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ARTICLE INFO	Tulin Ural and Songul Kakilli Acaravcı (2006). The Effects of Firm's Strategic Factors on Export and Firm Performance: A Comparison of Permanent and Sporadic Exporters. <i>Problems and Perspectives in Management</i> , 4(4)
RELEASED ON	Monday, 25 December 2006
JOURNAL	"Problems and Perspectives in Management"
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”



NUMBER OF REFERENCES

0



NUMBER OF FIGURES

0



NUMBER OF TABLES

0

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The Effects of Firm's Strategic Factors on Export and Firm Performance: A Comparison of Permanent and Sporadic Exporters

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Abstract

This study aims to explain the effects of firm's strategic factors on export and economic performance of Turkish manufacturing sector. The firm's key strategic factors are determined as three groups: the first group consists of the firm's competitive home position factors such as market share and labour productivity, the second group consists of the firm's growth strategies such as market penetration, innovation and diversification, and the third one consists of the firm's structural factors such as firm size and capital intensity. The study also examines the differences between permanent exporters and sporadic exporters based on these firm's strategic factors. In this study panel data analysis is used. The results of the model show that (1) market share, firm size, labour productivity and capital intensity affect significantly the firm's economic performance, (2) export intensity isn't related to the firm's economic performance, (3) R&D intensity and labour productivity affect negatively the firm's export intensity, (4) product and industrial diversifications affect positively the permanent exporter's economic performance. While industrial diversification affects negatively, firm size and labour productivity affect positively the sporadic exporter's economic performance. The effect of industrial diversification on firm's economic performance is different both for permanent exporters and sporadic exporters. (5) industrial diversification affects negatively the permanent exporter's export intensity while it affects positively the sporadic exporter's export intensity. The effect of industrial diversification on firm's export intensity is different both for permanent exporters and sporadic exporters. This study contributes to a new strategic implication of export activity in business research.

Key words: Firm performance, growth strategies, sporadic exporters, permanent exporters, panel data analysis.

JEL classification: M13.

1. Introduction

Over the past two decades, exporting has been one of the fastest growing economics activities. Growing liberalization, integration and competition in the world economies have been responsible for the increasing engagement of firms in exporting activities. Exporting is a crucial business activity for nations' economic health, as it significantly contributes to employment, trade balance, economic growth, and higher standard of living (Czinkota and Ronkainen, 1998). Exporting also plays a key role to achieve sustainable competitive advantage of firms in the turbulent market, because of improvement of financial position, increased capacity utilization, higher technological standards, and attainment of a desired performance (Leonidou and Katsikeas, 1996). Exporting can be an engine for the individual firm's growth and profitability, and for the nation's economic growth (Hatemi and Irandoust, 2001). Once a firm enters the international market through exporting, the outcome is improved by economies of scale which reduce the cost of goods produced both for the domestic and international markets (Albaum, Strandkov, Duerr, and Dowd, 1989). In addition, the reduction of cost increases competitiveness of firms in both markets. A firm can obtain higher rates of returns which provide better profit base to reward shareholders and employees. It will in turn generate more funds for future reinvestment and growth. Firms can decrease business risk by operating in multiple markets. Consequently, attention to the significance of exporting has drawn considerable interest in recent times from economic policy makers in government as well as academic researchers (Lee and Giorgis, 2004).

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The liberalization process has been continuing in Turkey since January 24, 1980. Although exporting has increased considerably in this period, it has not been still said to be revealed the desired point because of sustaining the foreign balance sheet deficit and insufficient competitiveness of Turkish goods in international markets. The share of Turkey in the world export volume has been as 06.5% in 2003 yet. Therefore, there is need to understand the reasons of this dilemma. Table 1 shows that Turkey's exporting changes positively but the rate of import covered by exports has decreased over the last three years.

Table 1

Foreign Trade of Turkey, 2000-2004 (Million \$)

	Years				
	2000	2001	2002	2003	2004
Exports	27.775	31.334	36.059	47.253	63.121
Imports	54.503	41.399	51.554	69.340	97.540
Balance of foreign trade	-26.728	-10.065	-15.495	-22.087	-34.419
Rate of import covered by exports (%)	51.0	75.7	69.9	68.1	64.7

Source: State Institute of Statistics in Turkey, www.die.gov.tr

This study aims to contribute solving of this dilemma at the firm level. Firm is a more suitable unit for measuring export behavior because strategies and resource allocation plans are formulated at the firm level.

Firm's competitive strategies have been a central concern in both strategic management and international marketing disciplines. Although a considerable amount of literature in the field of strategic management and industrial organizational economics (Buzzell and Glade, 1987; Hitt, Ireland, and Hoskisson, 1997; Porter, 1990; Scherer and Ross, 1998) has focused on the relationship between strategy and performance and emphasized the relative importance of a distinctive strategy in determining the firm's economic performance, the entry degree of firms to foreign markets and the effective factors in determining differences issues have received much less attention. Also, there were the limited amounts of work analyzing the Turkish firms. In order to succeed with respect to export development strategies and promotion programs, the key component of Turkish firms' export performance in terms of their competitive position, growth strategies, and a number of other structural factors must be identified. This study attempts empirically to: (1) examine the effects of growth strategies, competitive home market position, and structural factors on the firm's economic performance and export intensity; (2) and also, examine the effect of export intensity on the firm's economic performance; (3) determine factors of firms which have distinguished the entry market level to foreign markets (sporadic exporters and permanent exporters).

This study significantly differs from previous studies on one count. It employs growth strategies factors (i.e. diversification, market penetration and innovation) that are directly congruent with exporting, but which have been ignored in most previous studies (Balabannis, 2001; Katsikeas, Leonidou, and Morgan, 2000).

The study is outlined as follows. Firstly, it reviews existing literature in the areas of export behavior at the firm level. Based on existing literature and theory foundation, secondly, it develops and forms methodology and theory foundation to analyze the relationships between firm's strategic factors and export performance. Hence, effect of export intensity on business economic performance is explained. On the other hand, the paper explains distinctive factors between permanent exporters and sporadic exporters thirdly, presents the data set used in this research, gives analysis results and provides corresponding discussions. Finally, summarizes the findings and presents some implications on export performance of Turkish firms.

