The Influence of the Trade-off between Profitability and Future Increases in Sales on Cost Stickiness: Evidence from Jordan

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Abstract
This study aims at analyzing cost stickiness under the dilemma between current profitability and future sales increase. The study population consisted of all Jordanian industrial companies listed on the Amman Stock Exchange (ASE) during the period (2007-2017). The study sample consisted of (30) industrial companies, were used in the analysis. Panel data regression was used to test the relationship between the variables in the study. Results supported the Anderson et al. (2003) argument in that selling, general and administrative expense for Jordanian industrial firms listed in Amman stock exchange (ASE) follow the sticky cost behaviour, they increased by (0.34%) for 1% increase in sales, however, they didn’t change by any sales decrease. During sales decline results showed that future sales growth did not have a stressing effect on cost stickiness and didn’t drive greater cost stickiness, however, changes in profitability was proved to have a significant positive relation to cost stickiness when sales decrease, meaning that managers apply greater adjustments in SGA (greater cost stickiness) in the case of the attainment of unfavourable changes in profitability. The study recommended a number of recommendations, including Companies should know the factors that affect the cost behavior and take into consideration when analyzing costs and making administrative decisions in companies which will, in turn, improve the process of making administrative decisions and investment decisions.

Keywords: cost stickiness, profitability, increases in sales, slack, resource adjustment

1. Introduction
Cost behavior is one of the important topics that attracted the attention of many researchers in the world, because of its impact on administrative decisions that contribute to increasing the company's profits. According to the traditional cost behavior, cost changes are proportional to the change in the volume of activity rather than the direction of the change. Conventional cost theory suggests that cost behavior (resource adjustment decision) is affected by the current level of revenue, which means that fixed costs remain constant in the short term and are determined in advance before the demand is actually known, while variable costs can be adjusted more easily in the short term and consumed according to the actual request (Noreen, 1991).

Although the ABC model overcomes some of the disadvantages of traditional cost models by realizing that costs arise from different resources and that those resources are used to make different decisions, this theory continues to assume the automatic relationship between costs and activities and ignores a decision Intentional director on cost adjustment (Banker et al.,2018). Cost control decisions are no longer dependent on the outcome of the current activity but are influenced by levels of prior period resources, expected future sales, and other factors such as managing expectations and incentives, a fact that is usually ignored in traditional cost accounting (Bunker and Bizalov, 2014).

Although traditional theories explaining cost behavior assume that changes in costs are proportional to the change in the volume of activity rather than its direction, several studies have shown that costs have asymmetric behavior, which means that costs tend to increase more quickly with activity than what it decreases with decreased activity. This cost behavior has been described as "sticky cost behavior (Kama and Weiss, 2013). Anderson et al. (2003) was the first attempt and clearly emphasized the behavior of asymmetric costs (sticky), as the study found that it is accompanied by a decrease in activity, costs have changed less compared to changing it in the case of increased activity at the same level.
Several researchers have attempted to explore factors affecting the cost of asymmetric behavior (sticky), and have found this; management incentives, adjustment costs, optimism of managers, asset density, debt intensity, and other factors that have a strong impact on cost compliance. (E.g. Chen et al. (2012), Dierynck, landman, and Renders (2012), Kama and Weiss (2013)). However, there are no previous studies that consider the trade-off between profitability and sales growth, except for a recent study (Bosch et al., 2017), which focused on this dilemma and found to have a significant impact from both the current profitability and the next year increase in sales, there is a commitment to cost when sales fall, but there are no studies that have analyzed this issue in the countries of the Middle East in general and Jordan in particular. As managers may decide to either reduce costs in order to maintain the current level of profitability or they may decide to retain resources for possible future growth in the event of lower sales, according to Bosch et al., (2017) it appears that less profitable companies need to control resources in response to a decline Sales compared to companies with low profitability.

