

Tax Avoidance and Asymmetric Costs Behavior

Roya Darabi*, Mohammad Zamani

*Department of Accounting, College of Management and Accounting, South Tehran Branch,
Islamic Azad University, Tehran, Iran*

ABSTRACT

The purpose of the current study is to investigate the relationship between tax avoidance and asymmetric costs. Generally, shareholders expect managers to pursue their personal interests, so they attempt to reduce tax liabilities and tax avoidance because of the additional benefits of reducing contingent liabilities are more than the expected additional costs. Managers of a company often face issues such as planning and control of the business. In the planning stage, managers need costs information to predict future costs. Since changes in future costs can be determined based on the sales revenue changes, the amount of spending and costs can be predicted based on their relations with this factor. The results of hypotheses testing of 112 listed companies on the Tehran Stock Exchange during 2006-2015 showed that tax avoidance has a positive and significant relationship with the costs changes at the time of falling sales. In addition, when there is a fluctuation in cash flows, tax avoidance has a negative and significant relationship with costs changes.

Keywords: Tax avoidance, Tax, Cost behavior, Cost stickiness.

Introduction

In theory, tax avoidance means an endeavor to reduce the taxes must be paid (Hanlon and Heitzman, 2010). In most countries, the bulk of government revenues are supplied through taxes. The share of total public revenues varies among different countries. In Iran, inattention to the issue of

*- Corresponding author, Associate Professor of Accounting, email: royadarabi110@yahoo.com

taxes is one of the main causes of disruption and obstruction of the socioeconomic development. Economically, over-reliance on oil revenues has led to the instability of a large portion of government revenues and the spread of governmental sector (public sector), especially in political affairs due to its severe and unpredictable fluctuations in the international markets. Non-compliance with the tax regulations is one of the most important and challengeable problems not only in Iran, but also in developed countries. Tax evasion is always an interesting subject for taxpayers elsewhere. Hence, other countries tried to reduce it using their advanced information systems and inhibitory regulations. The volume of tax evasion in Iran is up to 100 trillion Rials, but within the taxable groups, Iran is among the countries with only 20% of tax evasion. Currently, 6.80% of GDP¹ pay taxes which must be reached to 10% until the next 2 years according to the programs. However, it seems impossible due to the status quo and procedures (Taxation Affairs Organization, 2013). In addition, tax avoidance and tax evasion in countries have always caused the tax revenue to be lower than the estimated value. Therefore, tax avoidance, tax evasion, and their effective factors are one of the most important topics intentioned in most of the studies in this field. In the literature, it has been proven that an alignment between the interests of shareholders and managers is the main factor to recognize and understand tax avoidance in companies (Desai, Dharmapala and Fung, 2007; Wilson, 2009; Chen et al., 2010; Rego & Wilson 2012).

Understanding how the cost behavior changes in activity level or the level of sales is one of the most important information for managers to make decisions on planning and budgeting, product pricing, determining break-even points and other key managerial cases (Namazi, 2008; Noravesh & Sadeghian Ajiri, 1999). In traditional models, cost behaviors in management accounting and variable costs related to volume changes were increased or decreased roughly, for instance, the changing magnitude of costs depends only on the magnitude of changes in the volume of activity and changes orientation (increase or decrease) in the volume of activity has no effect on cost changes (Hornngren et al., 2008).

There is a relationship between tax avoidance and cost stickiness because tax avoidance reduces the tax debt of companies and improves the cash flows. In one side, cash preservation of tax avoidance encourages managers to maintain additional resources at the time of degeneration and leads to an increase in the cost stickiness. On the other side, maintaining cash flow can

1- Gross Domestic Product

reduce the concerns of managers about cost reduction at the time of degeneration. As a result, this will lead to increase in the cost stickiness (Xue and Hong, 2016). Therefore, the purpose of the present study is to answer whether tax avoidance could affect the cost stickiness in Tehran Stock Exchange listed companies or not.

