

Value Added Tax Rate Change and Its Impact on Profitability

Luka MLADINEO, Toni ŠUŠAK
The University Department of Professional Studies, Split, CROATIA
lmladine@oss.unist.hr
tsusak@oss.unist.hr

Abstract: Nowadays the world is globalized more than ever before. The consequence of globalization is that changes in one country can have significant importance globally. Profitability has always been one of the most important indicators of the actual situation in a company. This is the reason why there are so many different profitability ratios. Unlike profitability ratios which are widely accepted and therefore constant, tax changes in Republic of Croatia occur frequently and have impact on business profitability. In this paper, attention will be paid to general value added tax rate change and its impact on profitability ratios of a company. The impact of general value added tax rate change will be analyzed on sample which consists of Croatian companies from two activities – retail and wholesale trade and manufacture. Also, difference between profitability ratios of companies from different activities will be analyzed. As the rate change occurred in the course of a financial year, ratios will be calculated for the year before and year after the general value added tax change.

Keywords: VAT, VAT rate, profitability, retail and wholesale trade, manufacture

Introduction

Profitability is one of the most important measures of the performance of business enterprises. Therefore, profitability ratios of enterprises are often used in research. In this paper, we will examine the impact of changes in the rate of value added tax on the profitability of their business. Value added tax is one of the most important taxes in the Republic of Croatia. Revenues from value added tax amount to about 60% of all tax revenues of the state budget. Revenues from indirect taxes dominate in tax revenues what shows the great impact of trade on the Croatian economy. Because of that a large number of trading companies will be included in the sample. The sample will consist of 100 companies. Some of them are production companies and some are trade companies. The sample will contain a significant number of small businesses because of their importance in the total number of enterprises. In this study we will focus primarily on the following profitability ratios: profit margins, returns to the capital and on property, as well as the returns that companies realize before tax, depreciation and amortization. The aim is to determine whether the increase in the rate of value added tax has affected a certain profitability ratios.

1. Value Added Tax in Croatia

Value added tax in Croatia was introduced in 1998 with a single rate of 22%. It has experienced significant changes during time. The first change was the introduction of zero rate for products such as bread, milk, medicines, and so on. The next change in the VAT system was the second reduced rate of 10% for tourist services, newspapers. Reduced rates experienced its further changes later in the adjustment process. The products that were subject to zero rate now have 5% rate and those that were subject to 10% now have 13% rate. The general VAT rate in Croatia is 25% but it was initially increased from 22% to 23% in 2009. In this paper we explore the impact of changes in the general VAT rate from 22 to 23% that took effect on August 1, 2009. It is important to emphasize the height of the tax rate in Croatia which is among the highest in the European Union. Therefore, it is very interesting to explore the impact of its increase on business profitability.

2. Profitability Ratios

Profitability Ratios generally reflect the degree of use of existing resources of success and are measured based on the relation of return or annuity on the one hand and the investment on the other. [4]. According to the general definition of profitability the return and the investment can be expressed in various ways so they can form different indicators of profitability.



Figure no.1 Types of profitability ratios [1]

2.1. Operative Profit Margin

The most common ratio of profitability is the profit margin. It is calculated by putting into relation different categories of profit and sales revenues of the company. The profit margin as an indicator shows the percentage of profit in total revenues from business activities.

$$\text{Operative Profit Margin} = \text{Operating Profit} / \text{Total Revenues}$$

2.2 Net Profit Margin

$$\text{Net Profit Margin} = \text{Profit for the year} / \text{Operating Revenues}$$

Net profit margin shows the relation of profit after tax and sales revenues. It can be an indicator of the share that the company can pay to the owners or leave in the balance sheet as retained earnings. This ratio can be very useful for the comparison with other companies and in particular with those operating in different tax systems because it shows the direct impact of the profit tax [1].

2.3. Return on Assets

$$\text{Net profit} / \text{Total Assets}$$

ROA is the return of invested assets or profitability of assets. It is calculated in the way that the numerator is one of the variables that reflect the return (net profit, gross profit, net or gross profit increased by the amount of interest payments) which is divided by the value of total assets (often the average value of property is used and sometimes the total value of the property) [1, 2].

2.4. Return on Equity

$$\text{Net Profit} / \text{Total Equity}$$

ROE is the return of invested equity and profitability of own capital. In this ratio the numerator is one of the variables that reflect the return (net profit, gross profit, net or gross profit increased by the amount of interest payments) which is divided by the value of equity multiplied by 100 [1, 2].

