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The Effect of Audit Quality on Costs Stickiness in Manufacturing Companies Listed in Tehran Stock Exchange

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Abstract
One of the most fundamental presumptions of management audit shows that change in costs is in fir correlation with increase and decrease in activity level. However, this assumption is discussed with considering the cost stickiness by Anderson et al. it means that the amount of increase in costs with the increase in activity level is more than reduction in costs per same amount of reduction in activity level. On the other hand, audit could increase the reliability of information available for the users and with the increase in audit quality; quality of information is also enhanced. The main purpose of this study is to investigate the effect of audit quality on cost stickiness in manufacturing companies listed in Tehran Stock Exchange. Statistical population of this study consists of companies listed in Tehran Stock Exchange from 2007 to 2014. To measure the correlation of research variables, Pearson correlation test is used and finally, to test research hypotheses, generalized ordinary least-squares regression is used. The results obtained from testing hypotheses how that size of audit and audit tenure (more than 3 years) could affect cost stickiness positively and significantly. However, the expertise of auditor in the industry and importance of a company for a audit institution could have no effect on cost stickiness.

Key Words: *the importance of a company, auditory expertise, auditor size, corporate value, auditor's tenure*

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Introduction

The occurrence of recent financial crises has highlighted the vital and underlying role of reliable and high quality financial reporting. Moreover, the recent crises have revealed the necessity of considering the role of audit quality in improving financial reporting more than before. Achievement to high quality of financial reporting is depended on accuracy of action of each ring of the supply chain of financial reporting and independent audit as one ring of this chain plays critical role in preserving and enhancing quality of financial reporting. Moreover, audit services play key role in reduction of information asymmetry and reduction of problems of representativeness between managers and stockholders and between stockholders and creditors. Realization of these fundamental functions is depended on audit quality (Mashayekhi et al, 2013, 105).

Audit quality is one of the most underlying issues in field of audit and capital market. In order to identify the different dimensions of audit quality, various researches have been conducted to explore the relationship between audit quality and other variables. However, as audit quality could be observed hardly in practice, researches in this field have faced many difficulties.

Similar to other professions, audit profession needs gaining public trust to maintain its position. Something that is expected by the society from audit profession is presenting audit report with desirable quality (Hassas Yeganeh and Azinfar, 2010, 86). This is the value added that only audit can add it to financial information of companies.

Awareness of the behavior of costs against changes in activity level or sales level could be the important information for decision making by managers in field of planning and budgeting, pricing products, determining the breakeven point and other managerial issues. In traditional models, the behavior of costs in management audit and the variable costs are increased or decreased against changes in volume of activity appropriately. It means that the size of changes in costs is only depended on size of changes in activity level and the direction of changes (increase or decrease) in activity level has no effect on size of changes in costs (Namazi and Davanipour, 2010, 86).

The size of change in costs is just depended on amount of change in activity level and not on the way and direction of changes. However, some scholars like Nuren and Souderstorm (1998) believe that costs would be increased with the increase in activity level more than the decrease because of decrease in activity level. This kind of cost behavior is called as "sticky costs" by Anderson et al (2003). According to Anderson et al, costs are sticky when the amount of increase in relevant costs of increased volume is higher than the reduction of relevant costs with same amount of reduction in volume. Moreover, if the volume of activity is decreased, the companies with sticky costs experience higher decrease in income than the companies without sticky costs (Islamil Zadeh and Mehrnoosh, 2014, 38).

In traditional models, behavior of costs regardless of management decisions affecting adjustment of cost resources is depended on different levels of activity. Accordingly, according to these models, it is expected that the behavior of costs is determined just based on activity level in current period and with no relationship with the activity level in past or future. However, the theory of cost asymmetric behavior (cost stickiness) reveals a different thinking manner about the cost behavior presented by Bunker et al (2011) and according to the theory; lot s of but not all costs are increased as a result of management decisions in field of cost allocation. Asymmetric behavior of costs (cost stickiness) observed in the periods of sales reduction could reduce the period earning. However, one of the most important interpretations about cost stickiness is that managers have more emphasis on long-term earnings. Tolerance of costs of surplus resources in the periods of sale reduction tak-