Literature Review

The results of recent studies conducted by Calleja et al. (2006), Noreen, and Soderstrom (1997) indicated that the cost increase during the growth of activity level is higher, compared to the cost decrease during a reduction in the volume of activities. Such an asymmetric behavior of costs is called, "Costs Stickiness". Costs stickiness is one of the behavioral features of costs related to the changes in the level of activity and indicates that the magnitude of an increase in costs during an increase in the level of activity is higher, compared to the magnitude of a decrease in costs during a decrease in the level of activity. For example, 20 units increase in the sale level will lead to 100 units increase in costs, while 20 units decrease in the sale level will lead to a decrease in costs but lower than 100 units.

As a sample, the behavior of administrative, general, and sale costs related to the sales level changes can be significantly evaluated and tested to investigate the cost stickiness, because sale level is the stimulus of many costs including, administrative, general, and sale costs. The average ratio of administrative, general, and sale costs to sale level is near to 9.5% for companies listed on the Tehran Stock Exchange (Namazi and Davani Pour, 2010).

New studies provided a valid evidence on asymmetric cost behavior. The existence of costs stickiness made the traditional standard model fixed and variable, which used to compute earnings per share and subsequently returns per share, which is derived from forecasted earnings. Weiss (2010) stated that the more the costs stickiness increases the dispersion of statistical distribution of future profit, the more strain on profit distribution would become, compared to a normal distribution. Such a situation would lead to the fluctuation of reported earnings. Therefore, modulus of predicting errors is higher in the case of stickiness behavior of costs. When there is costs stickiness and analysts do not fully consider its behavior during publishing their forecasts, the stickiness information of costs is neglected and even may lead to abnormal earnings in some cases. Therefore, valued information is associated with uncertainty.

It seems that the problem of tax avoidance posed about companies with ownership separation because common people are less involved in tax evasion and avoidance due to the possibility of being discovered/found, risk aversion, or because of internal motivations such as social responsibility. In companies, however, the shareholders generally expect the managers to pursue their personal interests and they seek for reduced tax liabilities and tax avoidance in that for them, additional benefits of reducing contingent liabilities are higher than the expected additional costs. Therefore, tax avoidance can be a sign of the agency theory, which may lead to tax decisions in order to pursue personal interests. Hence, finding the controlling methods and motives is one of the challenges of shareholders and the board of directors to minimize representation costs (Jensen and Meckling, 1976). Desai, Dyck and Zingales (2007) believed that managers who seek for their personal interests make the structure of company more complex and conduct transactions that reduce taxes and by doing that, they utilize the resources of the company to meet their personal interests. They also noted that the presence of strong tax officers has increased the control of management and reduced the misuse of companies' internal resources. Furthermore, the way of company's governance and leadership affected the tax avoidance level of the company. Poor company governance may increase the level of tax avoidance. Graham and Tucker (2006) claimed that tax avoidance reduces the ultimate benefit of the tax shield and could affect decisions regarding the capital structure. In the other hand, if tax avoidance can be detected by the tax authorities, the company have to pay additional fines, which leads to a decrease in input cash flows and a reduction in shareholder's wealth.

Another point raised about the tax avoidance is that tax avoidance phenomenon could be valuable despite the separation of control from ownership and if owners can create the necessary incentives for managers to make effective tax decisions, the value of the company and shareholders' wealth would increase (Hanlon and Heitzman, 2010). Xue and Hong (2016) showed that there is a negative and significant relationship between costs stickiness and tax avoidance. Tax avoidance reduces company's tax liabilities and improves cash flow and as a result, managers are urged to maintain the level of activities and resources to keep more cash through tax avoidance at the time of activity volume reducing, which leads to costs stickiness. They also studied the impact of earnings management and costs stickiness. The purpose of their study was to investigate the effects of

earnings management incentives on the stickiness of sale, total and management costs. The results showed that cost behaviors vary in the earnings management, especially in companies, which lead to costs stickiness when they are faced with a reducing sale. They observed that there is a significant relationship between costs stickiness in the sample of companies without earnings management, compared with companies with earnings management. In addition, the experimental evidences showed that proper company governance could reduce costs stickiness. However, its effect is not as severe as the companies with the earnings management.

