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XIV. ULUSLARARASI EKONOMETRİ YÖNEYLEM ARAŞTIRMASI VE İSTATİSTİK SEMPOZYUMU

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ÖZEL SAYISI

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DOES THE LINK BETWEEN MARKETING ORIENTATION AND INNOVATION LEAD TO SUCCESS? A SURVEY BASED ON SEM IN TURKEY

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Abstract

Innovation has been long discussed to be an important element for sustaining a competitive advantage. The relationship between market orientation and innovation has not been argued enough in literature. Innovation can be defined as firms gain position through an introduction of new technologies, production processes, and products in the market place. According to the Schumpeterian view (1934) to take a competitive advantage, firms should link between marketing and innovation orientation. However, Drucker (1954) defines that the two basic elements, of the firms' are marketing and innovation, so that innovation concept fits on the centrality of market orientation. The purpose of this study is to investigate the impact of innovation on a firm's performance in the context of product and marketing innovation among over 10.000 firms, the data of which were provided by the Turkish Statistical Institute. It examines the relation between firm innovation and financial performance as a firm performance criterion. Structural Equation Modeling has used to analyze the possibility of a marketing/innovation effect on performance model, as the basis of the Community Innovation Statistics questionnaire survey.

Keywords: Innovation Orientation, Marketing Innovation, Product Innovation, Structural Equation Model (SEM)

JEL Classification: M10, M20, M30

PAZARLAMA YÖNLÜLÜK İLE INOVASYON ARASINDAKİ İLİŞKİ BAŞARIYI GETİRİR Mİ? TÜRKİYE'DE SEM TEMELLİ BİR ARAŞTIRMA

Özet

İnovasyon, rekabetin avantajının sürdürülmesinde önemli bir eleman olarak uzun süredir tartışılmaktadır. Pazarlama odaklılık ile inovasyon arasındaki ilişki literatürde yeterince tartışılmamıştır. İnovasyon firmaların yeni teknolojiler, üretim süreçleri ve ürünler yoluyla pazarda bir pozisyon elde etmeleri olarak tanımlanabilir. Schumpeteryan bakış açısına (1934) göre bir rekabet avantajı elde etmek, firmaların pazarlama ile inovasyon odaklılık arasında bir bağ oluşturmasıyla olmaktadır. Ancak, Drucker (1954) firmaların iki temel unsurunu pazarlama

ve inovasyon olarak açıklamakta ve inovasyon kavramını pazarlama odaklılığının merkezine yerleşmektedir. Bu çalışmanın amacı, Türkiye İstatistik Kurumu'ndan sağlanan yaklaşık 10.000'inin üzerinde firma verisi yoluyla ürün ve pazar inovasyonu çerçevesinde inovasyonun firma performansı üzerindeki etkisini araştırmaktır. Finansal performans ölçütü olarak finansal performans ile firma inovasyonu arasındaki ilişki incelenmiştir. Pazarlama/İnovasyonun Performansa Etkisi Modelinin analiz edilmesinde Topluluk İnovasyon İstatistikleri (Community Innovation Statistics) çerçevesinde oluşturulmuş olan anket araştırması temelinde Yapısal Eşitlik Modeli kullanılmıştır.

Anahtar Kelimeler: Pazarlama Odaklılık, İnovasyon Odaklılık, Pazarlama İnovasyonu, Ürün İnovasyonu, Yapısal Eşitlik Modeli (SEM)

JEL Kodu: M10, M20, M30

1. Introduction

In recent years, the strategic marketing literature has focused on the relationship between marketing and product innovation with the aim of understanding the firm performance. In this context, the degree of market orientation of the firm is important in creating new products and services (Houstan, 1986; Kohli & Jaworski, 1990; Narver & Slater, 1990). As Drucker (1954) argues that marketing and innovation are the two basic functions of the firm. Similarly, the core of Kohli and Jaworski (1990) definition of market orientation is an innovation (Griffin & Hauser, 1996) investigated that the collaboration for R&D and marketing reveal better new product performance. Innovation is widely seen a critical source of the competitive advantage that the necessity for firm growth strategies to create and enter new markets, to increase the existing market share (Gunday, Ulusoy, Kılıc, & Alpkan, 2011, p. 662). While innovation is an important source of competitive advantage, the speed of this innovation affects marketing activities and the new product development process (Brown & Eisenhardt, 1997). Schaefer (1999) argued that product development and new products are the principal indicators of profitability of a firm. Hence, success of firms substantially based on their capability to develop new methods of production and create new products and markets (Day, 1994; McEvily, Eisenhardt, & Prescott, 2004; Nerkar & Roberts, 2004; Sorescu, Chandy, & Prabhu, 2003) that involve strong interaction between the firm and its customers (Akova, Ulusoy, Payzın, & Kaylan, 1998).

