A Survey of The Relationship Between Agency and Asymmetry of Administrative Costs

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ABSTRACT

Based on costs stickiness and the importance of the investigation of the costs behavior for future planning of firms in this study, we can investigate the relationship between asymmetrical behavior of administrative, general and selling costs with agency. The present study is applied and Anderson model (2003) is applied in this study. In this model, agency variables include free cash flow of business institutions and annual reward of managers. Based on the above results, there is a positive and significant association between agency and asymmetry of administrative costs. Excel software is used for data classification and EVIEWS software is applied for analysis of collected data. The results of the study based on the information of the firms listed in TSE for 10 years (2003-2012) show that asymmetry of selling, general and administrative costs has positive and significant correlation with free cash flow of business institution and has negative and significant association with manager annual reward.

KEYWORDS: Asymmetry of general, administrative and selling costs, Agency, Free cash flow of business institution, Annual reward of manager

1. INTRODUCTION

Planning and control are important duties of managers. The required information of managers regarding the costs of these duties can not be received via the classified financial statements data. For example, for planning and control goals, the managers need to be aware of the costs inclination, the change of costs. The required information in this regard cannot be extracted easily from financial statements. Costs inclination refers to the reaction of costs to the change in activity level. In other words, costs inclination is a model by which a definite cost can react to the change in activity level. The tradition models of costs behavior in accounting distinguish between the fixed and varied costs based on the changes of activity level. Regarding fixed costs, it can be said it is independent form activity level while regarding varied costs, it can be said as linearly and in accordance to change can be changed at activity level (Shafei and Mohammadzade Moghadam, 2011). The findings of the researchers including Anderson et al., (2003) and Calleja et al., (2006) show that the increase in costs during income increase is higher than the reduction of costs in revenue reduction. In management accounting, this feature of costs is called "costs stickiness" or cost symmetrical value". For example, if by increase 11% in sale, costs are increased 3% and in case of reduction 11% of sale, we cannot expect the costs are reduced 3%. Thus, based on this theory, the costs are reduced less than 3% (Bolovo et al., 2012). Today, due to the agency problems arising from separation of ownership from the management of firms, there is benefits contradiction between the managers and shareholders. Thus, the firms' managers don't use the firm sources to increase the shareholder wealth.

Costs stickiness is one of the features of costs behavior to the changes of activity level and it indicates the increase in costs during the increase of activity level is higher than the magnitude of costs reduction during reduction in activity level. The present study evaluates the relationship between asymmetrical behavior of administrative, general and selling costs with agency in the firms listed on Tehran Stock Exchange (TSE).

Study hypotheses

To investigate the role of variables of agency (e.g. free cash flow and annual manager reward) in asymmetrical behavior of selling, general and administrative costs, the hypotheses 1, 2 are used as:

First hypothesis: The degree of asymmetry of selling, general and administrative costs is positively and significantly associated with free cash flow of business institutions.

Second hypothesis: The degree of asymmetry of selling, general and administrative costs is negatively and significantly associated with annual reward of manager.

This study applies four economic variables as control variables as:

The number of employees, asset, reduction of continuous income and stock return

Study method

The present study is applied in terms of study results, descriptive in terms of goal and correlation. The study design is quasi-empirical and ex post facto in accounting support studies as conducted by existing real information in

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financial statements of the firms. This study is based on real information of stock market, financial statements, and notes of financial statements and reports of assembly of firms.

Data collection method

The required data is survey in terms of the type and various sources are used. The information of review of literature and theoretical discussions are collected based on library sources, scientific sites and local and international papers. The information of the study variables is based on the site of stock exchange and stock exchange information CD published by TSE.

Study population

The study population includes all elements and people with one or some common attributes in a geographical scale (global or regional) (Hafeznia, 2003). The study population of this study includes all the firms listed on TSE in various groups and industries listed in TSE during 2003 to 2012.

Study sample

Study sample is including limited number of study population indicating the main features of population (Azar, 2011).

In this study, the information of year-company is used and the study sample is selected by systematic elimination method as the member firms of each industry group should have the following features:
1- The firms listed on TSE at most to 29 Esfand 2002 and their titles are inserted on the board of TSE and their share is traded.
2- They are not financial and credit institutions.
3- The firms not in multi-filed groups.
4- The firms their fiscal year leads to 29th of Esfand.
5- The firms their financial information is available.
By considering above items, the study sample includes 119 firms.

