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Evaluation of Earnings management and corporate governance with expense stickiness

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ABSTRACT

Cost and expense stickiness is an important issue in accounting and economics research, and the literature has shown that cost stickiness cannot be separated from managers' motivations. In this paper, we examine the effects that earnings management has on expense stickiness. Defining small positive profits or small earnings increases as earnings management, we observe significant expense stickiness in the non-earnings-management sub-sample, compared with the earnings-management sub-sample. When we divide expenses into R&D, advertising and other general expenses, we find that managers control expenses mainly by decreasing general expenses. We further examine corporate governance's effect on expense stickiness. Using factor analysis, we extract eight main factors and find that good corporate governance reduces expense stickiness. Finally, we investigate the interaction effects of earnings management and corporate governance on expense stickiness. The empirical results show that good corporate governance can further reduce cost stickiness, although its effect is not as strong as that of earnings management.

Keyword:
- ✓ *Earnings management*
- ✓ *corporate governance*
- ✓ *expense stickiness*

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INTRODUCTION

The term expense ‘‘stickiness” captures an asymmetric expense behavior response to the direction of a change in activities; that is, expenses increase more quickly with an increasing activity level than they decease with a declining activity level (e.g., Noreen and Soderstrom, (1997), Cooper and Kaplan (1998), and Anderson et al. (2003)). Because it is an important issue in both accounting and economic researches, expense stickiness, to some degree, reflects the operating efficiency of corporate assets (Gong et al. (2010)).

Compared with the classic linear cost behavior model described by traditional management accounting, expense stickiness fits better with the management decision of resource adjustment in practice. The existence of expense stickiness is strongly connected to management’s active behavior (e.g., Anderson et al. (2003) and Banker et al. (2011)). Thus, to truly understand stickiness, it is essential to investigate the reasons why management deliberately adjusts resources.

Most previous studies have investigated expense stickiness based on either adjustment costs or management expectations. Some have suggested that the adjustment cost of reducing input under declining activities is higher than that of raising input under increasing activities (e.g., Jaramillo et al. (1993), Pfann and Palm (1993, 1997), Goux et al. (2001), and Cooper and Haltiwanger (2006)). This, in turn, makes it less likely to reduce the input level (i.e., stickiness) because it is more expensive to do so. Other scholars have suggested that managers tend to be optimistic about future revenue because most firms’ future revenues increase, making them reluctant to reduce expenses.

When considering the wide-spread nature of agency problems in modern enterprises (Jensen and Mecking, 1976), it is unlikely that management would behave as expected in an ideal world (i.e., adjustment cost and expectation considerations). There are conflicts between self-interested managers and other stakeholders, of which earnings management behavior under compensation contracts is the most obvious. Healy (1985) found that managers adjust earnings in order to receive higher compensation. While under pressure to avoid breaching debt covenants, managers are also likely to choose between accounting policies (Sweeney (1994)).

Moreover, previous studies have indicated an increase in earnings management due to the incentives of meeting or beating last year’s earnings, avoiding reporting losses, and meeting or beating consensus analysts’ forecasts (e.g., Burgstahler and Dichev (1997) and Degeorge (1999)).

The remainder of the paper proceeds as follows. We discuss the literature and pose our hypotheses in Section 2 and present our research design in Section 3. We introduce our sample and data in Section 4. We report our empirical findings in Section 5 and additional robustness tests in Section 6. Section 7 concludes the paper.

2. Related literature and hypotheses development

There are two main views about the existence of expense stickiness: rational decision-making and motivational. The rational decision-making view treats expense stickiness as a consequence of management rationally choosing between alternatives after comprehensively weighting costs and benefits. Some studies have been guided by this view in providing detailed explanations of the following specific aspects. It has been suggested that the adjustment cost of reducing input under declining activities is higher than that of raising input under increasing activities (e.g., Jaramillo et al. (1993), Pfann and Palm (1993, 1997), Goux et al. (2001), Cooper and Haltiwanger (2006), Balakrishnan et al. (2004), Banker and Chen (2006), and Balakrishnan and Gruca (2008)).

