Paper prepared for the

Fifth Euroacademia International Conference

Re-Inventing Eastern Europe

Riga, 29 – 30 January 2016

This paper is a draft

Please do not cite or circulate

The determinants of profitability: evidence from Croatian construction sector

This article investigates the determinants of profitability for construction companies in Croatia. Sample includes more than 8678 construction companies covering the period from 2003 to 2014 what present 11 years of observation including Croatian milestone in joining to the European Union as well as global financial crises. The authors analyze theoretical background and use empirical research to investigate the relation between profitability and selected determinants like price cost margin, concentration index, growth, size, material costs and lagged profitability. Special remarks are given with review of construction sector importance for the growth of the Croatian economy and repercussions of global financial crises. According to that, the empirical part of article use generalized method of moments for dynamic panel model which showed significant results. Overall, the results showed strong relationship between company size, concentration index, growth, lagged profitability and profitability besides number of employees.

Keywords: construction sector, profitability, panel data analysis, Croatia

1. INTRODUCTION

There has been a lot of papers recently that test for firm profitability and its determinants whatever sector of economy we are talking about. According on previous studies, the objective of this paper is to find factors that significantly influencing the profitability of construction companies in Croatia. This article investigates one of these measures: net profit after tax and their connection with determinants that influence it. The best measure of a firm is its profitability, for without it, it cannot grow, and if it doesn't grow, then its stock will trend decline. Increasing profits are the best indication that a firm is capable for long run growth and to pay dividends and that the share price will trend increase. Creditors will loan money at a lowest rate to a profitable company than to an unprofitable one; consequently, profitable companies can use leverage to increase stockholders' equity even more. According to the all mentioned, it is important to understand what drives firm profitability so that stakeholders may recognize and implement appropriate business policy with good investment decisions. This is an important topic especially in construction sector because it is important part of country's gross domestic product. It can be defined as dynamic and complex industry sector because of all characteristics which influence it.

Construction sector in Croatia is one of important contributor to Croatian economic growth, especially in past, between 2000 and 2008 before global financial crises. That was a period with highest growth rate of construction sector with major contribution to the Croatian GDP. Growth rate has significantly increase from 4,2 in 2000 to 7,2 in 2008 in total contribution with increase of sector employment in same period for 61,1 percent. Consequently, all other connected sectors took impulse of that significantly growth what also gives construction

sector worthiness for research especially from 2009 until today in which it gives continuous negatively growth rate. It is arguably that the impact of the determinants, throughout the world, isn`t similar on the firm financial performance in every country what gives different influence on all stakeholders. Such reason gives motivation for this research which include quantitative data of more than 8500 construction companies in Croatia for over 11 years that is from 2003 until 2014. All data gathered from FINA database.

The article proceeds as follows. In introduction we introduce and explain domain and main goal of article. Section 2 provides a brief overview of the theoretical background relating to the determinants of profitability of previous researches. In Section 3 it is given explanation of construction sector in Croatia with special remarks on its significance for GDP and decline in crises period. Further, next 4. Section provides the results of dynamic panel data model with explanation of chosen variables. At the end, in Section 5, it is given finally remarks on this article and further recommendations.

