Factors", *International Journal of Contemporary Hospitality Management*, 18(3), 188-205.

Claver, E., Molia, J. and Tare, J. 2002, "Firm and Industry Effects on Firm Profitability: A Spanish Empirical Analysis", *European Management Journal* (20)3, 321-328.

Coad, A., 2009, *The Growth of Firms: A Survey of Theories and Empirical Evidence*, Northampton: Edward Elgar Publishing.

Cowling, M., 2004, The growth-profit nexus, *Small Business Economics,* 22, 1-9.

Damijan, P., Gregoric, A. and J. Prasnikar, 2004, "Ownership Concentration and Firm Performance in Slovenia", Katholieke Universiteit Leuven, 2004, unpublished.

Davidsson, P., Steffens, P. and Fitzsimmons, J., 2009, "Growing profitable or growing from profits: putting the horse in front of the cart? ", *Journal of Business Venturing*, 24, 388-406.

Demsetz, H., 1973, "Industry Structure, Market Rivalry, and Public Policy", *Journal of Law and Economics* 16(1), 1-9.

Doğan, M., 2013, "Does Firm Size Affect The Firm Profitability?", Evidence from Turkey", *Research Journal of Finance and Accounting,* 4(4), 53-59.

Ezeamama, M., 2010, *Fundamentals of Financial management: A practical guide*, Enugu: Ema Press Ltd.

Fama, E. and French, K., 1998, "Taxes, Financing Decision and Firm Value", *The Journal of Finance*, 53(3), 819-43.

Fenny, S. and Rogers, M., 1999, "The Performance of Large Private Australian Enterprises", Melbourne Institute of Applied Economics and Social Research, Working Paper No. 2/99, http://www.ecorn. unimelb.edu.au/ iaesrwww/home.html

Fiegenbaum, A. and Karnani, A., 1991, "Output Flexibility – A Competitive Advantage for Small Firms", *Strategic Management Journal*, 12, 101-114.

Geroski, P., Machin, S. and Walters, C., 1997, "Corporate Growth and Profitability", *The Journal of Industrial Economics*, 45(2), 171-89.

Gitman, L., 2003, *Principle of Managerial Finance*, Boston: Pearson Addison Wesley

Goddard J., Tavakoli M. and Wilson, J., 2009, "Sources of variation in firm profitability and growth", *Journal of Business Research,* 62, 495–508.

Goddard, J., Tavakoli, M., and Wilson, J., 2005, "Determinants of profitability in European manufacturing and service: evidence from dynamic panel model", *Applied Financial Economics*, 15, 1269-1282.

Graham, J.R., 2000, "How Big Are The Tax Benefits Of Debt? ", *The Journal of Finance*, 55 (5), 1901-1942.

Grossmann, V., 2007, "Firm Size, Productivity, Managerial Wages: A Job Assignment Approach", *Bell Journal of Theoretical Economics,* 7(1), 508-523.

Hall, G., Hutchinson, P. and Michael, M., 2000, "Industry Effects on the Determinants of Unquoted SME' Capital Structure", *International Journal of the Economics of Business*, 7(3), 297-312.

Hall. M, and Weiss, L., 1967, "Firm Size and Profitability", *The Review of Economics and Statistics*, 49 (3), 319-331.

Hawawini, G., Subramanian, V. and Verdin, P., 2004. "The Home Country in the Age of Globalization: How Much Does It Matter for Firm Performance?", *Journal of World Business* 39(2), 121-135.

Hawawini G, Subramanian, V., and Verdin P., 2003, "Is performance driven by industry or firmspecific factors? A new look at the evidence", *Strategic Management Journal*, 24, 1-16.

Hirigoyen, G., 1985, "Les implications de la spécificité des comportements financiers des moyennes entreprises industrielles (M.E.I) familiales", Cahier de recherche, IAE de Toulouse, n°35, septembre 1985.

Ito, K., and Fukao, K., 2006, "Determinants of the Profitability of the Japanese Manufacturing Affiliates in China and Regions: Does Localization of Procurement, Sales and Management Matters", RIETE Discussion Paper Series, 01-E-001.

Jang, S.C., and Park, K. 2011, "Inter-relationship between firm growth and profitability", *International Journal of Hospitality Management*, 30, 1027-1035.

Jónsson, B., 2007, "Does the size matter? The Relationship between Size and Profitability of Icelandic Firms", *Bifröst Journal of Social Sciences*, 1, 43-55.

Jordan, J., Lowe, J. and Taylor, P. 1998, "Strategy and financial policy in U.K. small firms", *Journal of Business Finance and Accounting*, 25(1), 1-27.

Kaen, F., Baumann, H., 2003, "Firm Size, Employees And Profitability in U.S. Manufacturing Industries", http://ssrn.com/ sol./papers.cf? Abstract id=899615, Accessed on 10 July, 2012.

Kaldor, N., 1966, *Causes of the Slow Rate of Economic Growth of the United Kingdom: An Inaugural Lecture*. Cambridge: Cambridge University Press.

Kim, W., 1997, "The determinants of capital structure choice in the US restaurant industry", *Tourism Economics,* 3, 329-340.

Lee, J., 2009, "Does Size Matter in Firm Performance? Evidence from US Public Firms", *International Journal of the Economics of Business,* 16 (2), 189-203.

