The Effects of Marketing Expenses on Firm Performance: Empirical Evidence from the BIST Textile, Leather Index

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***Abstract*—Nowadays, it is crucial to determine the effects of marketing, selling and distribution expenditures on firm performance. Many research have been conducted to highlight whether this relationship exists or not. In this perspective, the main purpose of this research is to detect the relationship between marketing expenses and firm performance of 22 companies that were listed on the BIST Textile, Leather Index from 2009 to 2013. The impact levels were determined by cross sectional time series analysis technique. According to Hausman Test results, it was found that random effect model was appropriate for Model 2, whereas fixed effect model was suitable for Model 1 and Model 3 we conducted. ME coefficient was found statistically significant with dependent variable ROE. In addition, a concave relationship between marketing expense and firm performance was found by analysing ME^2 and this result is in line with the literature.**

***Index Terms*—Marketing expense, firm performance, BIST textile, leather index.**

I. Introduction

One of the primary objectives of managers of firms is to maximize the present value of shareholders. In this context, [1] highlighted that the goal of businesses is the high market value of firm, not just profit or more which has been accomplished via the sales revenue of firms. Business firm value represents the expected future value that mostly depends upon the marketing activities of the firm [2]. Marketing and advertising expenditures are accepted as an element which affects the profitability negatively in the short term. On the other hand, it will add value in the long term.

The relationship between marketing expenditures and firm performance has been discussed and carefully studied for many years. Vast amount of research have been carried to figure out whether this relationship exists or not. Some researchers advocate that there is no relationship between marketing expenditures and firm performance, yet others suggest the existence of negative or positive relationship. It can be claimed that possible existence can be employed by managers to increase the market value of firms. In this respect, the main aim of this research is to reveal the relationship between marketing expenses and firm performance of 22 companies that were listed on the BIST Textile, Leather Index from 2009 to 2013. In order to accomplish this purpose, pooled OLS test and cross sectional time series analysis technique were employed.

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II. Literature Review

A vast amount of the empirical research that evaluates the link between marketing expenditures and financial indicators of firms has been published. In general, financial indicators have included Tobins' q, Return on Assets, Return on Equity, market-to-book-ratio and different types of profit whether ratios or numbers. Notably, [3] it is suggested that market participants are keeping in mind the brand value of firm, which is the one of the major marketing expenditure booster, when evaluating a company's shares are keeping in mind its brand.

Ref. [4] It is figured out that marketing efforts and R&D expenditures have a positive impact on the market value of the firm. On the other hand, [5] advocated that high level of marketing expenditure and R&D intensity statistically significantly decrease *the* value of firm by evaluating the relationships among chosen variables. [6] analysed the effect of marketing and R&D expenditures on the listed firms. [7] found significant positive link between selected marketing variables which can explain marketing efforts level and market-to-book ratio.

Ref. [8] evaluated the basic marketing activities and firm value relations in their study. They figured out that there is a negative relationship between the price promotions as a marketing expenditure and the firm value due to it has affected the long term profitability.[9] investigated whether the relationship between marketing expenses, such as R&D and advertising and firm value is positive or not depends upon the function of the time period. Similarly, [10] reported that *"on balance the evidence is consistent with a market assessment that advertising is shorted-lived [an expense] while R&D is long-lived [an investment]"* by employing CAR (cumulative abnormal security returns) and one-year lagged measures of variables of marketing and firm performance.

Moreover, [11] could not find any relationship between marketing efforts' expenditure and market value of firms by applying portfolio approach. In addition, [12] highlighted that R&D expenditures have negative link with stock price of firms. It is also echoed by [6] that marketing expenditures which might be differentiating products so that increase in expenditures can enhance the value of the company. In the same vein, [13] said that marketing expenditures can be analysed as a future profit provider and it drives up the market value of firms.

III. Data, Variables and Methodology

A. Data

The book and market information of the 22 companies

listed on the BIST Textile, Leather Index for the last five years was used for analysis. So as to obtain the data employed in this research, we used www.imkb.gov.tr, www.kap.gov.tr and websites of firms.

B. Dependent, Independent and Control Variables

Table I demonstrates the dependent, independent and control variables which were taken into account for our research. Notably, dependent variables shown below were selected as performance indicators.

