



Original Research

Asymmetric Cost Behavior, Industry Type, and Levels of Conservatism (Comparative Study of Non-Operating Accrual, Basu, and Market Value Models)

Zakvan Imani^a, Mohammad Hossein Ranjbar^{b,*}, Faeq Ahmadi^a, Hamidreza Vakili Fard^c

^aDepartment of Accounting, Qeshm Branch, Islamic Azad University, Qeshm, Iran

^bDepartment of Accounting, Bandar Abbas Branch, Islamic Azad University, Bandar Abbas, Iran

^cDepartment of Management and Economics, Science and Research Branch, Islamic Azad University, Tehran, Iran

ARTICLE INFO

Article history:

Received 2022-05-11

Accepted 2023-02-23

Keywords:

Conservatism levels

Cost stickiness

Industry type

ABSTRACT

The present study aims to examine the relationship between cost stickiness and conservatism levels according to the type of industry. This purpose is achieved using the combined data technique and three models of non-operating accruals, the Basu model, and the market value model with a sample consisting of 113 companies listed on the Tehran Stock Exchange (TSE) over the period 2011 to 2020. Findings show that based on the model of non-operating accruals in the automotive, pharmaceutical, chemical, and food industries, cost stickiness decreases the level of conservatism. However, in the machinery industry, the relationship is significantly based on this model, but cost stickiness does not reduce the level of conservatism. According to the Basu model in the chemical, food, and basic metals industries, cost stickiness reduces the level of conservatism. But in the pharmaceutical industry and machinery and equipment, there is a significant relationship according to this model, but cost stickiness does not decrease the level of conservatism in companies. Also, based on the market value model in the automotive, chemical, machinery, and basic metal industries, there is a significant association, but cost stickiness does not decrease the level of conservatism in companies.

1 Introduction

One of the most obvious topics in management accounting is understanding the cost behavior. Cost behavior refers to how costs react to changes in activity levels and other factors. Management accounting can do its job well by identifying and predicting how expenses will behave in relation to changes in activity level or income level. In traditional models of cost behavior, it is assumed that there is a correlation between changes in costs and activity levels. Recent research in the field of cost behavior [1,6,10] has found evidence of asymmetric cost behavior. This asymmetric behavior is called "coststickiness".

The traditional view of cost behavior assumed that there was a mechanical relationship between cost

* Corresponding author. Tel.: 09173695841
E-mail address: mhranjbar54@gmail.com

drivers and costs. Subsequent studies refined this view. The amendments stated that costs are generated by resources and that these resources are required to perform a variety of activities. Jokar et al. [24] also argued that a large portion of a company's overhead costs had nothing to do with changes in the firm's operations. He was followed by [20] who stated that accountants assume that the relationship between costs and activity levels is linear, while economists place great emphasis on the nonlinearity of relationships. This is while the modern perspective considers managerial decisions as one of the main drivers of cost behavior [30]. One of the most important reasons for cost stickiness is the asymmetry in managers' decisions about committed resources. Management in demand reduction periods can choose between two options, either to bear the costs of adjusting operating assets or to maintain the level of operating assets, to bear the operating costs of excess production capacity [39]. On the other hand, due to the preservation of unused resources in periods of declining demand, cost stickiness increases costs and further reduces profits. Assuming other factors remain constant, a double reduction in earnings increases the volatility of projected earnings [7]. If investors think that in companies with cost stickiness, the accuracy of profit forecasting is less, this cost behavior affects their reaction to profit fluctuations. Decreased earnings predictability means that reported earnings provide less useful information for evaluating and forecasting future earnings, which in turn reduces the earnings response factor [27]. Therefore, if investors think that cost stickiness reduces the accuracy of profit forecasting, their confidence in the realized profits will also decrease, leading to information asymmetry [6]. Also, prudence in accounting means that evidence of occurrence and less reliability and measurement are needed to identify costs, compared to revenue recognition. This approach creates a time asymmetry in the identification of revenues and expenditures, which is generally referred to as conservatism. Conservatism can be defined as a distinct approach to identifying gains and losses. This approach is due to the asymmetric handling capacity that is considered for gains and losses. In other words, information that is far less manageable than profit-backed information is sufficient to identify losses. Accounting conservatism is the practice or trend that results in a reduction in the accounting bias toward the net asset value associated with the net asset value [40]. Recent studies [7,18] have shown that if both conservatism and cost stickiness are present, the lack of cost stickiness in conservative estimation leads to the estimate will be higher than it actually is. Therefore, it can be said that the level of conservatism of companies is somehow affected by cost stickiness. Numerous factors affect the level of corporate patronage and its relationship with cost stickiness, including the specificity and structure of the industry. Cost stickiness of costs and their effect on the level of conservatism of companies in different industries are different. Because each industry has its own products, asset structure, number of employees, technology, product market, and environmental functions, which differentiate accounting variables in different industries.

Considering the information role of accounting conservatism in improving the quality of the information provided by management and its importance in the decisions of investors and other users of financial information and the effect of cost stickiness on the accounting conservatism of companies at the enterprise level, the present study aims to investigate the effect of cost stickiness on conservatism in different industries based on three models of non-operating accruals, Basu model and market value model. This research can contribute to the accounting and financial literature. First, it discusses the relationships between variables from a theoretical point of view and also leads to the development of literature related to the relationships between research variables. Secondly, from a practical point of view, discovering the relationships between the mentioned variables in the Iranian capital market can be useful for stakeholders. Therefore, the results of this study are expected to be particularly beneficial

for investors, managers, and financial analysts. Because managers and researchers, by accurately identifying and predicting cost behavior and how costs respond to revenue fluctuations, plan regular programs and make informed decisions.

Accordingly, the structure of this research is organized in such a way that in the second part, the theoretical foundations and background of the research are presented and research hypotheses are designed based on it. In the next section, the research methodology including statistical sample, research models, and how to measure variables are described. Then, descriptive statistics and research findings are presented and analyzed, and the final section is devoted to conclusions and suggestions.

2 Theoretical Foundations and Research Background

Recent research reveals two important factors in nonlinear cost-benefit behavior. The first factor is cost stickiness, which indicates economic asymmetry in the cost response to increase and decrease sales [1, 2]. The second factor is accounting conservatism, which indicates the asymmetry of financial reporting in identifying good news versus bad news [9]. The results of studies by some researchers [1, 2, 7, 10, 18,41,42] indicate the existence of an alternative model in cost behavior. This model indicates the asymmetry of the regulation of available resources following changes in the level of activity of the company. This asymmetric behavior is called cost stickiness. Cost sticking occurs when managers decide to conserve unused resources to avoid adjustment costs as demand decreases. Therefore, cost behavior can be a function of managers' expectations and future demand. Anderson et al. [1] believe that managers react to uncertainty by delaying resource depletion, and this intentional behavior continues until the reasons for the decline in demand are clarified (existing uncertainty does not subside) [23]. Of course, evidence from new research shows that cost stickiness results not only from uncertainty about future demand and retention of unused resources but also from managerial motivations and representational considerations of managers [31]. On the other hand, one of the main characteristics of financial reporting is conservatism. Conservatism is defined as a cautious response to uncertainty in order to protect the rights and claims of shareholders and creditors.

Fundamentally, conservatism and cost stickiness are two separate phenomena. Conservatism in the accounting system, which converts economic activities into financial data, creates asymmetry, but cost stickiness implies asymmetries in the economic activities themselves. However, both phenomena have an asymmetric effect on profit. Banker et al. [6] argue that companies with a higher level of conservatism do not reduce their resources and costs as much as they reduce sales, which in turn leads to companies with a higher level of conservatism. At the same time, cost stickiness is higher. But companies with less conservatism, adjust resources when sales fall, which reduces costs relative to lower operating levels. So in these companies, while conservatism is less, cost stickiness is less.

Recent studies show that cost stickiness as an intervening factor in the pattern of temporal asymmetry of profits is effective and its lack of control can create an upward bias in conservative research. According to studies by [3,7, 10, 17, 18,21], one of the possible reasons for cost stickiness is the personal motivation of managers or profit smoothing, which can be a conservative component. Be something. Homburg and Nasev [18] also found in their studies that the temporal asymmetry of profits for firms with higher cost stickiness increases through the accounting factors reflected in accruals. In other words, cost stickiness is higher for companies with high conditional conservatism. They state that negative news in cost-stick companies affects profits more quickly than positive news. Also, companies with cost stickiness have more conditional conservatism than other companies. Banker et al. [6] found evidence that although cost behavior is affected by its stickiness or non-stickiness, other factors such as conditional conservatism can influence cost behavior.

