“Specification of the relationship between the sales expenses and the sales in Jordanian companies”

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SPECIFICATION OF THE RELATIONSHIP BETWEEN THE SALES EXPENSES AND THE SALES IN JORDANIAN COMPANIES

Abstract

Traditional accounting has divided costs into variable and fixed costs, with changes made according to production levels, consequently, the cost behavior changes according to changes in the volume of production activity. Therefore, it has become necessary for successful management to understand cost behavior to face market changes and to adopt strategies that increase sales volume.

The study period covered 12 years between 2006 and 2017. The study population was from Jordanian industrial shareholding companies. Using the regression models, the main results indicated that sales expenses could not explain changes in sales revenue in Jordanian companies; there was a significant relationship between sales expense changes and sales revenues, with sales expense changes having incremental information content over sales expense levels in explaining sales revenues. There was also no significant relationship between sales expense levels, sales expense changes, and sales revenues. The study suggests that future researches should be made in order to obtain business-oriented and specific information on how the decisions affect sales behavior. Overall, the study findings enhance our understanding about companies' cost behavior and provide useful insights into financial and management accounting literature.

Keywords sales, cost stickiness, industrial companies, cost accounting, Jordan

JEL Classification M41, M31, D41

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INTRODUCTION

Competition between companies is increasing to attract customers, to increase market share and to increase the cost of sales in order to increase sales. However, management accounting literature has only recently dealt with the fact that cost variety depends not only on sales revenue changes, but also it may contain other internal and external components that lead costs to be asymmetric around a company's behavior (Porporato & Werbin, 2010).

A specification is a documented note telling a firm which sales expenses should be installed, giving guidance on their installation and the standards that they should meet. Sales specification concerns affecting the matches and the attributes of a product.

In the traditional cost accounting model, costs are described as variable or fixed with respect to production activity. However, whether a cost is variable or fixed depends on the period of the decision and the range of activity (relevant range) being considered. When costs respond asymmetrically to a change in activity levels, this is depicted as sticky costs (Banker, Basu, Byzalov, & Chen, 2016).

Variable costs derive the name variable from their total cost behavior. As the numerator changes (the cost), the denominator (the cost driver) also changes in proportion so that the quotient is the same at any level within the relevant range. A fixed cost, however, means that the numerator is fixed in total within the relevant range. As the denominator changes, the numerator does not, and the resulting quotient changes with each change in the denominator (Horngren, Srikant, & Madhav, 2017).

Most decision-makers would do well to use only variable costs on a per unit basis. Decisions are about the future, and in predicting costs, one would want to use a cost for which the behavior was more easily predictable. Fixed costs can be predicted more accurately in total. To use them as unit costs, one would have to predict a level of activity for the cost driver carefully.

Winning and retaining the customers in recent decades has become a difficult task because of the increasing number of competitors in the market, so it is important to pay attention to advertisements in order to improve the relationship between a company and its customers. It can be seen that an increase in selling expenses leads to increased advertising in more geographical areas and the arrival of a product to more members of the public, thus increasing the sales that would lead to increased income for a company.

This research tests the relationship between selling and marketing expenses in Jordanian industrial companies and net sales because of their important impact on determining the specifications of the relationship between sales and expenses, which will help these companies to maximize net profits. The following sections of the study will review the objectives and the study problem, present and analyze the previous literature and theoretical framework, formulate the hypotheses and models of the study. Finally, a descriptive analysis and hypotheses testing will be presented to highlight the study results and recommendations.

1. LITERATURE REVIEW

Gavalas and Syriopoulos (2019) tried to understand how cost behavior seems to be an important part of management accounting and costs. They examined whether costs increased more when operations increased more than they declined, when operations decreased by an equal amount. The study results showed a decline in the level of stickiness of total labor costs and found the presence of stickiness for labor and vessel operating expenses.

Weiss (2010) discovered that companies with asymmetric expenses showed a large decrease in profits when expenses increased more than when revenues increased and, when sales decreased, costs would reduce to a lesser extent. Chen, Lu, and Sougiannis (2012) knew that sticky costs were related to agency problems. So, because board of directors ownership aligns the managers' interests with shareholder incentives, this is also related to decreased company expenses. Kama and Weiss (2013) referred to intentional adjustments of managers to meet target profits would lead a company to change cost behavior, therefore, the costs of sales behavior is not a result of company's normal activities. On the other hand, the cost of sales behavior can be seen as a managerial mission and is based on managers' incentives to meet the budgeted sales revenue.