Harlib and Loui (2016) showed that there is a negative and significant relationship between costs stickiness and profit smoothing. Marques, Santos and Costa (2014) conducted a study on costs stickiness in 699 companies of nine countries of Latin America. The results showed that the stickiness behavior of sales, total sales, and management costs are asymmetric based on the changes in sales revenue. Banker, Byzalov and Chen (2013) evaluated the relationship between management optimism and cost behavior. In case of sale increase (decrease), when management optimism (pessimism) is higher, the amount of cost increase (decrease) is higher and in the case of sale increase, when the prediction (forecasting) of analysts on future sale is more, the cost amendment increases more, as well. In addition, the results also showed that the prospect for future sales has a relation with the current level of costs stickiness. They found evidence on the matter that costs stickiness is a result of optional decisions of managers. Arab Salehi and Hashemi (2015) investigated the effect of overconfidence of management on tax avoidance. The results showed that the overconfidence of management could lead to increased tax avoidance in the financial reporting process. Zanjirdar Ghafari Ashtiani and Madahi (2014) investigated the effective factors of stickiness behavior of costs. The results showed that administrative, general, and sale costs, as well as final cost of sold goods were stickiness and the stickiness strength in the final cost of sold goods was very high. According to above-mentioned facts, the following hypotheses were defined and tested:

H₁: There is a significant relationship between tax avoidance and costs stickiness.

H₂: The volatility of cash flow affects the relationship between tax avoidance and costs stickiness.

Research Methodology

The present study is descriptive from its objective viewpoint and is correlational based on its nature and the method used. Since the results are considerable in investors' decision-making process, it is an applied study. The variables are not manipulated in carrying out a descriptive study or the researcher determines no specific condition to the occurrence of events (Khaki, 2003). To test the research hypotheses, version 9 of E-views Software and panel data regression were used.

Data and Sample

The statistical population of the study included listed companies on the Tehran Stock Exchange during 2006 to 2015 (a 10-year period). The following conditions were taken into account for the statistical sample:

1. The financial year of companies must be ended in March to reach the possibility of comparability.
2. The companies under study must be listed on the Tehran Stock Exchange since the beginning of 2006 until the end of 2015.
3. Non-consolidated financial statements of companies must be audited.

The financial companies and banks were eliminated from study due to lack of clear demarcation between operational activities and financing. According to the above restrictions, a total of 122 companies finally selected.

Dependent Variable

The dependent variable ($\Delta Cost_{i,t}$) calculated through changes in total final cost of sold goods and administrative, general, and sale costs (natural logarithm of the ratio of total final cost of sold goods and administrative, general and sale costs of company (i) at the year of t compare to the year of t-1).

Independent Variable

To test the research hypotheses, two independent variables which are the combination of the below variables were used. The first one is $\Delta Si,t * Di,t * Taxvoid_{i,t}$ where, $\Delta Si,t$ is natural logarithm of sales revenue ratio of the company (i) at the year (t) compare to the year t-1. Di,t is dummy variable of sales revenue reduction of the company (i) at the year (t) which is equal to 1 when the sales revenue of year t is reduced compared with the year of t-1, and otherwise zero. $Taxvoid_{i,t}$ is calculated through effective

paid cash tax. Effective paid cash tax of company (i) is the ratio of paid cash tax (confirmed) of the company (i) at the year (t) to earning before tax of company (i) multiplied by -1. The second one is $\Delta S \times D \times \text{Taxvoidi,t} \times \text{VCFi,t}$ where, VCFi,t indicates fluctuations in cash flow. A 6-year period was considered for the measurement of long-term cash flow fluctuations. The operating cash flow variance has been used to measure the long-term cash flow fluctuations. The variance in operating cash flows for each period divided by total assets of each company in the same period to neutralize the effect of differences in companies' size.

Control variables

To test the research hypotheses, control variables are: $\Delta S_{i,t}$, Taxvoidi,t and VCFi,t separately as defined above and also the following: ARETi,t indicates annual stock return. EMPINTi,t indicates logarithm of the number of employees to sales revenue. ASINTi,t indicates logarithm of the ratio of total assets to sales revenue. Suc_Deci,t indicates dummy variable of sequential revenue decline, which is equal to 1 when the sale revenue of a company is reduced for two consecutive years (the year t compare to t-1 and t-1 compare to t-2), otherwise it is equal to zero.