2. Literature

A large number of theoretical and empirical studies indicated the relationships between critical factors, export success and performance (Aaby & Slater, 1989; Cavusgil & Zou, 1994; Javalgi, White & Lee, 2000; Leonidou, Katsikeas, & Samiee, 2002; Morgan, Kaleka & Katsikeas, 2004). The international literature can be divided into three groups which are the structural factors, management factors of the firm and incentives and obstacles in the process of internationalization (Bonaccorsi, 1992). The structural factors include size, age, management systems (JIT, TQM, CE), organization and technology profiles, Research and Development (R&D) intensity etc. The management factors which are essentially those referring to entrepreneurial and management characteristics, include export expectations profitability, risk and cost; decision maker's level of education and amount of experience; attitudes towards risk taking, etc. The intensives and obstacles in the process of internationalization consist of competitive pressure, negative domestic trends, availability of information, etc. This study may be included in the first group.

Firm size is one of the most acknowledged determinants of a firm's profits in terms of its effect on competitive market power in a given industry (Beard & Dess, 1981). Most empirical research (Buzzell & Gale, 1987; Geringer et al., 2000; Ravenscraft, 1983; Samiee & Walters, 1990) has shown that a positive relationship exists between firm size and profitability. Several studies also explored the relationships between firm size and export performance. For instance, a study by Piercy, Kaleka, and Katsikeas (1998) indicates that firm size has a positive impact on export performance. However, other studies report that export success is not significantly influenced by firm size (e.g. Diamantopoulos & Inglis, 1988) or it is modestly or conditionally influenced by size (Calof, 1994; Cavusgil, 1984; Katsikeas et al., 1997).

The relationship between capital expenditure (capital intensity) and performance has been well supported in several studies (Lee & Blevins, 1990; Ravenscraft, 1983). Especially, from the interaction model, Ravenscraft's empirical results reinforce the notion that capital intensity is an important determinant of profitability, reflecting barriers to entry in a particular industry.

Buzzell et al. (1975) determined market share as a key to profitability. Some scholars suggested that home market competition should be considered when to investigate a firm's export behavior. For example, Mascarenhas (1986) and, Hennart and Park (1994) suggested that market share gives competitive advantage either to the leader firms or non-dominant firms. Especially, it is a crucial instrument in motivating the international expansion of non-dominant firms.

Recently a new literature emerged dealing with the microeconomics of trade and exporting. We now have a growing body of empirical work documenting the superior performance characteristics of exporting plants and firms compared to non-exporters at any given moment. Exporting plants tend to be larger, to have higher levels of productivity and shipments, and to be more capital intensive and technologically sophisticated than non-exporters in the same industry (Bernard & Jansen, 1999; Bernard & Wagner, 1997; Clerides, et al., 1998).

Hirsch and Bijaoui's study (1985) considered the relationship between innovation (R&D expenditures) and export behavior for 111 Israeli firms. They found that innovation is an important factor explaining export performance. In another research, Ito and Pucik (1993) concluded that the ratio of R&D expenditures to sales was a significant determinant of their export performance (the share of export on sales) only when the size variable (total assets) was dropped from the regression. Kumar and Siddharthan (1994) found that R&D expenditure is an important factor effecting performance in low and medium technology industries. However, it doesn't provide a competitive advantage in high technology sectors. Other researchers such as Lebeuvre et al. (1998), Bechetti and Rossi (1998), and Wakelin (1998) concluded R&D expenditure to be an insignificant determinant of exports. R&D intensity increased neither the probability of being exporter nor the share of exports on sales.

Strategic management and international business researches have demonstrated the impact of diversification strategy on firm performance with respect to both market and product diversification (Aulakh et al., 2000; Geringer et al. 2000; Hitt et al., 1997; Tallman & Li, 1996). Naidu and

Prasad (1994) also revealed that diversification of export market influences regular export activity. Although much research has been carried out on the relationship between product diversification and firm performance, the results are still inconclusive (Hoskisson and Hitt, 1990). Markides and Williamson (1996) use the concept of strategic assets, based on the resource-based perspective. Their findings indicate that, if relatedness is properly measured, related diversification should be superior to other diversification strategies. From a sample of large firms in New Zealand, Hamilton and Shergill (1993) also found that related diversified firms have higher performance than other firms. However, Lim and Tan (1995) show that related diversification is not superior to unrelated diversification strategy in performance among Singaporean firms. Note that their results are in doubt since the industry effect was not controlled.

Rumelt (1974) indicated that unlike unrelated conglomerate diversification related diversification and benefited from exploiting core resources lead to higher performance. A number of studies have supported the notion that product diversification is negatively related to performance (e.g. Bettis, 1981; Christensen and Montgomery, 1981) although a few studies have reported no significant relationship between the two variables (e.g. Lloyd and Jahera 1994). The inconclusive findings are mainly due to theoretical and methodological confusion (Hoskisson and Hitt, 1990). Recently, a series of studies has attempted to re-define and re-operationalize the concept of relatedness from view of strategic assets which is derived from the resource-based perspective (Markides and Williamson, 1994, 1996; Robins and Wiersema, 1995). These studies argue that a related diversifier can enhance its performance only when its business obtains preferential access to the firm's strategic assets which are valuable and costly to imitate in the market.

3. Conceptual Framework

Many firms originating from Turkey and other countries have internationalized their activities and are now in the process of globalizing. Although there has been presented criticism of the stepwise orderly development of internationalization (Andersen, 1993; Leonidou & Katsikeas, 1996; Turnbull, 1987), the development of the internationalization process has been thoroughly examined by Johanson and Vahlne (1977) who depict it as a stepwise process where companies proceed towards higher foreign market involvement. These models describe the internationalization process as a gradual development taking place in specific stages over a relatively long time. Moreover, they are similar in that they are based on the theory of the growth of the firm (Penrose, 1959) and the behavioral theory of the firm (Aharoni, 1966; Cyert & March, 1963). In addition, several researchers have focused on the early stages of internationalization (Bilkey & Tesar, 1977; Cavusgil, 1984; Hansen, 1981; Johanson & Wiedersheim-Paul, 1975). Yip (1989) has argued that globalization proceeds in three stages, which are development of the core strategy, internationalization of the strategy, and globalization of the strategy. Also, Craig and Douglas (1996) have found that global market expansion develops in three phases in addition to domestic phase; these are initial market entry, local market expansion, and global rationalization. When examining the initial market entry this latter model becomes particularly suitable. In this context, we focused on the early stages, exporting, and assumed two levels of exporting status, such as sporadic exporter and permanent exporter. Sporadic exporters are those firms that exported in some year of the certain period, and permanent exporters are those that exported in every year of this period.

This study focuses on the strategic factors, export performance and economic performance of firm. Strategic factors have been classified as three groups: Growing strategies, competitive position in home market and structural factors.