2.5. Earnings Before Interest and Taxes

$$\text{Operating Revenues} - \text{Operating Expenses}$$

EBIT is earnings before interest and income tax expense. The above dependent variable will be examined because it shows profit before tax.

2.6. Earnings Before Interest, Taxes, Depreciation and Amortization

$$\text{Operating Revenues} - (\text{Operating Expenses} + \text{Amortization})$$

EBITDA is essentially net income with interest, taxes, depreciation and amortization added back to it, and can be used to analyze and compare profitability between companies and industries because it eliminates the effects of financing and accounting decisions [7].

3. Data, methodology and hypotheses

3.1. Data

Financial ratios in this research are calculated using financial data publicly available on Croatian Financial Agency website. Sample consists of 100 companies which operated in Republic of Croatia in 2011 and it is divided into two subsamples. First subsample consists of 34 companies which belong to Manufacturing Activity and second subsample consists of 66 companies which belong to Retail and Wholesale Trade Activity. Companies included in sample are predominantly small enterprises because they are considered as important generators of economic growth in one country. Medium and large enterprises were also included in multiple smaller share than small enterprises.

According to data presented on Croatian Chamber of Economy website, number of small, medium and large enterprises in Republic of Croatia in 2011 was as presented in following table:

Table no. 1 Number of small, medium and large enterprises in Republic of Croatia in 2011

Size of the company	Number of companies	Share (%)
Small	89539	98.2
Medium	1292	1.4
Large	359	0.4

Source: Author's calculation based on data provided on Croatian Chamber of Economy website, <https://www.hgk.hr/pokazatelj/broj-malih-srednjih-i-velikih-poduzeca-u-republici-hrvatskoj-prema-nkd-u-za-razdoblje-od-i-xii-2011>

Small enterprises account for more than 98% in Republic of Croatia and they have significant impact on country's economy mainly through increased employment which is not only economic issue but also very important social issue.

3.2. Methodology and hypotheses

In this paper statistical methodology for group comparison will be applied, more specifically paired samples t-test will be used because same group of companies will be analyzed, but in different periods of time. First group includes financial ratios before the VAT rate change and second group consists of financial ratios after the VAT rate change. The same procedure will be conducted for both subsamples of companies depending on activity to which they belong.

Following hypotheses will be used in research:

Hypothesis 1 – Difference between analyzed profitability ratios before the VAT rate change (2008) and after the VAT rate change (2010) is statistically significant for companies which belong to manufacturing activity,

Hypothesis 2 – Difference between analyzed profitability ratios before the VAT rate change (2008) and after the VAT rate change (2010) is statistically significant for companies which belong to retail and wholesale trade activity.

3.3. Results

Abbreviations for profitability ratios used in research are presented in following table:

Table no. 2 Abbreviations for Profitability Ratios

Abbrev.	Ratio	Formula
OPM	Operative Profit Margin	Operating Profit / Total Revenues
NPM	Net Profit Margin	Profit for the year / Operating Revenues
ROE	Return on Equity	Net Profit / Total Equity
ROA	Return on Assets	Net Profit / Total Assets
EBIT	Earnings before Interest and Taxes	Operating Revenues – Operating Expenses
EBITDA	Earnings before Interest, Taxes, Depreciation and Amortization	Operating Revenues – (Operating Expenses + Amortization)

Table no. 3 Paired samples statistics for companies which belong to both activities

Paired Samples Statistics				
	Mean	N	Std. Deviation	Std. Error Mean
OPM_10	8,47	85	77.73	8.43
OPM_08	0,94	85	5.89	0.64
NPM_10	0,16	89	0.60	0.06
NPM_08	0,10	89	0.19	0.02
EBIT_10	2238884	99	46737012	4697246
EBIT_08	3285196	99	17279816	1736687
EBITDA_10	4247448	97	51035698	5181890
EBITDA_08	5467063	97	24416915	2479162
ROE_10	0,23	74	0.36	0.04
ROE_08	0,27	74	0.29	0.03
ROA_10	0,09	97	0.59	0.06
ROA_08	0,09	97	0.16	0.02

Table no. 3 shows mean values for all profitability ratios for companies from both activities in financial year before the VAT rate change (2008) and in financial year after the VAT change (2010).