Analytical Model

According to the research hypotheses, following regression model is used to test the hypotheses of the study:

$$\Delta \text{Costi,t} = \alpha_0 + \alpha_1 \Delta s_{i,t} + \alpha_2 \Delta S \times D_{i,t} + \alpha_3 \text{Taxvoidi,t} + \alpha_4 \Delta S \times D \times \text{Taxvoidi,t} + \alpha_5 \text{VCFi,t} + \alpha_6 \Delta S \times D \times \text{Taxvoidi,t} \times \text{VCFi,t} + \alpha_7 \text{ARETi,t} + \alpha_8 \text{EMPINTi,t} + \alpha_9 \text{ASINTi,t} + \alpha_{10} \text{Suc_Deci,t} + \varepsilon_{i,t}$$

Results

Table 1 provides a descriptive statistics of present study's variables. In the table, minimum, maximum, mean, average and standard deviations of all variables are represented.

The unbalanced panel was used because of some missing observations. To select among integrated data model, fixed effects or random effects model in panel data, some tests are common. The results of Chow test indicate the selection of integrated data model. Fundamental assumptions of linear regression were investigated as follows.

Table 1. Descriptive statistics of study's variables

Variables	Min	Max	Mean	Average	St. dev
Cost changes	-3.75	3.37	0.128	0.156	0.390
Sale revenue changes	-5.73	7.275	0.153	0.186	0.567
Tax avoidance	-1	0	-0.492	-0.492	0.280
Fluctuations in cash flow	0.000	67957	0.121	0.281	2.577
Annual output	-1.802	1.556	0.003	0.110	1.343
Ratio of employees' number	-5.440	-1.80	-2.990	-3.062	0.499
Ratio of total assets	-1.329	2.218	0.128	0.160	0.340
Sequential revenue decline	0	1	1	0.513	0.500

First, the stability of variables was tested using the Eim, Sons and Shane Test. Non-stability of the variables caused a spurious regression problem. In this study, Haderi test was used to identify the variables' stability. The results are shown in Table (2).

Table 2. Results of stability test

Variables	Sign	Possibility	Statistics	Stability status
Changes in costs	Δ Cost	0.000	-36.406	Stable
Changes in sales revenue	Δ S	0.000	-36.288	Stable
Tax avoidance	Taxvoid	0.000	-35.437	Stable
Fluctuations in cash flow	VCF	0.000	-13.402	Stable
Annual output	ARET	0.000	-34.152	Stable
Ratio of employees' number	EMPINT	0.000	-7.202	Stable
Ratio of total assets	ASINT	0.000	-10.317	Stable
Sequential revenue decline	Suc_Dec _i	0.000	-8.105	Stable

Co-linearity is a status, which shows an independent variable is a linear function of other independent variables. If the co-linearity be high in a regression equation, it means that there is a high correlation between independent variables and it is possible that the model has no high validity despite its high determination coefficient. According to the variance inflation of independent variables provided in Table 3, there is no co-linearity between the independent variables.

In this study, the White test was used to evaluate heterogeneity. The value obtained from the test shows heterogeneity of variance (Table, 4). As a result, generalized least squares (GLS) used in final fitting. As the above test does not indicate any fundamental structural problem in the model, the final generalized least squares (GLS) model of study is estimated by version 9 of E-views and obtained results are presented in Table. 5.

Table 3. Results of tolerance and variance inflation statistics

Variables	Variance inflation
Changes in sale revenue	1.616
Tax avoidance	1.093
Fluctuations in cash flow	3.046
Annual output	1.003
Ratio of employees' number	1.139
Ratio of total assets	1.182
Sequential revenue decline	1.162
Multiply sale change in dummy variables of sale decline	3.766
Multiply sale change in dummy variables of sale decline in tax avoidance	3.261
Multiply sale change in dummy variables of sale decline in tax avoidance in cash flow fluctuations	3.200

The values in Table 5 show that the regression model is significant. In addition the determination coefficient indicates that about 43% of changes in costs stickiness is explained by the above model. Durbin Watson statistic also indicates that there are no first-order autocorrelation series in the model.