3.1. Growing Strategies

Based on the firm's size and industry position, the firm must decide how it will position itself relative to competitors in order to gain the strongest possible competitive advantage. The firms try to increase profit by using growth strategies. Ansoff identifies four group strategies by using product and market criteria (Kotler and Armstrong, 1996, p. 42). Those are market penetration, product development, market development and diversification.

Three important growing strategies have been taken into account in this study: Market penetration, diversification and innovation.

Market penetration: Marketing expenditures are expected to serve to achievement of market penetration. From a practical point of view, firm management would like to increase usage of current customers and attract customers to firm's brands to increase sales. Firm might cut prices, increase advertising, get products into more stores, or obtain better store displays and point of purchase merchandising from its retailers. Marketing expenditures also help to increase brand loyalty. So, the firm can accomplish market penetration. Marketing efforts enable the firm to promote, sell, and distribute its goods to final buyers. As a result, firm gains greater customer value and satisfaction and market penetration relative to its competitors. Advertising expenditures serve to indicate the relative importance of advertising for a firm as an effort to promote sales. Distributing expenses serve to get into products into more stores, or obtain better store displays and point of purchase merchandising from its retailers. So, the ratio of marketing to sales (marketing intensity) is used to represent marketing efforts. Because marketing expenditures involve the advertising, selling and distributing activities in the balance sheet of firm in Turkey, "market penetration strategy" concept is assumed as "marketing intensity" concept.

It is expected these marketing expenditures will be carried out by manufacturers to increase their profits.

Hypothesis 1 (a) Marketing expenditures are positively related to firm performance.

Hypothesis 1 (b) Marketing expenditures are positively related to export performance.

Diversification (Product and Industrial Diversification): The concept of diversification refers to the relationship among various product activities or enterprises in which a firm engaged. A diversified firm may take advantage of growth opportunities in more than one industry and as a result it may improve its performance. A firm may diversify to reduce its risks. The firm may gain the economies of scale and extension of core skills. Prais (1976) noted that large firms tended to grow by diversification rather than by specialization. The diversification is being examined here for two bases: Product diversification and industrial diversification. Product diversification refers to the expansion to related product areas and differs from differentiation which differentiates the same commodity by branding, packaging, advertising, etc. Thus it is possible for a specialized firm to differentiate its production (Oustapassidis, 1990). Industrial diversification also refers to the relatedness product diversification. "Industrial diversification" is used to reflect the "relatedness" (Wan, 1998). So, concerning the relationship between industrial and product diversification and measures of firm's performance and export performance, it is hypothesized that:

Hypothesis 2 (a) Product diversification is related to firm performance.

Hypothesis 2 (b) Product diversification is related to export performance.

Hypothesis 2 (c) Industrial diversification is related to firm performance.

Hypothesis 2 (d) Industrial diversification is related to export performance.

Innovation (R&D): R&D for technological innovation is at the core of business strategy for firms to compete in the market. The majority of the studies with respect to export performance and innovation have mainly employed the intensity of R&D as a measure of innovation (Sterlacchini, 1999). The term "R&D intensity" refers to a company's expenditure in new technology development, which is the cornerstone of classical theory of product innovation (Li, 1999). Most traditional researches suggest that firms that invest a large portion of their sales on R&D tend to experience more growth than those that do not (Morbey & Reithner, 1990). R&D spending intensity is also important for creating the knowledge flows necessary for product and process innovation. As a result, R&D activity would likely contribute to the success of firms pursuing an innovative strategy. R&D intensity is included in model because of mix findings. Also, in developing countries, the share of expenditures allocated to R&D activities is much less than in developed ones.

Hypothesis 3 (a): *R&D intensity will be associated with the firm's economic performance.*

Hypothesis 3 (b): *R&D intensity will be associated with the firm's export performance.*

3.2. Competitive position in home market

Market share: The effect of size variables – market share – is expected to show the superior performance of the large firms. When the market is oligopolistic with few firms to dominate the market then the leader or few leaders apply their own strategies (e.g. prices, product development, advertising, sales promotion, diversification) and the other firms follow. This provides a comparative advantage to the leading firms that results in an increase of their profit margin which is greater than the small ones. If there is a relationship between market share and profit, the firms enjoy advantages that create higher profit margins.

On the other hand, when under the competitive pressure of an established firm in the home market, the non-dominant firms may have to seek new markets in the international realm, where the dominant one does not have a strong foothold.

So, concerning the relationship between market share and measures of firm's performance and export performance, it is hypothesized that:

Hypothesis 4 (a): *Market share will be positively associated with the firm's economic performance.*

Hypothesis 4 (b): *Market share will be associated with the firm's export performance.*

Labour productivity: Price of products sold in foreign markets can affect the export performance of a firm. Factors determined the price include the unit cost, labour productivity, profit margin, and exchange rate (Klein, 1988). This study focuses on the bilateral comparison, and therefore unit cost, exchange rate and profit margin are not considered. These simplifications lead to conclusion that the labour productivity is the only factor that affects a firm's relative pricing and its export behavior. Labour productivity reduces the cost of goods produced for foreign markets. The cost reduction decreases price of goods in foreign markets. This in turn may create a favorable impact on the achievement of scale economics. By setting low prices, exporters aim to penetrate export market by attracting a large number of foreign customers and winning a large market share (Albaum et al., 1997). The price penetration strategy may increase export intensity of firms as they provide a competitive advantage in global markets.

A link between labour productivity and economic performance, and export performance is also expected.

Hypothesis 5 (a): *Labour productivity will be associated with the firm's economic performance.*

Hypothesis 5 (b): *Labour productivity will be associated with the firm's export performance.*

3.3. Structural Factors

Firm size: Firm size helps in achieving economies of scale due to the large quantities involved. In the international entry stage, economy of scale is an important source of competitive advantage. A company often leverages its domestic production base and in this way reduces average unit costs thanks to increasing production volumes. The firm-specific advantage of the theory of the multinational corporation (Hymer, 1976) suggests that the larger the firm is the greater the capability and the volume to sell abroad.

Hypothesis 6 (a): *Firm size will be positively associated with the firm's economic performance.*

Hypothesis 6 (b): *Firm size will be positively associated with the firm's export performance.*

Capital intensity: Capital intensity represents a firm's long term commitment to building its technological and upgrading its productive capacity (Lee and Giorgis, 2004). Capital expenditure

which may dilute short-term resources will pay off in the long run. It's argued that companies are required to make capital investments to remain competitive and to maintain their company's growth (Balakrishnan & Fox, 1993; Ohmae, 1990). The relationship between capital intensity associated with profitability still has been inconsistent.