Study scope

The topic scope: This study is descriptive, correlation and applied and is related to capita markets.

Place scope: Based on the study topic and its application, the study place scope is the firms listed on TSE. This population is selected for the following reasons:
1- The access to financial information of the firms listed on TSE is possible.
2- The specific criteria and regulations are considered for accepting and continuing the activity of firms in TSE and their reporting method. It seems that the information in financial statements of these firms has high quality and their information is reliable.
3- The information of the firms listed on TSE has high reliability due to the specific supervision and rules.
Study time: The study duration is 10 years, from 2003 to 2012.

The model of Hypotheses 1, 2
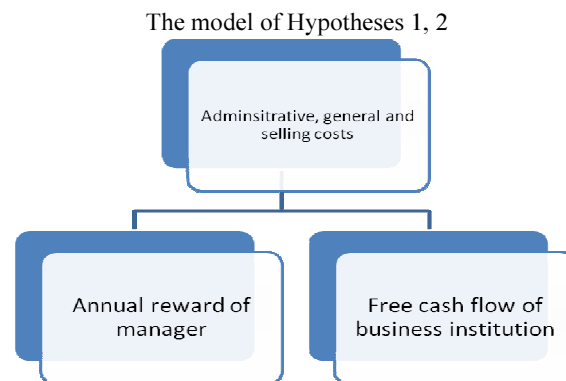
Explanation of the applied models in hypotheses test

The model of this study is based on direct referring to Anderson et al., (2003) model. The equation is as follows:

$$\log\left(\frac{SG\&A_{i,t}}{SG\&A_{i,t-1}}\right) = \alpha_0 + \alpha_1 \log\left(\frac{Sales_{i,t}}{Sales_{i,t-1}}\right) + \alpha_2 DecDummy \cdot \log\left(\frac{Sales_{i,t}}{Sales_{i,t-1}}\right) + \varepsilon_{i,t}$$

Model (1)

$SG\&A_{i,t}$ and $Sales_{i,t}$ are administrative, general, selling and income costs, respectively for company i during t.

DecDummy is dummy variable. When sale income in year t is less than sale income in year t-1, it is equal to 1, otherwise 0

As the study population includes various firms in different industries at different sizes, using this model based on ratio and logarithm indices causes that the comparison of variables among the firms is increased and the interpretation of the estimated coefficients can be similar. As DecDummy variable is zero when income is increased, α_1 coefficient measures the percent of increasing in administrative, general and selling costs by one percent increase in sale income.

As DecDummy value is equal to 1 in income reduction, the sum of $(\alpha_1 + \alpha_2)$ coefficients measures the percent of reduction in administrative, general and selling costs for 1% reduction in sale income. Thus, if administrative, general and selling are sticky, the percent of increase in costs in income increase periods is more than the percent of reduction of these costs during income reduction. It means that:

$$\alpha_1 + \alpha_2 < \alpha_1$$

Thus, if α_1 coefficient is positive and α_1 is negative considerably, it shows the costs asymmetry.

To test the first and second hypotheses, the following model is applied:

Model 2:

$$\log\left(\frac{SG\&A_{i,t}}{SG\&A_{i,t-1}}\right) = \gamma_0 + \gamma_1 \log\left(\frac{Sales_{i,t}}{Sales_{i,t-1}}\right) + \gamma_2 DecDummy \cdot \log\left(\frac{Sales_{i,t}}{Sales_{i,t-1}}\right) + \sum_{m=3}^{4} \gamma_m DecDummy$$

$$\cdot \log\left(\frac{Sales_{i,t}}{Sales_{i,t-1}}\right) \cdot AgencyVar_{m,i,t} + \sum_{p=5}^{8} \gamma_p DecDummy \cdot \log\left(\frac{Sales_{i,t}}{Sales_{i,t-1}}\right) \cdot EconVar_{p,i,t}$$

$$+ \sum_{q=9}^{10} \gamma_q AgencyVar_{q,i,t} + \sum_{s=11}^{14} \gamma_s EconVar_{s,i,t} + \varepsilon_{i,t}$$

EconVar, indicates 4 economic variables as control variables: The number of employees, asset, reduction of continuous income and stock return.