2. Study Problem

During periods of low sales, managers face a decision to adjust resources (reduce resources), in order to increase profitability in the short term, but this means that they have to sacrifice future growth because they may not have sufficient resources to adapt to any economic changes or to take advantage of any investment opportunities. This study stresses the issue of the manager's reaction regarding adjusting resources (i.e. the degree of cost stickiness) when sales decreases. This dilemma exists because managers try to balance between the advantages and disadvantages of both options, future sales increase and change in current profitability when they make their decision regarding adjusting resources when activity decrease.

Therefore, the problem with this study lies in trying to answer the following questions:

1. Does achieving greater (less) sales growth in the future lead to an increase (lower) when the activity decreases?
2. Does achieving a favorable (unfavorable) change in profitability lead to a (greater) cost decrease when activity decreases?
3. Does the degree of commitment to cost differ with different cost accounts and over different periods?
4. Do reporting options affect the estimated level of asymmetry of reported expenditures?

3. Study Objectives

The purpose of this study is analyzing the influence of the trade-off between profitability and future sales increase on cost stickiness following the managerial concept regarding the trade-off between efficiency and flexibility, where “expected sales increase” is used as an indicator for flexibility and “change in current profitability” is used as an indicator for efficiency. More specifically, the study seeks to achieve the following objectives:

1. Determine the impact of growth or decrease in future sales in cost stickiness increases or decreases when the activity decreases.
2. Determine the impact of the growth or decrease in profitability in cost stickiness increases or decreases when the activity decreases.

4. Study Importance

The results of this study will enhance the usefulness of cost information and help data users understand management decisions about resource adjustments in cases of low sales, and how these reactions can affect current profitability, as well as the role that an increase in projected sales can play in guiding management to benefit of surplus resources.

Another important factor of this study is that, in prior research, the topic of cost stickiness was examined only in developed countries, and few studies concentrate on developing countries. This is particularly true of Jordan, as only two studies measured determinants of cost sticky behavior in the Kingdom, and no study examined the issue of cost stickiness and the trade-off between current profitability and future sales growth. Therefore, to the best of the researcher’s knowledge, no study has yet examined empirically this issue in the ASE.

5. Literature Review

5.1 The Concept of Cost Behavior

Classifying financial statements according to the types of costs requires a comprehensive understanding of cost behavior, which is known by some as the method of changing costs based on the change in the volume of activity on the one hand, and the decisions resulting from these costs on the other. Therefore, cost behavior must
be understood over time and depending on the change in the factors that affect it. Understanding cost behavior in theory and practice is important for managers, economists, and investors, as they rely on cost information in decision-making (Anderson et al., 2007).

The traditional model of cost behavior, which assumes that the relationship is between costs and volume of activity is the Replica relationship, regardless of the size of the decline or increase in revenue, and the resulting unrealistic and biased decisions. The alternative model, which was confirmed by studies based on the Anderson et al. (2003) model, which claims that costs follow the sticky cost behavior, which assumes that costs decrease less when the volume of activity decreases than when the volume of activity increases by an equal amount, is more realistic and yields unbiased results (Banker & Byzalov, 2014).

5.2 Asymmetric Costs (Sticky Costs)

Recent research and studies in the area of cost behavior have revealed that costs do not change commensurate with the change in sales and showed that costs increase in response to the increase in sales but do not fall commensurate with the decline in sales. In other words, the cost response in both cases of low sales and their rise in equal proportions does not have the same degree of response, that is, they respond to the drop in sales differently from the response level in the case of higher sales and the same amount of change in sales. This negates the prevailing belief in economic and accounting thought.

This asymmetry is called in response to the change in costs depending on the change in sales (Sticky Costs). The concept of consistent behavior of variable costs, as assumed by traditional accounting theory, contradicts the modern concept of cost behavior, which has been confirmed by recent cost behavior studies, which proved that variable cost behavior does not change in proportion to the volume of activity, which is called asymmetric cost behavior in the theoretical literature on costs (Yasukata & Kajiwara 2011).