It is always possible to mistake cost stickiness for conservatism. When costs are sticky and sales are declining, the relationship between profit and return is stronger than when sales increase, which has been erroneously considered conservative in previous research. Also, if managers' decisions regarding company resources lead to cost stickiness, the amount of conditional conservatism estimated in previous studies without considering cost stickiness has been estimated at a high level due to ignoring the effect of cost stickiness [7,11, 25, 34,39,42]. A study by Banker et al. [6] shows that failure to control cost stickiness can lead to conservatism derived from standard models. In addition, the variability of cost stickiness distorts the results regarding the amount of cross-sectional changes in conservatism [7]. findings of Ghazalat, Abu-Serdaneh [13] show that the companies of the Gulf Cooperation Council (GCC) have, on average, cost stickiness, the degree of the stickiness is different between the six countries. The results also show that sticky cost firms show higher conditional conservatism. Makni Fourati et al. [29] concluded that the relationship between cost stickiness and accounting conservatism varies between countries and industries. The authors also found evidence that employee multiplicity and free cash flow, as determinants of cost stickiness, continue to have a significant effect on the accounting conservatism estimation model. In Iran, researchers such as [15,16,25,36] have investigated the relationship between asymmetric cost behavior and conservative levels of companies. The results of their studies show that both the phenomenon of conservatism and cost stickiness exist among Iranian companies, and the lack of cost stickiness in conservative estimation will lead to more than actual estimates.

Given the above, the first purpose of this study is to investigate the relationship between cost stickiness and accounting conservatism. Different methods and models have been used to measure conservatism, which is known as conservatism levels in the accounting literature. Although the models used to calculate the conservatism index are theoretically correct, they also suffer from errors [14]. Each of these models has its own limitations and advantages, so it is better to use different models simultaneously to calculate conservatism. The efforts of accounting and finance researchers to explain a model for proving the existence and measurement of conservatism have a long history in the financial literature. Some researchers including Basu [9] and Bal & Shiokumar [4] in the Abroad, and Nikomram & Bani Mahd [32], Satayesh & Shams al-Dini [38] and Honarbakhsh et al. [17] in Iran have made efforts to provide models to measure accounting conservatism. In addition, it is possible that each of the models in Iran due to the specific conditions of the country such as business process complexity, economic sanctions, the inefficiency of the stock market, inflation and large institutional ownership alone is an accurate scale for conservative measurement. Do not offer work in Iranian stock exchange companies.

It seems that the use of the Basu model, which uses stock returns as a measure of conservatism, in developing markets such as Iran, where various factors other than accounting information and figures on stock returns and it is positive and negative, is effective, it is not very convenient. On the other hand, the accrual-based model, considering that it uses financial statement information and not market indicators, is more suitable than other models for developing markets such as the Iranian market. Criticism of the market value model is also that the difference between the net book value of assets and their market value in countries such as Iran is largely influenced by inflation, and the recognition that this difference is due to conservatism or other the factors will be a bit difficult, especially in recent years, when the country's economic environment has been experiencing intermittent recessions and sharp increases in the general level of prices. Therefore, in this study, we have tried to examine the relationship between cost stickiness and conservatism simultaneously with the three models of non-operating accruals, the Basu model and the market value model, and determine which of the existing models in Iran has more explanatory power in Measuring conservatism and its relationship to stickiness is costly.

As mentioned, cost stickiness occurs when managers decide to conserve unused resources to avoid adjustment costs when demand decreases. On the other hand, it is the unique and different characteristics of a company that determines the cost of adjusting its resources. Industries with high fixed assets and more employees (hired on long-term contracts) seem to be more cost-effective than other industries. Therefore, both the specific characteristics of the company (structural assets, staff intensity, scope and type of costs) and the specific characteristics of the industry in which it operates, affect the degree of stickiness of the company's costs. Companies in different industries not only have their own domain (the range in which costs change linearly with activity), but they also have distinct cost stickiness, and as a result their level of conservatism will vary. For this reason, in studies related to cost stickiness and its relationship with accounting conservatism, the dependence of a company's industry should be considered as one of the effective and important factors in the occurrence and extent of cost stickiness.

According to a study by Anderson et al. [1], the intensity of assets and the intensity of employees as two specific characteristics of the company affect the level of adjustment costs. They also found that the asymmetric behavior of costs to the user or the capitalist nature of the company's activity was orderly. Subramaniam and Watson [35] assigned the highest degree of cost stickiness to manufacturing, service, and ultimately commercial companies, respectively. Studies by Anderson et al. [1] on sticky costs for service companies show that not only the degree of cost stickiness varies in industries, but also the factors that cause sticky cost behavior have different effects on cost behavior in certain industries. They create. In this regard, Calleja et al. [10] calculated the degree of asymmetric cost behavior in different industries and countries by separating the effects of industry and the effects of company characteristics. He showed that different combinations of company-specific features affect cost stickiness. Anderson et al. [2] found evidence that differences in the severity of cost stickiness are evident for some components of operating costs, including marketing, research and development, and payroll.

Therefore, the second purpose of this study is to investigate the relationship between cost stickiness and conservatism with regard to the type of industry. Despite the importance of the issue in the country, little research has been done in this field and in various industries. Among these, we can mention the study of [19,23,28, 42]. These studies have been limited to a few industries using one model and only in relation to cost adhesion. This study seeks to investigate the relationship between asymmetric cost behavior and conservatism with respect to the type of industry, considering the importance of understanding cost behavior and the factors affecting it. What distinguishes the present study from other studies is the simultaneous use of three models of non-operating accruals, the Basu model and the market value model in different industries with different characteristics. Therefore, the results of the present study can be expected to help researchers to use new models in conservative research and clarify important aspects of the concepts of cost stickiness and accounting conservatism in companies operating in the Iranian stock market.

3 Research Hypotheses

In order to achieve the objectives of the research and also in terms of theoretical and experimental principles presented, research hypotheses can be proposed in two categories as follows.

First category hypotheses:

- ≠ Hypothesis 1: There is a significant relationship between cost stickiness and conservatism based on non-operating accruals.
- ≠ Hypothesis 2: There is a significant relationship between cost stickiness and conservatism using the Basu model.

- ≠ Hypothesis 3: There is a significant relationship between cost stickiness and levels of conservatism in the market value of companies.

Second category hypotheses

- ≠ Hypothesis 1: The type of industry has a moderating role on the relationship between cost stickiness and conservatism based on non-operating accruals.
- ≠ Hypothesis 2: The type of industry has a moderating role on the relationship between cost stickiness and conservatism using the Basso model method.
- ≠ Hypothesis 3: The type of industry has a moderating role on the relationship between cost stickiness and market value conservatism.

4 Research Method

The research method is analytical research in terms of purpose, analytical-inductive research in terms of execution logic, and longitudinal (post-event) research in terms of the time dimension. A multiple linear regression method was used to test the research hypotheses and Eviews version 9 and Stata version 13 software were used for the final analysis to analyze the data. The statistical population of this research includes all companies listed on the Tehran Stock Exchange. In order for the statistical sample to be a suitable representative of the target community, the systematic removal method has been used. After considering the criteria set by the researcher, 113 companies for the period 2011-2020 were statistically analyzed.

