PRODUCT DIVERSIFICATION AND PROFITABILITY

A CASE STUDY: VESTEL A.Ş.

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ABSTRACT

PRODUCT DIVERSIFICATION AND PROFITABILITY
A CASE STUDY: VESTEL A.Ş.

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The aim of this study is to examine the effect of diversification on the profitability of a firm. To this end, Vestel Co. is examined by conducting an econometric analysis with panel data gathered from different departments of the firm. Importance and the most significant contribution of this study to the literature is that it analyzes a single firm in contrast to the studies including lots of firms operating in the same sector; and this allows us to examine the effect of diversification over time, through the firm's lifetime. Data used in this study have been compiled from different sources within Vestel: Budget and Planning, Research and Strategic Analysis, Finance, and Law Departments starting from the first quarter of 1994 to second quarter of 2014. As the results show, there exists u-shape relationship between diversification and the firm's profitability; i.e., with an increase in the level of diversification profitability also increases in the long run in case of related diversification. Although, the effect of intangible assets is negative on profitability in the short-run, its effect reverse and turn to positive in the long run. The most important result of this study is that, with related diversification, the firm gains profitability and enjoys its intangible assets in the long run.

Keywords: Product Diversification, Panel Data Analysis

ÖZ

ÜRÜN ÇEŞİTLİLİĞİ VE KARLILIK

DURUM ÇALIŞMASI: VESTEL TİC. A.Ş.

Akgül, Banu

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Bu çalışmanın amacı, ürün çeşitliliğinin firmanın karlılığı üzerindeki etkisini incelemektir. Bu amaç için Vestel Ticaret A.Ş., panel data ekonometrik analizi ile incelenmiştir. Çalışmanın önemi ve literature olan anlamlı katkısı, aynı sektördeki pek çok firmayı inceleyen diğer çalışmaların aksine bir firmanın incelenmesi ile o firmanın zaman içerisinde ve tüm hayatı boyunca ürün çeşitliliğinden nasıl etkilendiğinin gözlenebilmesidir. Sektörler için 1994 yılının birinci çeyreğinden 2014 yılının ikinci çeyreğine kadar olan data Vestel Planlama ve Bütçe, Hukuk, Araştırma ve Stratejik Geliştirme ve Finans Departmanlarından temin edilmiştir. Sonuçlar firmanın karlılığı ve ürün çeşitliliği arasında u-formunda bir ilişki olduğunu göstermektedir; yani uzun vadede ürün çeşitliliği seviyesinin artışı ile karlılık artmaktadır. Gayri maddi varlıklar uzun vadede karlılığın artmasını sağlarken kısa vadede karlılığı olumsuz etkilemektedir. Çalışmanın en önemli sonucu bize şunu göstermektedir: ilişkili ürün çeşitliliği ile firma karlılığını arttırmakta ve uzun vadede gayri maddi varlıklarından faydalanmaktadır.

Anahtar Kelimeler: Ürün çeşitliliği, Panel Data Analizi

To ***my family***..

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CHAPTER 1

INTRODUCTION

Increasing productivity and using factors of production effectively have been always crucial and important discussion topics for economists in both micro and macro level to explain the dynamics from interpersonal to international relations/affairs. Economists are in general divided into two groups: one suggesting specialization, and the other suggesting diversification. In late 18th century, for example, the key to productivity was specialization. While Adam Smith has suggested the idea of specialization of labor with the example of a pin factory, i.e. dividing work into a set of simple tasks to be performed by specialized workers can increase the number of pins to be produced by the same number of workers in "An Inquiry into the Nature and Causes of the Wealth of Nations" (Smith, 1776), David Ricardo has come up with the idea of specialization at the country level; and explained this by using the concept of opportunity cost. However, the expression "don't put all your eggs into one basket" is a layman's word and it well describes the act of diversification. Not just for nations, specialization or portfolio investment, act of diversification on the other hand, has been also a popular discussion for firms to decide on their strategy. Product diversification versus focusing on one product are the major strategies in which firms decide and engage for increasing profitability, market value, revenue or both of them. However, there is a paradox about which strategy is the best one for firms in realizing the ends.