Innovativeness leads to innovations that comprehensive activity in which from new knowledge applied to commercial ends that ranging from minor changes to existing products, processes, or marketing efforts and/or improved product lines or processes. Innovativeness can be defined as a firm's willingness to place a strong emphasis on technological developments, new products, and new services (Schumpeter, 1934; Slevin & Covin, 1994). This innovative knowledge reaches to

the firm from external sources (Cassiman & Veugelers, 2002) as well as internal sources are a critical component of innovative capabilities (Tsai, 2001).

Much of the research showed that marketing capability has an important role in innovation-based strategy (Weerawardena & O'Cass, 2004) and this capability increases success market performance of the firm (Day, 1994; Mariadoss, Tansuhaj, & Mouri, 2011, p. 1308; O'Driscoll, Carson, & Gilmore, 2000; O'Cass & Weerawardena, 2009). However, past research investigated that marketing capability affects all types of innovations (Mariadoss et al., 2011, p. 1308) and innovation-based sustainable strategies used by the firm. Manu and Sriram (1996) showed that different innovative types should have different marketing strategies. In addition, they argue that the wide-ranging relationships between different aspects of innovativeness and marketing strategies, expenditures and performance, as well as links to the environmental context.

The purpose of this study is to investigate the impact of innovation on firm performance in the context of product and marketing innovation among over 10.000 firms, the data of which were provided by the Turkish Statistical Institute (TurkStat). It examines the relation between firm innovation and financial performance as a firm performance criterion. Structural Equation Modeling (SEM) has used to analyze the possibility of a marketing/innovation effect on performance model, as the basis of the Community Innovation Statistics (CIS) questionnaire survey.

This article is organized as follows. First, we reviewed the extant literature on strategic marketing in the context of innovation, marketing orientation, and firm performance. Second, the study's conceptual framework and hypotheses are detailed. Then, the methodology used to design the empirical study is described and the results are presented.

2. Literature Review

2.1. Innovation Types

Strategic marketing literature emphasizes on marketing and product innovation advantage from faster product development because innovation speed is almost critical under different market conditions (Lambert & Slater, 1999). Especially the development of new products is an important strategy that includes identifying customer needs and analyzing market conditions for firms in surviving in competitive and segmented markets (Calantone & di Benedetto, 1988).

The European Commission (1995, as cited in Camisón & Monfort-Mir, 2012) defines innovation as "the renewal and enlargement of the range of products and services and the associated markets; the establishment of new methods of production, supply, and distribution; the introduction of changes in management, work organization, and the working conditions of the

workforce". As regards to this conceptualization an innovation can be separate from the form of the innovation, and its impact range on a world, national, regional, or sectorial (Camisón & Monfort-Mir, 2012, p. 777).

The academic literature highlighted the importance of innovation in different types. Schumpeter (1934) described different types of innovation: new products, new methods of production, new sources of supply, the exploitation of new markets and new ways to organize business (Gunday et al., 2011, p. 662). These innovation types are evaluated in the OECD (2005) Oslo Manual as product innovation, process innovation, marketing innovation and organizational innovation. The third edition of Oslo Manual (OECD, 2005) that developed based on the "dual-core" model by Daft (1978), categorized the innovation as technological or technical and non-technological innovations as organizational or marketing innovations. Technological innovation is related with the "technological core" of the firm that are directly associated with the main activity of the organization such as products, processes and production technologies.

Generally technological innovation, separated as product innovation and process innovation. The technological process of innovation that related to the products includes the development or introduction of new materials, intermediate products, or new components or product characteristics. On the other hand, innovation related to processes that associated with the development or introduction of new equipment, an increase in the degree of automation of processes, a redistribution of the production processes, or the use of new energy sources (Camisón & Monfort-Mir, 2012, p. 778).

Non-technological innovations that encompass organizational and marketing innovations are indirectly related to core functions of the organization. Marketing innovations include changes in marketing mix such as product design, promotion, distribution, and price strategies that have an important role in commercialized of products. However, organizational innovation refers to the administrative core of the organizations, which operationalized through internal management practices such as human resources, the structure of work methods and the external relationships based on customers, suppliers and competitors (Damanpour, Walker, & Avellaneda, 2009).

In addition, innovation is classified as incremental or radical innovation according as the degree of novelty (Damanpour, 1991). Radical innovation as called destructive innovation is market-based in which related to the technological basis of the substantial innovation that produces marginal changes in core practices and in the knowledge available in a firm or in the world. In contrast, incremental innovation represents instead fundamental changes as regards current practices and knowledge (Camisón & Monfort-Mir, 2012, p. 778; Govindarajan & Kopalle, 2006; Tushman & O'Reilly, 1997). Marketing uses incremental innovation in extensions of the product line or in adding features of current products. In the marketing literature, innovation

concerned with product-level (Iyer, LaPlaca, & Sharma, 2006, p. 374). Banbury and Mitchell (1995) studied that continuous innovations and the constancy of incremental innovations increased market share of firms. In their study Iyer et al. (2006), the country specific factors such as economic development path, market size, and business and consumer culture influence the choice of radical or incremental innovations.