Table no. 4 Paired samples correlations for companies which belong to both activities

Paired Samples Correlations			
Pair	N	Correlation	Sig.
OPM_10 & OPM_08	85	-0.025	0.817
NPM_10 & NPM_08	89	0.674	0.,001
EBIT_10 & EBIT_08	99	0.757	0.001
EBITDA_10 & EBITDA_08	97	0.766	0.001
ROE_10 & ROE_08	74	0.301	0.009
ROA_10 & ROA_08	97	0.177	0.082

NPM, EBIT and EBITDA have strong, statistically significant correlation between the values before the VAT rate change and values after the VAT change, while ROE has statistically significant, moderate relationship. OPM and ROA don't have statistically significant correlation between the values before the VAT rate change and values after the VAT change.

The probability values shown in last column of the Table no. 5 indicate that there isn't statistically significant difference between financial ratios included in this research before and after the VAT rate change for companies from both activities. In other words, changes of financial ratios values before and after the VAT rate change weren't statistically significant for companies from both activities.

Table no. 5 Paired Sample Test for Companies which belong to both activites

Paired Samples Test								
Pair	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
OPM_10 - OPM_08	7.53	78.11	8.47	-9.32	24.37	0.89	84	0.38
NPM_10 - NPM_08	0.06	0.49	0.05	-0.04	0.17	1.20	88	0.23
EBIT_10 - EBIT_08	-1046312	35492983	3567179	-8125263	6032638	-0.29	98	0.77
EBITDA_10 - EBITDA_08	-1219615	35957377	3650918	-8466631	6027401	-0.33	96	0.74
ROE_10 - ROE_08	-0.04	0.39	0.05	-0.12	0.05	-0.78	73	0.44
ROA_10 - ROA_08	0.00	0.58	0.06	-0.12	0.12	0.00	96	1.00

Table no. 6 Paired samples statistics for companies which belong to manufacturing activity

Paired Samples Statistics				
	Mean	N	Std. Deviation	Std. Error Mean
OPM_10	0.18	30	0.47	0.09
OPM_08	0.19	30	0.27	0.05
NPM_10	0.12	30	0.27	0.05
NPM_08	0.10	30	0.16	0.03
EBIT_10	8581921	34	77310014	13258558
EBIT_08	6371688	34	28737102	4928372
EBITDA_10	13325911	34	83793871	14370530
EBITDA_08	11591315	34	40147614	6885259
ROE_10	0.18	26	0.25	0.05
ROE_08	0.26	26	0.29	0.06
ROA_10	0.07	32	0.10	0.02
ROA_08	0.09	32	0.10	0.02

Table no. 6 shows mean values for all profitability ratios for manufacturing companies in financial year before the VAT rate change (2008) and in financial year after the VAT change (2010).

Table no. 7 Paired samples correlations for companies which belong to manufacturing activity

Paired Samples Correlations			
Pair	N	Correlation	Sig.
OPM_10 & OPM_08	30	0.611	0.001
NPM_10 & NPM_08	30	0.884	0.001
EBIT_10 & EBIT_08	34	0.784	0.001
EBITDA_10 & EBITDA_08	34	0.782	0.001
ROE_10 & ROE_08	26	0.696	0.001
ROA_10 & ROA_08	32	0.331	0.065

OPM, NPM, ROE, EBIT and EBITDA have strong, statistically significant correlation between the values before the VAT rate change and values after the VAT change, while ROA doesn't have statistically significant correlation between the values before the VAT rate change and values after the VAT change.

Table no. 8 Paired sample test for companies which belong to manufacturing activity

Paired Samples Test								
Pair	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
OPM_10 - OPM_08	-0.01	0.37	0.07	-0.15	0.13	-0.147	29	0.884
NPM_10 - NPM_08	0.02	0.15	0.03	-0.03	0.08	0.867	29	0.393
EBIT_10 - EBIT_08	2210233	57599493	9878232	-17887180	22307646	0.224	33	0.824
EBITDA_10 - EBITDA_08	1734596	58042363	9954183	-18517342	21986534	0.174	33	0.863
ROE_10 - ROE_08	-0.09	0.21	0.04	-0.17	0.00	-2.136	25	0.043
ROA_10 - ROA_08	-0.02	0.12	0.02	-0.06	0.02	-1.091	31	0.284

The probability values shown in last column of the Table no. 8 indicate that ROE has statistically significant difference between financial ratios included in this research before and after the VAT rate change for manufacturing companies. For all other financial ratios, changes of financial ratios values before and after the VAT rate change weren't statistically significant for manufacturing companies.