The idea of diversification emerged rather late than specialization, which was in 1950, in 1950s, and the aim was to reduce risks by not sticking into one sector, to decrease volatility under uncertain economic conditions. During 1960s, diversification has been seen as a value - creating strategy, but this trend has reversed since 1980 (Osorio et al., 2012). On the other hand, after 1980's there are many studies showing that diversification destroys value of a firm (Lang and Stulz, 1994; Berger and Ofek, 1995 and Servaes, 1996). In spite of the trends in the

literature, there are no clear results about the effect of diversification on firm performance. Economic conditions of the home country, political environment, sector that the firm belongs to diversification type and levels are some of the factors affecting the firm performance through diversification strategy (Osorio et al., 2012).

This study aims to analyze the effects of product diversification on the profitability of a firm; To conduct this study, Turkish company with diversified product portfolio has been analyzed. Due to the size and potential impact on the Turkish market Vestel Company (Vestel Co.) has been selected. Vestel Co. is one of the leading domestic consumer electronics company in Turkey, the others are Arçelik and Samsung, LG, Bosh in the world. The firm engages in designing, manufacturing and marketing of televisions, refrigerators, air conditioners, washing machines, dish washers, cooking appliances, computers, small domestic appliances (SDA), vacuum cleaners and LED lightening. In 2014, Vestel Co. continues to expand its product range with tablet and smart phones. Through its smartphones Vestel Co. became the first domestic smartphone brand in Turkey. With this wide product range and a reputable brand, Vestel Co. is a very important player in domestic markets. Another reason for selecting Vestel Co. is, in general, global manufacturing firms in the area of durable consumer goods and consumer electronics such as BSH Group (Bosh, Siemens, Profilo), Samsung, LG, Indesit, Electrolux and Phillips are considered, we can see that they all choose to diversify. In domestic level, Arçelik and Vestel Co. are the examples of the firms making product diversification in the area of consumer electronics. In light of the literature; this study shows that Vestel Co. engages in related diversification and investigates the question that: Is diversification a good strategy for Vestel Co. in increasing the firm performance and value like the global and domestic competitors, or should it come to a halt and Vestel Co. focus on only one product? If diversification is a good strategy what should be the extent of it?

Contributions of this study to the existing literature can be summarized as following: firstly, contrary to the examples in existing literature examining a group of firms, only a single firm is analyzed in this study beginning from the early stages of production -when the firm producing and marketing only one product. In addition ample studies in literature find the “inverted-u” relationship between diversification

level and firm performance. In our study for Vestel Co., profitability decreases to a certain level but increases thereafter, and it can be described as a u-shaped curve.

The study outlined as follows: Chapter 1, is an introduction to the study ass being discussed. Chapter 2 reviews the existing literature for the link between product diversification and firm profitability. The prior studies have been examined in time dimension, according to their points of view, and according to the results. Chapter 3 gives us a summary of the diversification strategy of Vestel Co., the relative revenues of each product compared to total revenue, etc.

Chapter 4 presents the methodology, how we analyze the panel data. Chapter 5 introduces the data used in empirical analysis, the variables to be used in econometric analysis are identified; and the results of this study are examined. Finally, Chapter 6 summarizes and concludes the study.

CHAPTER 2

HISTORY OF DIVERSIFICATION: LITERATURE SURVEY AND EMPIRICAL STUDIES

This chapter aims to show main views about the linkage between product diversification and firm performance. The assumptions of each view are classified according to chronological order. This chapter is organized as follows: firstly the "Financial Economics Approach" will be discussed –analyzing diversification premium model and diversification discount model that present positive and negative theoretical views about product diversification strategy on firm value-, respectively. Then, "Strategic Management Approach" is mentioned –analyzing types and levels of diversification and the linkage with the firm performance-. Finally, "Institutional Economics Approach" comes -investigating the effects of diversification on firm performance under different institutional frameworks-.