According to the assumption of asymmetry of costs, the relationship between costs and activity levels is not linear and proportional, but varies depending on the direction of change in activity level, whether upward or downward. The behavior of many types of costs is sticky costs, that is, they rise in the case of an increase or increase in sales and fall lower in the case of lower sales (Bosch et al., 2017). Figures and data from previous studies indicate that asymmetric costs are not the same as changes in sales in future and proportional to the change in activity, which is called asymmetric cost behavior from the perspective of change in activity level, whether upward or downward. The act of increasing inactivity is more of a reduced activity state.

5.3 Relevant Empirical Literature

Noreen and Soderstrom (1994) concluded that costs do not change at the same percentage change in the event of an increase or decrease in the volume of activity, but they differ at different rates. Noreen & Soderstrom (1997) concluded that the cost system, which assumes that costs are explicitly and accurately proportional to the change in overall activity, is effective in measuring the impact of changes in activity on cost goals for decision-making and performance evaluation, and I found modest and simple evidence that the change in costs is a response the act of increasing inactivity is more of a reduced activity state. Yasukata & Kajiwara (2011) concluded that the perspective of future sales is related to the current level of cost-effectiveness and that the results have provided solid evidence that cost fluctuations are the result of deliberate management decisions. Anderson et al (2003) is the first attempt and explicit confirmation of asymmetric cost behavior (sticky). The study compared the traditional cost behavior model in which costs move in proportion to the alternative model in which costs are sticky because management deliberately adjusts resources. It provided a platform for further research on the causes and consequences of viscous cost behavior. The study proposed an alternative model for cost behavior, whereby corporate resource managers can deliberately control resources in response to changes in the volume of activity, as opposed to the automatic movement of changes in costs with changes in activity size, and from practical analysis that represents general administrative costs, sticky sales costs, and sales volume consistent with many components of the model.

Subramaniam and Weidenmier (2003) found that the selling, administrative and general costs and costs of the goods sold do not show the behavior of the sticky costs of the simple changes in revenues. However, when revenues change by more than 10%, the costs show sticky behavior. It has also been found that industrial enterprises are more stickiness cost behavior due to higher levels of fixed costs and inventories, stickiness is reduced in cost behavior in business enterprises because of the competitive environment, financial and service institutions show the same level of sticky costs. Banker and Chen (2006) assumed a profit forecast model that recognizes the variability in costs for the change in sales and the degree of cost viscosity at low sales. It has been documented that the volatility model of costs and sticky costs has a greater predictive capacity for future profitability analysis. The study found that this model provided more predictive accuracy than other models.
using only financial statement items. This model starts from the perspective of management accounting that emphasizes interactions between components of profits. Anderson et al. (2007) estimated the profit forecast model as finding that future profits are positively correlated with the change in selling, administrative and general costs when revenue is low. The study found that positive abnormal returns are earned in the portfolios that are formed with a high increase in the ratio of selling, administrative and general costs over the long term (and in the short term in the entity, which has a conservative increase in the ratio of selling, administrative and general costs) in periods of declining revenues.

Balakrishnan et al. (2010) showed that the existence of fixed costs and variable costs leads to the creation of an asymmetric cost response model. The study also showed the importance of analyzing the behavior of asymmetric costs in management decisions and growth in the company. Kama and Weiss (2010) indicated that early technological options warrant cost stickiness in the absence of management incentives to achieve profit targets and that costs show a greater degree of stickiness under difficult technological constraints than under weak technological constraints. The results also indicate that some deliberate management decisions generate sticky costs while other intentional decisions reduce cost stickiness based on the underlying motivations. Weiss (2010) studied the effect of asymmetric cost behavior on the accuracy of earnings forecasts, analysts' interest in the course of a company's stock and the response of the market to positive news reporting. The findings of the study were as follows: (i) Profit forecasts of firms that exhibit sticky cost behavior are 25 percent less accurate than predictions of corporate profits that have an at spot cost behavior. (ii) Analysts are less interested in the course of corporate stocks, which have an asymmetrical cost behavior (and less accurate earnings forecasts). (iii) If investors are aware of the existence of cost stickiness, they are more cautious with the results of profit forecasts because they are aware of the sticky cost effect on the accuracy of the forecasts. As a result, the market has a cautious reaction to positive earnings announcements for companies that have a sticky cost behavior.