4.1 Research models and variables

The following models are used to test the research hypotheses, which examine the effect of cost stickiness on firm conservatism levels. Patterns of the first category of research hypotheses:

$$NOACCR_{i,t} = \beta_0 + \beta_1 DS_{i,t} + \beta_2 SALECH_{i,t} + \beta_3 DS_{i,t} * SALECH_{i,t} + \varepsilon_{i,t} \quad (1)$$

$$E_{i,t}/P_{i,t-1} = \beta_0 + \beta_1 DU_{i,t} + \beta_2 RET_{i,t} + \beta_3 DU_{i,t} * RET_{i,t} + \beta_4 DS_{i,t} + \beta_5 SALECH_{i,t} + \beta_6 DS_{i,t} * SALECH_{i,t} + \varepsilon_{i,t} \quad (2)$$

$$MTB_{i,t} = \beta_0 + \beta_1 DS_{i,t} + \beta_2 SALECH_{i,t} + \beta_3 DS_{i,t} * SALECH_{i,t} + \varepsilon_{i,t} \quad (3)$$

Model (1) is the measure of conservatism in terms of the value of non-operating accruals due to the distorting effect of cost stickiness. Pattern (2) is the Basso model, which is extended by adding the virtual variable $DS_{i,t}$ and the variable $DS_{i,t} * SALECH_{i,t}$. In fact, model (2) is the Basso model due to the distorting effect of cost stickiness, which has been modified with the model of [7]. Model (3) is the measure of conservatism by the market value method with respect to the distorting effect of cost stickiness. Patterns of second category research hypotheses:

$$NOACCR_{i,t} = \beta_0 + \beta_1 DS_{i,t} + \beta_2 SALECH_{i,t} + \beta_3 DS_{i,t} * SALECH_{i,t} + \sum_{j=1}^6 \beta_j Indus_{i,t} + \varepsilon_{i,t} \quad (4)$$

$$E_{i,t}/P_{i,t-1} = \beta_0 + \beta_1 DU_{i,t} + \beta_2 RET_{i,t} + \beta_3 DU_{i,t} * RET_{i,t} + \beta_4 DS_{i,t} + \beta_5 SALECH_{i,t} + \beta_6 DS_{i,t} * SALECH_{i,t} + \sum_{t=1}^6 \beta_j Indus_{i,t} + \varepsilon_{i,t} \quad (5)$$

$$MTB_{i,t} = \beta_0 + \beta_1 DS_{i,t} + \beta_2 SALECH_{i,t} + \beta_3 DS_{i,t} * SALECH_{i,t} + \sum_{t=1}^6 \beta_j Indus_{i,t} + \varepsilon_{i,t} \quad (6)$$

In these models, the effect of the moderating role of industry type on the relationship between conservatism and cost stickiness is investigated.

In the above patterns:

$E_{i,t}$: Net profit before contingent items in year t .

$P_{i,t-1}$: Stock market value at the beginning of the financial period

$MTB_{i,t}$: market value to book value in year t .

$NOACCR_{i,t}$: Non-operating accruals in year t .

$DU_{i,t}$: is a virtual variable if there is bad news (stock return changes compared to the previous year) is equal to one and otherwise equal to zero.

$RET_{i,t}$: Return on company stock in year t

$DS_{i,t}$: The virtual sales variable with a value of one If the sales of the company i in year t are less than the sales of the same company in year $t-1$, otherwise it is zero.

$SALECH_{i,t}$: The percentage change in the sales of the company i in year t compared to year $t-1$.

$Indus_{i,t}$: type of industry.

$\varepsilon_{i,t}$: Model estimation error.

4.2 Operational definition of variables

Dependent variable: The dependent variable in this study is the levels of conservatism. In this study, in order to calculate the levels of conservatism, three methods based on non-operating accruals, Basu model, and market value are used.

1. Non-operating accruals model: In order to measure conservatism based on non-operating accruals, the model of Givoly et al. [14] was used. The sum of accruals, operating accruals (working capital), and non-operating accruals based on the Givoly et al. [14] model is calculated as follows:

$$\begin{aligned} ACC_{it} &= NI_{it} + DEP_{it} - CFO_{it} \\ OACC &= \Delta AR_{it} + \Delta I_{it} + \Delta PE_{it} - \Delta AP_{it} - \Delta TP_{it} \\ NOACC_{it} &= ACC_{it} - OACC_{it} \end{aligned} \quad (7)$$

Where the variables are as follows:

ACC: Total NI Accruals: Net Profit Before Non-Miscellaneous Items DEP: Depreciation Fee

CFO: Operating Cash Flow OACC: Operating Accruals ΔI : Change in inventory

ΔAR : Change in received accounts ΔPE : Change in prepayments ΔAP : Change in NOACC payment accounts: Non-operating accruals

Since the smaller (more negative) values of non-operating accruals indicate higher levels of conservatism, in this study, in order to align the algebraic values of non-operating accruals with the degree of

conservatism, the symmetry of these items has been used [14]. Now, to calculate the degree of unconditional conservatism in this research, Zhang [44] model is used, which is as follows.

$$\text{Unconditional conservative work} = (\text{non-accrual operating items}) / (\text{first period total assets}) \times (-1) \quad (8)$$

In this model, the ratio of non-operating accruals to total assets indicates the degree of unconditional conservatism. Thus, the higher the ratio for a company, the less conservatism is exercised.

2. Basu model: Basu used stock returns to measure news and used regression between earnings and stock returns to find that the profit response to bad news (negative stock return) is more timely than the profit response to good news (Positive stock returns). He thus introduced a measure of conservatism called "asymmetric timing." Numerous empirical studies have found conclusions consistent with Basu's predictions and have inferred the existence of conservatism (e.g., [7, 38, 29]). The pattern is as follows:

$$\frac{E_{i,t}}{P_{i,t-1}} = \beta_0 + \beta_1 DU_{i,t} + \beta_2 RET_{i,t} + \beta_3 DU_{i,t} RET_{i,t} + \varepsilon_{i,t} \quad (9)$$

where in:

$E_{i,t}$: Net profit before contingent items in year t.

$P_{i,t-1}$: Stock market value at the beginning of the financial period

$DU_{i,t}$: is a virtual variable, if there is bad news (stock return changes compared to the previous year) is equal to one and otherwise equal to zero.

$RET_{i,t}$: Return on company stock in year t

In this model, if β_3 is opposite to zero and positive, it indicates the degree of conservatism that is calculated for each company separately and in each year. So the larger β_3 , the more conservatism has been exercised.

3. Market value model: Since conservatism usually leads to a less than realistic presentation of the book value of equity or the net book value of assets relative to market value, companies using more conservative accounting have a ratio of Book value is less than market value. In other words, the ratio of book value to market value is inversely related to conservatism, which is multiplied by a negative number to obtain a direct ratio of conservatism. The degree of conservatism based on this method is as follows:

$$\text{Conservative work} = (\text{shares of market value holders}) / (\text{shares of value book holders}) \times (-1) \quad (10)$$

Independent variable: The independent variable in this study is cost stickiness. Cost stickiness was first proposed by Anderson et al. [1]. Anderson et al. [1] used a virtual regression model to measure cost stickiness as follows:

$$\ln \left[\frac{SGA_{i,t}}{SGA_{i,t-1}} \right] = \beta_0 + \beta_1 \ln \left[\frac{\text{sales}_{i,t}}{\text{Sales}_{i,t-1}} \right] + \beta_2 D_{i,t} + \beta_3 D_{i,t} * \ln \left[\frac{\text{Sales}_{i,t}}{\text{Sales}_{i,t-1}} \right] + \varepsilon_{i,t} \quad (11)$$

In this model, $SGA_{i,t}$ sales, office and general expenses this year, $SGA_{i,t-1}$ sales, office and general expenses in the previous year, $\text{sales}_{i,t}$ Total sales revenue for the current year is $\text{Sales}_{i,t-1}$ is the total sales revenue for the previous year. $\frac{SGA_{i,t}}{SGA_{i,t-1}}$ represents the ratio of current year expenses to previous

year expenses and $\frac{sales_{i,t}}{Sales_{i,t-1}}$ indicates the ratio of current year sales revenue to previous year sales revenue. In order to homogenize the data, natural logarithms are taken from the mentioned ratios. The virtual variable of the model is $D_{i,t}$, which has two values of 0 and 1. This variable is 1 when this year's sales revenue has decreased compared to the previous year and zero if this year's sales revenue has increased compared to the previous year. If the results of the model estimation show the relationship $\beta_3 < 0$ (coefficient β_3 is negative), the null hypothesis of this test is rejected and it can be claimed that the costs are sticky. In other words, if administrative, general, and sales costs are sticky, the percentage increase in costs in revenue-increasing periods is expected to be greater than the percentage of cost-reduction in revenue-reducing periods, and $\beta_1 > 0$ and $\beta_3 < 0$ will be maintained.

5 Research Findings

Descriptive findings: To review and analyze the data, a summary of the status of descriptive statistics of research variables, including central indicators and dispersion, after screening and removal of outliers is provided in Table 1.