DecDummy is a dummy variable. When sale income in year t is less than sale income in year t-1, it is equal to 1, otherwise it is zero.

In the above model, γ_1 is the changes of costs for 1% increase of sale and sum of $\gamma_1 + \gamma_2$ coefficients show the changes of costs for one percent sale reduction. Thus, γ_2 indicates difference of the costs changes during the increase of sale and the costs change during sale reduction, and costs stickiness. Thus, for costs stickiness, it is required γ_2 coefficient is negative. Based on the magnitude of negative values (positive), γ_m, γ_p, the degree of asymmetry of costs is increased (reduced). It means that γ_m coefficient shows the increase or reduction of costs stickiness for one 1% sale reduction when agency variables are changed. It means that negative coefficient of γ_m indicates the increase of asymmetrical behavior of costs and positive coefficient indicates asymmetrical behavior of costs. Also, coefficient γ_p indicates the increase or reduction of costs stickiness for one percent sale reduction when economic variables are changed.

In this study, at first the study sample is selected among the study population of the firms listed on TSE based on specific conditions mentioned in population and study sample by elimination method. At first, EXCEL software is used for data classification and to do the calculations of hypotheses and their testing, SPSS and EVIEWS are used.

Table 1. The description of the study features of data

Skewness	Standard deviation	Minimum	Maximum	Average	Symbol	Variable name
0.77	1.4	8.9	18.4	12.6	LNSALES	Sales growth
0.94	1.3	6.9	15.9	9.8	LNSGA	Growth of Administrative, general and sales costs
0.76	1.5	1.2	32	1.54	DAR	Amount of Asset
0.64	0.0026	0.0011	0.046	0.0027	EMP	Number of Employees
0.29	3.45	11.2	705.4	57.6	DEPS	Stock returns

Table 2. The results of estimation of administrative, general and selling costs by random effects method for model (2)

F _ The computational tests LM	F_The computational method_ white	D.W	R²	sig	Statistic_t	factor	Independent variable	
				0.000	-0.44	-0.14	intercept	
				0.000	28.6	0.6	**Sales growth**	LNSALES
				0.000	-9.9	-0.29	Sales growth*Dummy variable of Sales revenue	LNSALES * DECDUMMY
				0.000	-12.8	-0.22	Sales growth* Dummy variable of Sales revenue* **Amount of Asset**	LNSALES * DECDUMMY * DAR
				0.000	16.7	0.027	Sales growth* Dummy variable of Sales revenue* Employees	LNSALES * DECDUMMY* EMP
0.98	0.32	1.892	0.62	0.000	8.7	0.27	Sales growth* Dummy variable of Sales revenue* Decrease in income	LNSALES * DECDUMMY* DINC
				0.000	-46.7	-.065	Sales growth* Dummy variable of Sales revenue* **Stock returns**	LNSALES * DECDUMMY * DEPS
				0.000	6.4	0.0035	**Amount of Asset**	DAR
				0.000	7.7	0.027	**Number of Employees**	EMP
				0.000	-9.9	-0.007	Decrease in income	DINC
				0.000	-3.99	-0.047	**Stock returns**	DEPS