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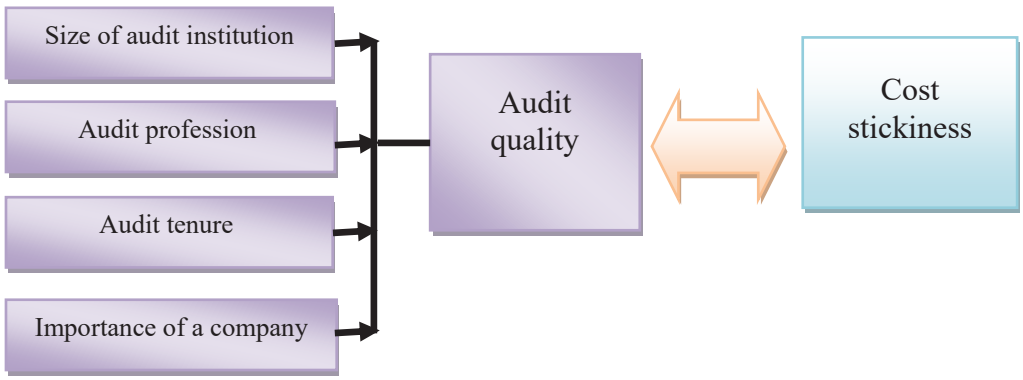

Figure 1. Analytical model of research

en for preparedness to increase sales in future could lead to tolerance of fewer costs in long-term and this could enable the company to take benefit of increased sales opportunities in future. However, the requirement to preserve the resource to achieve more earnings in future is that manager could predict the decline in demand as temporary phenomenon and expect for increase in sales in future (Hemmati and Molaei, 2014, 2).

Therefore, the present study tends to answer the question that what is the effect of audit quality on cost stickiness in manufacturing companies listed in Tehran Stock Exchange?

Theoretical framework

In this study, cost stickiness has been measured as dependent variable of the research based on theories of Anderson et al (2003) and Subramaniam & Weidenmier (2003). To measure the audit quality as independent research variable, according to the theory of Susanty et al (2015), in 4 general dimensions, 1) audit institution, 2) audit profession, 3) audit tenure and 4) importance of a company for the audit institution have been considered as theoretical framework.

Moreover, according to the mentioned in field of audit quality and cost stickiness and the measurement methods, the analytical model of research could be as follows:

Data analysis method

In this study, for purpose of data analysis and extraction of results, Excel, Eviews and SPSS software programs are used. Firstly, raw data have been prepared on Excel software and then, they have been entered to SPSS and Eviews software for final analysis.

To test normality of data distribution, K-S test is used and to test research hypotheses, regression test is used.

Definition of concepts, expertise terms and research variables

Audit quality:

The most common definitions of audit quality in view of audit scholars are as follows:

1.Evaluation of market of the probability that financial statements contain important distortion and the auditors have the ability to explore and report the distortions.

2.The probability that auditor issue no acceptable report about the financial statements containing important distortion (Malekian Kalebasti et al, 2011, 70).]

Cost stickiness

Identification of cost behavior in reaction to changes in production and sales level is important for management of companies. Recent empirical researches about the cost behavior have shown that cost reduction while sales is less than cost rise while same increase in sales volume. The behavior of costs is known as cost stickiness (Kordestani and Mortazavi, 2012, 74).

Statistical population and sample

The statistical population in this study consists of companies listed in Tehran Stock Ex-

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change.

Sampling method

In this study, to determine statistical sample, eliminate sampling is used. In other words, those companies with following conditions were selected as sample and other companies were excluded:

1.To observe their comparability, fiscal year of companies is ended in March of each year.

2.During the research period, the company should have no pause of activity and have not changed their fiscal period.

3.All required information of companies should be available for the research.

4.They should not be among banks and financial institutions (investment companies, financial mediators, holding companies, leasing companies and insurance companies).

Through applying the above mentioned limitations, 95 companies were selected as statistical sample of the study.

Research hypotheses

Through reviewing the relevant researches to answer the research questions and achievement to research objective, the following hypotheses are provided.

• Main hypothesis: audit quality could affect cost stickiness in manufacturing companies listed in Tehran Stock Exchange.

The secondary hypotheses resulted from the main hypothesis:

• **Hypothesis 1**: size of audit institution could affect cost stickiness in manufacturing companies listed in Tehran Stock Exchange.

• **Hypothesis 2**: auditor expertise in the industry could affect cost stickiness in manufacturing companies listed in Tehran Stock Exchange.