Table 1: Results of descriptive statistics of research variables

Variable	Average	Median	Std. Dev.	Min	Max	Skewness	Kurtosis	Observation
Earning to market value ratio	0.145	0.155	0.132	-0.400	0.400	-0.390	3.606	1130
Non-operating accruals	0.033	0.040	0.136	-0.31	0.46	-0.084	2.944	1130
Market value	2.765	2.190	1.915	0.040	8	1.119	3.471	1130
Dummy variable of stock return	0.492	0.000	0.500	0	1	0.031	1	1130
Stock returns	36.44	14.79	67.051	-37.25	224.6	1.486	4.568	1130
Dummy variable of sales	0.290	0.000	0.454	0	1	0.924	1.854	1130
Sales changes	0.169	0.100	0.378	-1.50	1.20	0.935	4.643	1130

Based on the results of the above table, the average and median profit-to-market ratio at the beginning of the period are 0.145 and 0.155, respectively, which shows that the profitability of the companies under study was approximately 15%. The average virtual variable of stock returns is 0.492, which indicates that about half of the companies in the period under review had changes in their stock returns compared to the previous year. Also, the average virtual sales variable is 0.290, which shows that about 29% of the surveyed companies have reduced sales. On the other hand, the stock return variable with a standard deviation of 67.051 has the highest standard deviation among the variables.

5.1 Inferential Findings

Test results of the first category hypotheses: The results of the first model show that the coefficient of explanatory variable DS * SALECH in the first model is equal to 0.052, which is positive and significant at the error level of 0.05%; therefore, there is a significant relationship between cost stickiness and conservatism based on non-operating accruals. Explanatory coefficient of DU * RET model of Basu

model [9] is equal to 0.0004 and at the error level of 5% is significant and shows the difference of slope between positive return and negative return of stocks and a positive coefficient means that the profit (loss) response is stronger to bad news and signs than it responds to favorable news and signs. In other words, it can be claimed that at this level of confidence there is conservatism in the companies listed on the Tehran Stock Exchange. The results of fitting the model (2) of the study show that after controlling the effect of cost stickiness, the coefficient of the explanatory variable $DU * RET$ decreases from 0.0004 to 0.0003 which is significant at the error level of 5%, the coefficient of $DU * RET$ decreases. It is given that part of the pattern of profit asymmetry is due to cost stickiness, which after controlling the above effect leads to a reduction in conditional conservatism. The results of the market value model show that the coefficient of explanatory variable $DS * SALECH$ in the third model is -0.486, which is negative and significant at the error level of 0.05% and shows that costs have a sticky behavior, so between the cost stickiness and There is a significant relationship between conservatism and market value-based approaches.

Table 2: Results of estimating the regression model of the first main hypothesis (Basu model)

Variable	Basu model			Adjusted Basu model		
	Coefficient	t-statistic	significant level	Coefficient	t-statistic	significant level
C	0.143	27.71	0.000	0.130	8.807	0.000
DU	-0.007	-1.30	0.193	-0.008	-0.899	0.368
RET	-0.0001	-4.302	0.000	-0.0002	-2.043	0.041
DU*RET	0.0004	3.194	0.001	0.0003	2.101	0.035
DS				-0.006	0.872	0.383
SALECH				0.086	6.358	0.000
DS*SALECH				-0.030	-1.994	0.046
AR(1)	0.262	9.354	0.000	0.275	2.708	0.006
The coefficient of determination	0.593			0.607		
The adjusted coefficient of determination	0.541			0.555		
F statistic	11.327(0.000)			11.649(0.000)		
Durbin-Watson	1.97			1.99		

5.2 Test Results of Second Category Hypotheses

The second category of research hypotheses states that the type of industry has a moderating role in the relationship between cost stickiness and levels of conservatism.

Automotive industry: The results of the regression of the first model show that the coefficient of explanatory variable $DS * SALECH$ in the first model is -0.118 and its significance level is 0.034, which is a negative and significant relationship at the error level of 0.05% and shows that costs have behavior It is sticky, so there is a significant relationship between cost stickiness and conservatism based on non-operating accruals in the automotive industry.

The explanatory coefficient of $DU * RET$ of the Basu model [9] is equal to 0.00019, which indicates the difference between the slope between positive returns and negative stock returns, and the positive coefficient of this means that the profit (loss) response to stronger news and bad signs It responds favorably to news and signs. In other words, it can be claimed that at this level of confidence there is conservatism in the companies listed on the Tehran Stock Exchange, but it is not statistically significant. The results of fitting model (2) of the study show that after controlling the effect of cost stickiness, the

coefficient of explanatory variable $DU * RET$ decreases from 0.00019 to 0.00017, which is not significant at the 5% error level, so it can be said between There is no significant relationship between cost stickiness and conservatism levels in the automotive industry.

Table 3: Results of estimating the regression model of the first main hypothesis (non-operating accruals model and market value)

Variable	Non-operating accruals model			Market value model		
	Coefficient	t-statistic	significant level	Coefficient	t-statistic	significant level
C	0.031	5.891	0.000	2.645	13.126	0.000
DS	0.020	2.339	0.019	0.258	1.932	0.053
SALECH	-0.003	-0.269	0.787	0.670	3.180	0.001
DS*SALECH	0.052	2.457	0.014	-0.486	-2.593	0.009
AR(1)				0.230	1.596	0.110
The coefficient of determination	0.207			0.499		
The adjusted coefficient of determination	0.118			0.434		
F statistic	2.314 (0.000)			7.728 (0.000)		
Durbin-Watson	2.27			2.10		

Table 4: Results of estimation of regression model of automotive industry (Basu model)

Variable	Basu model			Adjusted Basu model		
	Coefficient	t-statistic	significant level	Coefficient	t-statistic	significant level
C	0.086	4.519	0.000	0.064	2.752	0.007
DU	-0.002	-0.126	0.899	-0.011	-0.882	0.379
RET	-0.0002	-1.624	0.156	-0.0002	-2.309	0.022
DU*RET	0.00019	0.685	0.494	0.00017	0.737	0.462
DS				0.004	0.371	0.710
SALECH				0.069	4.651	0.000
DS*SALECH				-0.001	-0.029	0.976
AR(1)	0.428	3.915	0.000	0.521	4.940	0.000
The coefficient of determination	0.613			0.666		
The adjusted coefficient of determination	0.554			0.606		
F statistic	10.648 (0.000)			11.179 (0.000)		
Durbin-Watson	2.22			2.05		

Table 5: Results of estimating the regression model of the automotive industry (model of non-operating accruals and market value)

Variable	Non-operating accruals model			Market value model		
	Coefficient	t-statistic	significant level	Coefficient	t-statistic	significant level
C	0.087	4.305	0.000	2.213	7.887	0.000
DS	-0.130	-3.933	0.000	0.349	1.137	0.257
SALECH	-0.007	-2.131	0.817	-0.176	-0.540	0.589
DS*SALECH	-0.118	-2.131	0.034	1.904	3.438	0.000
AR(1)						
The coefficient of determination	0.106			0.082		
The adjusted coefficient of determination	0.090			0.065		
F statistic	6.570 (0.000)			4.940 (0.002)		
Durbin-Watson	2.26			1.62		

The results of the regression of the market value model show that the coefficient of explanatory variable $DS * SALECH$ in the third model is 1.904 and its significance level is 0.000, which is a positive and significant relationship at the 0.05% error level, so we can say between cost stickiness and conservatism. There is a significant relationship based on market value in the automotive industry.

Pharmaceutical industry: Tables 6 and 7 show the results of the pharmaceutical industry. The results of the regression of the first model show that the coefficient of explanatory variable $DS * SALECH$ in the first model is -0.122 and its significance level is 0.038, which is a negative and significant relationship at the 0.05% error level and shows that costs have a sticky behavior. That is, profits are more sensitive to declining sales than to increase sales. Therefore, there is a significant relationship between cost stickiness and conservatism based on non-operating accruals in the pharmaceutical industry. The coefficient of explanatory variable $DU * RET$ of Basu model [9] is equal to 0.0007 and at the error level of 5% it is significant and shows the difference of slope between positive return and negative return of stocks. Bad news and signs are stronger than responding to favorable news and signs. In other words, it can be claimed that there is conservatism in the companies of the pharmaceutical industry. The results of fitting the model (2) of the study show that after controlling the effect of cost stickiness, the coefficient of the explanatory variable $DU * RET$ decreases from 0.0007 to 0.0006, which is significant at the error level of 5%, the coefficient of $DU * RET$ decreases. It is given that part of the pattern of profit asymmetry is due to cost stickiness, which after controlling the above effect leads to a reduction in conditional conservatism. The results of regression of the market value model show that the coefficient of explanatory variable $DS * SALECH$ in the third model is -0.432 and its significance level is 0.464, which is not significant at the 0.05% error level, which indicates cost stickiness and conservatism levels based on There is no significant relationship between the market value model in the pharmaceutical industry.