Some writers classified innovation both explorative and exploitative innovation. Exploration is related to the action of firms designed by search, discovery, risk-taking, experiment, and flexibility. On the other hand exploitation, refer to firm act that is designed with refinement, selection, production, efficiency, and implementation (March, 1991). Explorative innovation focus on technological innovation practices that characterized for new or emerging product markets. Whereas in pure exploitative innovation aimed to satisfy the needs of current customers for developing existing product-market positions through technological changes and variations (He & Wong, 2004; Yalcinkaya, Calantone, & Griffith, 2007). When both types of innovation considered simultaneously enhance of new product types, provide long-term well-being and sustainability of a firm (March, 1991, O'Reilly & Tushman, 2008).

2.2. Product and Marketing Innovation

Generally, innovation is not only related to new knowledge and/or technologies but also new uses of current knowledge and technologies. In the context of technological development, innovation is evaluated as product and process innovations. Innovation is essential to provide production and marketing goals such as an increase in product quality, market share, and production flexibility, decrease in production cost, and creation of new markets (Quadros, Roberto, & Franco, 2001). Drucker (1985) defined innovation as the process of equipping in new, improved capabilities or increased utility. Innovation process which emphasizes not only marketing activities that the development new knowledge, products and services but also promote knowledge transfers, such as joint ventures with foreign partner so new licensing agreements, and other actions that affect the organization of the firm's business activities (Ayyagari, Demirgüç-Kunt, & Maksimovic, 2011, p. 1546).

In the marketing literature, innovation concerned with product-level (Iyer et al., 2006, p. 374) that categorized with respect to product newness as reformulated new products and originally new products. Reformulated new products occurred such as line extensions and product modification in consequence of behavioral changes of customers' consumption patterns. Despite that original new product reflects a new product lines and new for the World (Atuahene-Gima, 1996). In this context product innovation as a primary means of corporate renewal (Danneels, 2002, p. 1095) can be defined new to the firm or the market that is improved regarding its

characteristics such as take different forms, uses and including significant improvements in technical specifications (OECD, 2005).

New product development is a process of linking technology and customers that require competence relating to technology and competence relating to customers (Danneels, 2002, p. 1104). In the new product development literature, Cooper and Kleinschmidt (1995), Song and Parry (1997) showed a positive relationship between product competitive and the level of new product success. According to Szymanski and Henard's (2001) meta-analysis represents a product differential advantage as a strong determinant of new product performance. However some studies have focused on the relationship between innovation speed and new product quality (Kessler & Bierly, 2002; Lukas & Menon, 2004), other studies have investigated that the effect of innovation speed on financial performance (Cooper & Kleinschmidt, 1995). Danneels (2002) shows that activities of developing and marketing new products can extend the capability of the firm. Cooper and Kleinschmidth (1995) have investigated that offering new products to market affect positively the financial performance of a new product project. They indicated that new product performance measures in terms of the new product's outcomes annual sales, market share, and profitability as annual.

OECD (2005) in Oslo Manual defined marketing innovation as "the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing". As Kotler (1991) indicated that marketing innovations are related to the lines of four P's of marketing. Marketing innovations aim increasing firm's sales with satisfying customer needs better, opening up new markets, or newly positioning a firm's product on the market.

As new products that developed with distinctive characteristics that includes superior product quality and design, expanded services provide unique value to customers the firms obtain better market performance. At the same time, the ability of a firm to perform new product development and marketing activities at a lower cost is evaluated as a new product advantage. The new product success of the firms is related a firm's market orientation (Kim & Atuahen-Gima, 2010). Grewal and Tansuhaj (2001) investigated that competitive intensity and degree of competition influence firm's activities on market performance. Dibrell, Craig and Hansen (2011) showed that a positive relationship between market orientation and firm innovativeness is moderated by natural environmental policy positively but the organizational life cycle is moderated negatively (market orientation to innovativeness).

It is argued that successful firms that perform innovation and marketing efforts simultaneously increase of market performance. There is a complementary relationship between the capability of

innovation that enables firms to create value and marketing activities that help to capture this value. The relationship between innovation, marketing efforts, and performance is extremely important. O'Cass and Ngo (2011) found that innovation and marketing capabilities significantly affect market performance.