Hypothesis 7 (a): Capital intensity will be associated with the firm's economic performance.

Hypothesis 7 (b): Capital intensity will be associated with the firm's export performance.

3.4. Export Activity and Firm's Economic Performance (ROA)

Export activity is traditionally seen as one of the critical routes to corporate growth and financial strength (Cooper & Kleinschmidt, 1985). Exporting offers numerous benefits to an individual firm. For instance, exporting firms can take advantage of growing market abroad, while the same market indicates a sign of saturation in the home country. Such strategy enables the firm to extend the life of its products and to increase its sales. Additionally, exporting helps firms to gain economies of scale in production leading to price competitiveness. In certain industries, by selling abroad, firms can gain access to technology, and sophisticated consumers. This means that the firm can climb up the learning curve quickly and become more successful in both domestic and international markets. A logical argument can be made that export activity should be geared toward raising the competitive competence in the firm (Lee & Giorgis, 2004).

Although the effect of exporting on a firm's performance is not clearly conclusive, it is reasonable to contend that export activity can be one of the major sources for firm growth and profitability. Until recently, there is very limited empirical study examining the direct linkage between exporting and performance. Caves (1981, 1985) and Markides (1995) demonstrate a positive relationship between sales by foreign operations (i.e. measured by the firm's foreign sales as a percentage of total sales) and financial profitability. Therefore, it is expected that engagement in exporting activities has a positive impact on firm performance.

Hypothesis 8: Export activity will have a positive direct effect on the firm's economic performance with respect to accounting-based performance (ROA).

4. Research Model

Based on conceptual framework, research model has been developed. It is shown as follows (Figure 1):

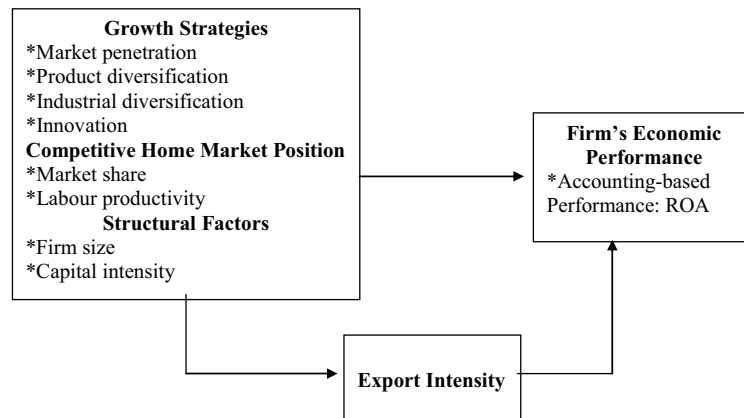


Fig. 1. A conceptual model explaining the direct linkage between growth strategies, competitive home market position, structural factors, export activity and firm's economic performance

5. Research Methodology

In this empirical study the relationships between competitive home position, growth strategies, structural factors and export activity were examined by using panel data analysis.

5.1. Data

The population of this study consists of all the firms that are found in the manufacturing sector traded on the Istanbul Stock Exchange over the period of 1999-2004. Annual balance sheet and income statement belonging to 64 firms in related sectors were obtained from the Istanbul Stock Exchange (ISE) for analysis. Data of study were gathered from all sectors in manufacturing industry. These sectors are shown as follows:

1. Food, beverage and tobacco sector,
2. Textile, wearing apparel and leather sector,
3. Woods products and furniture sector,
4. Paper, printing and publishing sector,
5. Chemical, petroleum, rubber and plastic product sector,
6. Non-metallic mineral products sector,
7. Basic metal sector, and
8. Fabricated metal products, machinery and equipment sector.

5.2. Measurements

Measurements of the dependent and explanatory variables used in this study are presented in Table 2.

Table 2

Measurements of the Dependent and Explanatory Variables

The Dependent Variable	
Accounting-based performance ROA	Net profit after tax/total assets
The Explanatory Variables	
Diversifications	Categorical Variables
Product diversification	non-diversification 0, related product diversification 1
Industrial diversification	non-diversification 0, industrial diversification 1
Marketing intensity	Marketing expenditures /total sales
Innovation-R&D intensity	R&D expenditures /total sales
Market share	Total sales/max in industry
Labour productivity	Total sales/total number of employee; Firm's labour productivity/max in industry
Firm size	Log value of total number of employees
Capital intensity	Net amount of plant & equipment / total assets
Both the Dependent and Explanatory Variable	
Export intensity	(Export sales/total sales)- industry's average export ratio

ROA (after-tax rate of return on average assets) was measured as ratio of net profit after tax over total assets.

There are three principal ways of measuring export performance (Cavusgil & Zou, 1994; Francis & Collins-Dodd, 2000; Katsikeas, Leonidou, & Morgan, 2000; Leonidou et al., 2002; Matthyssens & Pauwels, 1996): economic (e.g. export sales ratio, export sales volume), non-economic (e.g. new markets exports, contribution of exporting to product development) and generic (e.g. perceived export success, satisfaction with overall export performance). In this study economic measures are used. Export intensity was export sales as a percentage of total sales, which is frequently

used as a measure of export performance in the literature (Calof, 1993; Katsikeas et al., 2000; Wolf & Pett, 2000).

Export intensity was measured as ratio of export sales over total sales minus the industry's average export ratio. Because each industry has a different export behavior and export ratio is related to the industry condition and international market requirement, the industry average export is an important factor that is related to the individual firm's export ratio. By subtracting an industry's average export ratio, we account for the different variables in the industries (Ito, 1997).

Marketing intensity was measured as ratio marketing expenditures over total sales and, is used as proxy market penetration.

In this study, there are problems in examining the **diversification**. As the sample is drawn from the listed firms in Istanbul Stock Exchange, in Turkey, the investigation of balance sheet and foot-notes data does not include the dispersion of product sales data in different industries. Therefore, the entropy measure ($\sum P_i \ln(1/P_i)$, P_i : product) developed by Jacquemin and Berry (1979) or Herfindahl type diversification index (Berry, 1971; Sporleder and Skinner, 1977; Oustapassidis, 1988; Wan, 1998) couldn't be used. These measures require detailed data for the share of its product in total firm sales. Unfortunately, this kind of data is considered as strictly confidential and they are not available. To overcome this problem, the dummy variable which takes the value 0 is used, when the firm operates in only one four-digit industry (specialized firm), and the value of 1 otherwise. Four forms of dummy variable are calculated for each firm to measure the firm's output across 4- and 2-digit industries (Standard Industrial Classification -SIC- codes used in the Turkey). The 4-digit indices reflected the expansion to different but closely related activities (product diversification), and the 2-digit indices to totally different product activities (industrial diversification), respectively. Then, two dummy variables are determined as:

a. Product diversification: non-diversification 0, product diversification 1

b. Industrial diversification: non-diversification 0, industrial diversification 1

Research and Development (R&D) intensity was measured by ratio of R&D expenditure to the total sales.