Due to the above consideration, even facing declining demand, managers are less likely to reduce input resources and related expenses, which, in turn, lead to expense stickiness. Banker et al. (2011) analyzed relevant data and concluded that management commonly expects a sales increase in the following year. Thus, even under declining activities, it is rare for management to reduce input.

The second view is motivation-based and relates expense stickiness to managerial incentives, suggesting that managers are not expected to behave as if they were in an ideal world. Among their dysfunctional behavior, perks and earnings management reflecting different contracting stimulations are often observed. Chen et al. (2008) investigated the relationship between empire building and perks, which revealed that higher expense stickiness, accompanied stronger managerial incentives for empire building. There is a large body of literature studying different earnings management incentives, such as compensation (Healy, 1985), debt covenants (Sweeney, 1994), meeting or beating last year’s earnings, avoiding reporting losses, and meeting or beating consensus analysts’ forecasts (e.g., Burgstahler and Dichev (1997) and Degeorge et al. (1999)).

However, studies on earnings management’s effect on expense stickiness have been rare. Dierynck and Renders (2009) found a small stickiness of labor costs in firms with small positive profit or small earningsincrease, whereas Kama and Weiss (2010) revealed that companies with earnings management exhibited lessstickiness of operating costs.

Compared with the studies on cost stickiness, there is no literature investigating whether a similar principlefits the explanation of expense stickiness. Although production costs (both variable and fixed) are unavoidableinputs for production so the occurrence of major parts of expenses, such as those for advertising and R&D, islikely to be decided by managers. Thus, we expect earnings management incentives to affect expense stickiness.

When holding the upward earnings management incentive, managers are more likely to reduce expenses inresponse to a declining demand, which in turn decreases expense stickiness.

Therefore we develop the following hypothesis:

H1. Upward earnings management significantly decreases expense stickiness.

Because managers increase earnings in different ways, it is necessary to investigate whether their methodsare efficient. When referring to efficiency, we mean that managers either reduce expenses by flattening thehierarchy and improving administrative efficiency, or by tightly controlling expenses through perk reductionand waste avoidance. However, choosing to cut R&D or advertising expenses for upward earnings managementis seen as an inefficient way to pursue short-term goals at the expense of long-term development(Eberhart et al. (2004)).

To further test efficiency, we divide expenses into R&D, advertising, and other general expenses. We defineother general expenses as those outside of R&D or advertising. Managers choosing to reduce R&D or advertising expenses to increase earnings are regarded as inefficient because it sacrifices the enterprise's long-termdevelopment. Managers choosing to reduce other general expenses are regarded as an efficient way of controllingexpenses.

Thus, to further investigate whether managers choose an efficient way to manage earnings, we develop thefollowing competing hypotheses:

H2a. Under the pressure of realizing upward earnings, managers typically reduce R&D or advertisingexpenses.

H2b. Under the pressure of realizing upward earnings, managers typically reduce other general expenses.

Corporate governance refers to the set of mechanisms that monitor or motivate managers when there is aseparation of ownership and control. Some of these mechanisms are the board of directors, institutional shareholders,and market operations for corporate control (Larcker et al., 2007). These mechanisms are designed tosolve the widespread agency problem. Based on institutional economics theory, motivating and monitoringare the main ways to solve the agency problem (Yuan, 2005). When motivating, good corporate governancecanto some degree, support goal congruence between managers and enterprises so that the former will try tomaximize firm value. Moreover, when managers make decisions that are in the best interests of the business,their goals are achieved more efficiently thanks to good corporate governance. In contrast, the monitoring roleis more important because good corporate governance reduces management opportunism while protectingprincipals' interests.

Sometimes, the self-interested behavior of managers leads to expense stickiness (Chen et al., 2008). In itsmonitoring role (Wan and Wang, 2011), good corporate governance should, to some degree, reduce expensestickiness. When managers try to improve cost control, good corporate governance is expected to facilitate theprocess and reduce expense stickiness.