Banker et al. (2011) showed that there is strong evidence supporting the behavior of sticky costs in the different countries regardless of the size of their GDP and that the degree of stickiness of costs depending on the change in assets and labor intensity. Bosch and Blandón (2011) analyzed the cost varieties for costs and opportunity costs and analyzes the other costs rather than just overhead, and the experimental results support the prevalence of Stickiness behavior at all costs even in variable costs, in contrast to the conventional model of fixed and variable costs. Results recognize the role of managers in modifying resources committed to When changes occur in the activity, they can recognize and control the viscous costs, they may reduce the viscosity of costs by making appropriate contractual or management decisions. Kama & Weiss (2013) concluded that when sales are declining, executives make a more stringent cut in costs to avoid any reduction in profits and losses in order to achieve the profit levels predicted by analysts, demonstrating that the above resource adjustments (cost cuts) greatly mitigate the stickiness of costs. The findings have also shown that incentives to achieve profit-related objectives lead to deliberate adjustments of business resources, which leads to a reduction in cost stickiness.

Bosch et al. (2017) concluded that business executives are seriously aware of changes in current profitability and future sales increases when making decisions on adjustments of resources at a time when sales are declining. They also point out that, in the case of a downward trend in sales, executives often face the dilemma between reducing e Roads to maintain profitability, and maintaining enough resources to ensure that the business will be in the future in a privileged position to be able to regain the level of sales. On the one hand, they consider that adjustments to resources hamper the ability of the company to develop capabilities that will lead to future sales growth, while on the other hand, they consider that lowering costs helps to achieve profitability targets. Changes in current profitability and a one-year increase in sales have a significant impact on decisions on resource adjustments at times when sales are declining. However, in companies with high profitability, it seems less necessary to adjust resources to a decrease in sales than to companies with low profitability. The greater the increase in sales after one year, the greater the asymmetry in cost behavior, respectively, the smaller the increase in sales after one year, the lower the asymmetry observed in the cost behavior.

6. Study Hypotheses

Based on a review of the previous literature, the following hypotheses can be formulated:

H1. The attainment of greater (lower) future sales growth drives greater (lower) cost stickiness when activity decreases.

H2. The attainment of favorable (unfavorable) changes in profitability drives lower (greater) cost stickiness when activity decreases.
7. Methodology

The research population is the manufacturing companies listed in ASE. The purpose of this study is to analyze the cost stickiness behavior under the dilemma between current profitability and future increase in sales. In order to achieve this purpose, data of (30) manufacturing companies were collected for the period (2007–2017). The study sample includes the companies with available data for the mentioned period, otherwise, the company was excluded.

7.1 Sources of Data Collection

The researcher relied on the secondary data, through reference to the books and studies related to the subject of this study, and for the purposes of analysis were used websites of companies included in the sample study, in order to obtain financial statements.

7.2 Model Specification

The objective of the analysis is to test the impact of the increase in the company's future sales and its current profitability on the adjustment of resources when there is a decline in the level of activity, in this analysis will be based on the model used in the preliminary study of Anderson et al. (2003). Therefore, the following equations were formulated:

\[
\log \frac{SGA_{it}}{SGA_{it-1}} = \beta_0 + \beta_1 \log \frac{S_{it}}{S_{it-1}} + \beta_2 \cdot D \cdot \log \frac{S_{it}}{S_{it-1}} + \beta_3 \cdot D \cdot \log \frac{S_{it+1}}{S_{it}} \cdot DNEXT \cdot \log \frac{S_{it+1}}{S_{it}} + \beta_4 \cdot D \cdot \log \frac{S_{it}}{S_{it-1}} \cdot CHROA_t + \\
\beta_5 \cdot D \cdot \log \frac{S_{it}}{S_{it-1}} \cdot \log \frac{SEXP_{it+1}}{S_{it}} + \beta_6 \cdot D \cdot \log \frac{S_{it}}{S_{it-1}} \cdot ROA_t + \beta_7 \cdot D \cdot \log \frac{S_{it}}{S_{it-1}} \cdot ASSTS_{it} + \\
\beta_8 \cdot D \cdot \log \frac{S_{it}}{S_{it-1}} \cdot DEBTS_{it} + \sum_{t} \beta_1 \cdot Y_{it} + \varepsilon_{it}
\]

