Original Article

Studying the Role of Value-Added Tax (VAT) and Its Impact on the Country Tax Revenues and Inflation (with an Emphasis on Financial Approach) in Companies Listed in the Tehran Stock Exchange

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ABSTRACT

This study aimed to investigate the role of VAT and its impact on Iran's tax revenues and the rate of inflation (with an emphasis on financial approach) in listed companies on the Stock Exchange of Tehran. For this, a total of 600 manufacturing firms listed in Stock Exchange in the period of 2009 till 2014 were selected and their data were analyzes using multiple linear regressions and trough panel data using fixed effects. The results of research hypothesis testing showed, that there is a significant relationship between the research variables and increase or decrease the growth rate of value added tax have a significant impact on tax revenues and inflation volatility and R & D expenditure of the companies.

Keywords: Breach of VAT, Tax Revenues, Inflation Rate.

Introduction

VAT in some countries was used as an alternative to other taxes. For example in Denmark this tax was replaced wholesale tax, while in Sweden and Norway, it is as an alternative to retail tax. The tax was overshadow and used instead the tax on internal consumption in 21 countries listed on the Organization for Economic Cooperation and Development. Take the experience of different countries and the scope of application of this tax shows that the tax system is able to use in a wide range of wholesale levels to final production chain and retail activities.

Therefore because of this flexibility brought to the state additional benefits in comparison with other taxes.

It should be noted that according to the successful experience of countries in Europe which has their tax systems is more efficient and business structure has considerable transparent, it cannot be decisive criterion for the success of the tax system in less developed countries, because the realization of the tax system needs to have cultural, economic, political and etc. contexts,. And for this reason in European societies due to the relatively

good performance of governments in the past on creation of such prerequisites, the state could experience replacing this tax system to other taxes, but in fewer developed countries still is problems such as the not being correct definition and logical relationship between the government (the public sector in more general terms) with the private sector, any other taxes should be done with a certain precision to avoid any anomaly on economic, social and so on (Pazhoyan, 2005).

Background research

Taylor et al. (2015) on the study entitled "the impact structure of corporate international taxes on financial disclosure patterns" explored the relationship between the variables. They analyzed how does the structure of corporate international tax, effect on financial disclosure patterns? They showed that income tax coefficients are part of the most important determinants of for the disclosure of financial statements.

Relationship between the disclosure of financial statements and financial coefficients may cause, that companies that reduce taxes through tax avoidance or tax evasion are looking to make their financial decisions in hostile and report it selectively that will lead to tax cuts than the actual state. They also found that from the perspective of managers, tax relief can be a powerful incentive for managers to achieve the company's financial goals as cost-effective manner. Assenmacher.schh and Villach (2014), in an article are analyzed responses in property prices, inflation and economic activity to monetary policy shocks in 17 countries during years (1986-2011). For this, PVAR and VAR models have been used for the distinction between these groups of

countries based on characteristics of the financial system.

The findings suggest that the financial structural differences are less important on the effectiveness of monetary policy on residential property prices and the economy.

This analysis refers to the ability of monetary policy in response to the boom in residential property prices and Acoyte price. Also, monetary policy could potentially help slow the rise in property prices. Wu and Yue (2013), in their study investigated the matter that Chinese companies listed on the Stock Exchange how to improve its capital structure in response to increasing tax rates? Wu and Yu in their research studied the tax rate rise on capital structure of companies that previously were got tax discounts by the Chinese government. The results of this study show that these companies by increasing tax rate increase your leverage. This is evidence that the greatest increases in the leverage of the companies that have high access to bank loans.

Hypotheses

Hypothesis 1: there is a significant relationship between the growth rates of value added tax and the tax revenues fluctuations of the companies listed in Tehran Stock Exchange.

Hypothesis 2: there is a significant relationship between the growth rate of value added tax and inflation rate fluctuations of companies listed on Tehran Stock Exchange.

Hypothesis 3: there is a significant relationship between the growth rate of value added tax and fluctuations in research and development expenditure of companies listed in Tehran Stock Exchange.

Research Methodology

The study viewpoint of method is descriptive and respect to the objective, as is an applied research, where real data were used for Financial Statements of firms. The statistical population consists of all companies listed on the Tehran Stock Exchange and the period is from 2009 to 2014 that in particular 600 manufacturing companies as statistical society were selected using systematic elimination (targeted). Using systematic elimination is in order to allow a few number of companies to be elected that provide data to the time period.