Calleja et al. (2006) showed that costs are stickier for French and German firms than for US and UK firms,and they attributed this to the differences in corporate governance, as French and German firms are subject tocode-law governance systems in addition to being historically less subject to the pressure of a market for corporatecontrol. Firms in the US and the UK are arguably subject to more rigorous external scrutiny and theircorporate objective of shareholder maximization tends to produce lower levels of cost stickiness. Chen (2008)suggested that firms with larger boards of directors or more independent boards (the separation of Chairmanand CEO, more external independent directors), and those with directors who hold larger shareholdings havea lower level of expense stickiness. Furthermore, the above mentioned corporate governance mechanismswork better in reducing expense stickiness when managers hold an empire building incentive. Similar conclusions, based on the study of China's manufacturing industry, were reached by Wan and Wang (2011).The only difference in result was that the larger board size impeded the control of free cash flow, which increased expense stickiness.

Although Calleja et al. (2006) explained the cross-country differences in costs; they did not provide direct evidence. Although Chen et al. (2008) raised direct evidence of the relationship between corporate governance and expense stickiness; their measures of corporate governance were incomplete. A comprehensive system of corporate governance is expected to comprise both internal (e.g., board independence, board working schedule, structure of shareholding, etc.) and external (e.g., institutional shareholders and creditor monitoring, regulation, auditing, etc.) mechanisms. Given a comprehensive picture of corporate governance, we develop the following hypothesis:

H3. Good corporate governance significantly decreases expense stickiness.

According to the first and third hypotheses, both upward earnings management and good corporate governance may help to reduce expense stickiness. Thus, it seems reasonable to consider their separate and interactive effects. Warfield et al. (1995) and Klein (2002) suggest that good corporate governance can restrict earnings management. The literature usually takes earnings management as evidence of management opportunism.

3. Research design

3.1. Measurement of expense stickiness

Consistent with the literature (Anderson et al., 2003; Subramaniam and Weidenmier, 2003), we use the following logarithmic model to measure expense stickiness:

$$log\left[\frac{SGA_{i,t}}{SGA_{i,t-1}}\right] = \beta_0 + \beta_1 \log\left[\frac{REV_{i,t}}{REV_{i,t-1}}\right] + \left[\gamma_0 + \sum_{j=1}^{n} \gamma_j CON_{i,t,j}\right] * DUM * log\left[\frac{REV_{i,t}}{REV_{i,t-1}}\right] + \varepsilon_{i,t} \quad (1)$$

here

SGA = natural log of total administration and operation expenses;

REV = natural log of revenue;

DUM = a dummy variable with a value of 1 if the current year REV decreases ($REV_{i,t}$ / $REV_{i,\ t-1}$ < 1), and 0 otherwise;

CON = control variables. Here, we mainly use CAPR and TOBQ as control variables because most of the variables used by existing studies have already been considered in relation to corporate governance. The details of CAPR and TOBQ are as follows:

CAPR = capital intensity, measured as the net value of fixed assets scaled by operating revenue;

TOBQ = growth rate, measured as Tobin's Q (i indicates firm and t indicates year).

Hence, we restate model (1) as follows:

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

According to the definition of expense stickiness, a significant negative sign of b2 in model (2) indicates the existence of expense stickiness.

3.2. Earnings management and expense stickiness

The literature consistently indicates that earnings management allows avoiding reporting losses or earnings decreases, meeting or beating consensus analysts' forecasts, reducing taxation, and decreasing the probability of debt covenant default. Burgstahler and Dichev (1997) and Degeorge et al. (1999) found that earnings management helps in the avoidance of reporting small losses and earnings decreases. Roychowdhury (2006) and Cohen et al. (2008) further suggested that management reduces costs to avoid reporting losses or earnings decreases. Based on the method used by Roychowdhury (2006) and Cohen et al. (2008), we include two categories of data in the upward earnings management subsample. The data in the first category report a small positive profit, which indicates incentives for avoiding reporting losses. The data in the second category report a small increase in ROA, which indicates incentives for avoiding reporting earnings decreases.

In this study, we define those firm-year observations whose ROA is 0–1.5% as the small positive profit sub-sample, and those whose earnings change scaled by total assets is 0–1% as the small earnings increase sub-sample. Together, they make up the sub-sample of upward earnings management. We use EAMG as an indicator whose value equals 1 if the observation belongs to the earnings-management sub-sample and 0 otherwise.