• **Hypothesis 3**: the auditory tenure could affect cost stickiness in manufacturing companies listed in Tehran Stock Exchange.

• **Hypothesis 4**: importance of a company for an audit institution could affect cost stickiness in manufacturing companies listed in Tehran Stock Exchange.

In this study, audit quality is considered as independent variable and cost stickiness is considered as dependent variable. Moreover, the variables of intensity of investments in fixed assets and the value of Tobin's Q have been considered as control variables and are explained as follows.

Audit quality independent variable (AQ)

The dimensions of audit quality are defined in 4 dimensions as follows:

1.Audit institution size: size of audit institution is a dummy variable and if a company is inspected by the audit institution, it takes point 1; otherwise, it takes point 0.

2.Audit expertise in the industry: it refers to total sales of all employers of an audit institution in a special industry divided by total sale of employer in the industry. The market share of audit institution is calculated in eq.1 and as follows:

Total assets of all employers of an audit institution in a special industry divided by the total assets of employers in this industry:

$$MS_{ik} = \frac{\sum_{j=1}^{J_{ik}} AT_{ijk}}{\sum_{i=1}^{I_k}\sum_{j=1}^{J_{ik}} AT_{ijk}}$$

MS_{ik}= market share of i audit institution in k industry

TA= total assets of employers

i= the symbol for audit institution

j= symbol of employer company

k= symbol of desired industry

J_{ik} = symbol for the number of employers in i audit institution in k industry

I_k = symbol of number of audit institutions in k industry

According to San and Liu (2013), this study has considered those institutions specialized with the symbol (SPEC) that their market share is presented as follows based on the previous equation.

$$MS_{ik} > \frac{1}{N_K} \times 1.2 \quad (2)$$

Where; N_K refers to number of companies listed in k industry. Hence, if the company is audited by the specialized audit institution, we have (SPEC=1); otherwise, we have SPEC=0.

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3.Auditor tenure: the auditor tenure is divided to two groups: short-term tenure (short=0) if the customer is inspected by audit institutions for 3 years of less and (long=1) if the tenure is more than 3 years (Susanty et al, 2015, 104).

4.Importance of a company for an audit institution: to measure this variable, the ratio of desires corporate assets to total assets of exchange company handled by the relevant institution in desired year is used (Susanty et al, 2015, 104).

Dependent variable (cost stickiness)

In this study, using theories of Anderson et al (2003) and Subramaniam & Weidenmier (2003), logarithm model is used to calculate cost stickiness:

$$\log\left[\frac{SGA_{i,t}}{SGA_{i,t-1}}\right] = \beta_0 + \beta_1 \log\left[\frac{REV_{i,t}}{REV_{i,t-1}}\right] + \{y_0 + \sum_{j=1}^{n} y_j CON_{i,t,j}\} * DUM * \log\left[\frac{REV_{i,t}}{REV_{i,t-1}}\right] + \varepsilon_{i,t} \quad (1)$$

Where;

SGA= general and administrative costs

REV= revenue natural logarithm

DUM= dummy variable with value of 1, if revenue is reduced in current year; otherwise, the value is 0.

Control variables

CAPR= fixed asset investment intensity: fixed asset value divided by sales

TOBQ= growth rate, Tobin's Q (i shows companies / t shows the year)

Hence, the model 1 is revised as follows:

$$\log\left[\frac{SGA_{i,t}}{SGA_{i,t-1}}\right] = \beta_0 + \beta_1 \log\left[\frac{REV_{i,t}}{REV_{i,t-1}}\right] + \beta_2 DUM * \log\left[\frac{REV_{i,t}}{REV_{i,t-1}}\right] + \beta_3 DUM * CAPR_{i,t} * log\left[\frac{REV_{i,t}}{REV_{i,t-1}}\right] + \beta_4 DUM * TOBQ_{i,t} * log\left[\frac{REV_{i,t}}{REV_{i,t-1}}\right] + \varepsilon_{i,t} \quad (2)$$

According to the definition of cost stickiness, a significant negative coefficient of β2 is existed in model (2) that shows cost stickiness (Xue & Hong, 2015, 5).

Control variables

Investment intensity in fixed assets: fixed asset value divided by sales

Q Tobin (QT): Q Tobin value as a ratio of capital market of company to asset book value (Susanty et al, 2015, 104).

The results of testing hypotheses

In this study, to answer the research questions, a main hypothesis is tested using linear least square regression as follows.