2.1. Financial Economics Approach

There is considerable interest in economics and finance literature to explore the effects of product diversification on a firm's performance. There are many reasons for choosing diversification strategy, to name a few: increasing growth and productivity, utilizing internal resources efficiently, reducing the bankruptcy risk through allocation of the risks among different business segments, etc. (Osorio et al., 2012; Palich et al. 2000; Zhao, 2008). Economics and finance literature generally analyze the effects of diversification on a firm's value by comparing performance differences between diversified and specialized firms. However, one could conclude based on the empirical studies that results differ as to whether or not diversification would benefit improving a firm's performance. Basu (2009) summarizes the historical development of the diversification strategy: Until 1980s the general view is optimistic about product diversification, but after 1980s refocusing becomes the main strategy, from 1980 to 1997, in line with these results, the ratio of firms

adopting strategy of diversification declines from 40% to 17%. The following two chapters tell us about the types of financial economic approach.

2.1.1. Diversification Premium Model

Although there may be studies written before these dates, the oldest study about diversification dates to 1960s. Most of the studies in the literature written during the 1960s and 1970s find positive and linear relationship between diversification and firm performance; these findings can also be generalized as "premium diversification model" which can be identified in the studies of Osorio et al. (2012) and Palich et al. (2000). Most of the studies compare **return on asset (ROA),** indicator of profitability of a company relative to its total assets**; profitability; market to book ratio,** measurement of how much a company is worth in comparison with its capital investments -sum of market value of equity and book value of debt divided by the book value of assets- ;and, **excess value** -measured by dividing a firm's actual value to its imputed value (value of each segment of a firm is calculated as single segment) - (Campa and Cedia, 2002 and Berger and Ofek,1995) of the diversified and focused firms in order to analyze firm performance (Osorio et al., 2012; Zhao, 2008 and Galvan, 2007). From the perspectives of the industrial organization economics, transaction cost economics and traditional financial theory, diversification and firm performance are linearly and positively related based on some assumptions. Moreover, firms applying diversification in their production strategy are equipped by some advantages as will be explained below.

According to industrial organization view, diversified firms gain "*market power advantage"* by using a different type of mechanism from their rivals in their production (Scherer, 1980, and Wan et al., 2011). Although there is little evidence of *"predatory pricing mechanism"* in some of the studies (Geroski, 1995), one of the advantages that diversification brings to the firms is predatory pricing mechanism (Osorio et al., 2012; and Palich et al. 2000). This can be explained by cross subsidization policy and cost advantages of firms. Diversified firms can subsidize less profitable segments by more profitable segments (Weston, 1977). Last but not least, by using cost and cross subsidization advantage, diversified firms can follow

lower pricing strategy and avoid higher production costs (startup costs) which new entrants to the sector face (Scherer, 1980).

According to the financial view, there are some other crucial advantages of diversification. First of all, firms can reduce the risk of bankruptcy, and diversify other risks by having different business portfolios and this coinsurance give a firm greater debt capacity than a single segment firm (Galvan and De La Torre, 2007 and Myers, 1977). Advantages of diversified product portfolio while borrowing can be grouped under two. First, the cost of borrowing will be lower due to greater debt capacity and lower risk of bankruptcy. Second, since interest payments are tax deductible; with greater debt capacity a firm can enjoy lower tax advantages (Palich et al., 2000; Berger and Ofek, 1995 and Servaes, 1996). The studies conducted with a financial point of view also discuss the advantages of diversification in capability of acquiring external and internal funds. With internal funds a firm uses its profit as the new investment capital, while external funds refer to financial derivatives from outside the firm such as initial public offering (IPO), loans, etc. Since internal funds have lower transaction costs, it is less costly for a firm to fund its activities with internal funds than external funds. Lower cost of the use of internal source of capital ensures that firm has a financial advantage (Palich et al., 2000). Transaction cost model states that by using external funds, higher transaction cost occurs like interest payments. Diversified firms have cost advantage due to the use of the internal sources and transferring the capital between businesses (Gunduz, L. and Tataoğlu, E., 2003). According to the institution base view, transaction costs depend on financial market framework (Zhao, 2008). Wan and Hoskisson (2003) state that since the financial markets are inefficient and there is insufficiency in external product, labor and product markets in developing countries, it is more costly to use external funds, on the other hand in developed countries specialized markets can provide efficient external funds. As a result, one can say that in developing countries diversified firms have an advantage of using internal funds, while in developed countries the advantage benefit from using more external funds. Besides the cost of using capital, accessing the capital itself is a substantial issue. Meyer et al. (1992) state that diversified firms can utilize the advantage of having easy access to external

capital when compared to single segment firms in developed countries due to diversified business portfolio and lower bankruptcy risk.