(1)

Where:

- SGA: general and administrative expenses for firm I at year t.
- S: Sales.
- D: Dummy variable indicating, with value (1), that sales decrease with respect to the previous year and (0) otherwise.
- DNEXT: Dummy variable indicating, with value 1, that sales increase in the following year with respect to the current year and 0 otherwise.
- ROA: Return on assets: Operating income after depreciation / total assets.
- CHROA: Current year return on assets – previous year return on assets.
- SEXP: Sales expectations: the predicted sales value for the next year with equation 2.
- ASSETS: Total assets /total sales.
- DEBTS: Total long-term debt/ total sales.
- Y: Dummy variables indicating, with a value of (1), that a given observation belongs to a given year, and (0) otherwise.
- \( \beta_0, \beta_1, \ldots, \beta_8 \): Coefficients.
- \( \varepsilon_{it} \): Random error.

Coefficient \( \beta_1 \) measures the percentage increase in costs for a 1 percent increase in sales. Because D takes the value of 1 if sales decrease with respect to previous year, the sum of coefficients \( \beta_1 + \beta_2 \) measures the percent decrease in cost with a 1 percent decrease in sales. If costs are sticky the change in costs when sales increase will be greater than under sales decrease, thus \( \beta_2 \) being negative conditional on \( \beta_1 \) being positive. Anderson et al. (2003) suggested that managers are deterred from adjusting resources downward in the case of sales decrease, if they believe that this decrease is temporary, so management expectations regarding future economic sales affect significantly the degree of cost stickiness.

Management expectations are measured using predictive models that are used in previous studies (e.g. Carnes et al., 2003; Kim and Kross, 2005) the following equation is used to measure management expectations and to calculate SEXP which is included in equation 1 (Anderson et al., 2003).

\[
S_{it+1} = \alpha_0 + \alpha_1 \cdot S_{it} + \alpha_2 \cdot \Delta S_{it} + \sum_{t} \alpha_1 \cdot Y_{it}
\]

(2)

Where \( \Delta S \) is sales changes comparing with previous year, dummy variables for years are used to control for specific year effects.

To test for the degree of cost stickiness across different types of cost the following formula was repeated with different cost accounts: (cost of goods sold, general and administrative expense, operating expense before depreciation and operating expense after depreciation) (Anderson et al., 2003).

\[
\log \frac{SGA_{it}}{SGA_{it-1}} = \beta_0 + \beta_1 \cdot \log \frac{S_{it}}{S_{it-1}} + \beta_2 \cdot D \cdot \log \frac{S_{it}}{S_{it-1}} + \beta_3 \cdot D \cdot \log \frac{S_{it+1}}{S_{it}} \cdot DNEXT \cdot \log \frac{S_{it+1}}{S_{it}} + \varepsilon_{it}
\]

(3)
8. Results

The study adopts the econometric analysis using panel data that combines time-series and cross-sectional data. To investigate the effect in study models, the study depended on the model related for panel data:

1- Pooled Regression Model (PRM)
2- Fixed Effect Model (FEM)
3- Random Effect Model (REM)

Lagrange Multiplier was applied to select the effective model from (PRM) and (REM), while Hausman test was applied to decide the appropriate model from (FEM) and (REM).

Table 1. Lagrange Multiplier test and Hausman tests results

| Model     | Lagrange Multiplier | Hauser | Appropriate Model |
|-----------|---------------------|--------|------------------|
|           | Chi² | Sig. | Chi² | Sig. |          |
| Model 1   | 14.805 | 0.000 | 348.813 | 0.000 | FEM      |
| Model 2   | 5.464 | 0.020 | 2.710 | 0.258 | REM      |
| Model 3   | 6.081 | 0.014 | 6.279 | 0.616 | REM      |

Lagrange Multiplier test, to select an appropriate model (PRM) and (REM)

H0: PRM is more consistent than REM

Hausman test, to select an appropriate model (FEM) and (REM)

H0: REM is more consistent than FEM

Lagrange multiplier test and Hausman test proved that a fixed model was the appropriate model to estimate the first model, while the random model fitted the other two models.