Banker et al. (2016) have studied the association between sticky costs and accounting information quality, with the dependent variable in the study model being the accounting variable, taking into consideration the sticky costs in the accounting conservative study model.

Bosch et al. (2017) analyzed the cost stickiness phenomenon between future sales revenue increases and current profitability. Their study found that changes in current company income and future sales revenue increased from influence resource adjustment in the periods when revenues declined.

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Anderson, Banker, and Janakiraman (2003) found that sales expenses responded differently to decreasing and increasing changes in a firm's activities. They also found that sales moved on average by 0.6 percent for 1 percent change in sales revenue and declined by only 0.4 percent when there was a decrease of each percentage in sales, which means that there was a sticky cost.

Marques, Santos, Lima, and de Souza Costa (2014) studied Latin American countries on the behavior of selling changes with respect to sales revenue. They found, by using 669 observations between 1995 and 2012, that when sales increased by 1 percent, selling and general expenses increased by 0.6 percent, on the other hand, when sales revenues decreased by 1 percent, selling and general expenses decreased by only 0.45 percent. Bugeja et al. (2015) studied the Australian companies between 1990 and 2010. They found that cost behavior in Australian companies was sticky on average, with a lower stickiness degree than in American companies. Selling costs decreased by only 0.8 percent for 1 percent decrease in sales but increased by 0.9 percent with 1 percent increase in sales.

In addition, Subramaniam and Weidenmier (2016) mentioned that the cost of sales increased by 0.9 percent for 1 percent increase in sales revenues, while reducing by only 0.9 percent for each 1 percent decline in sales, which shows the existence of sticky costs. He, Teruya, and Shimizu (2010) discovered that an increase in sales led to an increase in expenses. On the other hand, when sales revenues decline, managers may decrease the number of employees.

Da Silva, Costa, Magro, and Klann (2019) aimed to analyze the association between earnings management practices and cost asymmetry (sticky costs) behavior of Brazilian firms. The findings were that net income was affected by earnings management practices and sticky costs behavior. Part of earnings management and total accruals were explained by sticky costs behavior.

1.1. Literature review summary

Table 1 summarizes the main results of the previous studies.

Table 1. Literature review summary

Study	Main results
Gavalas and Syriopoulos (2019)	Decline in the level of stickiness of total labor costs
Chen et al. (2012)	Cost of sales behavior can be seen by the managerial mission and is based on the managers incentives
Banker et al. (2016)	Sticky costs can be shown in the accounting conservative study model
Bosch et al. (2017)	Changes in current company income and future sales revenue increased from influence resource adjustment in periods when revenues declined
Anderson et al. (2003)	Sales expenses responded differently to decreasing and increasing changes in a firm's activities
Marques et al. (2014)	Sales increased by 1 percent, selling and general expenses increased by 0.6 percent, on the other hand, when sales revenues decreased by 1 percent, selling and general expenses decreased by only 0.45 percent
Bugeja et al. (2015)	Cost behavior in Australian companies was sticky on average
Subramaniam and Weidenmier (2016)	Cost of sales increased by 0.9 percent for a 1 percent increase in sales revenues
He et al. (2010)	Increase in sales led to an increase in expenses
Da Silva et al. (2019)	Net income was affected by earnings management practices and sticky costs behavior

1.2. Theoretical framework and hypotheses development

Cost is a resource sacrificed or forgone to achieve a specific objective. Management must understand cost behavior in order to adequately predict the costs. From a behavioral view, costs are classified as fixed or variable. Costs are not inherently fixed or variable; cost behavior depends on the defined cost object. They may be variable with respect to level of activity and fixed for another (Horngren et al., 2017).

Selling expenses could be classified within the costs of the period when costs were categorized as product and period costs, but when classified as operating and non-operating costs, selling expenses were classified as operating costs and were subtracted from the gross profit to reach the operating profit of the company (Dalla & Perego, 2014).