2. THEORETICAL BACKGROUND

The connections between the profitability determinants and profitability of companies are well represented in previous researches. Most common question is what drives firm profitability unrelated to the firms' essence. According to that, models of firm profitability can be classified into two major groups, structure-conduct performance (SCP) and firm effect models. In the SCP model the market structure determines firm behavior and profitability. In firm effect models, market structure is the result of the distribution of firms and firm profits. Industrial organization economics has proven extremely useful to researchers of strategy content in providing a basic theoretical perspective on the influence of market structure on firm strategy and performance. While there is range of specific models, major determinants of firm-level profitability include:
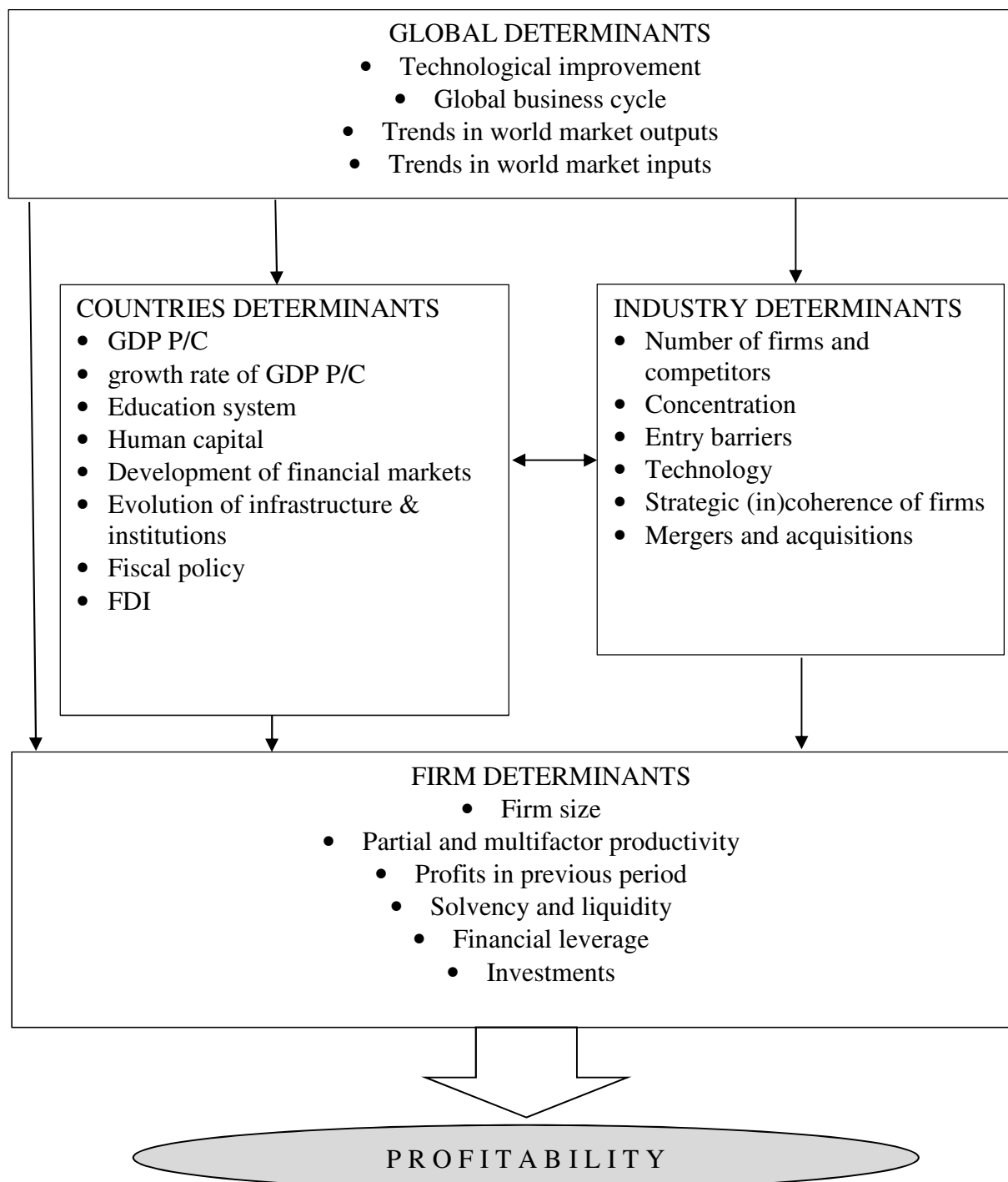(1) characteristics of the industry in which the firm competes;
(2) the firm's position relative to its competitors; and
(3) the quality or quantity of the firm's resources (Hansen and Wernerfelt, 1989).

Scherer (1980) surveyed many of the specific models of both industry- and firm-level performance, and Porter's review (1981) describes the influence of the Industrial Organization paradigm on business policy. A long tradition, most often associated with Bain (1956) is concerned with identifying properties of industries contributing to above-average profitability. A large set of variables (growth, concentration, capital intensity, advertising intensity, etc.) have performed differently in different studies, but the overall importance of these factors is beyond dispute (Ravenscraft, 1983).

There has been a substantial amount of empirical research undertaken in the area of profits, market structure and firm-level effects (see Schmalensee (1989) and McGahan and Porter (2002)). Taken together, the evidence suggests that both SCP and firm effect models are plausible. This implies that industry effects, such as concentration and entry barriers, and firm

effects, such as productivity differences or strategic management, are empirically important. Depending on the study, firm-level or industry-specific effects are found to be the dominant factor on firm profitability (Stierwald, 2009:4). According to the mentioned facts, next scheme gives theoretical sublimation and classification of determinants which have impact on firms' profitability.

Scheme 1: Firm profitability determinants

GLOBAL DETERMINANTS
• Technological improvement
• Global business cycle
• Trends in world market outputs
• Trends in world market inputs

COUNTRIES DETERMINANTS	INDUSTRY DETERMINANTS
• GDP P/C	• Number of firms and competitors
• growth rate of GDP P/C	• Concentration
• Education system	• Entry barriers
• Human capital	• Technology
• Development of financial markets	• Strategic (in)coherence of firms
• Evolution of infrastructure & institutions	• Mergers and acquisitions
• Fiscal policy	
• FDI	

FIRM DETERMINANTS
• Firm size
• Partial and multifactor productivity
• Profits in previous period
• Solvency and liquidity
• Financial leverage
• Investments

PROFITABILITY

Source: Customized on basis of Škuflić, L. and Mlinarić, D. (2015) Microeconomic determinants of profitability for Croatian hotel industry. Economic review, 5 (5), page 482

Literatures on the determinants of profitability for different types of industries have produced a mixed results. Here are some of them. Gringer and McMKiernan (1991) focus on the determinants of profitability and showed that market share, capital intensity, growth of sales, working capital and decentralization play a significant role in explaining firm profitability. Brush et al. (1999) find that company and industry affect business profitability, but company has the larger influence. In addition to the size of the firms, and investment, some of the other determinants have also affected profitability, such as lagged profitability is a significant determinant of current profit margins, and that industry concentration is positively related to firm profits margins. Further, profit margins are found to be procyclical in concentrated industries but counter cyclical in less concentrated industries (McDonald, 1999). Similar, Feeny (2000) found a strong connection of a positive association between capital intensity, size and profitability. In addition, Nunes, Serrasquerio and Sequeria (2009) found a positive relationship between size, growth and profitability. Moreover, they concluded that higher liquidity will not decrease profitability. On the other hand, lower level of debt and lower level of fixed assets are more profitable. Depending on the research, firm-level or industry-specific effects are found to be the dominant factor on firm profitability.