Model1: Sales expectation (SEXP)

The following table represents the regression results for model 1, where this model employed to estimate the sales expectation, the results were as following:

Table 2. Fixed Effect Model for model 1

| Variable | Co-eff | Std Error | T-value | P-value* |
|----------|--------|-----------|---------|----------|
| S_{lt}   | -0.190 | 0.065     | -2.951  | 0.003    |
| ΔS_{lt}  | 0.151  | 0.046     | 3.310   | 0.001    |
| Constant | 72469331 | 4411434  | 16.428  | 0.000    |

R-squared 0.950
Adjusted R-squared 0.944
F-statistic 164.919
Prob*(F-statistic) 0.000
D-W 1.510

*Significant at 0.05 level.

The above table reports that R Square, the coefficient of determination equal to (0.950), which means that about (95.0%) of the variation in sales in the next year is explained by the model. The significance value of the F statistic ($F=164.919$) is $(Prob F = 0.000)$ less than 0.05, which means that the effect of independent variables aggregated is significant.

Moreover, the coefficients of the regression states that the current sales ($S_{lt}$) has a significant negative effect where coefficient value equals (-0.190) is significant with ($t= -2.951$) and (P-value =0.003) less than 0.05, also,
change in sales ($\Delta S_{t+1}$) has a significant positive effect, where coefficient value equals (0.151) is significant with (t=3.310) and (P-value =0.001).

Although this model was used to obtain the expected sales variable values and to employ them in the second model of the study, two results were obtained from the regression analysis shown in the table above, as follows:

I. Sales values in the current period ($t$) affect sales values in the subsequent period ($t + 1$) negatively, meaning that most often a rise in sales in the current year will result in a drop in sales for the next year, and vice versa.

II. A positive change in sales volume in the previous period and in the period before the previous period ($t$) and ($t-1$) would have a positive effect on the volume of sales in the subsequent period ($t-1$).

This finding is consistent with the findings of (Bosch et al., 2017; Kokotakis et al., 2013; Weiss, 2010; Anderson et al., 2007; Anderson et al., 2003)

Model 2: Sticky Behavior for SGA

The following table represents the regression results for model 2, where this model employed to test the existence of typical sticky behaviour for SGA, the results were as following:

| Variable | Co-eff | Std Error | T-value | P-value* |
|----------|--------|-----------|---------|----------|
| log($S_t/S_{t-1}$) | 0.343 | 0.082 | 4.190 | 0.000 |
| D* log($S_t/S_{t-1}$) | 0.110 | 0.120 | 0.916 | 0.360 |
| Constant | 0.018 | 0.007 | 2.651 | 0.009 |

R-squared | 0.279 |
Adjusted R-squared | 0.274 |
F-statistic | 57.259 |
Prob*(F-statistic) | 0.000 |
D-W | 1.673 |

*Significant at 0.05 level.

The above table reports that R Square, the coefficient of determination equal to (0.279), which means that about (27.9%) of the variation in SGA is explained by the model. The significance value of the F statistic (F=57.259) is (Prob F = 0.000) less than 0.05, which means that the effect of independent variables aggregated is significant. Moreover, the coefficients of the regression states that the sales (log($S_t/S_{t-1}$)) has a significant positive effect on SGA, where coefficient value equals (0.343) is significant with (t= 4.190) and (P-value =0.000) less than 0.05, decrease in sales (D* log($S_t/S_{t-1}$)) has a non-significant effect, where coefficient value equals (0.110) is not significant with (t= 0.916) and (P-value =0.360).