Market share was measured by the total sales of a firm divided by max in the industry.

Average sales per person employed are used to proxy **labour productivity**, because we have no information about value added or the capital stock of the plant in the data.

Firm size was measured by logarithm of employee number.

Capital intensity was measured by the ratio of the net amount of plant & equipment over the total assets.

To identify the objective group, different exporters were chosen using the information provided by ISE (Istanbul Stock Exchange) for exports over the period of 1999-2004. Permanent exporters were defined as those firms that had exported every year in this period. Sporadic exporters were those that had exported for some year during this period.

5.3. Specification of the Model and Results of Panel Data Analysis

Analysis in this study is based on pooled ordinary least squares (OLS), and both random and fixed effects panel estimations.

In panel data the same cross-sectional unit is surveyed over time. Panel data have space as well as time dimensions. This method is being increasingly used in economic research. Since panel data relate to individuals, firms, states, etc., over time, there is bound to be heterogeneity in these units. By combining time series of cross-section observations, panel data give more informative data, more variability, less collinearity among variables, and more efficiency (Gujarati, 2003, p. 636-367).

The basic regression model is specified as follows (Greene, 2003, p. 285):

$$y_{it} = \beta X_{it} + z_i \alpha + \varepsilon_{it},$$

where $i = 1, 2, \dots, N$ refers to a cross-section unit, $t = 1, 2, \dots, T$ refers to time period, y_{it} is the dependent variable, X_{it} are explanatory variables, not including a constant term. ε_{it} is the disturbance term, and β are unknown coefficients that vary according to individuals and time.

The individual effect is $z_i \alpha$ where z_i contains a constant term and a set of individual or group specific variables.

If z_i is unobserved, but correlated with X_{it} , then the least squares estimator of β is biased and inconsistent as a consequence of an omitted variable. However, in this instance, the model

$$y_{it} = \beta X_{it} + \alpha_i + \varepsilon_{it},$$

where $\alpha_i = z_i \alpha$, embodies all the observable effects and specifies an estimable conditional mean. This **fixed effects** approach takes α_i to be a group-specific constant term in the regression model.

If the unobserved individual heterogeneity, however formulated, can be assumed to be uncorrelated with the included variables, then the model may be formulated as

$$y_{it} = \beta X_{it} + \alpha + u_i + \varepsilon_{it}.$$

This **random effects** approach specifies that u_i is a group specific random element.

In this study, the better model choice was made with the Hausman Test. The Hausman specification test implies the presence of a significant correlation between individual specific effects and explanatory variables. The results of this test for each model are presented in Table 3.

Table 3

The Hausman Test for the Better Model Choice

Models	The Results of Hausman Test	P-Value	The Better Model
Model 1	26,93	0,0007	The Fixed Effects Model
Model 2	7,75	0,4587	The Random Effects Model
Model 3	0,31	0,5783	The Random Effects Model

In Table 4 we can see effects of all explanatory variables on ROA. The fixed effects model for model 1 according to the Hausman Test is the better choice. Econometric specification of this model can be specified as

$$ROA_{it} = \beta_1(\text{Product diversification})_{it} + \beta_2(\text{Industrial diversification})_{it} + \beta_3(\text{Marketing intensity})_{it} + \beta_4(\text{Innovation-R\&D intensity})_{it} + \beta_5(\text{Market share})_{it} + \beta_6(\text{Labour productivity})_{it} + \beta_7(\text{Firm size})_{it} + \beta_8(\text{Capital intensity})_{it} + \alpha_i + \varepsilon_{it}$$

The results of the estimation of the fixed effects model indicate that there are significant relationships between ROA and market share, labour productivity, firm size, and capital intensity. Other explanatory variables have insignificant effects on ROA. Capital intensity has negative effect, while market share, labour productivity, and firm size have positive effects on ROA. Hypotheses H1 (a), H4 (a), H5 (a), H6 (a) and H7 (a) are supported.

Table 4

The Fixed Effects of All Explanatory Variables on ROA

MODEL 1: Dependent Variable: ROA				
Explanatory Variables	Coefficient	Std. Error	t-Statistic	Prob.
Product diversification	0.081953	0.071266	1.149966	0.2510
Industrial diversification	-0.018464	0.027108	-0.681119	0.4963
Marketing intensity	0.031079	0.080438	0.386366	0.6995
Innovation-R&D intensity	-0.004122	0.609180	-0.006766	0.9946
Market share	0.111893	0.058756	1.904371	0.0578
Labour productivity	0.111094	0.038476	2.887350	0.0042
Firm size	0.061901	0.018258	3.390338	0.0008
Capital intensity	-0.160962	0.054051	-2.977983	0.0031
R-squared	0.545906	Mean dependent var.		0.050274
Adjusted R-squared	0.442570	S.D. dependent var.		0.116756
S.E. of regression	0.087172	Sum squared resid.		2.370855
F-statistic	5.282847	Durbin-Watson stat.		1.983938
Prob (F-statistic)	0.00000			

In Table 5 effect of export intensity variable on ROA is demonstrated. The random effects model for model 2 according to the Hausman Test is the better choice. Econometric specification of model 2 can be specified as

$$ROA_{it} = \beta_1(\text{Export intensity})_{it} + \alpha + u_i + \varepsilon_{it}.$$

The random effects model shows that there is no significant relationship between export intensity and ROA. Hypothesis H8 is rejected.