3. REVIEW OF CONSTRUCTION SECTOR IN CROATIA

Global construction industry market is large, expanding, divided, regionally fluctuating, heterogeneous and involves risks with numerous of competitors. In order to compete and grow on international market, filled with opportunities and threats, they must constantly increase their competitiveness, find a good way of entering targeted markets and risk management connected to the international construction projects, especially with business in transition economies.

Construction sector has a tendency of following the GDP, but specific policy and government interventions have a specific influence. Global construction market is characterized with a slow post-recession recovery, where only Europe had decrease in the market in 2012. Future point is on infrastructure and energetics, where developing markets have biggest chances for growth.

After the second recession, USA market started to level off but from a low starting point. Growth was initiated by private sector where housing building is still low. In USA, in 2012, growth was at 6%. Construction market in Europe had a negative growth of -2%, crises in indebted countries and low civil engineering. In the last few years only Germany and Scandinavian counties have exhibited growth. Transition countries in Asia achieved growth, although not as high as before. China and India have exhibited relative stagnation, while other transition countries in Asia have achieved growth. In the center of the 6% growth in these countries was infrastructure building and work in energetics sector. Brazil is dominant in construction market in Latin America, due to the Olympic games and football World cup, with most of the work in infrastructure and energetics sector. Long term growth and

construction development is expected on said market. Middle East and African market is unstable and unpredictable, despite the high growth. Russia prevails on construction markets in CIS countries, but its business activity correlates with oil price. Markets of small countries differ widely, depending on oil or natural gas as the source of their financing. Growth rate of construction market, in CIS countries, was 4%.

Graph 1: Construction sector contribution to the GDP (in %)
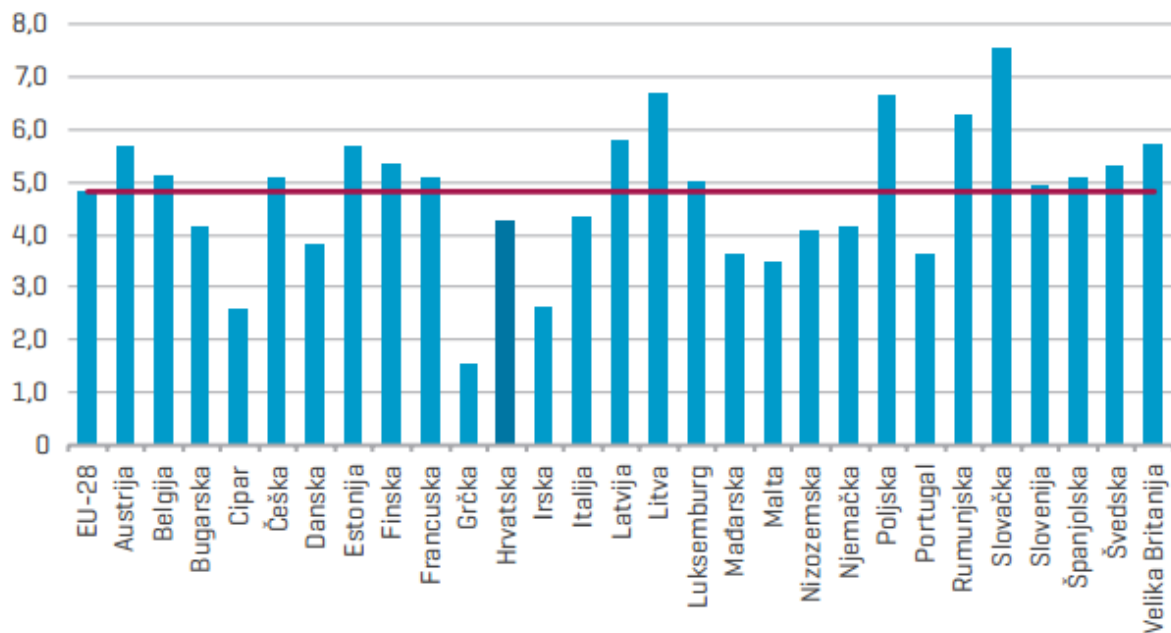
Source: Sector analysis (2015) Economic Institute Zagreb – Croatia. Vol. 40 (4), page 8

Financial and economic crises had a strong impact on construction industry in almost every EU country. Output and employment had a significant drop in many countries, especially in Spain and Baltic countries. From the start of 2008 until the end of 2010 seasonally adjusted index of production had fallen for more than a fifth, increasing the length and intensity of the depression. Although the first quarter had shown moderate recovery, rest of the year had not shown any signs of sustainable long term growth. In February 2012 output level of construction had lapsed below the level it was on in the financial and economic crises, after which it had stabilized onward from May 2012. Construction activity has a seasonal character in many EU members, therefore it relates to the economic cycle. As a supplier of tangible assets it usually impacts the whole economy, although that was not the case in this financial and economic crises as the construction activity continued to fall long after other activities had relapsed. In Graph above it is shown contribution of construction sector for GDP in EU countries including Croatia for comparison. It is obvious that transition countries like Poland, Slovakia, Latvia, Lithuania and Romania have biggest contribution of construction sector to gross domestic production while Croatia is below EU average with share below 4,5% of construction sector in GDP. Next Graph shows share of construction sector in GDP in Croatia and average of EU-28.