The previous results indicate that SGA increased (0.34%) per (1%) sales increase, and does not change by any decrease in sales. The results of the model 2 test showed that the change in sales volume (log ($St / St-1$)) had a positive effect on the change in sales, general and administrative expenses (log ($SGAt / SGAt-1$)). However, the results showed that there was no significant effect, whether positive or negative for a decline in sales (D / log ($St / St-1$)) on expenses (log ($SGAt / SGAt-1$)). This result shows that expenses follow the volume of sales in case of increase only, but in the case of the decrease is not affected, and this is at the core of the definition of sticky costs.

Therefore, we reject the first hypothesis, and accept the alternative that states: The attainment of greater (lower) future sales growth does not drive greater (lower) cost stickiness when activity decreases. This finding is consistent with the findings of (Bosch et al., 2017; Kokotakis et al., 2013; Weiss, 2010; Anderson et al., 2007; Anderson et al., 2003).

Model 3: Study Model

The following table represents the regression results for model 3, where this model employed to test the full model of the study represents the existence of typical sticky behaviour for SGA, the results were as following:
Table 4. Random Effect Model for model 3

| Variable                  | Co-eff  | Std Error | T-value | P-value* |
|----------------------------|---------|-----------|---------|----------|
| log(S_t/St-1)             | 0.140   | 0.092     | 1.531   | 0.127    |
| D* log(S_t/St-1)          | 0.392   | 0.248     | 1.582   | 0.115    |
| D* log(S_t/St-1)*DNEXT* log(S_t+1/St) | 1.006 | 0.214     | 4.706   | 0.000    |
| D* log(S_t/St-1)*CHROAT   | 1.464   | 0.577     | 2.538   | 0.012    |
| D* log(S_t/St-1)*ROA      | -0.042  | 0.058     | -0.728  | 0.468    |
| D* log(S_t/St-1)*ASSETS   | -1.373  | 0.344     | -3.986  | 0.000    |
| D* log(S_t/St-1)*DEBTS    | 0.193   | 0.152     | 1.274   | 0.204    |
| Constant                  | 0.018   | 0.008     | 2.401   | 0.017    |
| R-squared                 |         |           | 0.764   |          |
| Adjusted R-squared        |         |           | 0.756   |          |
| F-statistic               |         |           | 97.483  |          |
| Prob*(F-statistic)        |         |           | 0.000   |          |
| D-W                       |         |           | 2.233   |          |

*Significant at 0.05 level.

The above table reports that R Square, the coefficient of determination equal to (0.764), which means that about (76.4%) of the variation in SGA is explained by the model. The significance value of the F statistic (F=97.483) is (Prob F = 0.000) less than 0.05, which means that the effect of independent variables aggregated is significant. Moreover, the coefficients of the regression states that the \((\log (S_t/S_{t-1}))\) has no significant effect, where coefficient value equals (0.140) is not significant with \((t= 1.531)\) and \((P-value =0.127)\) greater than 0.05, \((D* \log(S_t/S_{t-1}))\) has no significant effect, where coefficient value equals (0.392) is significant with \((t= 1.582)\) and \((P-value =0.115)\). \((D* \log(S_t/S_{t-1})*DNEXT* \log(S_t+1/St))\) has a significant effect, where coefficient value equals (1.006) is significant with \((t= 4.706)\) and \((P-value =0.000)\). Also, \((D* \log(S_t/S_{t-1})*CHROAT)\) has a significant effect, where coefficient value equals (1.464) is significant with \((t= 2.538)\) and \((P-value =0.012)\). \((D* \log(S_t/S_{t-1})*ASSETS)\) has no significant effect, where coefficient value equals (-0.042) is not significant with \((t=-0.728)\) and \((P-value =0.468)\).

\((D* \log(S_t/S_{t-1})*ROA)\) has a significant effect, where coefficient value equals (-1.373) is significant with \((t=-3.986)\) and \((P-value =0.000)\). Also, \((D* \log(S_t/S_{t-1})*ASSETS)\) has no significant effect, where coefficient value equals (-0.051) is not significant with \((t=-1.240)\) and \((P-value =0.216)\). Finally, \((D* \log(S_t/S_{t-1})*DEBTS)\) has not significant effect, where coefficient value equals (0.193) is not significant with \((t=1.274)\) and \((P-value =0.204)\).