The selling expenses improve the sales of the products and the brand of the product as a whole and its profitability, i.e., it improves the accounting performance of the company in the current and future periods by achieving the current and future returns.

A company cannot sell a product for less than its cost and hope to succeed. Knowledge of sales expenses and cost behavior can enable a company to price its products to receive maximum benefit (Kams & Weiss, 2013).

Companies selling distinctive products or services may be able to utilize cost-plus pricing effectively. The general approach to cost-plus pricing is to add a markup percentage to the cost base to arrive at the expected selling price. It should be noted that the cost-plus formula is only a starting point for pricing decisions. Costs, customers, and competitors still play a role in price setting (Gavalas & Syriopoulos, 2019).

Costs are sticky if the extent of the decrease in cost levels relate to a decrease in sales that is lower than the extent of the increase in costs with the same increase in sales. If the demand is more than budgeted levels, funds will be strained. On the other hand, if demand is lower than budgeted levels, slack resources exist (Anderson et al., 2003, Cheung, H. Kim, S. Kim, & B. Kim, 2014).

1.3. Aims

The present study aims to test relationship specification, meaning the nature of independent variables used to explain the changes in sales revenue. Previous studies of the relationship between sales expenses and sales used levels of sales expenses, but it is believed that the main variable to explain the sales variances is a change in sales expenses.

Predicting the factors that affect the sales volume in Jordanian industrial companies is a major challenge for managers of these companies, to help them in estimating the sales and net income while contributing to determining the budgets expected to be spent on sales and marketing expenses. If an increase in advertising expenses leads to an increase in net sales, this result will contribute to the adoption of marketing programs to increase the sales and discard the surplus inventory, while decreasing the sales and maintaining the surplus inventory will lead will lead to companies spending on other expenses to contribute to increased sales and net income.

2. METHODS

2.1. Study hypotheses

H01: There is no significant relationship between sales expense level and sales change percentage.

H02: There is no significant relationship between sales expense change and sales change percentage.

H03: Sales expense change has no incremental information content over sales expense level in explaining sales revenue.

H04: There is no significant relationship between sales expense level and sales expense change and sales revenue.

2.2. Study models

Most studies of sales and the sales expenses relationship assume that the relationship is linear, so the most commonly used method is the ordinary least squares regression model. The information content of profits is recognized based on the slope coefficient of the model, which is known in accounting literature as the profit response factor, and the explanatory power of the model (adjusted *R*-square).

The study population was from Jordanian industrial shareholding companies listed on the Amman Stock Exchange (ASE) for the period between 2006 and 2007. A total of 73 companies were identified and there were 583 total observations after deleting the outliers' variables.

2.3. Specification of the sales expenses

Two specifications were used for sales expenses, namely, changes in sales expenses and sales expense levels.

First specification: sales expenses level

$$\frac{Sales\ expenses}{Sales}.$$

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This specification is measured by dividing the sales expense level by sales level.

Second specification: change in sales expenses

$$\Delta \frac{Sales\ expenses}{Sales}.$$

This specification was measured by dividing the change in sales expenses by sales level. These two variables were calculated from income statements.

The use of this specification can be justified for the following reason. If sales revenues reflected the expectations about future sales expenses, it would be logical to relate the change in sales to the change in sales expenses, not to the level of sales expenses.

Table 2. Variable type, computation and denomination

Variables		Calculation
Independent variable	(*Sexp*)	(Sales expense/Sales)
	(*Expch*)	((Sales expense current year – Sales expense previous year)/Sales))
Dependent variable	(*Sa*)	Sales/Total assets
Control variable	(*Gross*)	((Gross profit current year – Gross profit previous year)/Gross profit previous year))

Linear regression is a basic and commonly used type of predictive analysis. The regression equations used to test the study hypotheses are given in the following three models:
Model 1:

$$Sa_{it} = \alpha_0 + \alpha_1 \left(Sexp_{it} \right) + \alpha_2 \left(Gross_{it} \right) + e.$$

Model 2:

$$Sa_{it} = \alpha_0 + \alpha_1 \left(Expch_{it} \right) + \alpha_2 \left(Gross_{it} \right) + e.$$

Model 3:

$$Sa_{it} = \alpha_0 + \alpha_1 \left(Sexp_{it} \right) + \\ + \alpha_2 \left(Expch_{it} \right) + \alpha_3 \left(Gross_{it} \right) + e.$$

In the first model, the independent variable was the first specification, which was sales expense level and was used to test the first hypothesis to measure the explanatory power for this variable. The second specification, which was the change in sales expenses, was used in the second model to investigate the information content for this variable. The two variables were used in the last model to measure the incremental information content for the two variables together and to test the last hypothesis.