• Audit quality could affect cost stickiness in manufacturing companies listed in Tehran Stock Exchange.

The hypothesis is tested in frame of 4 secondary hypotheses and using 4 features of audit quality in the following.

Results of testing Hypothesis 1

Hypothesis 1: size of audit institution could affect cost stickiness in manufacturing companies listed in Tehran Stock Exchange.

To test the hypothesis, multivariate regression model is used as follows and the results are presented in table 1.

$$\log(\frac{SGA_{i,t}}{SGA_{i,t-1}}) = \beta_0 + \beta_1 \log(\frac{REV_{i,t}}{REV_{i,t-1}}) + \beta_2 DUM \times \log(\frac{REV_{i,t}}{REV_{i,t-1}}) + \beta_3 DUM \times \log(\frac{REV_{i,t}}{REV_{i,t-1}}) \times AUDIT_{i,t} + \beta_4 DUM \times \log(\frac{REV_{i,t}}{REV_{i,t-1}}) \times CAPR_{i,t} + \beta_5 DUM \times \log(\frac{REV_{i,t}}{REV_{i,t-1}}) \times Qtobin_{i,t} + \varepsilon_{i,t}$$

According to results of testing hypothesis 1 as it is presented in table 1, sig level of F Limer (Chow) is equal to 0.997 and is higher than desired p-value and the model of Pooled data is used to for the regression. Sig level of White test is equal to 0.000 and lower than desired p-value and hence, the results show that inequality of variances is existed in the model. In this case, regression is used after meeting the inequality of variance (generalized least-squared regression). Moreover, according to high sig level of Breusch-Godfrey test compared to acceptable p-value (5%), the results of Lagrange factor test (Breusch-Godfrey X2) show that there is no serial correlation in regression model. Also, Durbin-Watson value is in acceptable range (1.5 and 2.5), which shows that there is no correlation between model error components. Sig value of F-value (0.000) is lower than acceptable p-value (5%) shows that the total regression model is significant. According to low level of probability level (prob.) of t-value from the desired p-value level for the β3 coefficient, the test results show that auditor size has positive statistically significant effect on cost stickiness of manufacturing companies. In other words, choosing great auditors could increase cost stickiness of manufacturing companies. Therefore, the hypothesis 1 could not be rejected at the confidence

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Urban Management
No.46 Spring 2017

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Putted variable into model	Coefficient	t-value	Prob.
β_0	0.046	5.940	0.000
$\beta_1 \log(\frac{REV_{i,t}}{REV_{i,t-1}})$	0.350	6.436	0.000
$\beta_2 DUM \times \log(\frac{REV_{i,t}}{REV_{i,t-1}})$	-0.081	-0.268	0.788
$\beta_3 DUM \times \log(\frac{REV_{i,t}}{REV_{i,t-1}}) \times AUDIT_{i,t}$	0.580	2.815	0.005
$\beta_4 DUM \times \log(\frac{REV_{i,t}}{REV_{i,t-1}}) \times CAPR_{i,t}$	0.058	2.163	0.010
$\beta_5 DUM \times \log(\frac{REV_{i,t}}{REV_{i,t-1}}) \times Qtobin_{i,t}$	0.039	0.237	0.813
F value Sig (prob.)		16.225 0.000	
Durbin-Watson		2.056	
Breusch-Godfrey test Sig (prob.)		0.676 0.508	
White test (inequality of variances) Sig (prob.)		9.727 0.000	
Coefficient of determination (R2) Adjusted coefficient of determination (AdjR2)		0.097 0.091	

Table 1. Regression test results for hypothesis 1

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فصلنامه مدیریت شهری
(ضمیمه لاتین)
Urban Management
No.46 Spring 2017

level of 95%. According to the expectations, the β2 is also negative; although it is insignificant. Hence, it could be found that among the selected companies in sample, cost stickiness is not existed significantly. Moreover, the results obtained from the study show that control variable of intensity of investment in fixed asset has also positive and significant effect on cost stickiness of manufacturing companies. The Q Tobin value also has no significant effect on cost stickiness of manufacturing companies. The coefficient of determinations (R2) and adjusted coefficient of determination (Adj.R2) show that independent and control variables putted into the model could determine 9.7% of the variances in dependent variable.

Results of testing Hypothesis 2

Hypothesis 2: auditor expertise in industry could affect cost stickiness in manufacturing companies listed in Tehran Stock Exchange.