Research model

In this study, according to explained assumptions, the model related to the any of the assumptions is explained as follows:

Model related to the first hypothesis

$$\Delta TAX_{i,t} = \alpha_0 + \beta_1 LOBBY - TAX_{i,t} + \beta_2 ROA_{i,t} + \beta_3 ACC_{i,t} + \beta_4 Size_{i,t} + \beta_5 PPE_{i,t} + \beta_6 Lev_{i,t} + \varepsilon_{i,t}$$

Model related to the second hypothesis

$$\Delta NOL_{i,t} = \alpha_0 + \beta_1 LOBBY - TAX_{i,t} + \beta_2 ROA_{i,t} + \beta_3 ACC_{i,t} + \beta_4 Size_{i,t} + \beta_5 PPE_{i,t} + \beta_6 Lev_{i,t} + \varepsilon_{i,t}$$

Model related third hypothesis:

$$\Delta R\&D_{i,t} = \alpha_0 + \beta_1 LOBBY - TAX_{i,t} + \beta_2 ROA_{i,t} + \beta_3 ACC_{i,t} + \beta_4 Size_{i,t} + \beta_5 PPE_{i,t} + \beta_6 Lev_{i,t} + \varepsilon_{i,t}$$

Research findings

Descriptive Statistics

The data analyzing in descriptive statistics section will start by calculating central indices including mean, median and standard deviation, skewness and kurtosis skewness. These indices will be done in terms of different industries and in general. In this study to test the hypotheses were used of combined data.

Table 1. Descriptive statistics of research variables

The criteria for distribution figure		Dispersion criteria	Concentration (focused) criteria		Variable name
Prominence	Skewness	Standard deviation	median	mean	
2.85	0.46	0.74	1.62	1.72	TAX
2.89	0.97	0.19	0.13	0.20	NOL
2.94	0.60	2.45	4.04	4.24	R&D
3.33	-0.15	0.80	-0.34	-0.34	LOBBY-TAX
3.03	0.93	0.24	0.23	0.30	LEV
2.39	0.72	2.73	3.28	4.008	SIZE
3.02	0.60	0.76	1.45	1.52	ROA
30.01	4.04	0.28	0.32	0.35	ACC
3.23	0.45	0.90	1.66	1.70	PPE

Among the central indices, the mean is expressed most notably, which reflects the equilibrium point and the center of distribution gravity. Mean is suitable index to show data concentration. For example, the average growth rate of value added tax is equal to 1.72, which shows more data of this variable concentrated around this point.

Median is another central indicator that shows the status of the community. As seen in Table 1, the changeable median of return on assets is equal to 1.45, indicating that half of the data of this variable are less

than this amount and half of these are more that this amount.

The method of model estimation

Chow test

Three models were introduced in the beginning of the season that is going to be fit. First, to determine the panel method or integrated data is efficient in model estimating, the Chow test is used.

As seen in Table 2, Chow test result in significant levels in the two equations (first and second) is lower than $\alpha=0.05$, therefore ability to estimate the model using panel method at 95 % is approved,

but in the third model is specified that using panel data could not be verified and integrated data should be used to estimate the model.

Hausman test

Given that the null hypothesis of Chow test based on being equal of the widths of the source (first and second) was rejected, in continue, Hausman test is used to determine the presence of fixed effects or random effects. For the third equation, Hausman test is not performed, because the result achieved was voted to the use of compilation data.

Table 2. Results Chow test for regression models

Result	Significance level	Degrees of freedom	Test statistics	
Using Panel model	0.01	(99, 394)	1.38	Regression model (1)
Using Panel model	0.005	(99, 394)	1.47	Regression model (2)
Using integrated data	0.99	(99, 394)	0.55	Regression model (3)

Table 3. Hausman test results for first and second regression models

Result	Significance level	Degrees of freedom	Test statistics	
Using fixed effects	0.000	6	48.83	Regression model (1)
Using fixed effects	0.000	6	59.10	Regression model (2)

As seen in Table 3, Hausman test significance level is calculated (prob = 000/0), so, the Hausman test vote using fixed effects for both estimating equations (first and second).

The model estimating results

After the necessary statistic tests to determine the use of data and ensure the

accuracy of the fitted model, the final results of the research models estimates are presented in the following.

-The estimation results of first research model

The estimation results of first model using a fixed-effects and panel method is provided in Table 4.