3. RESULTS

3.1. Descriptive analysis results

Table 3 presents a descriptive analysis of the variables after deleting the outliers, which were defined as the bottom and top 1 percent of the observations on each variable. The sample consisted of 12 years of data from Amman Stock Exchange between 2006 and 2017. The impact of outliers' observations was reduced by setting each individual data element to the 99th and 1st percentile of the distribution.

In the dependent variable, which was sales levels over total assets, the mean was approximately zero, because total assets for the manufacturing sector were much larger than total sales. Sales expenses represented about 8.5 percent from sales revenues with high standard division, which means that there were major differences between companies. Comparing this to previous studies, Bosch, Blandon, Ravenda, Silva, and Somozo (2017) showed that sales expenses were approximately 24.3 percent from sales revenues. This difference may be because sales expenses also include general expenses. Banker et al. (2016) study also had a higher figure for this percentage, because selling and administrative expenses reached 26 percent from sales revenues.

Table 3. Descriptive measures

Variables	No.	Minimum	Mean	Median	Std. dev	Skewness	Kurtosis	Maximum
Sa	583	–0.86	0.008	–0.022	0.469	5.091	46.429	5.31
Sexp	555	0.0017	0.084	0.400	0.106	2.465	7.526	0.7045
Expch	556	–0.50	–0.011	–0.0001	0.065	–4.327	25.449	0.112
Gross	580	–11	–0.013	–0.046	1.55	2.277	32.204	13.62

Therefore, if Jordanian companies want to generate more sales, they have to focus more on sales expense budgets, with changes in expense sales figures, meaning that there will be no significant change in the company's sales strategies. Finally, the gross profit change percentages meant that there was a high variance between Jordanian companies.

3.2. Correlation

Table 4. Correlation matrix

Variables	*Sa*	*Sexp*	*Expch*
Sexp	–0.016	–	–
Expch	0.296**	–0.160**	–
Gross	0.167**	0.033	0.045

The Pearson correlation factors were significant at the 0.01 level between sales expenses changes and sales levels, and between gross profit changes and sales revenues. With every JD increase in sales, there was an increase of 0.167 JD in gross profit, with the difference between these two figures being the cost of goods sold. If the industrial companies want to improve this figure, they should concentrate on efficiency to reach high sales revenues with the least cost of goods sold.

For the two independent variables, sales expense levels did not have a significant relationship with sales, but sales expense changes had a strong relationship with sales, for with 0.3 percent increase in sales expenses, there was 1 percent increase in sales. This is what this study needs, to study better specifications that can interrupt sales revenue variables. Regression analysis will determine this issue.

4. DISCUSSION

The standard conventions were checked for statistical models and, more precisely, the presence of multicollinearity between variables, the autocorrelation of residuals and heteroscedasticity. The regression residuals were independent without autocorrelation, which was concluded from the Durbin-Watson test. The variance inflation factors (VIF) figures showed that there was no multicollinearity problem in the study models.

To start with, the values obtained for sales expenses in model (1) revealed that sales costs decreased on average by 0.106 for 1 percent increase in sales change percentages. The *t*-value was not significant and the adjusted *R*-squared percentage was only 0.023. This means that the first hypothesis was rejected and there was no significant relationship between sales expenses and sales change percentages. Therefore, sales expenses cannot explain the change in sales revenues in Jordanian companies. Therefore, there was an inelastic relationship between sales expenses and revenues of sales and levels of operation (Shim, 2016).

The study continued by applying model (2) to investigate the effect of sales expense change behavior on sales behavior, as this would help in determining the information content for this specification. There was a significant increase in adjusted *R*-squared compared to model (1) as it reached 10.3 percent. In addition, the independent variable *t*-test was significant, which means that the second hypothesis was rejected and there was a significant relationship between sales expense change percentages and sales change percentages.

