SELLING EXPENSES AND PROFIT MARGINS
IN GREEK WINE INDUSTRY

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ABSTRACT

Although the importance of other than advertising expenses has been recognised by the literature, only few empirical studies examined the effect of these expenses on firm profitability. This paper examines whether the other than advertising expenses are positively associated with profit margins in the case of firms operating in the Greek wine industry using panel data for 34 firms over the period 1992-96. The fixed effects results show that profitability increases when firms spend more than 12.5 percent of their sales for selling expenses. On the contrary media advertising does not increase profitability.

KEYWORDS: Selling expenses, Profits, Wine firms, Panel data, Greece

INTRODUCTION

Much of the empirical research on the relationship between selling expenses and profitability refer to expenditures on media advertising. There is a rich literature on advertising but little has been written on other non advertising sales efforts. It is rare that economists have access to data describing differences across firms in an industry in non advertising sales efforts. It has been proved that in many industries these other sales efforts, as a percentage of industry sales, are important and in terms of size are much higher than the advertising intensity (Weiss et all, 1983; Martin,1993). Such non advertising sales efforts include displays, free samples, direct mail, catalogues and calendars, sales points and number of salesmen. Connor and Weimer (1986) supported that a construction of far broader and more meaningful than advertising intensity measures of selling costs, across the food and tobacco manufacturing industries is necessary.

The relevant literature (Oustapassidis, 1998; Carlton and Perloff, 1994; Scherer and Ross, 1990) has addressed that it is important to focus on a firm level analysis in a single industry in order to study the performance changes over time by using cross sectional data. By focusing on single-industry firm´s responses to changing conditions one can asses strategies directly by estimating their effects on firm performance.

Problems associated with the availability of data did not allow researchers who studied the effects of other than advertising expenses on profit margins at the firm level. Fortunately time series data, including non advertising and other selling expenses for individual firms operating in the Greek wine industry were available for this work.

GREEK WINE INDUSTRY AND SELLING EXPENSES

The contribution of wine industry to Greek beverage gross production value reaches the 19.3%, in 1993, while its contribution to beverage value added is 19% (NSSG, 1993). It is worth noting also that the contribution of wine to the value of total food exports increased from

4.8% to 1993 to 6.5% to 1996 (NSSG, 1993-96). The total exported quantity of wine for 1995 reaches the 59.5 million litre, while the imported quantity decreased substantially from 8.3 million litre in 1992 to 3.6 million litre in 1995. The concentration ratio of the four large wine firms is about 55% for 1996, while this ratio was higher in 1992 (66%). Greek wine industry has been characterised by a rapid growth in terms of sales which reaches 30.5% for the period 1992-1996. The most important firms in terms of market shares are presented in Table 1, along with the variable of efficiency for each firm[1].

Table 1. The four most important firms

Firm name	Market share (%) (1996)	Employees (1996)	Efficiency (1996)
Tsantalis	20.1		56
Kourtakis	13.4		64
Boutaris	10.5		106
Malamatinas	8.0		58

Table 2 shows the average ratio of selling expenditures over sales of wine industry by year, and the ratio of advertising expenditures over sales for the same years. The value of advertising intensity in this industry is very low compared with other food industries. For example the mean advertising intensity for dairy products (1990-94) in Greece, reaches 2.83% (Oustapassidis, 1998). It is interesting also that advertising intensity declines continuously from 0.22% in 1992 to 0.03% in 1996. On the contrary the ratio of other selling expenses over sales is high and increased from 10.77 in 1992 to 13.92% in 1996. The latter shows that wine firms in Greece support the idea that the strategy of differentiating their brands through other than advertising selling expenses, is more effective.

Table 2. Industry Advertising and selling expenses

Year	Ratio of selling expenses over sales (%)	Advertising intensity (%)
1992	10.77	0.22
1993	10.44	0.22
1994	11.89	0.19
1995	12.61	0.13
1996	13.92	0.03

Source: Nielsen Hellas and Income Statements of Firms

From the managerial point of view it is interesting to recognise which are the most important selling expenses in a consumer industry like wine industry, in the case of Greece. Noting that income statements do not report specific information for other than advertising expenses, we obtained the relevant data for teh main categories of selling expenses directly from the companies of teh sample. Advertising expenses per branded product are available by a propriatary company (Nielsen Hellas). Aggregation of these expenses for each firm provides total advertising expenses for each firm.