Chemical industry: Tables 8 and 9 show the results related to the chemical industry. The results of the regression of the first model show that the coefficient of explanatory variable $DS * SALECH$ in the first model is -1.140 and its significance level is 0.016, which is a negative and significant relationship at the 0.05% error level and shows that costs have a sticky behavior. That is, profits are more sensitive to declining sales than to increase sales. Therefore, there is a significant relationship between cost stickiness and conservatism based on non-operating accruals. The coefficient of explanatory variable $DU * RET$ of Basu model [9] is equal to 0.002 and at the error level of 5% it is significant and shows the difference in slope between positive return and negative stock return. Bad news and signs are stronger than responding to favorable news and signs. In other words, it can be claimed that there is conservatism in the companies of the chemical industry. The results of fitting the model (2) of the study show that after controlling the effect of cost stickiness, the coefficient of the explanatory variable $DU * RET$ decreases from 0.002 to 0.018 which is significant at the error level of 5%, and the coefficient of $DU * RET$ decreases. It is given that part of the pattern of profit asymmetry is due to cost stickiness, which after controlling the above effect leads to a reduction in conditional conservatism. Therefore, it can be said that there is a significant relationship between cost stickiness and levels of conservatism in the chemical industry.

Table 6: Estimation results of the regression model of the pharmaceutical industry (Basu model)

Variable	Basu model			Adjusted Basu model		
	Coefficient	t-statistic	significant level	Coefficient	t-statistic	significant level
C	0.205	33.670	0.000	0.205	18.198	0.000
DU	-0.027	-2.742	0.006	-0.025	-2.457	0.015
RET	-0.0003	-3.470	0.001	-0.0003	-3.892	0.000
DU*RET	0.007	3.023	0.003	0.0006	2.513	0.013
DS				-0.005	-0.430	0.667
SALECH				0.032	1.185	0.237
DS*SALECH				0.116	2.340	0.020
The coefficient of determination	0.278			0.331		
The adjusted coefficient of determination	0.189			0.237		
F statistic	3.131 (0.000)			3.522 (0.000)		
Durbin-Watson	1.60			1.60		

Table 7: Results of estimation of the regression model of the pharmaceutical industry (model of non-operating accruals and market value)

Variable	Non-operating accruals model			Market value model		
	Coefficient	t-statistic	significant level	Coefficient	t-statistic	significant level
C	0.048	3.456	0.000	3.062	22.547	0.000
DS	-0.066	-2.509	0.012	0.427	1.648	0.101
SALECH	-0.043	-0.835	0.405	0.894	1.627	0.105
DS*SALECH	-0.122	-2.084	0.038	-0.432	-0.732	0.464
The coefficient of determination	0.045			0.415		
The adjusted coefficient of determination	0.032			0.343		
F statistic	3.390 (0.018)			5.763 (0.000)		
Durbin-Watson	2.14			1.98		

Table 8: Results of estimation of chemical industry regression model (Basu model)

Variable	Basu model			Adjusted Basu model		
	Coefficient	t-statistic	significant level	Coefficient	t-statistic	significant level
C	0.089	2.307	0.023	0.014	0.287	0.774
DU	0.022	0.509	0.611	-0.011	-0.266	0.790
RET	0.0004	1.293	0.199	0.0002	0.672	0.503
DU*RET	0.002	2.121	0.037	0.018	2.051	0.043
DS				0.128	2.461	0.015
SALECH				0.203	3.952	0.000
DS*SALECH				-0.203	-2.552	0.012
The coefficient of determination	0.113			0.237		
The adjusted coefficient of determination	0.081			0.181		
F statistic	3.639 (0.015)			4.293 (0.000)		
Durbin-Watson	1.56			1.65		

The results of the regression of the market value model show that the coefficient of explanatory variable $DS * SALECH$ in the third model is equal to 1.667 and its significance level is 0.033, which has a positive and significant relationship at the error level of 0.05%; Therefore, it can be said that there is a significant relationship between cost stickiness and market value-based conservatism in the chemical industry. The positive $DS * SALECH$ coefficient indicates a positive and significant relationship between cost stickiness and time asymmetry. This suggests that information asymmetry was not the only reason for conservatism, but that cost stickiness was a factor influencing information asymmetry.

Table 9: Estimation results of chemical industry regression model (model of non-operating accruals and market value)

Variable	Non-operating accruals model			Market value model		
	Coefficient	t-statistic	significant level	Coefficient	t-statistic	significant level
C	0.016	0.656	0.513	3.403	9.089	0.000
DS	-0.026	-0.695	0.488	0.904	1.732	0.087
SALECH	0.092	2.399	0.018	-1.003	-1.199	0.093
$DS*SALECH$	-0.140	-2.462	0.016	1.667	2.170	0.033
The coefficient of determination	0.126			0.127		
The adjusted coefficient of determination	0.096			0.096		
F statistic	4.136 (0.009)			4.158 (0.000)		
Durbin-Watson	1.98			1.76		

Food industry: Tables 10 and 11 show the results related to the food industry, the results of the regression of the first model show the coefficient of explanatory variable $DS * SALECH$ in the first model is -0.2232 and its significance level is 0.015 There is a negative and significant relationship at the 0.05% error level. This result shows that costs in the food industry are sticky based on the first model. Therefore, there is a significant relationship between cost stickiness and conservatism based on non-operating accruals in this industry. The results of the Basu model show that the coefficient of the explanatory variable $DU * RET$ is positive, which indicates that the reported gains are more conservative and indicate a timelier identification of losses compared to gains. The explanatory coefficient of $DU * RET$ model of the Basu model [9] is equal to 0.0014 and at the level of 5% error, it is significant and shows the difference between the positive return and the negative return of stocks. Bad news and signs are stronger than responding to favorable news and signs. In other words, it can be argued that there is conservatism in food industry companies. The results of fitting the model (2) of the research show that after controlling the effect of cost stickiness, the coefficient of the explanatory variable $DU * RET$ decreases from 0.0014 to 0.0012, which is significant at the error level of 5%. Therefore, it can be said that there is a significant relationship between cost stickiness and conservatism in the food industry. The results of the regression of the market value model show that the coefficient of explanatory variable $DS * SALECH$ in the third model is -1.851 and its significance level is 0.329 which is not significant at the 0.05% error level which indicates the difference between cost stickiness and conservatism levels. On the basis of the market value model in the food industry, there is no significant relationship.

Table 10: Estimation results of food industry regression model (Basu model)

Variable	Basu model			Adjusted Basu model		
	Coefficient	t-statistic	significant level	Coefficient	t-statistic	significant level
C	0.134	4.445	0.000	0.067	1.797	0.074
DU	-0.027	-1.204	0.230	-0.019	-0.633	0.528
RET	-0.0003	-1.638	0.104	-0.0002	-1.366	0.174
DU*RET	0.0014	2.149	0.033	0.0012	3.237	0.002
DS				0.034	1.352	0.179
SALECH				0.134	2.985	0.003
DS*SALECH				-0.158	-2.107	0.037
The coefficient of determination	0.059			0.158		
The adjusted coefficient of determination	0.038			0.120		
F statistic	2.847 (0.039)			4.163 (0.000)		
Durbin-Watson	1.52			1.61		

Table 11: Results of estimating the regression model of food industry (model of non-operating accruals and market value)

Variable	Non-operating accruals model			Market value model		
	Coefficient	t-statistic	significant level	Coefficient	t-statistic	significant level
C	0.064	3.140	0.003	2.612	6.356	0.000
DS	-0.104	-2.881	0.005	-0.066	-0.216	0.829
SALECH	-0.004	-0.100	0.921	1.412	1.921	0.056
DS*SALECH	-0.232	-2.454	0.015	-1.851	-0.977	0.329
The coefficient of determination	0.075			0.073		
The adjusted coefficient of determination	0.054			0.052		
F statistic	3.652 (0.014)			3.547 (0.016)		
Durbin-Watson	2.03			2.18		

Basic metals industry: Tables 12 and 13 show the results related to the basic metals industry. The results of the regression of the first model show that the coefficient of the explanatory variable DS * SALECH in the first model is 0.019 and its significance level is 0.552, which has no significant relationship at the error level of 0.05%.