Based on these assumptions researchers generally compare diversified and single segment firms for understanding the effect of diversification on firm performance. Villalonga (2004) analyzes this issue with assuming that a firm either can diversify or not. He uses the natural logarithm of the ratio of the actual to imputed market value that is called excess value for comparing the single segment firms and diversified firms based on data conducted from Compustat Industry Segment database -which provides the data of financial statistical and market information through the world- for all sectors except the financial sector for the time between 1978 to 1997 and find diversification premium. The study of Miller (2006) has a different approach; he analyzes the effect of technological diversification on firm performance. He uses patent stocks of a firm as the technological diversity for single and multibusiness firms. In this study, Miller (2006) shows that diversified firms increase profitability from technological diversification more than single segment firms do, and with increase in technological diversification, there will be diversification premium.

In the early stages of the research -until 1980s when superior performances of diversified firms are analyzed- all these factors are seen as the advantages of the diversification strategy; however, after 1980s most of the studies show that diversification destroys value (Osorio et al., 2012). On the other hand, some researchers point out endogeneity problem. According to Campa and Kedia (2002) and Gomes and Livdan (2004) most of the studies do not take into account context and financial environment of the firm before diversification. They claim that reasons of firms diversification decisions cause endogeneity. Firms past performance should be taken into account because firms' performance before diversification affect the result of diversification. In the study of Campa and Kedia (2002) which uses Compustat Industry Segment database from 1978 to 1996 by excluding firms in the financial sectors to examine the diversification effect; excess value is used and diversification discount is found without taking into account endogeneity. Although they control endogeneity by modelling the reasons of firms' diversification as a

function of industry, firm and macroeconomic conditions. They find that diversification discount turns into diversification premium. Like Campa and Kedia (2002), Villalonga (2004) also analyses firms' propensity to diversify and estimates firms' propensity to diversify as a function of feature of the firm, macroeconomic conditions and firms' industry. Villalonga (2004) claims that profitability of firm has negative effect on diversification decision, on the other hand attractiveness and profitability of new segments have positive and significant effect on firms' diversification decisions. His findings support the idea that the reason of diversification decision affects the performance of the firm.

After 1980s most of the research advocates that diversification strategy destroys firm value. Next subsection analyzes diversification discount model.

2.1.2. Diversification Discount Model

Throughout the 1980s, studies concentrate on the negative effects of the diversification; and they find the "*diversification discount*" effect which shows the value loss of a firm due to diversification decision (Osorio et al., 2012; Zhao, 2008). Finance and economics literature focuses on linear discount model, which shows the negative relationship between the level of diversification and the firm value (Osorio et al., 2012). The notion of diversification discount can be found in several financial economics studies (Berger and Ofek, 1995; Denis, Denis and Sarin, 1997; Lang and Stulz, 1994 and Rajan et al., 2000). Some of the cross sectional studies in the diversification discount model use **Tobin's q** -the present value of future cash flows in capital markets divided by replacement costs of tangible assets-. Lang and Stulz (1994) and Gomes and Livdan(2004) set models and found that diversified firms have lower Tobin's q. These claims tell that diversification does not mean a lot in increasing the market value of installed capital compared to replacement cost of capital.

The main arguments behind the diversification discount model are cross subsidization among different sectors resulting in investment in low-performing sectors, higher agency costs, and higher management costs due to information asymmetries (Osorio et al.,2012).