Table no. 9 Paired samples statistics for companies which belong to retail and wholesale trade activity

Paired Samples Statistics				
	Mean	N	Std. Deviation	Std. Error Mean
OPM_10	12,99	55	96,65	13,03
OPM_08	1,35	55	7,31	0,99
NPM_10	0,18	59	0,71	0,09
NPM_08	0,10	59	0,20	0,03
EBIT_10	-1079012	65	15179631	1882802
EBIT_08	1670724	65	4867949	603795
EBITDA_10	-652040	63	15040006	1894863
EBITDA_08	2161912	63	5792062	729731
ROE_10	0,26	48	0,40	0,06
ROE_08	0,27	48	0,30	0,04
ROA_10	0,10	65	0,72	0,09
ROA_08	0,09	65	0,18	0,02

Table no. 9 shows mean values for all profitability ratios for retail and wholesale trade companies in financial year before the VAT rate change (2008) and in financial year after the VAT change (2010).

Table no. 10 Paired samples correlations for companies which belong to retail and wholesale trade activity

Paired Samples Correlations			
Pair	N	Correlation	Sig.
OPM_10 & OPM_08	55	-0.033	0.810
NPM_10 & NPM_08	59	0.666	0.001
EBIT_10 & EBIT_08	65	0.300	0.015
EBITDA_10 & EBITDA_08	63	0.335	0.007
ROE_10 & ROE_08	48	0.186	0.205
ROA_10 & ROA_08	65	0.179	0.153

NPM has strong, statistically significant correlation between the values before the VAT rate change and values after the VAT change, while EBIT and EBITDA have moderate, statistically significant correlation for retail and wholesale trade companies. OPM, ROE and ROA don't have statistically significant correlation between the values before the VAT rate change and values after the VAT change.

Table no. 11 Paired sample test for companies which belong to retail and wholesale trade activity

Pair	Paired Differences					t	df	Sig. (2-tailed)
	Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
				Lower	Upper			
OPM_10 - OPM_08	11.64	97.16	13.10	-14.63	37.90	.888	54	0.378
NPM_10 - NPM_08	0.08	0.60	0.08	-0.07	0.24	1.062	58	0.293
EBIT_10 - EBIT_08	-2749736	14481857	1796253	-6338165	838692	-1.531	64	0.131
EBITDA_10 - EBITDA_08	-2813951	14193631	1788229	-6388571	760668	-1.574	62	0.121
ROE_10 - ROE_08	-0.01	0.46	0.07	-0.14	0.13	-0.098	47	0.922
ROA_10 - ROA_08	0.01	0.71	0.09	-0.16	0.19	.126	64	0.900

The probability values shown in last column of the Table no. 11 indicate that there isn't statistically significant difference between financial ratios included in this research before and after the VAT rate change for retail and wholesale trade companies.

Conclusions

Tax policy is certainly one of the factors that influence profitability of business enterprises. NPM, EBIT and EBITDA have strong, statistically significant correlation between the values before the VAT rate change and values after the VAT change, while ROE has statistically significant, moderate relationship in both production and trade companies. OPM, NPM, ROE, EBIT and EBITDA have strong, statistically significant correlation between the values before the VAT rate change and values after the VAT change in production companies. Our research show that NPM has strong, statistically significant correlation between the values before the VAT rate change and values after the VAT change, while EBIT and EBITDA have moderate, statistically significant correlation for retail and wholesale trade companies. Changes of financial ratios values before and after the VAT rate change

were not statistically significant for companies from both activities. For retail and wholesale trade companies research indicate the result similar for whole sample.

We have accepted Hypothesis 1 for ROE because ROE has statistically significant difference between financial ratios included in this research before and after the VAT rate change for manufacturing companies. This research confirms influence of the VAT rate change on total equity on companies from manufacturing sector. This is probably because this sector can react very quickly on tax changes.

References

- [1] Belak, V., (2014), *Analiza poslovne izvrsnosti*, RRIF plus d.o.o.
- [2] Mamić, I., Sever S., Žager, K., Žager, L., (2008), *Analiza financijskih izvještaja*, Masmedia, Zagreb
- [3] Pallant, J. (2007), *SPSS Survival Manual*, Third Edition, McGraw-Hill
- [4] Simović, V., (2002), *Leksikon menadžmenta*, Masmedia, Zagreb
- [5] *Zakon o porezu na dodanu vrijednost*, NN br. 73/13., 148/13., 153/13., 143/14., Narodne novine d.d. Zagreb
- [6] Croatian Chamber of Economy, www.hgk.hr
- [7] <http://www.investopedia.com/terms/e/ebitda.asp#ixzz3W8UdM97V>