To test H1, we regress model (2) with the earnings-management and non-earnings-management subsamples, separately. As H1 indicates, we expect a lower level of expense stickiness in the earnings-management sub-sample. Thus, we expect b2 in the earnings-management sub-sample to be significantly higher than in the non-earnings-management sub-sample. The sign of b2 in the non-earnings-management sub-sample should be significantly negative due to the existence of expense stickiness.

3.3. Efficiency of reducing expense stickiness

To investigate whether the reduction of expense stickiness reflects efficient behavior, we further divide expenses (SGA) into R&D, advertising (ADV), and other general expenses (GSGA). H2a indicates that managers reduce expense stickiness at the expense of firms' long-term benefits, whereas H2b indicates that managers use an efficient way to reduce expenses.

To test H2a and H2b, we replace SGA with R&D, ADV, or GSGA in model used to test H1. If H2a holds, because managers choose to mainly reduce R&D or advertising expense to increase earnings, b2 in the earnings-management sub-sample should be significantly higher than in the non-earnings-management subsample, and the sign of b2 in the non-earnings-management sub-sample should be significantly negative when using R&D and ADV instead of SGA. The inter-sample difference of b2 is not expected to be significant when using GSGA instead of SGA. However, if H2b holds, the above expected results should be opposite.

3.4. Corporate governance and expense stickiness

Most of the previous studies have measured corporate governance with single or aggregative indices, which are obviously arbitrary. Furthermore, the empirical results of those studies are conflicting. Larcker et al. (2007) suspected that part of the explanation for these mixed results is that the measures used in the empirical analyses exhibit a modest level of reliability and construct validity. For example, when using a single indicator (e.g., percentage of independent directors) to represent a complex construct (e.g., board independence), measurement error is likely to result in inconsistent regression coefficients. Similar problems arise if a set of indicators are naively summed to form some type of governance index (e.g., the ''G-score" used by Gompers et al. (2003)). The use of multiple indicators can alleviate the measurement error associated with a single indicator. However, unless the individual indicators are measuring the same underlying governance construct, the resulting index is difficult to interpret and likely to contain substantial measurement error.

Larcker et al. (2007) suggested that factor analysis be applied to extract main factors from the multiple indicators of corporate governance. The benefits of using factor analysis are worth noting. First, it avoids the measurement error introduced by a single index. Second, it reduces the arbitrary nature of using an aggregative index formed by a set of naive indicators. Third, it eliminates the influence of collinearity and improves the accuracy of parameter estimation and hypothesis testing. Finally, compared with using principal component analysis (PCA), factor analysis can raise a much more clear result thanks to the process of factor rotation, which can effectively identify the interaction effect of the same index on different principal components.

4. Sample and data

4.1. Data source and sample selection

We begin with all Chinese non-financial firms listed in the A-share market between 2006 and 2014. Thisperiod is selected mainly due to the availability of some corporate governance indices. We then remove observationsthat have M&A or change the main industry, that have missing or negative values of the current orprior year's revenue and expenses, whose current year's expenses are larger than revenue, and those with missingcorporate governance indices or control variables.

4.2. Descriptive statistics

Table 3 reports the summary statistics of the main variables used in testing the hypotheses. We do notinclude the description of corporate governance variables in Table 3 because they are shown in the subsequentfactor analysis process.

Table 1- statistics analysis

	Mean	Median	Min.	Max.	Std.dev
REV	4768.35	1012.43	10.90	1873165.20	39604.43
SGA	421.63	123.35	4.30	119075.23	5.6
SGA/REV	8.88	12.1	4.77	6.3	141.3
Log[REV_t/REV_{t-1}]	0.148	0.149	-4.265	3.706	0.342
Log[SGA_t/SGA_{t-1}[	0.153	0.128	-2.754	2.564	0.352
DUM*log[REV_t/REV_{t-1}]	-0.054	0.000	-4.987	0.000	0.185
CAPR	0.562	0.421	0.000	19.542	0.865
TOBQ	1.654	1.119	0.000	22.131	1.118
R&D/REV (%)	0.73	0.02	0.00	5.56	1.4
ADV/REV (%)	0.56	0.02	0.00	5.32	1.38
GSGA/REV(%)	7.14	10.56	5.54	28.19	5.83

Table 1 shows that the mean (median) values of REV and SGA are 4768.35 (1012.43) and 421.63 (123.35). Both variables are right-skewed and it is reasonable to take the natural log of the initial amount in the subsequent regression.