Graph 2: Share of construction sector in GDP in Croatia and EU-28 (in %)
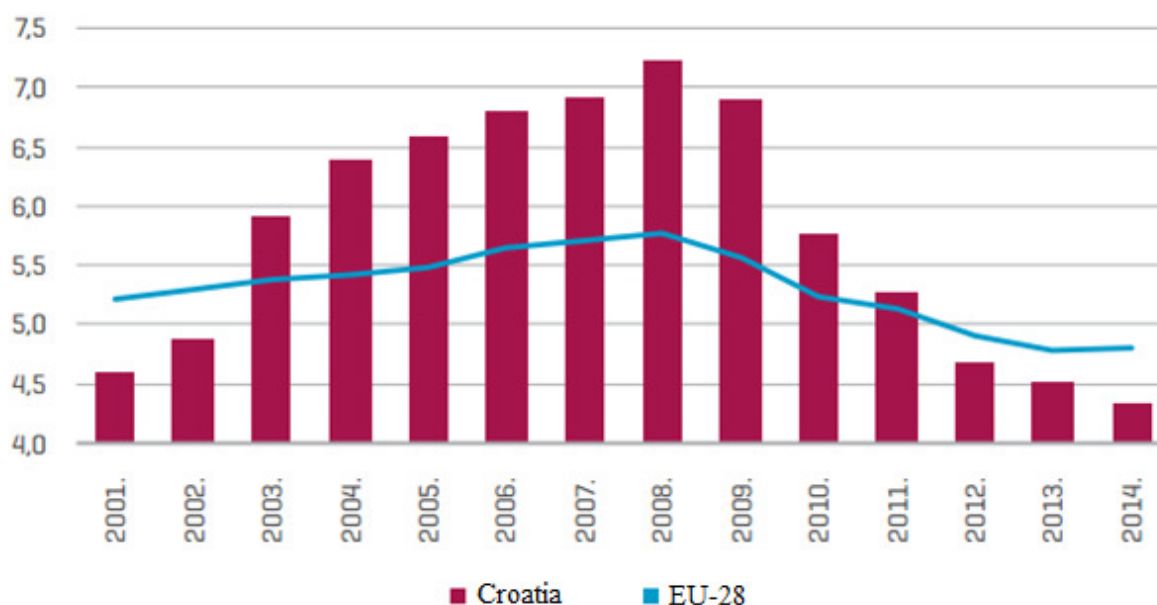
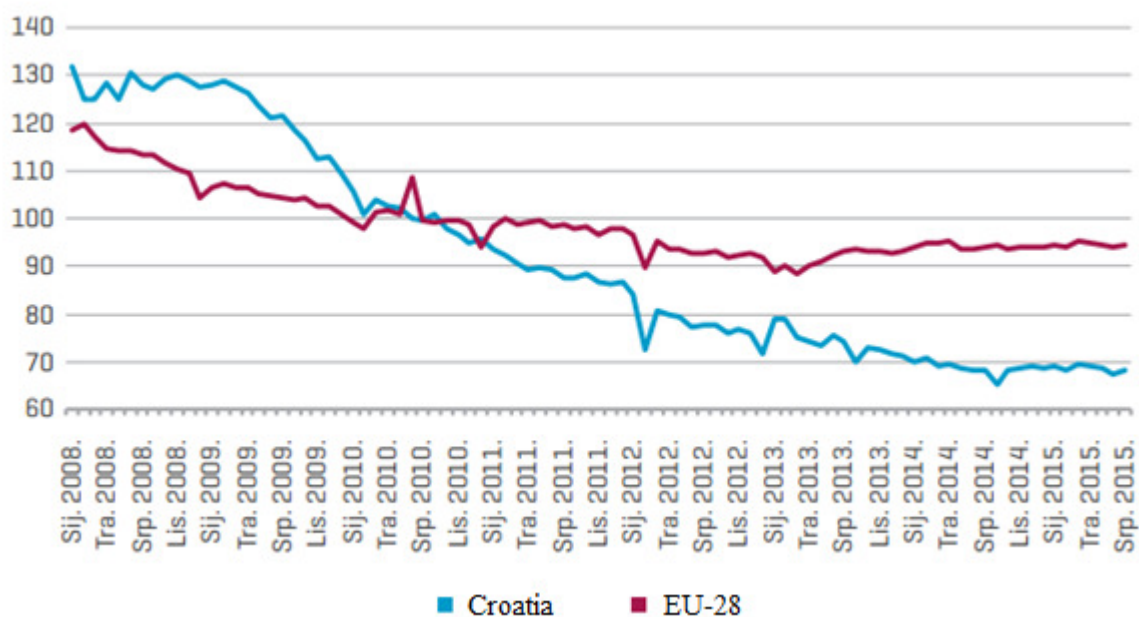Source: Sector analysis (2015) Economic Institute Zagreb – Croatia. Vol. 40 (4), page 6