TABLE I: DEPENDENT, INDEPENDENT AND CONTROL VARIABLES

Dependent Variables (Tobinss'q, ROA, ROE)		
Tabins'q	(Total Liabilities - Equity + Market Value) / Total Assets	Tobins'q
Return on Assests	Net Profit/ Total Assets	ROA
Return on Equity	Net Profit/ Equity	ROE
Independent Variables (ME, ME^2, R(BIST))		
Change in Marketing Expenditures	The Change in Annual Marketing Expenses	ME
Square of Change in Marketing Expenditure	The Square of The Change in Annual Marketing Expenses	ME^2
BIST 100 Index Return	$Rt = \log (Pt/(Pt\text{-}1))$	R(BIST)
Control Variables (Ln(*S*), *K*)		
Size of Sales	Natural Logarithm of Net Sales	Ln(*s*)
Leverage Ratio	Total Debt / Total Assets	LE

C. Model

As mentioned above, we employed cross sectional time series analysis technique in order to figure out the relationship between the marketing expenses and firm performance. In this context, the regression models used for our investigation can be seen below:

$$ROA_{it}=\alpha_{it}+\beta_1 ME_{it}+\beta_2 ME^2_{it}+\beta_3 R(BIST)_{it}+\beta_4 Ln(s)_{it}+\beta_5 LE_{it}+\varepsilon_{it} \quad (1)$$

$$ROE_{it}=\alpha_{it}+\beta_1 ME_{it}+\beta_2 ME^2_{it}+\beta_3 R(BIST)_{it}+\beta_4 Ln(s)_{it}+\beta_5 LE_{it}+\varepsilon_{i} \quad (2)$$

$$Tobins'q_{it}=\alpha_{it}+\beta_1 ME_{it}+\beta_2 ME^2_{it}+\beta_3 R(BIST)_{it}+\beta_4 Ln(s)_{it}+_5 LE_{it}+\varepsilon_{it} \quad (3)$$

Shown in Equation Tobins'q, ROA and ROE performance criteria, and dependent variables are ME, ME2 and *R* (BIST). Also, Ln (*S*) and LE represent the control variables. '*i*' represents firms, '*t*' period and 'N' represents the total number of enterprises.

IV. ANALYSIS

At the outset of our research, the potential impact of marketing expenses on firm performance was determined by pooled OLS test. Afterwards, considering Hausman test results, the fixed or random effects models were used. Under the basic assumption, which is all companies used in research are the same, pooled OLS estimation results are shown in Table II. According to the results gathered from the analyses, there is a statistically significant positive relationship between ROA and ROE dependent variables. Also, marketing expenditures were observed at 5% level. Although there is a negative relationship between Tobins'q and marketing expenses, it is found not statistically significant.

Moreover, [14] suggested that marketing expenses to increase company performance, although a certain level of expenditure which above a certain level, this positive effect may change in a direction of opposite way. In this connection, the marketing expenditures squared analysis illustrates that although marketing expenditures have a statistically significant positive impact on ROA and ROE performance measurements, this effect was strengthened by an increase above certain level that was mentioned before for ROE.Therefore, it can be claimed that there is no concave relationship between firm performance and marketing expenditures.

Table II shows regression results which were generated in three panels by taking into account only one dependent variable ROA, ROE and Tobins' q in Model 1, Model 2 and Model 3 respectively. According to Model 1, when the ROA and ROE were considered as performance criteria, it was found that there was a positive and statistically significant relationship between both ME and ME^2, and firm performance. It should also be noted that although negative relationship exists for market performance indicator, Tobins'q, it is not statistically significant.

All companies are the same as fundamentally assumed, it is not possible to accept that this assumption exists in market conditions. Therefore, Hausman Test was employed to determine the fixed or random effects model for analysis of relationship of marketing expenditure and firm performance. Hausman test results are presented in Table III. According to the Hausman test results, it is figured out that fixed effect model was more active than random effect model for Model 2 and Model 3, even though random effects was more effective at 1% significance level for Model 1. Hence, while fixed effect method was used for evaluation of Model 2 and Model 3, random effects method was employed for the Model 1 based on the Hausman test outcomes.