The standard deviations of REV and SGA are 39604.43 and 5.6, respectively, significantly larger than their means, which indicates that there is large variation in these variables. We report a mean (median) SGA=REV, which is smaller than the value that reported in the work of Anderson et al. (2003). Here, we suggest that this may be due to the difference between Chinese Accounting Standards and U.S. GAAP.

On average, firm revenues and expenses increase during the sample period due to the positive values of log [REVt/REVt_1] and log [SGAt/SGAt_1]. The mean (median) of log [REVt/REVt_1] and log [SGAt/SGAt_1] are 0.148 (0.149) and 0.153 (0.128), respectively. However, log [REVt/REVt_1] has a minimum of -4.265 (indicatingthat some firms have a significant decrease in revenue), a maximum of 3.706 (indicating that some firms have large growth in revenue), and a standard deviation of 0.342 (indicating that the annual changes in firm revenues are quite different). The same characteristics are found in log [SGAt/SGAt_1]. The mean (median) of DUM * log [REVt/ REVt_1] is -0.054 (0) and it is therefore left-skewed. It has a minimum of -4.987, a maximum of 0, and a standard deviation of 0.185, indicating that the annual variances in revenues for decreasing firms are also quite large.

The mean (median) values of CAPR and TOBQ are 0.562 (0.421) and 1.654 (1.119), and their standard deviations are 0.865and 1.118, respectively, which indicates significant cross sample variance.

After further dividing SGA into R&D, ADV, and GSGA, we find that the mean (median) values of (R&D/ REV) and (ADV/REV) are 0.73% (0.02%) and 0.56% (0.02%), respectively. Given that (GSGA/REV) has a mean (median) value of 7.14% (10.56%), on average, other general expenses comprise the majority of total expenses.

5. Main empirical results

The regression results of upward earnings management on expense stickiness are reported in Table 2. Compared with the results in Columns (1) and (2), Columns (3) and (4) add CAPR and TOBQ.

As Table 2 shows, β2 in Column (1) is positive and not statistically significant, indicating that upward earnings management decreases expense stickiness.

To summarize, the results in Table 5 provide evidence that expense stickiness is mainly found in the nonearnings-management sub-sample. Moreover, the value of b2 in the earnings-management sub-sample is larger than that in the non-earnings-management sub-sample and the difference (not tabulated) is statistically significant at the 1% level (v2 test = 22.37). Thus, consistent with H1, the evidence suggests that upward earnings management significantly decreases expense stickiness.

Table 2 Regression results of earnings management incentive on expense stickiness.

	Coefficient (t-statistics)			
	(1)	(2)	(3)	(4)
	EAMG=1	EAMG=0	EAMG=1	EAMG=0
β0	0.031	0.053	0.031	0.049
β1	0.38 (15.98)***	0.64 (9.67)***	0.38 (15.47)***	0.53 (30.93)***
β2	**0.013** **(0.23)**	**-0.443** **(-10.33)*****	**0.07** **(1.47)**	**-0.553** **(-10.12)*****
β3			-0.001 (-0.11)	-0.006 (-0.72)***
β4			-0.039 (-1.82)***	0.053 (4.97)***
Adj-R^2	0.131	0.245	0.131	0.251
F	20.31	20.21	31.32	37.30
N	320	576	320	576

The superscripts ** and * indicate two-tailed statistical significance at the 5% and 10% levels, respectively.
*** indicates two-tailed statistical significance at the 1% level.

The bold variable(s) is the tested variable(s) we focus on.