To test the hypothesis, multivariate regression model is used as follows and the results are presented in table 2.

$$\log(\frac{SGA_{i,t}}{SGA_{i,t-1}}) = \beta_0 + \beta_1 \log(\frac{REV_{i,t}}{REV_{i,t-1}}) + \beta_2 DUM \times \log(\frac{REV_{i,t}}{REV_{i,t-1}}) + \beta_3 DUM \times \log(\frac{REV_{i,t}}{REV_{i,t-1}}) \times SPEC_{i,t} + \beta_4 DUM \times \log(\frac{REV_{i,t}}{REV_{i,t-1}}) \times CAPR_{i,t} + \beta_5 DUM \times \log(\frac{REV_{i,t}}{REV_{i,t-1}}) \times Qtobin_{i,t} + \varepsilon_{i,t}$$

According to results of testing hypothesis 2 as it is presented in table 2, sig level of F Limer (Chow) is equal to 0.997 and is higher than desired p-value and the model of Pooled data is used to for the regression. Sig level of White test is equal to 0.000 and lower than desired p-value and hence, the results show that inequality of variances is existed in the model. In this case, regression is used after meeting the inequality of variance (generalized least-squared regression). Moreover, according to high sig level of Breusch-Godfrey test compared to acceptable p-value (5%), the results of Lagrange factor test (Breusch-Godfrey X2) show that there is no serial correlation in regression model. Also, Durbin-Watson value is

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Putted variable into model	Coefficient	t-value	Prob.
β_0	0.047	5.537	0.000
$\beta_1 \log(\frac{REV_{i,t}}{REV_{i,t-1}})$	0.346	4.885	0.000
$\beta_2 DUM \times \log(\frac{REV_{i,t}}{REV_{i,t-1}})$	-0.163	-0.739	0.460
$\beta_3 DUM \times \log(\frac{REV_{i,t}}{REV_{i,t-1}}) \times AUDIT_{i,t}$	0.214	0.973	0.331
$\beta_4 DUM \times \log(\frac{REV_{i,t}}{REV_{i,t-1}}) \times CAPR_{i,t}$	0.069	3.013	0.003
$\beta_5 DUM \times \log(\frac{REV_{i,t}}{REV_{i,t-1}}) \times Qtobin_{i,t}$	0.106	0.643	0.520
F value Sig (prob.)		14.806 0.000	
Durbin-Watson		2.057	
Breusch-Godfrey test Sig (prob.)		1.036 0.355	
White test (inequality of variances) Sig (prob.)		12.141 0.000	
Coefficient of determination (R2) Adjusted coefficient of determination (AdjR2)		0.089 0.083	

Table 2. Regression test results for hypothesis 2

in acceptable range (1.5 and 2.5), which shows that there is no correlation between model error components. Sig value of F-value is (0.000) lower than acceptable p-value (5%) shows that the total regression model is significant. According to high level of probability level (prob.) of t-value from the desired p-value level for the β3 coefficient, the test results show that auditor expertise has positive statistically insignificant effect on cost stickiness of manufacturing companies. Therefore, the hypothesis 2 could not be confirmed at the confidence level of 95%. According to the expectations, the β2 is also negative; although it is insignificant. Hence, it could be found that among the selected companies in sample, cost stickiness is not existed significantly. Moreover, the results obtained from the study show that control variable of intensity of investment in fixed asset has also positive and significant effect on cost stickiness of manufacturing companies. The Q Tobin ratio also has no significant effect on cost stickiness of manufacturing companies. The coefficient of determinations (R2) and adjusted coefficient of determination (Adj.R2) show that independent and control variables putted into the model could determine 8.9% of the variances in dependent variable.

Results of testing Hypothesis 3

Hypothesis 3: audit tenure (more than 3 years) could affect cost stickiness in manufacturing companies listed in Tehran Stock Exchange.