Table 4. Results of variance heterogeneity test (White)

Description	Statistics	Crossover Multiplication
Statistics	18.473	545.508
Possibility	0.000	0.000

According to each explanatory variables calculated coefficients and their significant levels, tax avoidance variable (with the coefficient of 0.532) has a positive and significant relationship with cost changes at the time of sale falling at the significant level of 0.000 with the confidence level of 99%.

In addition, tax avoidance variable ($\Delta S * D * Taxvoid * VCF$) has a negative and significant relationship with cash flow fluctuation variable at the significant level of 0.000 and at confidence level of 99%. Therefore, it can be said that at the time of activities' volume reduction, managers tried to maintain resource and activities in high level using the tax avoidance in order to keep more cash flow, which resulted in increased costs stickiness. But at the time of cash flow fluctuations increasing, the relationship is declined toward a negative direction.

Conclusion

Familiarity with cost behavior is very important for accountants,

researchers, and all who are associated with management or assessing cost changes in terms of revenue changes. Management perceptions of this analysis are that costs stickiness is detectable and controllable. Managers must evaluate the reasons of costs stickiness by paying attention to the sensitivity of cost changes to activity volume reduction and improve the capacity of the company against a reduced demand for goods or services. This helps the accountability process. By identifying costs stickiness, site owners can analyze whether or not managers force excess costs to firms. Understanding cost behavior is also useful for those external users (for example, financial analysts) who are willing to evaluate the performance of a company. In such an analysis, mistakes occurred if cost behaviors related to the revenue increase or decreases not taken into account. The analysis is modified, when the analyst understands how to change cost in terms of revenues. In the other side, the bulk of government revenues are supplied through paid taxes in most countries. The share of total public revenues varies among different countries.

Table 5. Results of hypotheses test

Dependent variable: dividend payout ratio			
Explanatory variable	integrated data test in unbalanced panel		
	Coef.	Stat.	Sig level
ΔS	0.307	1.439	0.150
$\Delta S * D$	0.583	5.551	0.000
Taxvoid	0.025	1.153	0.249
$\Delta S * D * Taxvoid$	0.532	4.175	0.000
VCF	0.014	2.116	0.034
$\Delta S * D * Taxvoid * VCF$	-0.603	-3.546	0.000
ARET	0.002	0.365	0.714
EMPINT	-0.058	-2.948	0.003
ASINT	-0.058	-1.212	0.225
Suc_Dec _i	-0.056	-1.513	0.130
statisticsF	80.729	Durbin Watson	1.781
possibility	0.000	AdjustedR ²	0.436

In addition, tax avoidance and evasion in countries always led to the reduction of tax revenue lower than the estimated value. Therefore, tax avoidance, tax evasion, and its effective factors are one of the most important topics investigated in most studies in this field. In theory, tax avoidance means trying to reduce taxes which must be paid. Tax evasion is a kind of law violation, but tax avoidance is, in fact, utilizing from legal gaps of tax codes to reduce payable tax. Therefore, it seems that tax

avoidance is more in sight, compared with the tax evasion, because it is apparently legal action and since it is done in a certain range to use tax benefits and there is no restrictive rule on tax avoidance control, it seems that most companies deal with tax avoidance. For this reason, determining the effective factors of tax avoidance in companies is very important. Tax avoidance variable has a positive and significant relationship with cost changes at the time of sale falling. In addition, tax avoidance variable has a negative and significant relationship with cash flow fluctuation variable. Therefore, it can be said that at the time of activities' volume reduction, managers try to maintain resource and activities in high level by tax avoidance in order to keep more cash flow, which increases costs stickiness. However, when cash flow fluctuations increase, the relationship is declined toward a negative direction. The results of this study are in accordance with the results of Xue and Hong (2016). It is recommended to evaluate the role of company size, information asymmetry, and conservatism in the relationship of tax avoidance and cost stickiness in further studies. It is also recommended to evaluate this study in different industries.

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