From 2010 to 2012 the construction industry in Croatia had gone through significant changes in number of firms on the market. In 2010 there was 10.759 active firms, in 2011 that number had increased by 1.592 resulting in total number of 12.351 active firms on the market. In 2012 that number suddenly dropped but it had still been higher than in 2010 (total of 11.826 active firms). That translates to a relative increase in active firms by 9,92% from 2010 to 2012. Another significance for the industry was a constantly falling employment, it had dipped from 90.842 in 2010 to 79.926 in 2012, in other words it had decreased by 10.916 employees (12,02%) what is shown in Graph 4. Specialized construction branch F43 suffered the most in terms of employment with an average decrease of 38,50% per firm.

Construction industry, had lower total revenue than total cost and their ratio was getting lower by the year: 0,99 in 2010, 0,96 in 2011 and 0.93 in 2012. Hence the construction industry had insufficient efficiency which gets lower by the year. In 2011 the change in total revenue indicates to the increase in business activity of 18,99%; although revenue increase in 2012, in comparison to 2011, had been lower by 49,99%. Operating profit margin in construction sector has fallen form 3,30% (in 2010) to -3,46% (in 2012). That trend is present in all of the three specialized construction branches, although the operating profit margin of branch civil engineering had suffered the worst (margin was -9,17%). Only specialized construction activity branch, in 2012, had a positive operating profit margin of 2,64% (which is still lower than the margin of 3,30% it had in 2010). That trend is present in all of the three specialized construction branches, although the operating profit margin of branch civil engineering had suffered the worst (margin was -9,17%). In the period from 2010 to 2012 productivity of labor and capital had been significantly falling. In that period productivity of labor had fallen for 22,03% while the productivity of capital suffered a decrease for 30,80%. This was a result of a fall in gross value added by 31,40%. Current ratio in construction industry was very low during those years with a falling tendency. Quick ratio decreased from 0,612 (2010) to 0,528 (2012) in the construction industry. This indicates a struggle with servicing current liabilities from current assets (without stock). Gear ratio of the construction industry, for the given years, incessantly increases resulting in total increase of 12%. In all of the given years, construction industry has a tendency of improving the export import ratio resulting in higher

experts than imports in 2012 (which was not the case in 2010 and 2011). In the three year period from 2010 to 2012 the RCA index has increased in the construction industry from -0,093 to 0,287 which is still well below the 1 point mark. The only positive index, and by far the highest, has the branch civil engineering which correlates to its export import ratio that is above 1.

Small businesses are 98,60% of the total market firms with 1,12% for medium-sized enterprises and 0,27% for large companies. Although the number of large companies is by far the lowest they employ 21,17% of the total employees in this industry. Therefore the significance of large companies is undeniable – 32 large companies employ 16.921 workers. Despite the small number of large companies they employ before mentioned 21,17% of the workers in industry, comprise the 65,92% of the total construction industry assets; account for 53,64% of the exports, 20,33% revenue and 11,25% of the profits in construction industry. Considering those numbers (assets, revenue and profits) we can deduce that small and medium-sized enterprises use their assets more efficiently and are more profitable that the big companies.

**Graph 2**: Volume of construction sector in Croatia, 2010=100

Source: Sector analysis (2015) Economic Institute Zagreb – Croatia. Vol. 40 (4), page 4

Analyzing a certain set of quantitative indicators of the construction industry in Croatia and the appurtenant enterprises, specialized construction activity branch stands out in profitability and liquidity. Specialized construction activity branch employs 29,09% of the workers in construction, it is the only branch with revenue higher than the costs (1,02 ratio) which generates profit (61.178.420); positive ROA (0,60%), ROE (2,96%) and operating profit margin (2,64%) even though that all efficiency indicators where decreasing. Liquidity is decreasing and on very low level but still higher than the industry average. Gearing ratio of the branch is 0,7 and is higher than the construction industry average, interest coverage ratio is 4,25 which is way beyond than it is in other branches. Specialized construction activity branch does not have competitive advantages as its RCA index is -0,112 (was -0,520); export import ratio has increased (from 0,56 to 0,91) as did the trade balance of the branch (from -

174.087.091 to -36.248.214); export share in total revenue of the branch is also increasing (4,01%) as does it in the entire industry (from 17,39% to 25,18%), international exchange takes place in similar branches (GL index 0,952). This branch has a lower share in gross added value (25,89%) than in employment (29,09%) of the construction industry. All the economic key factors contribution and government initiatives plans for construction industry should be a good benchmark for other industries to adhere certain factor that lead to good profitability indicators.