To test the hypothesis, multivariate regression model is used as follows and the results are presented in table 3.

$$\log(\frac{SGA_{i,t}}{SGA_{i,t-1}}) = \beta_0 + \beta_1 \log(\frac{REV_{i,t}}{REV_{i,t-1}}) + \beta_2 DUM \times \log(\frac{REV_{i,t}}{REV_{i,t-1}}) + \beta_3 DUM \times \log(\frac{REV_{i,t}}{REV_{i,t-1}}) \times TENURE_{i,t} + \beta_4 DUM \times \log(\frac{REV_{i,t}}{REV_{i,t-1}}) \times CAPR_{i,t} + \beta_5 DUM \times \log(\frac{REV_{i,t}}{REV_{i,t-1}}) \times Qtobin_{i,t} + \varepsilon_{i,t}$$

According to results of testing hypothesis 3 as it is presented in table 3, sig level of F Limer (Chow) is equal to 0.996 and is higher than desired p-value and the model of Pooled data is used to for the regression. Sig level of White test is equal to 0.000 and lower than desired p-value and hence, the results show that in-

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Putted variable into model	Coefficient	t-value	Prob.
β_0	0.047	6.072	0.000
$\beta_1 \log(\frac{REV_{i,t}}{REV_{i,t-1}})$	0.345	6.309	0.000
$\beta_2 DUM \times \log(\frac{REV_{i,t}}{REV_{i,t-1}})$	-0.059	-0.192	.848
$\beta_3 DUM \times \log(\frac{REV_{i,t}}{REV_{i,t-1}}) \times AUDIT_{i,t}$	0.429	2.341	0.019
$\beta_4 DUM \times \log(\frac{REV_{i,t}}{REV_{i,t-1}}) \times CAPR_{i,t}$	0.078	3.029	0.002
$\beta_5 DUM \times \log(\frac{REV_{i,t}}{REV_{i,t-1}}) \times Qtobin_{i,t}$	0.013	0.073	.941
F value Sig (prob.)		15.689 0.000	
Durbin-Watson		2.051	
Breusch-Godfrey test Sig (prob.)		0.817 0.442	
White test (inequality of variances) Sig (prob.)		10.081 0.000	
Coefficient of determination (R2) Adjusted coefficient of determination (AdjR2)		0.094 0.088	

Table 3. Regression test results for hypothesis 3

equality of variances is existed in the model. In this case, regression is used after meeting the inequality of variance (generalized least-squared regression). Moreover, according to high sig level of Breusch-Godfrey test compared to acceptable p-value (5%), the results of Lagrange factor test (Breusch-Godfrey X2) show that there is no serial correlation in regression model. Also, Durbin-Watson value is in acceptable range (1.5 and 2.5), which shows that there is no correlation between model error components. Sig value of F-value is (0.000) lower than acceptable p-value (5%) shows that the total regression model is significant. According to low level of probability level (prob.) of t-value from the desired p-value level for the β3 coefficient, the test results show that auditor tenure has positive and statistically significant effect on cost stickiness of manufacturing companies. In other words, selecting auditors for more than 3 years could increase cost stickiness of manufacturing companies. Therefore, the hypothesis 3 could not be rejected at the confidence level of 95%. According to the expectations, the β2 is also negative; although it is insignificant. Hence, it could be found that among the selected companies in sample, cost stickiness is not existed significantly. Moreover, the results obtained from the study show that control variable of intensity of investment in fixed asset has also positive and significant effect on cost stickiness of manufacturing companies. The Q Tobin ratio also has no significant effect on cost stickiness of manufacturing companies. The coefficient of determinations (R2) and adjusted coefficient of determination (Adj.R2) show that independent and control variables putted into the model could determine 9.4% of the variances in dependent variable.

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Results of testing Hypothesis 4

Hypothesis 4: importance of a company for an audit institution could affect cost stickiness in manufacturing companies listed in Tehran Stock Exchange.

To test the hypothesis, multivariate regression model is used as follows and the results are presented in table 4.

$$\log(\frac{SGA_{i,t}}{SGA_{i,t-1}}) = \beta_0 + \beta_1 \log(\frac{REV_{i,t}}{REV_{i,t-1}}) + \beta_2 DUM \times \log(\frac{REV_{i,t}}{REV_{i,t-1}}) + \beta_3 DUM \times \log(\frac{REV_{i,t}}{REV_{i,t-1}}) \times M_{i,t}$$
$$+ \beta_4 DUM \times \log(\frac{REV_{i,t}}{REV_{i,t-1}}) \times CAPR_{i,t} + \beta_5 DUM \times \log(\frac{REV_{i,t}}{REV_{i,t-1}}) \times Qtobin_{i,t} + \varepsilon_{i,t}$$