As a type of product-firm congruity, the innovation - marketing fit is considered here. In this study innovation-marketing fit related an extension of the new product/service development may take advantage of the current marketing capabilities of the firm, such as the design of the new product, creating new market, distribution, advertising and promotion (Calantone & di Benedetto, 1988; Cooper & de Brentani, 1991; Cooper & Kleinschmidt, 1987). Especially, in the stage of commercialization of the new technological products, innovation oughts to be associated with the promotion, supply and distribution capability fort to provide profit from innovation (Teece, 1987).

Also innovative products or services used by market-oriented firms to satisfy customer needs and to take an advantage against competitors. (Dibrell et al., 2011, p. 469). Several studies have shown a strong relationship between innovativeness and market orientation (Han, Kim, & Srivastava, 1998; Kirca, Jayachandran, & Bearden, 2005). The strength of this relationship depends on the capability of the firms to develop new products and services associated with these products that meet customer demands (Han et al., 1998; Jaworski & Kohli, 1993; Tajeddini, Trueman, & Larsen, 2006). In addition, Slater and Narver (1994) have found a positive correlation between market orientation and new product performance.

2.3. Innovation Performance

In Schumpeter's (1934) innovation theory, innovation displays as an outcome or innovative performance. According to this theory, the creation of new knowledge or new combinations of existing knowledge are presented source of innovations in the firm. Innovation performance is an observable result of the capability of transforming knowledge of products, processes, market, or new organizations. In addition, depending on improving the innovative performance, production and marketing performances will amendment and grow in result of the mediation the financial performance (Gunday et al., 2011, p. 665).

Innovative firms effectively conduct innovation and marketing activities complementary to create value on the base of customer that will transform to valuable intangible assets (Berry, 2002). At the same time, this complementary connection contributes to superior market performance of firms (O'Cass & Ngo, 2011, p. 1319).

Several aspects of innovation performance are identified in the literature (Atuahene-Gima, 1996, p. 94). One of these aspects is innovation speed. The timing of market entry is another aspect

that is used in description of innovation (Manu & Sriram, 1996). Innovation speed that defined as a firm's capability to advance the progress that displayed in the new product development processes is an important resource for the firm on staying close to the customer (Chen, Lin, & Chang, 2009; Kessler & Bierly, 2002). Carbonell and Rodriguez (2006) show the positive relationship between innovation speed and new product performance. According to their studies, competitive intensity, market potential and market uncertainty affect innovation speed and new product.

Innovation has been measured by use output terms as statistics on new products and patents. In input terms innovation measured with on R&D expenditures and numbers of scientists and engineers as a percent of the workforce (Manu & Sriram, 1996).

In the context of new product success, innovative performance is associated with an increase in sales and market shares (Wang & Wei, 2005). Ehie and Olibe's (2010) research supported that industry concentration and leverage, R&D investment positively affects firm performance and firm market value. Lawton and Parasuraman (1980, as cited in Atuahene-Gima, 1996, p. 94) studied that the marketing, from both innovations, had an insignificant effect with respect of the innovation activities and the degree of product newness.

Gunday et al. (2011), aim to explore innovations and their effects on firm performance by examining product, process, marketing and organizational innovations, as well as by focusing on various aspects of firm performance. They found that innovation has a positive and significant impact on innovative performance in manufacturing firms. O'Cass and Ngo (2011), in their study take into account the contribution of entrepreneurial orientation and market orientation to their focal functional capabilities and marketplace performance. They found that market orientation and entrepreneurial orientation are two crucial steps for firms' enroute to superior marketplace performance.