Table 5

The Random Effect of Export Intensity Variable on ROA

MODEL 2: Dependent Variable: ROA				
Explanatory Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	0.050274	0.010446	4.812733	0.0000
Export intensity	-0.020225	0.044828	-0.451175	0.6521
R-squared	0.480974	Mean dependent var.		0.050274
Adjusted R-squared	0.479615	S.D. dependent var.		0.116756
S.E. of regression	0.084225	Sum squared resid.		2.709870
Durbin-Watson stat.	1.859436			

Table 6 presents effects of all explanatory variables on export intensity. The random effects model for model 3 according to the Hausman Test is the better choice. Econometric specification of model 3 can be specified as

$$\text{Export Intensity}_{it} = \beta_1(\text{Product diversification})_{it} + \beta_2(\text{Industrial diversification})_{it} + \beta_3(\text{Marketing intensity})_{it} + \beta_4(\text{Innovation-R\&D intensity})_{it} + \beta_5(\text{Market share})_{it} + \beta_6(\text{Labour productivity})_{it} + \beta_7(\text{Firm size})_{it} + \beta_8(\text{Capital intensity})_{it} + \alpha + u_i + \varepsilon_{it}.$$

The result of the random effects model shows that there is no significant relationship between export intensity and explanatory variables. But innovation-R&D intensity and labour productivity variables have effect in the probability level 0.1070 and 0.1022 on export intensity. Hypotheses H3 (b) and H5 (b) are supported.

Table 6

The Random Effects of All Explanatory Variables on Export Intensity

MODEL 3: Dependent Variable: Export Intensity				
Explanatory Variables	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-0.075611	0.098669	-0.766313	0.4440
Product diversification	-0.033076	0.035752	-0.925160	0.3555
Industrial diversification	0.001566	0.019494	0.080332	0.9360
Marketing intensity	0.000296	0.076719	0.003853	0.9969
Innovation-R&D intensity	-0.990660	0.613186	-1.615595	0.1070
Market share	0.068179	0.047537	1.434215	0.1523
Labour productivity	-0.058868	0.035933	-1.638261	0.1022
Firm size	0.018123	0.013758	1.317343	0.1885
Capital intensity	-0.048860	0.044623	-1.094945	0.2742
R-squared	0.906272	Mean dependent var.		1.04E-11
Adjusted R-squared	0.904272	S.D. dependent var.		0.197447
S.E. of regression	0.061090	Sum squared resid.		1.399499
Durbin-Watson stat.	1.621689			

6. Panel Data Analysis Results Expanded with Specific Effects of Exporter Groups

In this study, exporters separate two groups. The first group is permanent exporters. The second group is sporadic exporters.

Model 1 was expanded with group-specific effects dummy variables for research whether there are differences between groups in manufacturing sector or not. Each dummy variable was multiplied with explanatory variables. Coefficients of explanatory variables related to each group are obtained from this model. This model can be expressed as

$$ROA_{it} = \sum_{b=1}^2 \alpha_b Group_b + \sum_{b=1}^2 \sum_{c=1}^8 \beta_{bc} (Group_b Explanatory Variables_{cit}) + \varepsilon_{it}.$$

Group = Group dummies, i= 1,2,...,64 firm number, t= 1,2,...,6 time

Explanatory Variables = Product diversification, industrial diversification, marketing intensity, market share, labour productivity, firm size, capital intensity.

In Table 7, this model is presented as effects of explanatory variables on ROA for each group. The effects of product diversification and industrial diversification on ROA are significant for permanent exporters. However, the effects of industrial diversification and firm size variables on ROA are significant for sporadic exporters. Labour productivity variables have effect in the probability level 0.1075 on ROA for sporadic exporters. The others variables have insignificant effects on

ROA for both groups. Hypothesis H2 (a) is supported for only permanent exporters and Hypothesis H2 (c) is supported for both permanent and sporadic exporters.

Table 7

The Effects of Explanatory Variables on ROA for Groups

MODEL 4: Dependent Variable: ROA				
Explanatory Variables	Coefficient	Std. Error	t-Statistic	Prob.
Group 1 (G1): Permanent exporters	-0.033820	0.112401	-0.300884	0.7637
Group 2 (G2): Sporadic exporters	-0.280381	0.289460	-0.968634	0.3335
(G1) Product diversification	0.030050	0.018070	1.662969	0.0974
(G1) Industrial diversification	0.052559	0.027368	1.920448	0.0557
(G1) Marketing intensity	-0.051109	0.117781	-0.433930	0.6647
(G1) Market share	-0.003434	0.035767	-0.096008	0.9236
(G1) Labour productivity	0.011438	0.036086	0.316973	0.7515
(G1) Firm size	0.005149	0.012006	0.428873	0.6683
(G1) Capital intensity	-0.022100	0.063256	-0.349373	0.7271
(G1) Export intensity	0.027900	0.044580	0.625842	0.5319
(G2) Product diversification	0.059278	0.113815	0.520822	0.6029
(G2) Industrial diversification	-0.146451	0.060967	-2.402121	0.0169
(G2) Marketing intensity	-0.750174	0.872511	-0.859788	0.3906
(G2) Market share	-0.414771	0.600158	-0.691102	0.4900
(G2) Labour productivity	0.246882	0.152930	1.614343	0.1075
(G2) Firm size	0.073905	0.044513	1.660289	0.0979
(G2) Capital intensity	-0.132195	0.129691	-1.019310	0.3089
(G2) Export intensity	0.083333	0.271359	0.307095	0.7590
AR (1)	0.413096	0.078765	5.244656	0.0000
R-squared	0.353818	Mean dependent var.		0.049282
Adjusted R-squared	0.315176	S.D. dependent var.		0.117830
S.E. of regression	0.097509	Sum squared resid.		2.861902
F-statistic	9.156298	Durbin-Watson stat.		2.231046
Prob (F-statistic)	0.000000			

The differences among groups for ROA were calculated with model as follows (Table 8):

$$ROA_{it} = \alpha_1 Group_1 + (\alpha_2 - \alpha_1) Group_2 + \sum_{c=1}^8 \lambda_{1c} Explanatory Variables_{cit} + \sum_{c=1}^8 (\beta_{2c} - \lambda_{1c}) Group_2 (Explanatory Variables_{cit}) + \varepsilon_{it}.$$

Group₁ = dummy related to permanent exporters group,

Group₂ = dummy related to sporadic exporters group.

There is a significant difference of the effect on ROA only for industrial diversification variable between permanent exporters and sporadic exporters. The effect of industrial diversification on ROA is positive for permanent exporters group, while it is negative for sporadic exporters.