What expense types do managers tend to reduce under earnings pressure? The results of R&D are shown in Columns (5) and (6) of Table 3. The values of β2 in both columns are negative and statistically significant, indicating the existence of expense stickiness in both samples. In the earnings-management sub-sample, R&D decreases with every 1% of revenue. The results suggest that R&D in both sub-samples is sticky. Although the amount of R&D reduction is greater in the earnings-management subsample than in the non-earnings-management sub-sample, the difference between these two sub-samples is not statistically significant. The results in Columns (3) and (4) provide evidence that there is little stickiness of ADV in either sub-sample. The results of GSGA are represented in Columns (5) and (6).

The value of β2 in Column (1) is statistically significant at the 1% level and that in Column (2) is not statistically significant, indicating that upward earnings management significantly reduces the stickiness of GSGA.

The results in Table 3 imply that when facing the pressure of upward earnings management, managers may reduce R&D (which may be seen as a way to pursue a short-term target at the expense of long-term benefits), but it is more likely that managers choose to decrease other general expenses that lead to a lower level of expense stickiness. Thus, the evidence suggests that the ways in which managers reduce expense stickiness are efficient when they hold an upward earnings management incentive.

Table 3 Efficiency of reducing expense stickiness

	Independent variable GSGA		Independent variable ADV		Independent variable R&D	
	(1)	(2)	(3)	(4)	(5)	(6)
	EAMG=0	EAMG=1	EAMG=0	EAMG=1	EAMG=0	EAMG=1
β0	0.075 ***(12.06)	0.025 ***(4.75)	0.053 ***(3.09)	0.045 ***(3.47)	0.039 ***(2.83)	0.019 **(2.06)
β1	0.556 ***(38.76)	0.469 ***(18.78)	0.749 ***(32.83)	0.439 ***(17.66)	0.309 ***(25.83)	0.331 ***(9.83)
β2	**-0.508** *****(-13.4)**	**0.08** **(1.43)**	**-0.09** **(-1.41)**	**0.08** **(0.45)**	**-0.309** *****(-5.33)**	**-0.165** ****(-2.45)**
β3	-0.014 (-0.7)	-0.006 (-0.15)	-0.024 (-0.67)	-0.004 (-0.17)	0.242 ***(5.87)	0.210 ***(5.38)
β4	0.059 ***(6.87)	0.049 **(-2.17)	0.001 (0.01)	0.004 (0.02)	0.04 ***(4.17)	0.034 (-1.43)
Adj-R^2	0.185	0.378	0.353	0.336	0.337	0.335
F	28.54	11.85	44.65	16.9	45.13	18.18
N	576	320	576	320	576	320
X^2 Test	***12.3		1.9		1.59	

The superscript and * indicates two-tailed statistical significance at 10% level.

** indicates two-tailed statistical significance at 5% level.

*** indicates two-tailed statistical significance at 1% level.

The bold variable(s) is the tested variable(s) we focus on.

The purpose of the study was to examine the relationship between cohesion of administrative, general cost and sale of company and governance corporate in the companies listed in Tehran stock exchange. In this regard, 143 companies listed in Tehran stock exchange were examined.

6. Conclusion

Cost and expense stickiness is an important issue in accounting and economics research. The literaturehas shown that cost stickiness cannot be separated from managers' motivations. Based on the literature,we first study the influence of earnings management on expense stickiness. Defining small positive profitsor small earnings increases as earnings management, we find that there is significantly more expense stickinessin our non-earnings-management sub-sample than in our earnings-management sub-sample, whichindicates that managers prefer to reduce more expenses under the pressure of reporting sound earnings.

To check whether the expense reduction indicates better operating efficiency or managers' dysfunctionalshort-sighted behavior, we further divide expenses into R&D, advertising, and other general expenses.

The results show that the difference in the reduction in stickiness between the earnings-managementand non-earnings-management sub-samples is much more significant in other general expenses than inR&D or advertising expenses. We also analyze the influence of corporate governance on the stickinessof expenses. Based on Larcker et al. (2007), we extract eight main factors from the summarized corporategovernance indices and find that good corporate governance has a negative effect on expense stickiness.

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