This finding means that companies should focus on the flexibility change in selling expenses as a means to build capabilities that will build future sales growth. For the third hypothesis, adjusted *R*-squared between model (1) and model (2) were compared. In model 2, adjusted *R*-squared increased from 0.023 in model (1) with sales expense levels to 10.3 percent in model (2) with sales expense changes while, in addition, the sales expense change coefficient was significant in model (2). This led to the third hypothesis being rejected, so sales expenses changes had incremental information content over sales expenses level in explaining the sales revenues, which suggests that companies aiming to increase short-run profitability concentrate on monitoring changes in selling expenses.

For the last hypothesis, the use of more than one representative of sales expenses may reduce bias resulting from errors in the measurement of sales expenses. Therefore, the implementation of model number (3) above was necessary and complementary to the previous tests, which included one ex-

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Table 5. Model 1 results

Variable	Factor	Standard error	*t*-statistic	Significant
Constant	0.013	0.023	0.552	0.581
$Sexp_{it}$	–0.106	0.170	–0.623	0.534
$Gross_{it}$	0.043	0.011	3.799	0
R-squared	0.027	Adj R^2		0.023
S. E. regression	2.584	Squares residual sum		94.138
Durbin Watson	2.074	VIF		1.001
F-statistics	7.342	Sig.		0.001

Table 6. Model 2 results

Variable	Factor	Standard error	*t*-statistic	Significant
Constant	0.016	0.017	0.934	0.351
$Expch_{it}$	1.856	0.260	7.130	0
$Gross_{it}$	0.035	0.011	3.262	0.001
R-squared	0.106	Adj R^2		0.103
S. E. regression	9.853	Squares residual sum		83.060
Durbin Watson	2.102	VIF		1.002
F-statistics	31.910	Sig.		0

Table 7. Model 3 results

Variable	Factor	Standard error	*t*-statistic	Significant
Constant	0.021	0.022	0.975	0.330
$Sexp_{it}$	–0.020	0.166	–0.118	0.906
$Expch_{it}$	1.869	0.265	7.057	0
$Gross_{it}$	0.036	0.011	3.314	0.001
R-squared	0.109	Adj R^2		0.104
S. E. regression	10.028	Squares residual sum		81.808
Durbin Watson	2.105	VIF		1.029
F-statistics	21.574	Sig.		0

planatory variable. Despite adjusted *R*-squared being 10.4 percent, there was no significant increase between models (2) and (3), so the third null hypothesis was accepted, and there was no significant relationship between sales expense levels, sales expense changes, and sales revenues, which means that the best specification to explain sales revenues was changes in sales expenses.

CONCLUSION

Sales revenue specification needs a great deal of hard work and skill to understand what is involved and to be truly effective, so it is useful to know what functions are involved and what the specification process is. The findings of this research provide important results that contribute to the area of financial accounting and management accounting because it will help managers in decision-making process by determining the information content of sales expense in explaining the sales revenue variances.

According to the literature review, a firm with sticky costs represents a greater decrease in sales revenues, when activity levels decline compared to firms with fewer sticky costs. Previous studies anticipate contributing to the field by concentrating on sticky cost phenomena. Alternatively, this study investigated the best specification that explained the sales level inside the companies. The analysis was extended to changes in sales expenses and it was compared to traditional measures of sales expenses level.

The empirical section of this study has been set after using the data from listed industrial firms in the period 2006–2017. The sample included firms belonging to the eleven main industrial sectors, i.e. chemicals, electrical, construction, food and beverages, glass, mining, paper, medical, printing and packaging, textiles, and tobacco.

Several tests of regression models were undertaken. The research found out that there had been a relationship between sales expenses changes and sales revenues and there had been no association between sales expenses levels and sales expenses changes and sales revenues.

The findings offer contributions to investors, analysts, auditors, financial institutions, and majority shareholders. We suggest that new studies in this scientific field should be made in order to obtain business-oriented and specific information of how decisions affect sales behavior. The managerial accounting and marketing authors should pay attention to this type of studies. In addition, internal sales and technical support departments will need to be supported.

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