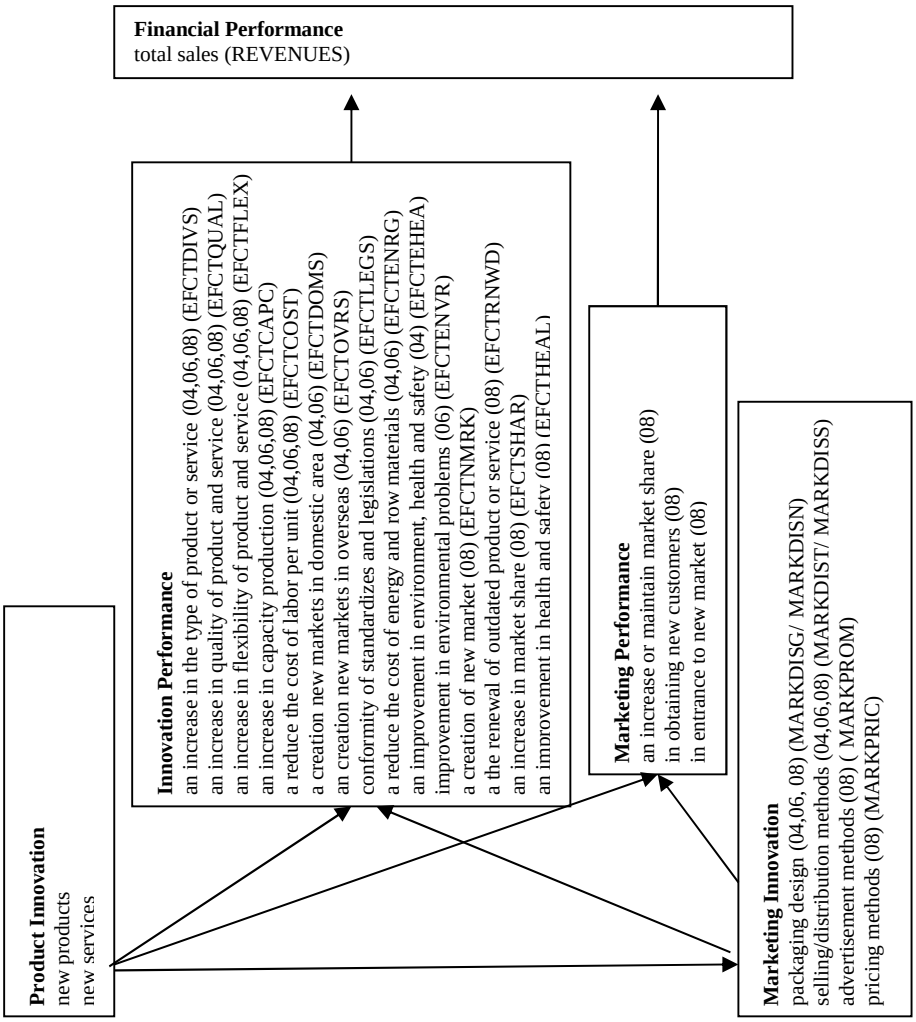
3. Research

Our research was conceptualized by reviewing innovation literature which we interpreted that the literatures have not achieved clearly yet. Of course, there are some conceptualizations and findings that marketing and innovation relate each other on the some basis of context (Berry, 2002; Berthon, Hulbert, & Pitt, 1999; Iyer et al., 2006). Our research is mainly differentiated at least three points from those the literature. First, the research is used SEM to analyze the data which has a very large sample. Second, the model was generated from three periods, and the periods were compared to expose which models are fitted. The last point is that the model of the research consists of some observed indicators, which collected by TurkStat based on the CIS, which explained below.

3.1. Hypothesis Development

There are several researches in market orientation literature that supported market orientation directs to successful innovation and higher organizational performance (Deshpande, Farley, & Webster, 1993; Kohli & Jaworski, 1990). Atuahene-Gima (1996) find that a positive relationship between market orientation and new product performance at the early stage of the product life cycle. In addition, they argue the impact of market orientation on performance differs concerning service and product innovations. As Laforet (2008) research introduced that technology, orientation significantly affected product innovativeness.

Past research has studied the firm's innovative characteristics and performance in the context of market orientation, which supports and creates an efficient organizational activity that increases performance (Jaworski & Kohli, 1993; Kohli & Jaworski, 1990; Narver & Slater, 1990). According to O'Cass and Ngo (2011), market orientation affects market place performance via developing innovation capability, marketing capability, and their complementary combination. Atuahene-Gima (1996, p. 94) argued that the degree of product newness, product-company fit, product advantage and inter-functional teamwork is affected by market orientation which lead innovation success. Drechsler and Natter (2012) demonstrate marketing capabilities positively contributes firm innovation performance which mediated by the decision of the influence of marketing on new product department. In their study, Laursen and Salter (2006) show that marketing, as a distinct function is important for driving innovation success. Particularly, in their study show that the marketing department should have a higher status in new product development.



Note: The figures in parentheses are the reference year of the period.

Figure 1: Framework of the Study.

Under generated from the academic literature on innovation our study consists of hypothesis. The following are the research hypotheses can be divided under the heading of relationships and path analysis. These hypotheses can be seen as below.

Relationships Hypothesis

First, using SEM requires some relationships between latent variables. Those each latent variable must support factor analysis. Besides of those factor analyses our hypothesis about relationships are;

Hypothesis 1. There are relationships among product innovation, marketing innovation, financial performance, and marketing performance.

Path analysis Hypothesis

As mentioned in the introduction our base model is the relationship between marketing orientation and innovation effect on firm performance.

Hypothesis 2. Product innovation and marketing innovation together lead to a higher level of financial performance with the moderation of innovative performance and marketing performance.

3.2. Sample

The model was tested in the Turkey using a data of TurkStat, which conducted from 2002-2008 in order monitor innovation survey of Turkish firms. The data include approximately over one thousand which totaling all periods (first period is 2856; second 2172; third 5863). Innovation Survey conducted by TurkStat with a three-year period of two years, is used CIS model questionnaire based on the Oslo Manual properly OECD methodology (TurkStat 2013). In the our model our sample of those periods has three terms that are 2002-2004, 2004-2006 and 2006-2008 with reference last year. TurkStat sample has firms that employ10 and above workers from manufacturing and service industries.