Graph 4: Share of employees in construction sector in total employees (in%)
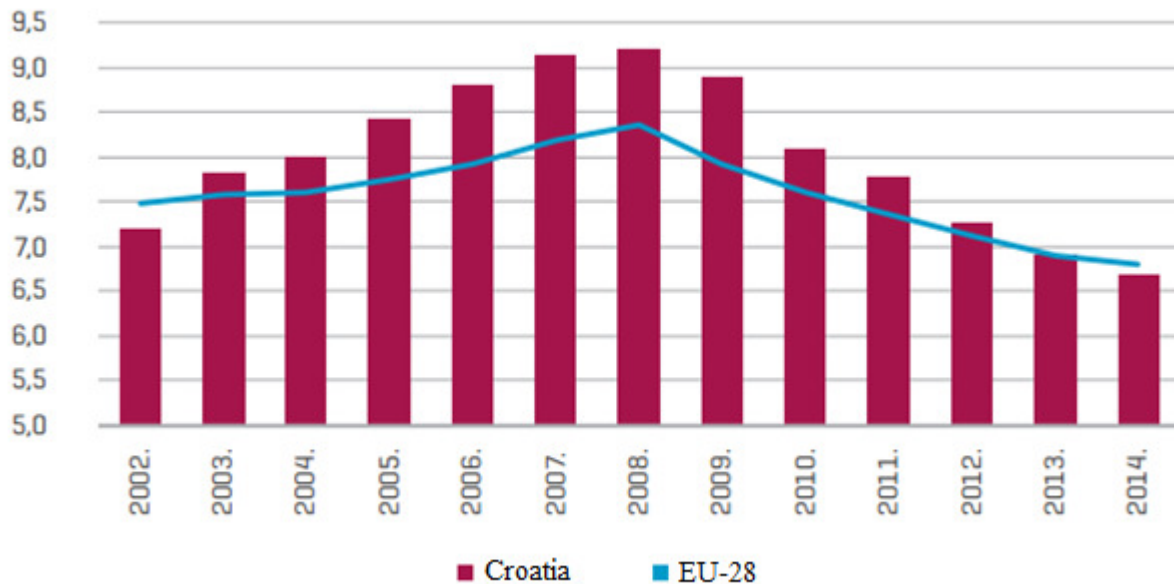
Source: Sector analysis (2015) Economic Institute Zagreb – Croatia. Vol. 40 (4), page 8

4. RESULTS

This research uses quantitative data of 8678 construction companies in Croatia for over 11 years that is from 2003 until 2011. All data gathered from FINA database. The FINA database contains tax return information on an annual basis. Each year all of entities in Croatia return data on their income, expenses, and other financial activities. These data are confidential and remote access was authorized under the specific research project. The results have to be evaluated with the fact that some entities in sample may be used for tax planning purposes rather than for reporting the financial activities of a particular line of business. The use of tax entities for accounting purposes will effect the results of an investigation of the determinants of entity profitability using economic variables.

It is well known that determinants are product of specific characteristics of industry and at the end economy, namely different variable has different impact and relation with profitability with other intensity. This research employed the most important factors that influence firms profitability and that are commonly utilized through the previous researches. The variables and their used measurements are presented in Table 1. The dependent variable is profitability as measured by net profit after tax. As independent variables consider (1) Lagged net profit after tax; (2) Herfindahl-Hirschman index; (3) Sales growth, (4) Natural logarithm of total sales; (5) Price cost margin and (6) Material costs, but All of them use different measurement unit.

Table 1: Variables and measurement

Dependent variable	Measurement	Symbol
Profitability	Net profit after tax	net_profit_af_tax
Independent variables		
Profitability	Lagged net profit after tax (-1)	net_profit_af_tax L1
Concentration	Herfindahl-Hirschman index	hhi
Growth	Sales growth rate	salesgrowth
Size	Natural logarithm of total sales	logassets
Market power	Price cost margin	pcm
Material costs	Material costs in HRK	mater_costs

Therefore, it is common practice in empirical work to apply the generalized method of moments (GMM) framework proposed by Arellano and Bond (1991), Arellano and Bover

(1995), and Blundell and Bond (1998), amongst others. Therefore, and because of dynamic nature of relations in the construction industry where present values depends of past results it is obvious to use GMM. Just dynamic models are explaining relations in which dependent variable with one or more legs depends about independent variable performance. Dynamic panel model where dependent variable has one lag is:

$$y_{it} = \mu + \gamma y_{i,t-1} + \beta_1 x_{it1} + \beta_2 x_{it2} + \cdots + \beta_k x_{itk} + \alpha_i + \varepsilon_{it}, i = 1, \dots, N; t = 1, \dots, T \quad (1)$$

where are ε_{it} relation error with independent and identity distributed random variable with medium 0 and variance σ_δ^2.