Lincoln, J. R., Gerlach, M. L. and Ahmadjian, C. L., 1996, "Keiretsu networks and corporate performance in Japan", *American Sociological Review*, 61, 67-88.

Lintner, J., 1965, "The Valuation of Risk Assets and the Selection of Risky Investments in Stock Portfolios and Capital Budgets", *Review of Economics and Statistics*, 47, 13-47.

Malinić, D. and Milićević, V. 2012, "Overcoming financial structural disorders as a prerequisite for strengthening the competitiveness of Serbian economy", *Journal of Serbian Association of Economists*, 7-8, 317-328.

Malinić, D., and Milićević, V., 2011, "Performance evaluation of real sector in Serbia", *Journal of Serbian Association of Economists*, Vol. 10-11, 335-351.

Mauri, A. and Michaels, P., 1998, "Firm and industry effects within strategic management: An empirical examination", *Strategic Management Journal,* 19(3), 211-219.

McGahan, A.M, and Porter, M.E., 1997, "How Much Does Industry Matter Really?", *Strategic Management Journal*, 18, 15-30.

Miller, M., 1977, "Debt and Taxes", *Journal of Finance,* 32, 261-275.

Myers, S.C., 1984, "The Capital Structure Puzzle"*, Journal of Finance,* 39(3), 575-592.

Okwo, I. *et al*., 2012, "Financial Management as a Determinant of Profitability: a Study of Selected Pharmaceutical Firms in Nigeria", *European Journal of Business and Management* 4(20), 28-36.

Peltzman, S., 1977, "The Gains and Losses from Industrial Concentration", *Journal of Law and Economics,* 20(2), 229–263.

Pervan, M., Pervan, I. and Todoric, M., 2012, Firm Ownership and Performance: Evidence for Croatian Listed Firms, *World Academy of Science, Engineering and Technology,* 61, 964-970.

Porter, M., 1991, "Towards a dynamic theory of strategy", *Strategic Management Journal*, 12, 95-117.

Pound, J., 1988, "Proxy contests and the efficiency of shareholder oversight", *Journal of Financial Economics*, 20, 237-265.

Rajan, R. and Zingales, L., 1998, "Financial Dependence and Growth", *American Economic Review*, 88, 559-586.

Rajcaniova M. and Bielik, P., 2008, "Determinants of variations in firm-level performance", *Acta economica et informatica* 1, 1-4.

Raza, S., Farooq, S. and Khan, N., 2012, "Firm and industry effects on firm profitability: an empirical analysis of KSE", MPRA Paper No. 36797.

Robinson, J., 1933, *The Economics of Imperfect Competition*, London: Macmillan.

Robinson, J., 1953, "The Production Function and the Theory of Capital", *Review of Economic Studies*, 21(2), 81-106.

Ross, S., 2000, *Corporate Finance*, New York: McGraw-Hill College.

Rumelt, R., 1991, "How Much Does Industry Matter?", *Strategic Management Journal,* 12 (3), 167-185.

Salman K. and Yazdanfar, D., 2012, "Profitability in Swedish Micro Firms: A Quantile Regression Approach", *International Business Research*, 5(8), 94-106.

Schiefer, J. and Hartmann, M., 2009, "Industry, firm, year, and country effects on profitability: Evidence from a large sample of EU food processing firms", AAEA & ACCI Joint Annual Meeting, Milwaukee, Wisconsin, July 26-29, 2009, Available at: http://ageconsearch.umn.edu/bitstream/49322/1/609646.pdf, Accessed on December 2, 2013.

Schmalensee, R., 1985. "Do Markets Differ Much?", *American Economic Review* 75(3), 341-51.

Sharpe, W.F., 1964, "Capital Asset Prices: A Theory of Market Equilibrium Under Conditions of Risk", *Journal of Finance*, 19, 425-442.

Sheel, A., 1994, "Determinants of capital structure choice and empirics on leverage behavior: A comparative analysis of hotel and manufacturing firms", *Hospitality Research Journal*, 17, 3-16.

Shepherd, W.G., 1972, "The Elements of Market Structure", *The Review of Economics and Statistics*, 54 (1), 25-37.

Shleifer A., and Vishny R.W., 1997, "A survey of corporate governance", *Journal of Finance*, 52(2), 737-83.

Slade, M., 2004, "Competing models of firm profitability", *International Journal of Industrial Organization*, 22 (3), 289–308.

Spasic, D. and Denčić-Mihajlov, K., 2013, Financial reporting quality as a factor of capital market development, *Jean Monnet Multilateral Research Project,* Working Paper, Available at: http://www.jeanmonnet-emu.eu/resources.

Szymański, A., Gorton, M. and Hubbard, L., 2007. "A Comparative Analysis of Firm Performance in Post-socialist Economies: Evidence from the Polish Food Processing Industry", *Post-Communist Economies* 19(4), 433-448.

Titman, S. and Wessles, R., 1988, "The determinants of capital structure choice", *Journal of Finance,* 43(1), 1-19.

Verdoorn, P., 1949, "Fattori che regolano lo sviluppo della produttivita del lavoro", *L'Industria,* 1, 3-10.

Woidtke, T., 2002, "Agents watching agents? Evidence firms value", *Journal of Financial Economics*, 63 (1), 99-131.