TABLE II: POOLED REGRESSION MODELS' OUTCOMES

	Model -1- Dependent Variable: ROA			Model -2- Dependent Variable: ROE			Model -3- Dependent Variable: Tobin's q		
	Coeff.	T-stat	Sig.	Coeff	T-stat	Sig.	Coeff	T-stat	Sig.
C	0.105	0.530	0.597	2.615	0.520	0.604	91.590	2.200	0.0305**
ME	0.083	2.505	0.0142**	1.992	2.365	0.0203**	-11.048	-1.583	0.117
ME^2	0.097	2.325	0.0225**	8.039	8.901	0.001***	4.797	0.641	0.523
R(BİST)	0.013	0.539	0.592	0.743	1.233	0.221	0.620	0.124	0.902
Ln(s)	0.003	0.283	0.778	-0.161	-0.625	0.533	-4.494	-2.112	0.0377**
BO	-0.358	-6.074	0.000***	-1.543	-1.030	0.306	2.100	0.169	0.866
R^2		0.427			0.631			0.136	
Adj. R^2		0.392			0.609			0.085	
Obser.		90			90			90	

Note: *** , ** and * demonstrate statistically significance at level 1%, 5% and %10 respectively.

TABLE III: STATISTICAL TESTING OF REGRESSION MODELS

	Model-1	Model-2	Model-3
Hausman Test	27.53	5.96	4.80
P-Value	0.000***	0.310	0.908

Note: *** , ** and * demonstrate statistically significance at level 1%, 5% and %10 respectively.

TABLE IV: FIXED EFFECTS' AND RANDOM EFFECTS' MODEL ESTIMATION RESULTS

	Model -1- Dependent Variable: ROA			Model -2- Dependent Variable: ROE			Model -3- Dependent Variable: Tobin's q		
	Coeff.	T-stat	Sig.	Coeff	T-stat	Sig.	Coeff	T-stat	Sig.
C	-0.204	-0.330	0.742	2.050	0.388	0.699	109.899	2.250	0.0271**
ME	0.002	0.053	0.958	1.900	2.248	0.0272**	7.612	1.626	0.108
ME^2	0.102	2.885	0.0053***	8.099	9.114	0.000***	-4.606	-1.030	0.306
R(BİST)	0.007	0.333	0.740	0.737	1.262	0.210	2.176	0.792	0.431
Ln(s)	0.026	0.789	0.433	-0.139	-0.511	0.610	-4.761	-1.837	0.0698*
BO	-0.566	-7.407	0.000***	-1.262	-0.827	0.410	-21.386	-2.309	0.0234**
R^2		0.632			0.632			0.097	
Adj. R^2		0.511			0.611			0.043	
Obser.		90			90			90	

Note: *** , ** and * demonstrate statistically significance at level 1%, 5% and %10 respectively.

Table IV illustrates the fixed effects' and random effects' model estimation results depending on Hausman Test. Examination of the Fixed effects methods that take into account for Model 2 and Model 3 reveal that although marketing expenses in both models were found to contribute positively to the firm performance, their statistical value was significant at the 5% level only in terms of Model 2. In addition, the emergence of an insignificant concave trend was observed for Model 3 by considering the square of marketing expenses. Meanwhile, this value increased the significance level of 1% in Model 2.

V. CONCLUSION

This research investigated the relationship between the marketing expenditures and firm performance of 22 companies that were listed on the BIST Textile, Leather Index from 2009 to 2013. In order to accomplish this aim, pooled OLS test and cross sectional time series analysis technique and pooled OLS method were employed. According to pooled OLS results, when the ROA and ROE were considered as performance criteria, it was found that there was a positive and statistically significant relationship between both ME and ME^2, and firm performance. Notably, although negative relationship exists for market performance indicator, which is Tobins' q, it was not found statistically significant. The analysis of relationship analysed by using cross sectional time series demonstrates that although marketing expenses in both model 2 and Model 3 were found to contribute positively to the firm performance by selecting

fixed effects method. Their statistical value was found significant only in terms of Model 2 at the 5% level. Additionally, the existence of concave trend was found statistically significant at 1% just for Model 2. Therefore, it means that an increase in marketing expenditure may reduce the profitability of the company considering the return on equity as a performance measurement.

Taking all into the consideration, it can be advocated that there is a relationship between marketing expenditure and firm performance, and this is in line with the literature. However, it should be highlighted that possible data or market change may reduce or strengthen the reliability of the findings obtained from the analyses employed in the current study.

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