The Arellano–Bond estimator sets up a generalized method of moments (GMM) problem in which the model is specified as a system of equations, one per time period, where the instruments applicable to each equation differ (for instance, in later time periods, additional lagged values of the instruments are available). According to the previous generalized model, the Arellano-Bond estimator defined as:

$$y_{it} = \gamma y_{i,t-1} + \alpha_i + \varepsilon_{it}, i = 1, \dots, N; t = 1, \dots, T \quad (2)$$

where are ε_{it} relation error with independent and identity distributed random variable with medium 0 and variance σ_δ^2, and α_i is fixed or random effect different for every identity in sample. Model based on previous theoretical explanation for this research is:

$net\_profit\_af\_tax_{it} = \mu + \gamma net\_profit\_af\_tax_{i,t-1} + \beta_1 logassets_{it} + \beta_2 hhi_{it} + \beta_3 salesgrowth_{it} + \beta_4 pcm_{it} + \beta_5 mater\_costs_{it} + \alpha_i + \varepsilon_{it}, i = 1, \dots, 11; t = 2003, \dots, 2014$
(3)

Validity of instrumental variables is tested with Sargan test (or Sargan-Hansen or just Hansen) and Arellano-Bond test. In attempts for better study results of the determinants of construction firms profitability it was introduced dummy variables. Dummies represent size of firms according to the number of employees. Usually national classification for small and big firms is 250 employees. According to that point, this sample is divided on 250 employees, for below 250 it is dummy = 0, and for above 250 it is dummy = 250. In group with more than 250 employees (dummy = 1) there are 59 firms with 357 observations, and in group with less than 250 employees there are 8619 firms with 55972 observations. Table 2 shows results which has been analyzed using STATA 11 program what include Sargan and A-B tests.

Table 2: Results of dynamic panel model (GMM)

	Coef.	Std. Err.	z	$P > |z|$	95% Conf. Interval
Dummy = 0					

net_profit~L1	0.3012732	0.0038407	78.44	0.000	0.2937456	0.3088008
mater_costs	0.0079478	0.003685	2.16	0.031	0.0007254	0.0151703
salesgrowth	67135.43	12916.35	5.20	0.000	41819.85	92451.01
hhi	1.16e+11	1.88e+09	61.64	0.000	1.12e+11	1.20e+11
logassets	68429.93	18481.53	3.70	0.000	32206.79	104653.1
pcm	-2.118211	1.32708	-1.60	0.110	-4.719239	0.4828174
_cons	-926569.9	251447.1	-3.68	0.000	-1419397	-433742.7
Dummy = 1						
net_profit~L1	0.1019792	0.0000133	7658.21	0.000	0.1019531	0.1020053
mater_costs	-0.0096933	0.0000582	-.166.52	0.000	-0.0098074	-0.0095792
salesgrowth	1.75e+07	32804.19	534.00	0.000	1.75e+07	1.76e+07
hhi	5.72e+10	1.06e+08	539.56	0.000	5.70e+10	5.75e+10
logassets	1.11e+07	26584.34	416.17	0.000	803698.2	880846.3
pcm	842272.3	19681	42.80	0.000	803698.2	880846.3
_cons	-2.21e+08	553667.6	-399.05	0.000	-2.22e+08	-2.20e+08
Sargan test (p-value)	0,6497					
Arellano-Bond test 1 (p-value)	0,3372					
Arellano-Bond test 2 (p-value)	0,4668					

The table above indicates similar results depending on dummy variables. There are a positive relationship between lagged profitability, concentration, size and growth with 1% significance and material costs with 5% significance. Contrarily, there is negative but insignificant correlation between pcm and profitability. Mentioned results are for firms with less than 250 employees. In addition, we can observe similar results with some differentiation for bigger firms with more than 250 employees. For bigger firms results shows positive and significant correlation between lagged profitability, concentration, size, growth and pcm with 1% significance where just material costs has negative relationship with profitability. The positive correlation between growth of total sales and profitability is consistent with Nunes et al. (2009) who suggested that when the growth of total sales increase will also affect the

profitability to increase too as it influences the employee's motivation that expect greater benefits and also gains in the future. The results are confirmed on both group of observed firms. Also, same results are showed in Dogan (2013) who studied factors affecting profitability in Turkey and found a positive correlation between sales and profitability. The results provide evidence of positive relationship between size and profitability. Firms with better profitability will become larger. It is also shown in McDonald (1999). Firm size affects company advantage of economies of scale and scope and procedures formalization and in return way what is also shown in this research. Lagged profitability and concentration (which is measured with Herfindahl-Hirschman index) are also tested in McDonald (1999) and results showed positive and significant relationship. Price cost margin, which is equal to the value of output minus the cost of labor and materials, divided by the value of output, has different influence depending on number of employees. And so, in firms with less than 250 employees it hasn`t significant influence while in bigger firms there is positive and significant influence (1%). Moreover, the significant influence of material costs on profitability suggests that is very important to focus on cost management to ensure higher levels of profitability. Next table summarizes results above and gives whole and concise picture of analyzed data.

Table 3: Direction of influence of variables on profitability

Variable	Coefficient	Significance	Coefficient	Significance
Number of firm employees	‹ 250		250 ›	
Lagged net profit after tax	+	***	+	***
Herfindahl-Hirschman index	+	***	+	***
Sales growth rate	+	***	+	***
Natural logarithm of total assets	+	***	+	***
Price cost margin	-		+	***
Material costs	+	**	-	***

Note: * 10%, ** 5%, *** 1% significance

Summing up, used model allows determination of the direction of the influence of independent variables on profitability for both tested groups. Table above confirms used model like an appropriate model in which picked determinants have expected influence on profitability and their relationships make sense. Also, the model credibly explains the direction of profitability changes influenced by changes of dummy variables what is confirmed with well used Sargan and Arellano-Bond tests.