Classic statistical method of SEM requires (such as Maximum Likelihood Method) under the circumstances assumption of normal distribution and non-categorical data. Some observed indicators of our data have categories. Indeed other observed indicators have not validity of normally tests. We used alternative method, Weighted Least Square Method (WLS), requires e large sample that our data is very enough to use WLS (Vieira, 2011, pp. 10-11).

3.3. Method of Analysis

Because of having categorical and non-normal distribution of our data, we used WLS as indicated above. WLS produces results from asymptotic covariance matrix, which WLS is available from Lisrel 8.7, version 8.8 is used in this study.

For our model, we used some dimension of Innovation Survey data, which are production innovation, marketing innovation, marketing performance, innovation performance, and financial performance. Analyzed data have different number of observed indicators of innovation performance, marketing innovation, and innovation performance for each period. Production innovation and marketing innovation have binary observed indicators, as yes or no, whereas innovation performance and marketing performance have four points' scaled indicators, as no effect, low, medium, high. Financial performance is tested only one indicator, which is a total sale of the firm in the reference year. Two indicators, new products and services measure product

innovation. As shown in Table 1, the research conceptual diagram demonstrates the linkage between production innovation, marketing innovation, marketing performance, innovation performance, and financial performance.

4. Data Analysis and Findings

As mentioned above, our study has three stages. In the first stage, we aim to indicate some relationships between latent variables. In order to determine those relationship factor structures of the framework should be performed for each latent. Principal Component Analysis (PCA) used to reduce the number of variables according to criteria of SEM that achieve a more manageable number of variables. To conclude of this we used IBM SPSS Statistics 20. At the same time, we analyzed that Explorative Factor Analysis (EFA) to find relationships between latent variables and factor loadings of observed variables to latent variables, by using Lisrel 8.8.

First, we should perform correlation matrix. Except between total sales and product innovation, and an improvement in health and safety, all indicators correlate each other with enough significant level.

As mentioned above we have three periods and those periods have different indicators with small changes. In order to see whether there is a difference between the periods we analyzed each period separately. A single factor research model used in order to overcome the problem of Common Method Variance (CMV) (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). That is the means, marketing innovation, innovation performance, and marketing performance analyzed as a single factor.

Table 1: Factor Analysis of Innovations (2006-2008 period).

Factors	Factor Loads	Eigenvalue	Cumulative % Variance Explained	Cronbach α
Factor 1: Innovation Performance		**7.033**	**43.959**	**.968**
An increase in the type of product or service	.869			
An increase in quality of product and service	.901			
An increase in flexibility of product and service	.865			
An increase in capacity production	.887			
A reduce the cost of labor per unit	.835			
A creation of new market	.854			
At the renewal of outdated product or service	.811			
An increase in market share	.879			
An improvement in health and safety	.805			
Factor 1: Marketing Innovation and Performance		**5.434**	**77.921**	**.906**
Packaging design (innovation)	.767			
Selling/distribution methods (innovation)	.742			
Advertisement methods (innovation)	.816			
Pricing methods (innovation)	.784			
An increase or maintain market share (performance)	.902			
Obtaining new customers (performance)	.909			
In entrance to new market (performance)	.891			
Kaiser-Meyer-Olkin = 0.960; Bartlett's Test χ^2= 109116 df 120 ; p<.000 Extraction Method: PCA; Rotation Method: Varimax.				

As seen in the Table 1, after Varimax Method for the rotation analysis has resulted as two factors that innovation performance one hand, marketing innovation and marketing performance together is another hand (eigenvalues larger than 1 were gathered for further analysis). Indicated as marketing performance observations dropped from model for further analysis because of three reasons. Firstly, two indicators of marketing performance are same as innovation performance indicators. Secondly, marketing performance indicators were not asked 2004 and 2006 reference years. The last reason is that first-order and higher-order Confirmatory Factor Analysis (CFA) in SEM does not fit with marketing performance indicators. The reason of not fitting model there is a Poor Discriminant Validity error between innovation performance and marketing performance (multicollinearity between marketing performance and innovation indicators). After dropping the indicators two factors emerged again with satisfactory test statistics (Table 2).

In addition, product innovation was dropped from the model because "model does not convergence" error. In addition, relationships between product innovation indicators and others are very poor. In addition, we could not conclude that there is moderating effect of the newest product between product innovation and marketing innovation and the relation between firm innovation and financial performance because of having "model does not convergence" error.

Table 2: Factor Analysis of Innovations-after dropping some indicators (2006-2008 period).