Table 4. Results of the regression model fitness (1)

		response variables $= \Delta TAX$	
Significance level	**t test statistic**	**Regression Coefficients**	**Independent variables**
0.000	-13.56	-1.44	Equation constant (α)
0.000	-20.09	-1.07	LOBBY-TAX
0.000	-9.97	-0.66	ROA
0.02	2.28	0.21	ACC
0.53	0.61	0.007	SIZE
0.000	60.19	0.90	PPE
0.000	6.71	1.40	LEV
The test statistic F=4.90		= 0.000 Significance level	
Statistics D.W =2.27		The coefficient of determination =0.56	

The estimation results of second research model

Table 5. Results of regression model fitness (2)

		response variables $= \Delta NOL$	
Significance level	**t test statistic**	**Regression Coefficients**	**Independent variables**
0.000	-11.95	-0.41	Equation constant) α(
0.000	-6.38	-0.06	LOBBY-TAX
0.000	10.43	0.26	ROA
0.58	-0.54	-0.02	ACC
0.49	0.67	0.001	SIZE
0.000	8.003	0.09	PPE
0.000	10.18	-0.58	LEV
The test statistic F=3.48		= 0.000 Significance level	
Statistics D.W =2.15		The coefficient of determination =0.48	

The estimation results of third research model

Table 6. Results regression model fitness (3)

		response variables $= \Delta R\&D$	
Significance level	**t test statistic**	**Regression Coefficients**	**Independent variables**
0.000	-9.29	-3.20	Equation constant) α(
0.000	-8.50	-1.38	LOBBY-TAX
0.000	-6.38	-1.37	ROA
0.94	-0.06	0.01	ACC
0.34	0.93	0.03	SIZE
0.000	13.56	2.19	PPE
0.000	4.76	2.80	LEV
The test statistic F=31.53		= 0.000 Significance level	
Statistics D.W =2.46		The coefficient of determination =0.27	

To study the significance of the regression model was used of F-statistic. The null hypothesis of F test will be as follows

$$\begin{cases} H_0 : \beta_1 = \beta_2 = \ldots = \beta_k = 0 \\ H_1 : \beta_1 \neq \beta_2 \neq \ldots \neq \beta_k \neq 0 \end{cases}$$

Its accuracy is evaluated by the following statistics:

$$F = \frac{ESS/(K-1)}{RSS/(N-k)}$$

To decide on accepting or rejecting the null hypothesis, F statistics obtained compared with F of table with degrees of freedom K-1 and N-K in error level a= 5 %, compared. If calculated F is more than F table ($F > F_{\alpha(K-1,N-K)}$), the numerical value of function test placed in the critical area and the null hypothesis (H0) was rejected. In this case, with 95 % of Confidence coefficient, whole model will be significant. If the value of calculated F is less than F table, H0 assumption will be accepted and being significant at 95% confidence level of the model will not be approved. According to F statistics in this article, accuracy of all three models is approved. So we can say that the research hypotheses are accepted. Durbin-Watson statistic is normal in all three equations that represent their lack of possible serial correlation in the model.

Summary of results and recommendations

The research first hypothesis test examined the relationship between the growth rates of value added tax and the country tax revenues volatility of listed companies in Tehran Stock Exchange. According to Table 4, it can be deduced that the growth rate of value added tax effect on fluctuations in tax revenues and there is a significant relationship between them. Result of the first research hypothesis is consistent with Taylor et al. (2014), Gani (2005), Habib (2004), Sandrah Myers (1999) and Lurasour (2004). The second hypothesis test examined the relationship between the growth rate of value added tax and inflation volatilities of listed companies in Tehran Stock Exchange.
Based on the results table 5, it can be deduced that the growth rate of value added tax has effect on fluctuations of inflation and there is a significant positive correlation between them. the second hypothesis results is consistent with Taylor et al. (2014), Gani (2005), Chung et al. (2008), Kim et al. (2010), Yazdani (2012).

The research third hypothesis test examined the relationship between the growth rate of value added tax and fluctuations of companies research and development expenditure listed in Tehran Stock Exchange and based on the results of Table 5 it can be concluded that the rate of VAT has impact of fluctuations in research and development, and there is a significant positive relationship between them and it is consistent with research conducted by Markvard et al. (2013) , Asnmchr et al. (2008), Veronica et la. (2008), Wilson et al. (2009) and Noresh et al. (2009).
According to the findings, it is suggested to the tax issues organization should reform the country's tax system by special considering the bellow issues such as laying the groundwork for a system of self-reported and encourage people to pay taxes voluntary and to remove any relationship in exemptions and tax relief and improving the quality of country tax system, trying to satisfaction of citizens, drawn public trust and reverence them, simplify the rules, use the specialists in taxation, planning and the promotion of tax culture, and the use of new technologies and facilitate serve to people to reduce errors, shorten the time for people in the process of paying taxes, increase people access to centers and areas of tax and social justice that are the most important issues.

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