Table 8

Group Differences of the Effects of Explanatory Variables on ROA

MODEL 5: Dependent Variable: ROA				
Explanatory Variables	Coefficient	Std. Error	t-Statistic	Prob.
Group 1 (G1): Permanent exporters	-0.033820	0.112401	-0.300884	0.7637
Group 2- Group 1 (G2-G1): Permanent exporters - Sporadic exporters	-0.246561	0.319584	-0.771507	0.4410
(G1) Product diversification	0.030050	0.018070	1.662969	0.0974
(G1) Industrial diversification	0.052559	0.027368	1.920448	0.0557
(G1) Marketing intensity	-0.051109	0.117781	-0.433930	0.6647
(G1) Market share	-0.003434	0.035767	-0.096008	0.9236
(G1) Labour productivity	0.011438	0.036086	0.316973	0.7515
(G1) Firm size	0.005149	0.012006	0.428873	0.6683
(G1) Capital intensity	-0.022100	0.063256	-0.349373	0.7271
(G1) Export intensity	0.027900	0.044580	0.625842	0.5319
(G2-G1) Product diversification	0.029228	0.115101	0.253932	0.7997
(G2-G1)Industrial diversification	-0.199010	0.066544	-2.990653	0.0030
(G2-G1)Marketing intensity	-0.699066	0.881351	-0.793175	0.4283
(G2-G1)Market share	-0.411337	0.601834	-0.683472	0.4948
(G2-G1)Labour productivity	0.235444	0.157746	1.492546	0.1366
(G2-G1)Firm size	0.068756	0.047237	1.455560	0.1466
(G2-G1)Capital intensity	-0.110095	0.144164	-0.763681	0.4457
(G2-G1)Export intensity	0.055433	0.274529	0.201920	0.8401
AR (1)	0.413096	0.078765	5.244656	0.0000
R-squared	0.353818	Mean dependent var.		0.049282
Adjusted R-squared	0.315176	S.D. dependent var.		0.117830
S.E. of regression	0.097509	Sum squared resid.		2.861902
F-statistic	9.156298	Durbin-Watson stat.		2.231046
Prob (F-statistic)	0.000000			

Model 3 was also expanded with group-specific effects dummy variables for research whether there are differences between groups in manufacturing sector or not. This model can be specified as follows

$$\text{Export Intensity}_{it} = \sum_{b=1}^2 \alpha_b \text{Group}_b + \sum_{b=1}^2 \sum_{c=1}^8 \beta_{bc} (\text{Group}_b \text{Explanatory Variables}_{cit}) + \varepsilon_{it}.$$

Explanatory Variables = Product diversification, industrial diversification, marketing intensity, market share, labour productivity, firm size, capital intensity.

In Table 9, this model is presented as effects of explanatory variables on export intensity for each group. The effect of industrial diversification variable on export intensity is significant for perma-

nent exporters. This effect is negative for permanent exporters. The effect of industrial diversification variable on export intensity is also significant for sporadic exporters. However, this effect is positive for sporadic exporters. The others variables have insignificant effects on export intensity for both groups. Hypothesis H2 (d) is supported.

Table 9

The Effects of Explanatory Variables for Groups on Export Intensity

MODEL 6: Dependent Variable: Export Intensity				
Explanatory Variables	Coefficient	Std. Error	t-Statistic	Prob.
Group 1 (G1): Permanent exporters	0.161952	0.325979	0.496817	0.6197
Group 2 (G2): Sporadic exporters	-0.288135	0.261910	-1.100129	0.2721
(G1) Product diversification	0.008297	0.046702	0.177667	0.8591
(G1) Industrial diversification	-0.048959	0.023532	-2.080547	0.0383
(G1) Marketing intensity	0.022372	0.052694	0.424553	0.6715
(G1) Market share	0.042038	0.076825	0.547193	0.5846
(G1) Labour productivity	-0.069232	0.052793	-1.311397	0.1907
(G1) Firm size	-0.010862	0.043669	-0.248738	0.8037
(G1) Capital intensity	-0.001079	0.048158	-0.022397	0.9821
(G2) Product diversification	-0.367533	0.307851	-1.193868	0.2335
(G2) Industrial diversification	0.063309	0.020378	3.106785	0.0021
(G2) Marketing intensity	-0.830057	0.544832	-1.523510	0.1287
(G2) Market share	0.418477	0.316283	1.323106	0.1868
(G2) Labour productivity	-0.054494	0.098042	-0.555826	0.5787
(G2) Firm size	0.047541	0.035592	1.335743	0.1826
(G2) Capital intensity	0.062443	0.105252	0.593272	0.5534
AR (1)	0.929890	0.024113	38.56349	0.0000
R-squared	0.863446	Mean dependent var.		3.12E-12
Adjusted R-squared	0.856236	S.D. dependent var.		0.201070
S.E. of regression	0.076238	Sum squared resid.		1.761121
F-statistic	119.7443	Durbin-Watson stat.		2.654018
Prob (F-statistic)	0.000000			

The differences among groups for export intensity were calculated with model as follows (Table 10):

$$\text{Export Intensity}_{it} = \alpha_1 \text{Group}_1 + (\alpha_2 - \alpha_1) \text{Group}_2 + \sum_{c=1}^8 \lambda_{1c} \text{Explanatory Variables}_{cit} + \sum_{c=1}^8 (\beta_{2c} - \lambda_{1c}) \text{Group}_2 (\text{Explanatory Variables}_{cit}) + \varepsilon_{it}.$$

There is a significant difference of the effect on export intensity only for industrial diversification variable between permanent exporters and sporadic exporters. The effect of industrial diversification on export intensity is negative for permanent exporters group, but it is positive for sporadic exporters.

For making easy the interpretation of findings, the results are summarized in Table 11.

Table 10

Group Differences of the Effects of Explanatory Variables on Export Intensity

MODEL 7: Dependent Variable: Export Intensity				
Explanatory Variables	Coefficient	Std. Error	t-Statistic	Prob.
Group 1 (G1): Permanent exporters	0.161952	0.325979	0.496817	0.6197
Group 2- Group 1 (G2-G1): Permanent exporters -	-0.450087	0.398274	-1.130094	0.2593
(G1) Product diversification	0.008297	0.046702	0.177667	0.8591
(G1) Industrial diversification	-0.048959	0.023532	-2.080547	0.0383
(G1) Marketing intensity	0.022372	0.052694	0.424553	0.6715
(G1) Market share	0.042038	0.076825	0.547193	0.5846
(G1) Labour productivity	-0.069232	0.052793	-1.311397	0.1907
(G1) Firm size	-0.010862	0.043669	-0.248738	0.8037
(G1) Capital intensity	-0.001079	0.048158	-0.022397	0.9821
(G2-G1) Product diversification	-0.375831	0.310339	-1.211032	0.2268
(G2-G1)Industrial diversification	0.112268	0.031251	3.592483	0.0004
(G2-G1)Marketing intensity	-0.852429	0.547283	-1.557566	0.1204
(G2-G1)Market share	0.376438	0.325892	1.155103	0.2490
(G2-G1)Labour productivity	0.014738	0.111653	0.131999	0.8951
(G2-G1)Firm size	0.058403	0.056474	1.034167	0.3019
(G2-G1)Capital intensity	0.063521	0.115971	0.547738	0.5843
AR (1)	0.929890	0.024113	38.56349	0.0000
R-squared	0.863446	Mean dependent var.		3.12E-12
Adjusted R-squared	0.856236	S.D. dependent var.		0.201070
S.E. of regression	0.076238	Sum squared resid.		1.761121
F-statistic	119.7443	Durbin-Watson stat.		2.654018
Prob (F-statistic)	0.000000			