5. CONCLUSION REMARKS

This paper examines construction industry in Croatia through the determinants of profitability which are analyzed with dynamic panel data method. A generalized methods of moments is utilized on a sample of 8678 construction firms covering the period between 2003 and 2014 what gives 56329 observations. The main contribution of this paper is the identification of the determinants affecting profitability of construction firms in Croatia. This paper will be beneficial to different stakeholders such as individuals, public and the government as well. It provides understanding to the researcher on the factors that affect financial performance which focuses on profitability. Generally, this paper provides useful information and knowledge to future studies in this area where is still plenty of room for further researches.

Construction industry, in general perspective, is dynamic, large, expanding, divided, fluctuating and heterogeneous kind of industry. Like in other industries, profitability is top target for every firm management. For higher profits which increases firm value, it is needed to focus on most important factors that influence profitability. According to that, the research findings are more important.

The research was divided into two parts, one for firms with less than 250 employees and second for firms with more than 250 employees. Main goal was to see is there any difference according to the size of firms measured with number of employees because it is well known about a lot of differences which distinguishes small and medium firms with bigger one. It is picked up for 250 employees because of Croatian statistic framework and estimated calculation based on the size of national economy and etc.

The results showed evidence of a strong positive significant relationship between lagged profitability, Herfindahl-Hirschman index, natural logarithm of total assets, sales growth and profitability for firms which have less than 250 employees. Only variable material costs provided positive relationship with 5% of significance. Variable price cost margin did not show significant influence on profitability. According to the results for bigger firms with more than 250 employees it is obvious that all selected variables showed strong correlation with profitability. Lagged profitability, Herfindahl-Hirschman index, natural logarithm of total assets, price cost margin and sales growth have strong positive relationship of 1% significance with profitability while just variable material costs has negative relationship with profitability. All showed results have conclusion with point that lagged profitability, size of firm, firm`s growth and concentration have predictable output according to profitability independently on number of firm`s employees. Surely, stakeholders have to pay attention on obtained variables in order to achieving better management policy in construction firms in Croatia.

Provided results are in line with previous studies in the same area but for future researches we should pay attention to the some notes from this research. First of all, there is restriction about selection of the determinants (different number of determinants give different results), picked econometric tools and used different variation of dynamic panel models.

REFERENCES

1. Arellano, M. and Bond, S. R. (1991) Some Tests of Specification for Panel Data: Monte Carlo Evidence and an Application to Employment Equations. Review of Economic Studies 58 (2), pp. 277–297
2. Arellano, M. and Bover, O. (1995) Another look at the instrumental variable estimation of errorcomponents models. Journal of Econometrics 68 (1), pp. 29–51
3. Bain, J. S. (1956) Barriers to New' Competitors: Their Character and Consequences in Manufacturing Industries. Harvard University Press, Cambridge
4. Blundell, R. and Bond, S. R. (1998) Initial conditions and moment restrictions in dynamic panel data models. Journal of Econometrics 87 (1), pp. 115–143
5. Brush, T. H., Bromiley, P. and Hendrix, M. (1999) The relative influence of industry and corporation on business segment performance: An alternative estimate. Strategic Management Journal. 20(6), pp. 519-547
6. Dogan, M. (2013) Does Firm Size Affect The Firm Profitability? Evidence from Turkey, Research Journal of Finance and Accounting, 4 (4), pp. 53-59
7. Grinyer, H. P. and McKiernan, P. (1991) The determinants of corporate profitability in the UK electrical engineering industry. British Journal of Management, 2(1), pp. 17-32
8. Hansen, G. S. and Wernerfelt, B. (1989) Determinants of firm performance: the relative importance of economic and organizational factors. Strategic Management Journal, Vol. 10, pp. 399-411
9. McDonald, J. T. (1999) The determinants of firm profitability in Australian manufacturing. The Economic Record, 75 (229), pp. 11-126
10. McGahan, A. M. and M. E. Porter (2002) What do we Know About Variance in Accounting Profitability. Managment Science 48(7), pp. 834–851
11. Nunes, P. J. M., Serrasquerio, Z. M. and Sequeira, T. N. (2009) Profitability in Portuguese service industries: A panel data approach. The Service Industries Journal, 29 (5), pp. 693-707
12. Ravenscraft, D. J. (1983) Structure-profit relationships at the line of business and industry level. Review of Economics and Statistics, 65, pp. 22-31
13. Scherer, F. M. (1980) Industrial Market Structure and Economic Performance. 2nd edn. Rand-McNally, Chicago
14. Schmalensee, R. (1989) Inter-Industry Studies of Structure and Performance. In R. Schmalensee and R. D. Willlig (Eds.), Handbook of Industrial Organization, Vol. 2, pp. 952–1009
15. Sector analysis (2015) Economic Institute Zagreb – Croatia. Vol. 40 (4)
16. Stierwald, A. (2009) Determinants of firm Profitability – The Effect of Productivity and its Persistence. Melbourne Institute for Applied Economic and Social Research
17. Škuflić, L. and Mlinarić, D. (2015) Microeconomic determinants of profitability for Croatian hotel industry. Economic review, 5 (5), pp. 477-494