According to results of testing hypothesis 4 as it is presented in table 4, sig level of F Limer (Chow) is equal to 0.999 and is higher than desired p-value and the model of Pooled data is used to for the regression. Sig level of White test is equal to 0.000 and lower than desired p-value and hence, the results show that inequality of variances is existed in the model. In this case, regression is used after meeting the inequality of variance (generalized least-squared regression). Moreover, according to high sig level of Breusch-Godfrey test compared to acceptable p-value (5%), the results of Lagrange factor test (Breusch-Godfrey X2) show that there is no serial correlation in regression model. Also, Durbin-Watson value is in acceptable range (1.5 and 2.5), which shows that there is no correlation between model error components. Sig value of F-value is (0.000) lower than acceptable p-value (5%) shows that the total regression model is significant. According to low level of probability level (prob.) of t-value from the desired p-value level for the β3 coefficient, the test results show that importance of a company for audit institution has negative and statistically insignificant effect on cost stickiness of manufacturing companies. Therefore, the hypothesis 4 could not be confirmed at the confidence level of 95%. According to the expectations, the β2 is also negative; although it is insignificant. Hence, it could be found that among the selected companies in sample, cost stickiness is not existed

Putted variable into model	Coefficient	t-value	Prob.
β_0	0.045	5.231	0.000
$\beta_1 \log(\frac{REV_{i,t}}{REV_{i,t-1}})$	0.355	4.977	0.000
$\beta_2 DUM \times \log(\frac{REV_{i,t}}{REV_{i,t-1}})$	-0.251	-0.950	0.342
$\beta_3 DUM \times \log(\frac{REV_{i,t}}{REV_{i,t-1}}) \times AUDIT_{i,t}$	-0.268	-0.638	0.524
$\beta_4 DUM \times \log(\frac{REV_{i,t}}{REV_{i,t-1}}) \times CAPR_{i,t}$	0.067	2.288	0.022
$\beta_5 DUM \times \log(\frac{REV_{i,t}}{REV_{i,t-1}}) \times Qtobin_{i,t}$	0.096	0.394	0.694
F value Sig (prob.)		14.646 0.000	
Durbin-Watson		2.056	
Breusch-Godfrey test Sig (prob.)		1.076 0.342	
White test (inequality of variances) Sig (prob.)		11.711 0.000	
Coefficient of determination (R2) Adjusted coefficient of determination (AdjR2)		0.089 0.082	

Table 4. Regression test results for hypothesis 4

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Hypothesis	Description	Test result	
		Confirmed	Rejected
H1	size of audit institution could affect cost stickiness	** positive effect	
H2	auditor expertise in the industry could affect cost stickiness		**
H3	the auditory tenure could affect cost stickiness	** positive effect	
H4	importance of a company for an audit institution could affect cost stickiness		**

Table 5. Summary of results obtained from testing hypotheses

significantly. Moreover, the results obtained from the study show that control variable of intensity of investment in fixed asset has also positive and significant effect on cost stickiness of manufacturing companies. The Q Tobin ratio also has no significant effect on cost stickiness of manufacturing companies. The coefficient of determinations (R2) and adjusted coefficient of determination (Adj.R2) show that independent and control variables putted into the model could determine 8.9% of the variances in dependent variable.

Summary of results obtained from testing hypotheses

Summary of the results obtained from testing research hypotheses are presented in table 5.

Conclusion

In general, awareness of cost behavior is important for accountants, auditors, researchers and all people involved in field of management and those who evaluate changes in costs based on changes in income to evaluate underlying issues such as planning, decision making and budgeting. Managerial inference of the analysis is that cost stickiness could be identified and controlled. Managers should evaluate the reason for cost stickiness through considering sensitivity of cost changes compared to changes in activity volume and should enhance the company's reaction against decline in demand for products and services. This could help improvement of the process of responsiveness. Moreover, through specifying cost stickiness, owners of company could analyze that whether managers could cause cost for the firm or not? Managers could identify and control cost stickiness in the company. They could also conclude some contracts to lease the operating assets and employment of personnel (e.g. conclusion of short-term contracts) to reduce the required adjustments to reduce operating asset level in the periods of decline in demand and sales level and reduce the cost stickiness. Through considering cost stickiness in budgeting, managers could provide more logical estimations in years that they expect reduced sales level. Moreover, the suggestion for the investors is to consider the issue of cost stickiness in financial analysis of those companies, which may face reduced sales level in future.

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