Table 3, shows the main categories of selling expenses, included advertising, and the mean share of each category to total selling expenses. It is worth noting that the largest part includes expenditures that are given for promoting the products with a share of 27.92%. This

first category may include advertising intensity , some costs of product testing or any other selling expenses. The share of salaries that are give products, reaches the 24.36%, which shows that the salesmen salaries and points affect significantly selling expenses. The third large category of oth￼ expenses include all the general selling expenses (19,75%), while an imp￼ transport expenses (16.70%). Small share to the total selling expenses have the sions, the expenses for trade affairs, for promoting exported products, prem￼ These data clearly show that other than advertising expenses of the Greek wine much higher than media advertising expenses. It is therefore worth to include ￼ than advertising expenses and the advertising intensity variables to examine the e conduct on Greek wine firm performance. It is necessary to use as a measure of con gies the total cost of selling expenses and not only the media advertising.

Table 3. Categories of Selling expenses in Greek wine firms

Categories of Selling Expenses	Share of each category on total selling expenses, in 1996 (%)
Promotional (advertising included)	27.92
Salesmen´s salaries	24.36
General selling expenses (telephones, fax etc)	19.75
Transport expenses	16.70
Commissions	7.93
Displays - Trade affairs	5.77
Promotional for exports	2.70
Rents	1.89
Fuel for trucks	1.58
Premiums	1.40
Total Selling expenses	100%

SOURCE: Survey among the firms

MODEL SPECIFICATION

Following the relevant industrial organisation literature (e.g. Martin, 1993) in the general case of N firms with unequal costs the individual oligopolist´s degree of market power becomes:

$$\frac{p-c}{c} = \frac{s_i}{\varepsilon_{QP}} \qquad (1)$$

where p is the market price, s_i the firm´s market share, ε_{QP} the price elasticity of demand, and c_i is the total cost. Noting that total cost is the cost of variable factors plus the normal rate of return on capital (Martin, 1993):

$$c_i(q_i) = wL_i + \rho K_i \qquad (2)$$

where q_i is firm i's output, w can be thought as a vector of input prices, Li as a vector of input levels, ρ is the rate of return on capital unit and Ki is the value of firm i's assets. Then with little manipulation equations (1) and (2) yield an expression for firm level price-average cost margin equation:

$$\frac{pq_i - wL_i}{pq_i} = \frac{s_i}{\varepsilon_{QP}} + \frac{\lambda\rho^k K_i}{pq_i} \qquad (3)$$

where λ is the coefficient of the capital-sales ratio. The first term of the right hand part depends on market share, (the proportion of firm´s sales to the total industry sales) and price elasticity of demand. Data for price elasticity of demand are not available but the empirical studies usually use variables such as the advertising intensity, that are related to the elasticity of demand and market structure. Based on equation (3), it is estimated (Hay and Morris, 1991; Oustapassidis, 1998) the following empirical model:

$$PR=a_0+ a_1SEL+ a_2SEL^2 + a_3MS + a_4MS^2 + a_5LEV +a_6OPER +a_7GR+a_8SK \qquad (4)$$

Thus we include on the right side the ratio of selling expenses over sales (SEL), the market share of each firm (MS), the leverage (LEV), the ratio of operation expenses over sales (OPER), the rate of growth (GR) of each firm and the sales to capital ratio (SK). Following other empirical studies we test the non linear relationship between profitability and selling expenses and between profitability and market shares, by introducing the square value of the two variables: SEL^2 and MS^2 respectively.

Selling expenses affect the elasticity of demand by differentiating the products. As a main determinant of market structure, product differentiation increases consumer loyalty, makes the demand for the products of the firm more inelastic and in many cases acts as barrier to entry in the market. So higher selling expenses ought to result in higher profitability. Profits are expected to be distributed toward the firms that are most successful in differentiating their brands. However, it is reasonable to assume that there will be a critical level of selling expenses which is necessary in order brands to start to be well known and selling expenses to start to be effective and to lead to an increase in profitability. For this reason, we include both the square value of selling expenses, in order to estimate the critical level after which selling expenses start to affect profitability positively. Thus we expect a non linear (U-type) affect $(a_1<0$ and $a_2>0)$.