Therefore, there is no significant relationship between cost stickiness and conservatism based on non-operating accruals in the base metals industry. The explanatory coefficient of DU * RET model of the Basu model [9] is equal to 0.0009 and at the level of 5% error, it is significant and shows the difference between the positive return and the negative return of stocks. Bad news and signs are stronger than responding to favorable news and signs. In other words, it can be claimed that there is conservatism in companies in the basic metals industry. The results of fitting the model (2) of the study show that after controlling the effect of cost stickiness, the coefficient of the explanatory variable DU * RET decreases from 0.0009 to 0.0007 which is significant at the level of 5% error, the coefficient of DU * RET decreases. It is given that part of the pattern of profit asymmetry is due to cost stickiness, which after controlling the above effect leads to a reduction in conditional conservatism. Therefore, it can be said that there is a significant relationship between cost stickiness and conservatism in the basic metals industry. The results of the regression of the market value model show that the coefficient of explanatory

variable DS * SALECH in the third model is 0.380 and its significance level is 0.012, which has a positive and significant relationship at the error level of 0.05%; Therefore, it can be said that there is a significant relationship between cost stickiness and market value-based conservatism in the base metals industry.

Table 12: Estimation results of regression model of basic metals industry (Basso model)

Variable	Basu model			Adjusted Basu model		
	Coefficient	t-statistic	significant level	Coefficient	t-statistic	significant level
C	0.102	5.613	0.000	0.077	4.691	0.000
DU	0.020	0.911	0.364	0.007	0.379	0.705
RET	0.007	0.489	0.625	0.006	0.541	0.589
DU*RET	0.0009	2.236	0.027	0.0007	2.093	0.038
DS				0.008	0.540	0.590
SALECH				0.150	5.318	0.001
DS*SALECH				-0.098	-3.264	0.001
AR(1)	0.071	0.473	0.636	0.099	0.734	0.464
The coefficient of determination	0.443			0.591		
The adjusted coefficient of determination	0.356			0.513		
F statistic	5.066 (0.000)			7.588 (0.000)		
Durbin-Watson	2.10			2.06		

Table 13: Results of estimation of regression model of basic metals industry (model of non-operating accruals and market value)

Variable	Non-operating accruals model			Market value model		
	Coefficient	t-statistic	significant level	Coefficient	t-statistic	significant level
C	0.002	0.095	0.924	2.873	12.867	0.000
DS	0.099	2.958	0.004	-1.026	-5.0003	0.000
SALECH	0.089	2.124	0.035	-0.577	-1.506	0.134
DS*SALECH	0.019	0.595	0.552	0.380	2.539	0.012
The coefficient of determination	0.062			0.072		
The adjusted coefficient of determination	0.041			0.052		
F statistic	3.003 (0.032)			3.527 (0.017)		
Durbin-Watson	1.95			1.69		

Machinery and equipment industry: The results of Tables 14 and 15 are related to the machinery and equipment industry. The results of the regression of the first model show that the coefficient of explanatory variable DS * SALECH in the first model is 0.178 and its significance level is 0.016, which has a positive and significant relationship at the error level of 0.05%; therefore, there is a significant relationship between cost stickiness and conservatism based on the model of non-operating accruals in the machinery and equipment industry.

The positive DS * SALECH coefficient indicates a positive and significant relationship between cost stickiness and time asymmetry. This suggests that information asymmetry was not the only reason for conservatism, but that cost stickiness was a factor influencing information asymmetry. The coefficient of explanatory variable DU * RET of Basu model [9] is equal to 0.005 and at the level of error of 5%

is significant and shows the difference of slope between positive return and negative return of stocks and being positive means that the return of profit Bad news and signs are stronger than responding to favorable news and signs.

In other words, it can be claimed that there is conservatism in companies in the machinery and equipment industry. The results of fitting the model (2) of the study show that after controlling the effect of cost stickiness, the coefficient of the explanatory variable $DU * RET$ decreases from 0.005 to 0.004 which is significant at the error level of 5%, and the coefficient of $DU * RET$ decreases. It is given that part of the pattern of profit asymmetry is due to cost stickiness, which after controlling the above effect leads to a reduction in conditional conservatism.

Therefore, it can be said that there is a significant relationship between cost stickiness and Basu conservatism in the machinery and equipment industry. The results of the regression of the market value model show that the coefficient of explanatory variable $DS * SALECH$ in the third model is 0.983 and its significance level is 0.030, which has a positive and significant relationship at the error level of 0.05%; therefore, there is a significant relationship between cost stickiness and conservatism based on the market value model in the machinery and equipment industry.

Table 14: Estimation results of regression model of machinery and equipment industry (Basso model)

Variable	Basu model			Adjusted Basu model		
	Coef-ficient	t-sta-tistic	signifi-cant level	Coef-fi-cient	t-sta-tistic	signifi-cant level
C	0.131	3.369	0.001	0.120	2.622	0.011
DU	-0.012	-0.262	0.794	-0.001	-0.019	0.984
RET	0.005	0.128	0.898	0.002	0.434	0.665
DU*RET	0.005	3.592	0.001	0.004	3.535	0.000
DS				0.060	1.544	0.128
SALECH				-0.042	-0.665	0.508
DS*SALECH				0.211	2.711	0.008
The coefficient of determination	0.308			0.426		
The adjusted coefficient of determination	0.205			0.305		
F statistic	2.975 (0.005)			3.523 (0.000)		
Durbin-Watson	1.98			2.25		

Table 15: Results of estimation of the regression model of the machinery and equipment industry (model of non-operating accruals and market value)

Variable	Non-operating accruals model			Market value model		
	Coef-fi-cient	t-sta-tistic	signifi-cant level	Coef-fi-cient	t-sta-tistic	signifi-cant level
C	0.069	3.717	0.000	1.584	8.679	0.000
DS	-0.006	-0.236	0.814	0.460	1.961	0.054
SALECH	-0.116	-3.078	0.003	0.145	0.459	0.647
DS*SALECH	0.178	2.460	0.016	0.983	2.216	0.030
The coefficient of determination	0.123			0.138		
The adjusted coefficient of determination	0.083			0.099		
F statistic	3.094 (0.033)			3.531 (0.019)		
Durbin-Watson	2.01			1.76		

6 Discussion and Conclusion

Conservatism and cost stickiness are fundamentally two separate phenomena. Conservatism in the accounting system, which converts economic activities into financial data, creates asymmetry, but cost stickiness implies asymmetries in the economic activities themselves. However, both phenomena in a way affect the asymmetric timing of profit and return. In this study, the effect of both conservatism and cost stickiness was investigated. The results of this study provided evidence of accounting conservatism and cost stickiness and showed that in the surveyed companies, accounting conservatism and cost stickiness exist simultaneously. Confirmation of the existence of cost sticky behavior and its relationship with conservatism in the present study is consistent with the results of many studies in the research background.

Experimental results obtained from the first category test of hypotheses The research indicates that among the companies listed on the Tehran Stock Exchange, there is both the phenomenon of conservatism and cost stickiness, apart from controlling the other phenomenon. However, evidence suggests that cost stickiness in the market value model and Basso's modified model is associated with conservatism and reduces it because part of the asymmetry pattern is due to the effect of cost stickiness. It can be said that cost stickiness as an intervening factor in the pattern of temporal asymmetry of profits is effective and its lack of control can create an upward bias in conservative research. The results of the first hypothesis test are based on the results of the research of [5,6, 16, 18, 25,36].

In this study, three models were used to measure conservatism. It is possible that each of the existing models, due to the specific circumstances of the country, alone does not provide an accurate scale for assessing conservatism in Iranian stock exchange companies. Of course, although the models used are theoretically correct, they also suffer from errors. The results show that if we estimate the Basu model without considering the interaction effect of cost stickiness, it causes conservatism to be overestimated. Evidence from testing research hypotheses and existing coefficients also suggests that the market value model has had more explanatory power in measuring conservatism and its relationship to cost stickiness. This can be due to various reasons such as special conditions prevailing in the Iranian market, increasing the quality of market indicators in Iran, cross-sectional recessions, and severe inflation in recent years.