Factors	Factor Loads	Eigenvalue	Cumulative % Variance Explained	Cronbach α
Factor 1: Innovation Performance		**6.867**	**52.822**	**.968**
An increase in the type of product or service	.873			
An increase in quality of product and service	.905			
An increase in flexibility of product and service	.868			
An increase in capacity production	.890			
A reduce the cost of labor per unit	.840			
A creation of new market	.859			
At the renewal of outdated product or service	.813			
An increase in market share	.884			
An improvement in health and safety	.805			
Factor 1: Marketing Innovation and Performance		**3.114**	**23.955**	**.855**
Packaging design	.781			
Selling/distribution methods	.806			
Advertisement methods	.819			
Pricing methods	.809			
Kaiser-Meyer-Olkin = 0.952; Bartlett's Test χ^2= 76479 df 78 ; p<.000; Extraction Method: PCA; Rotation Method: Varimax.				

In the SEM Approach, a measurement model is considered as a first stage. According to Hair, Black, Babin, Anderson, and Tatham (2006: p. 744), in the first stage is aimed to reduce the overall impact of error variables that called a multiple indicator, as resulting output accuracy. We perform analyses for periods of 2002-2004 and 2004-2006 as same as the period of 2006-2008. As result of those analyses, factor analysis and CFA in SEM for all periods, our model changed

on the basis of three latent, marketing innovation, innovation performance, and financial performance.

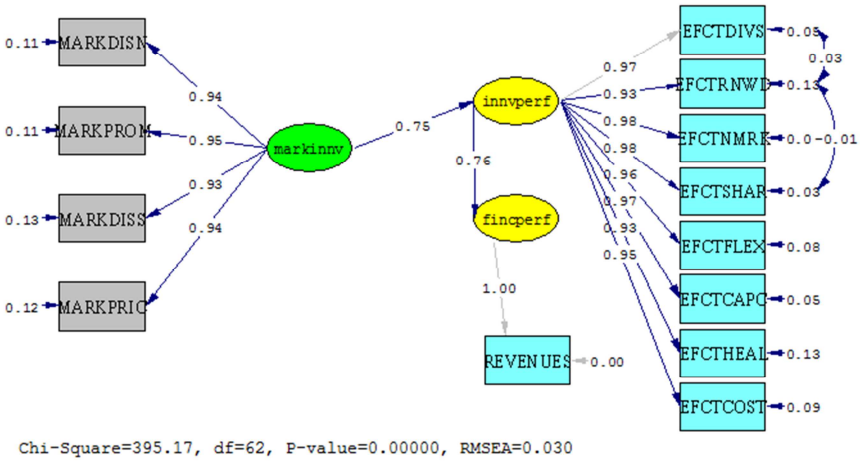


Figure 2: Result of the structural model for 2006-2008 period.

The measurement model analysis of marketing innovation effect on financial performance by innovation performance, we used WLS, require asymptotic covariance matrix, results following two covariance of measurement errors were let to be correlated; EFCTDIVS and EFCTRNWD; EFCTRNWD and EFCTSHAR for the period of 2006-2008. In addition, EFCTQUAL variable dropped from the model because of negative of t-value for the period of 2006-2008. For the period of 2004-2006, three covariance of measurement errors were let to be correlated; EFCTDOMS and REVENUES; EFCTENRG and EFCTCOST; EFCTLEGS and EFCTENVR. Moreover, EFCTDIVS EFCTOVRS EFCTQUAL EFCTFLEX EFCTCAPC variables dropped from the model because of negative of t-value for the period of 2004-2006. All periods' models can be seen in Figure 2, 3 and 4.

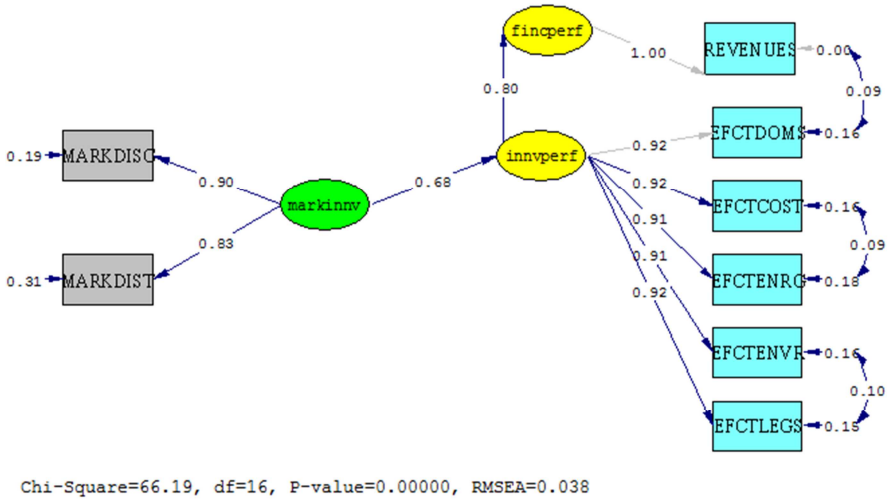


Figure 3: Result of the structural model for 2004-2006 period.