It has been argued that market share rather than industry concentration is the main determinant of market performance and competition (e.g.Lyons et al, 1988). The importance of market share has been recognised in the classical and neo-classical literature, mainly as a source of profits to the firm. This is why almost all the studies that have been carried out with firm level data associate market share with profit rates (e.g. Ravenscraft, 1983; Scott and Pascoe, 1986). Market share is expected to affect profitability positively up to a point, after which an increase in market share will lead to a decrease in profitability.

The leverage variable shows the efficient use of borrowed capital. If leverage means greater risk and greater risk means a greater profitability, the estimated coefficient of the total

liabilities over total assets is expected to be positive, meaning that the firms that have borrowed more are more profitable, all else equal. An increase in firm growth is expected to affect profitability positively. This can be explained because rapidly growing firms can enjoy advantages related to both the economies of scale and dominance of the market. The ratio of operational expenses over sales can have both positive and negative effect.

DATA AND MEASUREMENT OF VARIABLES

All firms of the sample produce products that are classified into the same three digit industry (wine, SIC 212, NACE 1593) since their principal product is wine. The sample includes 34 large wine firms with size greater than 10 employees for the period 1992-96. Firms of the sample account for about 85% of wine production (ICAP, 1996). Annual data for each company are drawn from a data base based on both the balance sheets and income statements. In contrast to other countries, where firm level data are not easily available, all Greek manufacturing firms are obliged to publish their annual balance sheets and income statements. The relevant data are available on an annual basis from a proprietary service company (ICAP). Data for advertising for all brands of each firm are drawn from Nielsen Hellas. The estimation of the total advertising expenses for each firm is made by the authors, while by abstracting advertising expenses by the total selling expenses, we derived the other than advertising selling expenses that we use also in this study.

The total number of annual observations would be 170 (34 firms x 5 years). However, financial data for some firms are not available for the whole period and actually the data set is not complete. Given the small number of observations without data (36 out of 170) and that all these do not refer to the leading firms the problem is not serious. Further these cases are treated as missing values, by the econometric program, without affecting the quality of the obtained results.

Table 4. Mean values of the variables, 1992-96

Variables[1]	mean value (%)	Standard deviation
PR Gross profit / sales	31.79	16.44
SEL Selling expenses/sales	11.60	5.50
MS Market share	2.71	5.2
LEV Leverage	51.9	52:1
OPER Operation expenses/sales	11.94	3.91
GR Growth of sales	109.6	37.3
SK Sales /capital	63.6	32.2

Note: 1. See text for variable definition.

Following other market performance studies (e.g. Martin, 1993, Oustapassidis, 1998) we measure the dependent variable by the ratio of gross accounting profits over sales. Simi-

larly, leverage is measured as the ratio of total liabilities over total assets and it shows the dependence of the firm on borrowed capital. Growth (Firm´s sales of year t over sales of year t-1) shows the enlargement of the firm and the exploitation of more opportunities for making more profits.

Table 4 shows the mean and standard deviation values of profitability, market share, selling expenses, sales over capital ratio, leverage, growth, and operation expenses.

MODEL ESTIMATION AND RESULTS

The Fixed Effects method (Judge et al, 1988) is used to estimate the empirical model (equation 4) by using panel data for the 34 firms of the sample over the period 1992-96. Table 5 shows the results. We first examine model I. The adjusted coefficient of determination R^2 is equal to 64% and its value is satisfactory. The coefficients of both the ratio of selling expenses over sales and its square value are statistically significant. The coefficient of selling expenses over sales is negative while the coefficient of its square value is positive. The results provide evidence for a non linear (U-type) relationship between selling expenses and profitability showing that wine firms which spend more than 12.5%[2] of their sales on selling expenses can increase their profit margins. However taking into consideration that the mean value of selling expenses is about 11.6%, this shows that many Greek wine firms can effectively use the strategy of selling expenses to increase their profit margins. The latter can be explained also by considering wine products as experience goods, for which consumers learn about quality over time, and they need time to taste and to become loyal to the brands of the company.