The results of the study showed that due to the fact that companies have unique characteristics, the sticky behavior of costs and its impact on the level of conservatism of companies in different industries will be different. For this purpose, this issue was studied in the automotive, pharmaceutical, chemical, food, basic metals and machinery, and equipment industries. Examining this relationship in different industries based on the models used showed that cost stickiness in some industries reduces conservatism. This is while no significant relationship was observed in other industries. In general, the evidence obtained from the test of research hypotheses and coefficients in different industries indicates that the food and chemical industries show the highest adhesion and the basic metals industry shows the lowest adhesion, respectively. Also, Basso's modified model in the basic metals industry has had the greatest explanatory power in measuring conservatism and its relationship with cost stickiness among industries.

The social, cultural, political, legal, and economic environment of any company affects the degree of conservative behavior in its financial reporting [23,32]. In many developing countries, including Iran, the ownership structure of companies is more concentrated, so in most cases, most of the shares of companies are held by a single shareholder called the government. In Iran, most major industries are state-owned. Based on the results of previous studies [20, 38], state ownership and government-affiliated institutions increase conservatism. It can be argued that the managers of these companies are more

focused on investing in short-term projects, projects that have positive effects in the short term, but their effects are reversed in the long term. By focusing on short-term performance metrics, managers are also more willing to use bold accounting practices, and as a result, identify and report good news faster than bad news. When the government is a shareholder, in order to maintain its reputation, it needs timely and objective disclosure of the company in order to effectively control the company's activities and prevent opportunistic behaviors of managers. This can lead to higher levels of conservatism. (Of course, in the Iranian economic environment, there are no uniform results on the relationship between state ownership and government-affiliated institutions and conservatism, and different studies have yielded different results)

On the other hand, protectionist policies and government interventions in state-owned industries prevent managers from firing employees or reducing staff wages when sales decline, resulting in state-owned companies experiencing higher wage cost stickiness than non-government firms [8]. In addition, industries with a high volume of fixed assets and a large number of employees, compared to other industries, have greater cost adhesion [1,6, 19, 28]. In industries where there is a fixed volume of fixed assets and manpower, their amount will easily increase with the increase of activity level, but in response to the decrease in activity levels, it will not lead to a proportional decrease. Therefore, manpower costs and depreciation of fixed assets as the most important items of costs, will not be reduced as before, which will cause more cost stickiness. In other words, in most cases, the criteria for measuring the depreciation of fixed assets are not directly related to the criteria for identifying the company's income, and in such companies, the cost of reducing the volume of assets (downward adjustment costs for fixed assets) It is very high and impressive. It seems that another factor in increasing cost stickiness in some industries, is the special economic conditions prevailing in Iran and drastic changes in sales in recent years due to economic sanctions and severe inflation and thus reducing the purchasing power of society, which is in line with these conditions, it has not been associated with adjusting resources in these companies.

Based on this, it can be said that due to differences in the type of activity, type of ownership, and nature of the studied industries, as well as the impact of other industry-specific factors such as multiplicity of assets and staff, the intensity of competition, operational and production environment, average fixed and variable costs ratio and or the supply chain on the degree of cost stickiness, each industry is more compatible with some kind of conservative model. Because each industry has its own environmental products and functions (technology and market) that differentiate accounting variables in different industries. The results of testing the second category of hypotheses are consistent with the results of research by [1,10 19,28].

The results of this study have implications for managers and legal decision-makers of companies. Managers need cost-related information in order to plan and achieve their goals. They need to be aware of the cost trend, i.e. how costs respond to changes in activity levels and other factors. Company managers can identify and control the effects of cost stickiness. Managers can make more reasonable estimates in the years when sales are expected to decline, taking into account cost stickiness in budgeting. They can reduce the number of adjustments needed to reduce the level of their operating assets during periods of declining demand and sales levels by concluding suitable contracts for the lease of operating assets and hiring staff (concluding short-term contracts) and reducing the severity of cost stickiness. Give. To prevent or minimize the effect of sticky costs, managers need to be able to identify and manage unused capacity and resources. Considering cost stickiness in the stages of control and planning and budgeting for the factors that cause cost stickiness will give better performance and results. Managers

should also pay attention to the cost structure and the effect of cost stickiness in analyzing the degree of conservatism and its level changes, and apply it in their analysis and evaluations. Investors should also consider cost stickiness and its impact on conservatism in financial analysis for companies that are expected to see declining sales in the future to analyze future profits.

On the other hand, it is the unique and different characteristics of a company that determines the amount of resource adjustment costs and, consequently, the stickiness of its costs. For this reason, investors and financial analysts should consider the dependence of a company's industry as one of the effective and important factors on the occurrence and extent of cost stickiness in the analysis of cost stickiness and its relationship with accounting conservatism. The views gained on cost behavior and accounting conservatism have applications for a wider range of research areas. This research can be a model for further studies. Therefore, researchers are suggested for future research on the impact of macroeconomic factors, including inflation, recession, competition, economic sanctions, exchange rate fluctuations, and GDP growth rate, as well as personal and personal characteristics of managers and their social responsibilities on the phenomenon of stickiness. Examine the costs and level of conservatism of companies. On the other hand, considering that conservatism and cost stickiness affect the timeliness of accounting profit and its reliability, it is suggested that research be conducted in this field and the extent of these two variables being tested. It is hoped that the results of the present study will enrich the accounting literature in this regard and that future research can address existing issues and clarify important aspects of the concepts of cost stickiness and accounting conservatism in companies operating in the Iranian stock market.

References

- [1] Anderson, M.C., Banker, R.D., Janakiraman, S.N., Are Selling, General, and Administrative Costs ‘Sticky’? , *Journal of Accounting Research*, 2003; 41: 47-63. doi:10.1111/1475-679X.00095
- [2] Anderson, S.W., Lanen, W.N., Understanding Cost Management: What Can We Learn from the Evidence on Sticky Costs, *Working Paper, University of Melbourne*, 2007. doi:10.2139/ssrn.975135
- [3] Azadi, M., Izadikhah, M., Ramezani, F., Hussain, F.K., A Mixed Ideal and Anti-ideal DEA Model:An Application to Evaluate Cloud Service Providers, *IMA Journal of Management Mathematics*, 2020; 31(2): 233-256. doi:10.1093/imaman/dpz01
- [4] Ball, R., Shivakumar, L., Earnings Quality in uk Private Firms: Comparative loss Recognition Timeliness, *Journal of Accounting and Economics*, 2005; 39(1): 83-128. doi:10.1016/j.jacceco.2004.04.001
- [5] Bahar Moghaddam, M. and Kavousi, M., Investigating of Asymmetric Timelines of Earning Due to Conservatism and Cost Stickiness, *Journal of Accounting Knowledge*, 2014; 4(15): 55-77. (in Persian).
- [6] Banker, R.D., Basu, S., Byzalov, D., and Chen, J., Asymmetries in Cost-Volume-Profit Relation: Cost Stickiness and Conditional Conservatism, *Working Paper, Temple University Philadelphia*, 2013. doi:10.2139/ssrn.2312179
- [7] Banker, R.D., Basu, S., Byzalov, D., and Chen, J.Y.S., The Confounding Effect of Cost Stickiness on Conservatism Estimates, *Journal of Accounting and Economics*, 2016; 61(1): 203-220. doi: 10.1016/j.jacceco.2015.07.001
- [8] Barzegar, Gh., Shirazi, Z., Study of Manpower Cost Stickiness with a Comparative Approach to Strategic Industries and Government Ownership, *Journal of New Research Approaches in Management and Accounting*, 2021; 7(58): 142-155. (in Persian).