F statistics table	F _ The computational tests LM	F _ The computational method white	D.W	R²	sig	Statistic_t	factor	Independent variable	
					0.000	9.72	8.15	intercept	
					0.000	2.66	0.47	Growth in sales	LNSALES
					0.000	-3.08	-0.17	Growth in sales* Dummy variable of Sales revenue	LNSALES * DECDUMMY
					0.000	-8.3	-0.182	Growth in sales* Dummy variable of Sales revenue * **Amount of Asset**	LNSALES * DECDUMMYDAR *
					0.000	4.1	0.011	Growth in sales* Dummy variable of Sales revenue* **Number of Employees**	LNSALES * DECDUMMY* EMP
					0.000	12.72	0.15	Growth in sales* Dummy variable of Sales revenue* Decrease in income	LNSALES * DECDUMMY* DINC
					0.000	-6.4	-0.125	Growth in sales* Dummy variable of Sales revenue* **Stock returns**	LNSALES * DECDUMMY* DEPS
					0.000	7.001	0.23	**Amount of Asset**	DAR
					0.000	7.04	0.211	**Number of Employees**	EMP
4.37	2.11	1.5	1.918	0.75	0.000	-8.2	-0.315	Decrease in income	DINC
					0.000	-8.001	-0.27	**Stock returns**	DEPS
					0.000	-5.5	-0.14	Growth in sales* Dummy variable of Sales revenue *Manager Tenure	LNSALES * DECDUMMY*D
					0.000	2.6	0.93	Growth in sales* Dummy variable of Sales revenue* Time horizon manager	LNSALES * DECDUMMY* T
					0.000	3.9	0.11	Growth in sales Dummy variable of Sales revenue * Annual rewards manager	LNSALES * DECDUMMY* PAYP
					0.000	-2.4	-0.1	Growth in sales * Dummy variable of Sales revenue*Cash Flow	LNSALES * DECDUMMY * FL
					0.000	3.64	0.73	Manager Tenure	D
					0.000	4.001	1.48	Time horizon manager	T
					0.000	-4.49	-0.45	Annual rewards manager	PAYP
					0.000	4.85	0.91	Cash Flow	FL

The results of hypothesis 1 test

The first hypothesis of study showed that degree of asymmetry of administrative, general and selling costs has positive and significant association with free cash flow of business institution. Regarding the test of this hypothesis, administrative, general and selling cost variable is used as dependent variable, free cash flow variable as independent variable and asset, number of employees, reduction of income and stock return are used as control variables. As shown, negative coefficient of free cash flow*dummy variable* sale growth or γ_3 can show that increasing free cash flow increases the asymmetrical behavior (stickiness) of administrative, general and selling costs in TSE. It is expected that γ_3 is negative. As shown in Table 2, the result is consistent with hypothesis 1. γ_3 means free cash flow coefficient* dummy variable* selling growth, negative and equal to -0.6 and it shows that asymmetry of administrative, general and selling costs is high if free cash flow is more. IN other words, for one percent increase in free cash flow, stickiness of administrative, general and selling costs is increased as 0.6%. Thus, hypothesis 1 as degree of asymmetry of administrative, general and selling costs positively and significantly is associated with free cash flow of business institution is supported at confidence interval 95%, it means that the increase of free cash flow, increases asymmetry of these costs. The values of control variables show that the number of employees, reduction of income and stock return has negative and significant impact on asymmetry of adhministrative, general and selling costs but assets has positive and significant impact on asymmetry of these costs.

The results of this hypothesis re in line with the results of the study of Anderson et al., (2003), Chen et al., (2012) and Zanjirdar et al ., (2013).

Also, the results of the hypothesis are in line with the results of the study of Subramaniam, C., Weidenmier (2003) with the difference that in their study, by increasing the number of employees, stickiness of costs is increased but the opposite is supported in this study.

The results of second hypothesis test

The second hypothesis of study showed that degree of asymmetry of administrative, general and selling costs is negatively and significantly associated with annual reward of manager. To test this hypothesis, administrative, general and selling cost is used as dependent variable, annual reward of manager variable as independent variable and the variables of asset, the number of employees, reduction of income and stock return as control variables are used. As it was said, as positive coefficient for reward *dummy variable* sale growth can show that the increase of annual reward of managers reduces the asymmetrical behavior (stickiness) of administrative, general and selling costs in TSE. Thus, it is expected that γ_4 is positive. As shown in Table 2, the result is in line with hypothesis 2. γ_4 means annual reward coefficient*dummy variable* growth sale is positive and 0.14 and it shows that asymmetry of administrative, general and selling costs is less, if the annual reward of manager is high. It means that increasing manager reward reduces the asymmetry of these costs. Thus, second hypothesis of study is supported at confidence interval 95%. The values of control variables show that the number of employees, reduction of income and stock return has negative and significant impact on asymmetry of administrative, general and selling costs but the assets had positive and significant impact on asymmetry of these cots.

The results of the test of this hypothesis are in line with the results by Anderson et al., (2003), Chen et al. , (2012) and Zanjirdar et al.(2013).

Also, the results of this hypothesis are in line with the results of the study of Subramaniam, Weidenmier (2003) with the difference that in their study by increasing the number of employees, costs stickiness is increased but the opposite is supported in this study.

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