The coefficient of market share is positive and significant while the coefficient of its square value is negative and also significant. The relationship between market share and profitability is also non-linear. As market share increases, profit margins also increase until the point where market share is equal to 20.8% (9.34/(2x22.44). After that point a further increase in market share is associated with a decline in price-cost margins per unit of product. It is worth noting however that MS=20.8% is a high level of market share since the average market share as it is shown in the previous table is just 2.7%. This shows that an increase in market share always leads to an increase in profit margins. The coefficients of operation expenses over sales, leverage, rate of growth and sales over capital are not significant. Consistent estimates for both the selling expenses and the market share are obtained even when the rest variables are not included in the empirical model (model II).

Also, we split selling expenses into advertising intensity and in other than advertising selling expenses, to test whether advertising intensity has an impact on profit margins. Two new variables are used: AS is advertising over sales ratio and AS2 is its squared value, while NAS is the ratio of other than advertising intensity selling expenses over sales and NAS2 is its squared value. The results show that market share and the ratio of other than advertising expenses over sales have a non linear statistically significant effect on profitability. Once again the results show that wine firms should spend at least a minimum level of other than advertising selling expenses in order to start to increase their profit margin.

It is important to note that while similar studies examining the effect of the other than advertising expenses on profit margins use a wide range of industries, like food and tobacco (Connor and Weimer, 1986), or even all the manufacturing industries (Weiss et al, 1983), this study focus on a particular industry. The availability of firm level data allows us to use more complex models than the linear ones and to test cross sectional curved relationships for both

the ratio of selling expenses and for market share variables. In line with the other studies (Connor and Weimer, 1986; Weiss et al,1983), the results of this study provide evidence that selling expenses are higher than advertising intensity in consumer industry such as the Greek wine one. It is worth noting however that our study provides empirical support for a non-linear relationship between profit margins and after than advertising selling expenses.

Table 5. Profitability and selling expenses in Greek Wine Firms, Fixed Effects

Variables	PR (MODEL I)	PR (MODEL II)	PR (MODEL III)
MS Market share	9,34 (3,32)*	6,57 (2,57)	9,29 (3,25)
MS^2 Square value of MS	-22,44 (-2,74)*	-16,55 (-2,11)	-21,26 (-2,45)
SEL Selling expenses	-0,04 (-3,03)*	-0,03 (-2,97)	
SEL^2 Square value of SEL	0,0016 (2,57)*	0,001 (2,69)	
LEV Leverage	-0,008 (-0,30)		-0,008 (-0,30)
OPER Operation expenses	-0,010 (-1,11)		-0,01 (-1,15)
GR Growth of sales	-0,0004 (-1,46)		-0,0004 (-1,40)
SK Sales /capital	0,08 (1,32)		0,08 (1,30)
AS Advertising intensity			0,74 (0,09)
AS2 Square value of AS			-65,43 (-0,25)
NAS Other than advertising selling expenses			-0,04 (-3,02)
NAS2 Square value of NAS			0,001 (2,57)
No of Observations	134	147	134
R^2	0,64	0,63	0,63

Note: * denotes statistically significant results at 55 percent level of significance.

CONCLUSIONS AND RECOMMENDATIONS

Other than advertising selling expenses is a major part of selling expenses, for the 34 Greek wine firms, over the period 1992-96. The share of the total selling expenses to sales reaches 13.92% in 1996, where advertising intensity reaches only the 0.03% in the same year.

Fixed effects results show that the relationship between selling expenses to sales ratio and profit margins is non linear. Only firms which spend more than 12.5% of their sales on selling expenses can increase the price cost margins, while advertising intensity has no effect on profit margins. This is a very interesting finding, given that most of the studies ignore the effects of other than advertising expenses use advertising intensity as a measure of conduct strategy. These results suggest that total selling expenses must be included in the analysis along with the other determinants (e.g. advertising) of firm conduct to explain more appropriately the effectiveness of selling efforts on firm profitability in order to have a more complete measure of the selling efforts. The relationship between market share and profitability show that large firms are more profitable than small ones in the Greek wine industry and the optimum size is given when market share is equal to 2.7%. The latter suggests that external growth strategies including mergers, acquisitions and joint ventures should be used along the other than advertising expenses to increase firm profitability in the case of the Greek wine industry.

NOTES

(1)   The efficiency variable is measured as the ratio of net income of the firm over its networth.
(2) $12.5\% = 0.04/(2 \times 0.0016)$.

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