The results of model 3 showed that the interaction between the decrease in sales volume and the change in profitability \((D* \log(St/St-1)*CHROAT)\) would have a positive effect on the change in sales, general and administrative expenses \((\log (SGAt/SGAt-1))\). This indicates a positive response to costs with changes in sales volume and combined profits. The decline in sales with the profitability index \((D* \log(St/St-1)*ROA)\) showed a negative effect, showing that the undesirable change in profits would increase sticky costs, as the undesirable change coincides with profitability measured when there is a drop in sales volume. This finding is consistent with the findings of (Bosch et al., 2017; Mahdavinia & Zolfaghari; Magheed, 2016; Weiss, 2010; Anderson et al., 2003). Accordingly, we accept the second hypothesis, which states: The attainment of favorable (unfavorable) changes in profitability drives lower (greater) cost stickiness when activity decreases.

On the other hand, the following results were obtained from the second model test, as follows:

I. The results showed that the decrease in sales volume in the previous period and the increase in the subsequent period \((D* \log(St/St-1)*DNEXT* \log (St +1/St))\) would positively affect the sticky costs in the Jordanian industrial companies. This supports the results of the first hypothesis test.
II. The size of the company and debt ratio does not affect the sticky costs in the event of a decrease in sales volume. This finding is consistent with the findings of (Bosch et al., 2017; Mahdavinia & Zolfaghari; Weiss, 2010; Anderson et al., 2003)

9. Conclusions
The study analyzes the cost responsiveness and sensitivity when choosing between the profitability of Jordanian industrial companies in the current year and its growth of sales in the future. The study focused on Selling, general and administrative expenses considering it as a sort of slack resources. They are significantly related to resources used in planning, managing, and decision-making, also in building firm capabilities. These resources allow companies to be in a favorable position to face competition. Based on the theoretical framework of the study as well as data analysis.

The study concluded that sales values in the current period affect sales values in the subsequent period negatively, meaning that most often a rise in sales in the current year will result in a drop in sales for the next year, and vice versa. A positive change in sales volume in the previous period and in the period before the previous period would have a positive effect on the volume of sales in the subsequent period. The change in sales volume had a positive effect on the change in sales, general and administrative expenses. However, the results showed that there was no significant effect, whether positive or negative for a decline in sales on expenses. This result shows that expenses follow the volume of sales in case of increase only, but in the case of the decrease is not affected. This means that achieving higher sales growth (less) in the future does not lead to greater cost stickiness (lower) when activity decreases. There is a positive effect for the interaction between the decrease in sales volume and the change in profitability on the change in sales, general and administrative expenses. and there is a positive effect of the decrease in sales volume in the previous period and the increase in the subsequent period the sticky posts in the Jordanian industrial companies. And the sticky costs are the result of corporate management failed to control resources in the event of a decline in the level of activity. This is because managers' decisions are influenced by their future expectations and strategies. In other words, the strategies of trade-offs between profitability and growth in future sales are important factors that explain decisions of resource adjustments when a decrease in sales occurs.

The study results reinforce our understanding of corporate cost behavior and provide insights into accounting literature. Based on the managers' strategic choices regarding cost decisions, they can adjust resources to meet short-term goals in the event of a low level of activity in terms of profitability, but on the other hand, managers may make decisions regarding the retention of slow resources, although there are negative expectations regarding future sales for companies in order to achieve the objectives associated with flexibility.

Based on the findings of the study, companies should know the factors that affect the cost behavior and take into consideration when analyzing costs and making administrative decisions in companies which will, in turn, improve the process of making administrative decisions and investment decisions and other decisions taken by the company's stakeholders whether they were investors or financial analysts. These decisions will be more beneficial to these external and internal bodies in the Jordanian industrial companies. And companies should find a suitable solution to the trade-off between the future growth of sales and profitability. Reducing reliance on human resources or relying on external suppliers for marketing activities may be beneficial to these companies so they do not have to bear many costs during periods of economic recession.

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