- [9] Basu, S., The Conservatism Principle and the Asymmetric Timeliness of Earnings, *Journal of Accounting and Economics*, 1997; 24(1): 3-37. doi: 10.1016/S0165-4101(97)00014-1
- [10] Calleja, K., Steliaros, M. Thomas, D., A Note on Cost Stickiness: Some International Comparisons, *Journal of Management Accounting Research*, 2006; 17(2): 127-140. doi: 10.1016/j.mar.2006.02.001
- [11] Dastgir, M., Kakaei Sabzehkhani, M., Alipour, R., The Effect of Ownership Structure on Conditional and Unconditional Conservatism, *Journal of New Research Approaches in Management and Accounting*, 2020; 4(45): 59-89. (in Persian).
- [12] Ehsanbakhsh, H., Izadikhah, M., Applying BSC-DEA Model to Performance Evaluation of Industrial Cooperatives: An Application of Fuzzy Inference System, *Applied Research Journal*, 2015; 1(1): 9-26.
- [13] Ghazalat, A., Abu-Serdaneh, J., Sticky Cost Behavior and Conditional Conservatism: an Empirical Analysis from GCC Countries, *International Journal of Management*, 2020; 11(12): 2717-2729. doi:10.34218/IJM.11.12.2020.255
- [14] Givoly, D., Hayn, C.K., and Natarajan, A., Measuring Reporting Conservatism, *Journal of The Accounting Review*, 2007; 82(1): 65-106. doi:10.2139/ssrn.606841
- [15] Haghghat, H., tavassoli, S.M., Asymmetric Timeliness of Earnings: Conservatism or Sticky Costs?, *Journal of Financial Accounting Research*, 2016; 7(4): 73-86. (in Persian).
- [16] Hashemi, S.A., Amiri, H., Nejati, A. The Effect of Costs Stickiness on Conditional Conservatism and Information Asymmetry, *Management Accounting*, 2014; 7(23): 43-56. (in Persian).
- [17] Honarbakhsh, S., Ranjbar, M., Amiri, A., Khodadadi, D. The Presentation of Measurement Pattern of Conditional Accounting Conservatism Through the Testing of the Basu, and the Ball and Shivakumar Models, *Financial Accounting Knowledge*, 2020; 7(3): 111-143. (in Persia).
- [18] Homburg, C., Nasev, J., How Timely are Earnings when Costs are Sticky? Implications for the Link between Conditional Conservatism and Cost Stickiness, *American Accounting Association*, 2008. doi: 10.2139/ssrn.1187082
- [19] Iranzadeh, S. and Mohammadzadeh Moghadam, H., Management Expense: Evidence for Sticky Behavior of Selling, General, and Administrative Costs in Iranian Firms, *Future study Management*, 2010; 21(84): 123-133. (in Persian).
- [20] Izadikhah, M., Roostae, R., Emrouznejad, A., Fuzzy Data Envelopment Analysis with Ordinal and Interval Data, *International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems*, 2021; 29(3): 385-410. doi:10.1142/s0218488521500173
- [21] Izadikhah, M., Aliakbarpoor, Z., Sharafi, H., Ranking DMUs by Ideal Points in the Presence of Fuzzy and Ordinal Data, *Journal of Theory of Approximation and Applications*, 2015; 9(2): 13-36.
- [22] Izadikhah, M., Deriving Weights of Criteria from Inconsistent Fuzzy Comparison Matrices by using the Nearest Weighted Interval Approximation, *Advances in Operations Research*, 2012. doi: 10.1155/2012/574710
- [23] Izadpour, M., Nikomram, H., Rahnama Rudposhti, F., Bani Mahd, B., Analysis of how Uncertainty Influences Cost Stickiness in Tehran Stock Exchange, *Journal of Financial Economics*, 2018; 12(43): 49-73. (in Persian).
- [24] Jokar, H., Shamsaddini, K., and Daneshi, V., Investigating the Effect of Investors' Behavior and Management on the Stock Returns: Evidence from Iran, *Advances in Mathematical Finance and Applications*, 2018; 3(3): 41-52. doi: 10.22034/amfa.2018.544948

- [25] khodadadi, V., nik kar, J., malek khodai, E. Adjustment of Conditional Conservatism Model with Respect to the Effects of Theory Cost Stickiness, *Journal of Financial Accounting Research*, 2017; 9(2): 45-70. doi:10.22108/far.2017.84990.0 .(in Persian).
- [26] Khoshroo, A., Izadikhah, M., Improving Efficiency of Farming Products Through Benchmarking and Data Envelopment Analysis, *International Journal of Management and Decision Making*, 2019; 18(1): 15 -30. doi: 10.1504/IJMDM.2019.096691
- [27] Lipe, R., The Relation between Stock Returns and Accounting Earnings Given Alternative Information, *The Accounting Review*, 1990; 65(1): 49-71.
- [28] Mahfoozi, G., Abolhasani, M., Rostami, R. The study of the Sticky Behavior of Cost of goods Sold in Companies listed on Tehran stock exchange, *Journal of Management Accounting*, 2016; 9(30):1-19.(in Persian).
- [29] Makni Fourati, Y., Chakroun Ghorbel, R. and Jarboui, A., Sticky cost behavior and its implication on accounting conservatism: a cross-country study, *Journal of Financial Reporting and Accounting*, 2020; 18(1): 169-197. doi: 10.1108/JFRA-08-2018-0071
- [30] Mortazavi, M., Nikoomaram, H., Banimahd, B., Asymmetric Cost Behavior: Review of Literature and Methodology, *Journal of Management Accounting and Auditing Knowledge*, 2018; 7(28): 29-50. (in Persian).
- [31] Namitha, C., Shijin, S., Managerial Discretion and Agency Cost in Indian Market, *Journal of Advances in Accounting*, 2016; 35: 159-169. doi: 10.1016/j.adiac.2016.06.002
- [32] Nikoomaram, H., Banimahd, B., Specification and Development a Model for Estimating of Accounting Conservatism in Iran, *Future study Management*, 2008; 19(77): 1-16. (in Persian).
- [33] Parsa, B., Sarraf, F., Financial Statement Comparability and the Expected Crash Risk of Stock Prices, *Journal of Advances in Mathematical Finance and Applications*, 2018; 3(3): 77-93. doi: 10.22034/amfa.2018.544951
- [34] Rezaei, M., Parsa, H., Mehrabaniyan, S., The Effect of Economic Growth and Sanctions on Cost Stickiness in Listed Firms on the Tehran Stock Exchange, *Journal of Accounting and Auditing Review*, 2018; 24(4): 551-572. doi: 10.22059/acctgrev.2017.226594.1007545. (in Persian).
- [35] Subramaniam, C., Watson, M.W., Additional Evidence on the Sticky Behavior of Costs, *Journal of Advances in Management Accounting*, 2016; 26: 275-305. doi:10.1108/S1474-787120150000026006
- [36] Safarzadeh, M., Beig Panah, B., The Role of Cost Stickiness in Estimating Conditional Conservatism, *Journal of Empirical Research in Accounting*, 2015; 4(4): 39-59. doi: 10.22051/jera.2015.1893. (in Persian).
- [37] Salehi, A., Mohammadi, S., Afshari, M., Impact of Institutional Ownership and Board Independence on the Relationship Between Excess Free Cash Flow and Earnings Management, *Journal of Advances in Mathematical Finance and Applications*, 2017; 2(3): 91-105. doi: 10.22034/amfa.2017.533104
- [38] Satayesh, M. H., Shams Al-Dini, K., A New Proposed Model for Calculating Accounting Conservatism, *Journal of Certified Public Accountants*, 2013; 23: 68-73.(in Persian).
- [39] Sepasi, S., Taban, K., Correction Cost-Volume-Profit Analysis model(CVP) by using Cost Stickiness and Conditional Conservatism, *Journal of Management Accounting*, 2016; 9(28): 67-82. (in Persian).
- [40] Watts, R.L., Conservatism in Accounting part I: Explanations and Implications, *Accounting horizons*, 2003; 17(3): 207-221. doi: 10.2139/ssrn.414522
- [41] Weiss, D., Cost Behavior and Analysts' Earnings Forecasts, *The Accounting Review*, 2010; 85(4): 1441-1471. doi: 10.2308/accr.2010.85.4.1441

[42] Zanjidar, M., Ghaffari Ashtiani, P., Madahi, Z., Review and Analyze the Factors Affecting the Behavior of Sticky Costs, *Journal of Management Accounting*, 2015; 7(1): 79-91. (in Persian).

[43] Zare, R., Izadikhah, M., Multi-criteria Decision Making Methods for Comparing three Models of Aluminum ingot Production through life Cycle Assessment, *Journal of Applied Ecology and Environmental Research*, 2017; 15(3):1697-1715. doi: 10.15666/aeer/1503_16971715

[44] Zhang, J., The Contracting Benefits of Accounting Conservatism to lenders and Borrowers, *Journal of accounting and economics*, 2008; 45(1): 27-54. doi: 10.1016/j.jacceco.2007.06.002