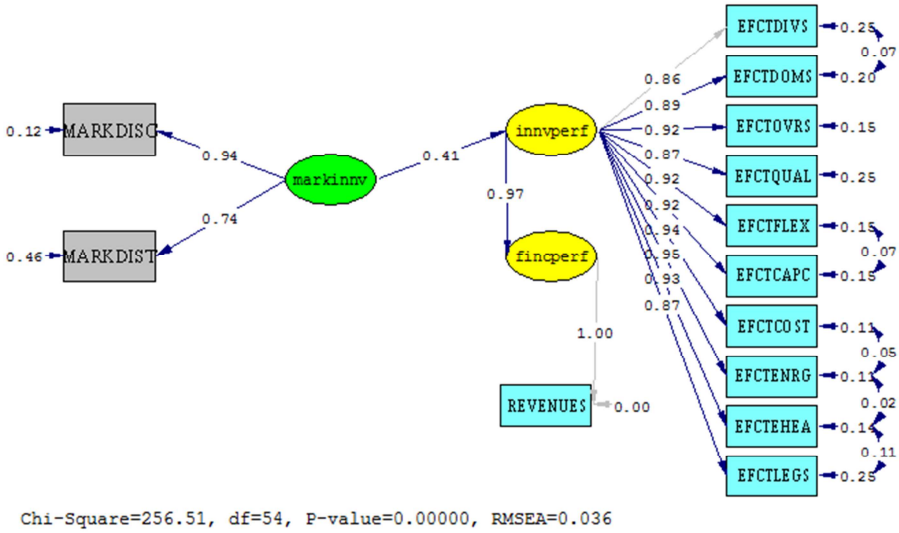


Figure 4: Result of the structural model for 2002-2004 period**.**

According to Hair et al. (2006, pp. 746-750), five determiners of goodness-of fit indices have the most usage which are the ratio of cmin-df, goodness-of-fit index (GFI), normed fit index (NFI), comparative fit index (CFI), and root mean square error of approximation (RMSEA). Models does not fit indices of all period's measurement models within the specifications of the chi-square p value criteria (GOF) as shown in Table 3. Again, our data is very large and effect of large sample size cannot be eliminated. Hair et al. (2006, p. 751) argued that larger sample produces big numbers of chi-square. So that "researchers should not rely on only one GOF measure." As seen in Table 3, the indices of all periods' model can be acceptable criteria of other statistics. For example according to Hair et al. (2006, p. 753-table 10-2), if the number of

observations and the number of observed variables exceed 250, significant p-values can be expected. Below of the 0.05 p-values of chi-square can be accepted for goodness of fit if other statistical criteria are sufficient indices. Our models have 2856 to 5863 observations and 13 observed variables the require above 0.97 of CFI; 0.08 or less of SRMR and 0.7 or less of RMSEA (Hair et al., 2006, p. 753).

Table 3: Goodness-of-Fit (GOF) Indices of Models for All Periods

	Models (Periods)			
Statistics	**2002-2004**	**2004-2006**	**2006-2008**	**Criteria**
Chi-square	0.00000	0.00000	0.00000	p > 0.05
Normed Chi-square	**4.750**	**4.137**	6.373	1.0<cmin/df<5.0
GFI	**1.00**	**1.00**	**1.00**	GFI >=0.9
NFI	**0.99**	**1.00**	**1.00**	NFI >=0.9
CFI	**1.00**	**1.00**	**1.00**	NFI >=0.9
RMSEA	**0.036**	**0.038**	**0.030**	RMSEA<0.08
SRMR	**0.062**	**0.044**	**0.055**	SRMR<0.10

Source: Hair et al. (2006, collected from pp. 746-50).

5. Conclusions

The aim of this study is to investigate the impact of innovation on a firm performance in the context of product and marketing innovation (Atuahene-Gima, 1996; Deshpande et al., 1993; Jaworski & Kohli, 1993; Kohli & Jaworski, 1990; Narver & Slater, 1990; Ruekert, 1992) among over 10.000 firms, the data of which were provided by the TurkStat. SEM has used to analyze the possibility of a marketing/innovation effect on performance model, as the basis of the CIS questionnaire survey.

Relying on the innovation-marketing innovation literature, analyzing of the model support literature according to the results of the SEM analysis on some criteria (Hair et al., 2006, p. 753). Our general model, Innovation on product, promotion, price and distribution, which are almost all general marketing literature accepted as the four P's (e.g. Kotler, 1991), positively effect on the firm performance through innovation performance. Furthermore, due to the different questionnaires of 2004, 2006 and 2008 determinants of innovation are not same for each period in models.

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