Table 11

Summary of the Study Results

	General		Economic Performance		Export intensity	
	Economic Performance	Export intensity	Permanent Exporter	Sporadic Exporter	Permanent Exporter	Sporadic Exporter
Product diversification			+		-	+
Industrial diversification			+	-		
Marketing intensity						
Innovation-R&D intensity		-				
Market share	+					
Labour productivity	+	-	+			
Firm size	+		+			
Capital intensity	-					
Export intensity						

7. Conclusion and Implications

According to findings, market share, labour productivity and firm size are important determinants for economic performance of firms. In terms of market share, this finding can be explained by the fact that the leader firms have higher economic performance than the following ones in their market. An increase in labour productivity could bring up the economic performance. Larger firm size helps in achieving better economic performance due to the large quantities involved. Size of firm is important as a measure of relative status in the capital market and the market for its products. Small firms are more constrained in their ability to raise capital than their larger competitors, because of less stable profits and higher risks (Penrose, 1959). They are forced to pay higher interest charges on their debt and therefore are expected to grow at a slower rate than large firms. Capital intensity showed negative effect on economic performance. This result is also supported by Lee and Giorgies (2004). They found that capital intensity showed a negative correlation with accounting performance. This can be explained by the fact that the firms do not effectively apply capital investments strategies.

Export intensity is found insignificant for accounting based performance. This can be implied that exporting has not contributed to accounting performance of Turkish firms over 1999-2004 period. This critical result can explain why Turkish firms don't tend to exporting and Turkey's exporting rates are low in the global arena.

R&D and labour productivity show a negative effect on export intensity. It's obvious that Turkish firms have not been successful in product innovation strategies. Increasing R&D budgets does not automatically lead to fundamental innovations which enable the generation of new products. This finding also is suggested by Lebevre et al. (1998), Bechetti and Rossi (1998), and Wakelin (1998). They concluded R&D expenditure to be an insignificant determinant of exports and not increase the share of exports on sales. On the other hand, increasing labour productivity of firm can reduce the cost of goods produced for foreign markets. Therefore it reduces the product's exporting prices of the firm. Lower exporting price of product can result in increase of exporting intensity of firms. However, negative correlation may indicate that reduction of the good's cost is not included in the product's exporting prices by the firm. Exporting of Turkish manufacturing firms may decrease due to higher exporting prices.

The effects on accounting economic performance of product diversification and industrial diversification are significant for permanent exporters. Hamilton and Shergill (1993) also found that product diversified firms have higher performance than other firms. Product diversification provides to benefit from exploiting core resources and leads to higher performance. However, the effects of labour productivity and firm size on accounting economic performance are significant for sporadic exporters. Industrial diversification influences negatively accounting economic performance for sporadic exporters. Sporadic firms may be forced to diversify by entering lines of production which are more and more unrelated to their original technological base and they become less able to maintain the overall profitability of the firm.

The findings related to the question whether there are differences between groups in manufacturing sector or not showed that there is a significant difference of the effect on accounting economic performance only for industrial diversification variable between permanent exporters and sporadic exporters. The effect of industrial diversification on accounting economic performance is positive for permanent exporters group, while it is negative for sporadic exporters.

Permanent exporters pleased for increasing of their economic performance by both type diversifications. But the firms which are on the initial level of globalization have to only diversify into product, not industry. These results are similar to Oustapassidis's (1990) and Arnould's (1969) views that firms would be expected to diversify into related areas since the marginal cost of information would, in most cases, be less if the moves were in this form rather than of a more conglomerate nature. Sporadic exporters that diversify into industries can lose its market focus. Therefore, these actions result in a reducing in the firm's performance. Sporadic exporters prefer specialisation within a limited group of different products instead of any further expansion to new product areas. Any further in-

crease in industrial diversification may be less effective for economic performance of sporadic exporters and vice versa for permanent exporters. On the other hand, if sporadic exporters increase their firm size and labour productivity, they will improve firm's performance.

The findings related to the effects on export intensity of explanatory variables for each group show that the effect on export intensity of industrial diversification variable is significant for permanent exporters. This effect is negative for permanent exporters. The effect of industrial diversification variable on export intensity is also significant for sporadic exporters. However, this effect is positive for sporadic exporters.

There is a significant difference of the effect on export intensity only for industrial diversification variable between permanent exporters and sporadic exporters. Because the effect of industrial diversification on export intensity is negative for permanent exporters group, and positive for sporadic exporters.

According to these findings, permanent exporters must be cautious in expanding to totally different products with respect to exporting activities. While industrial diversification increases the firm's performance, it limits exporting. In the mature globalisation process, industrial diversification effects negatively exporting intensity. Although a firm gains experiences in the foreign markets, it can't be successful due to insufficient knowledge about different product markets. Also, Markides and Williamson (1994, 1996), and Robins and Wiersema (1995) support this finding. They argue that a product diversifier can enhance its performance only when its business obtains preferential access to the firm's strategic assets which are valuable and costly to imitate in the market.

Whereas, sporadic exporters are on the initial level of globalisation process and industrial diversification increases their export intensity. These firms may have elasticity to choose better diversification strategies within various opportunities in the global arena.

Consequently, the two groups must apply different strategies for increasing their exporting performance.

Notwithstanding the certain limitations such as unitary measure of labour productivity, export performance and economic performance variables and not available specific product sales data in Turkish firm's balance sheet, the findings of this study provide important implications for strategic factors and performance links. This study will also provide policy makers as well as business managers responsible for international marketing with better understanding of inside strategic resources and export interaction. It can help Turkish manufacturing firms to facilitate expansion of their foreign market through diversification. Policy makers can understand exporting problem areas and they can direct their export strategy more effectively by allocating available resources in crucial areas of export enhancement.

This panel study can be useful for future research on different cultures.

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