Theoretical arguments state that subsidization of the less profitable segments by more profitable segments and overinvestment in the low performing sectors; namely "*cross subsidization"*, is one of the reasons for the value loss of diversified firms (Weston, 1977; Berger and Ofek, 1995; Palich et al. 2000 and Stulz, 1990). Myer et al. (1992) state that investing in unprofitable segments causes greater value loss and inefficiency in diversified firms than investing in just one segment by single segment firms. Berger and Ofek (1995) state that there are many cases which show that many diversified companies subsidize less profitable segments by more profitable segments and mostly this can be understood during company transfer process.

Denis et al. (1997) ask that if the diversification causes value loss, then, why a firm in the world, insists on a diversification strategy. The agency cost hypothesis can explain this paradox. This hypothesis states that managers seek their interest, i.e. managing larger firms equip them with more power and prestige (Denis et al., 1997). Furthermore, managers allocate the risk among various business portfolios by making diversification (Stulz, 1990). Denis et al. (1997) and Scharfstein and Jeremy (2000) show that diversification level and managerial equity ownership have a strong negative relationship with managerial ownership to reduce the inefficient investments and additionally, if there is an external control mechanism the diversification level decreases. These findings prove the inefficient investments made by managers. Scharfstein and Jeremy (2000) state that managers tend to overinvest in inefficient business segments in order to increase their private benefits.

However there are flaws of the model according to some of the studies, decisive factors on the performance of diversification such as past experiences and financial environment are not taken into account: Campa and Kedia (2002), and Colak (2010) justify the premium model against the discount model by supporting endogeneity: Firm diversification decision and firm values are endogenous variables so that one should analyze underlying reasons lying behind diversification decision (Campa and Kedia, 2002). If an entity has lower firm value at the beginning, by diversified business portfolio it faces diversification discount; and generally the firms with poor performance choose to diversify (Lang and Stulz, 1994). Not only does the initial

firm value affect the firm decision, but also industry conditions affect diversification decision. However, refocusing strategy only depends on the firm value (Çolak, 2010). Campa and Kedia (2002) control this endogeneity in their study and find that there is no diversification discount, and even in some cases they find diversification premium by controlling endogeneity. Villalonga (2004) finds that most of the studies -which defend the diversification discount-, have biased samples and by eliminating this problem he finds that diversification does not destroy firm value. Whited (2001) states that using Tobin's q – market value of the firm divided by replacement value of the tangible assets- as a proxy for investment opportunities cause measurement error. In intertemporal studies marginal q should be taken into account in order to measure unobservable quantity which is present discounted value of the future marginal product of capital (Hayashi, 1982).

In empirical studies researchers use generally Tobin's q for value measurement and empirical evidence, during the 1980s and 1990s show that it is hard to achieve diversification premium (Osorio et al., 2012). Lang and Stulz (1994); Berger and Ofek (1995); Shin and Stulz (1998) compare diversified firms and single segment firms in their studies based on the firms' Tobin's q values and the result is diversified firms trade at a discount compared to single segment firms. In their study Berger and Ofek (1995) measure Tobin's q values for diversified firm's all segments by treating them different firms by using the data from Compustat Industry Segment between 1986 -1991 and compare the total value of the firm and they find that diversification causes 13% to 15% average value loss during 1986 – 1991.

Previous studies analyze the agency cost hypothesis and provide mix evidence. Denis et al. (1997) in their study constitute negative relationship between managerial equity ownership and diversification level. Using the fiscal year from 1985 to 1989 Compustat Industry Segment (CIS) data they analyze the firms with sales are of least $20 million except the financial service firms. They also reveal that corporate diversification decrease from 1985 to 1989. Lins and Servaes (1999) analyse publicly traded firms from Germany, Japan and the UK and use the natural logarithm of the ratio of the actual to imputed market value called excess value and they estimate two regression models for determining whether diversified firms are

trading at a discount or premium. They find out that there are diversification discount at 10 percent in Japan and 15 percent in UK but there is no discount in Germany. They argue that ownership structure can affect the results, insider ownership is dominant in Germany and this factor may prevent the problems of agency cost hypothesis.

Berger and Ofek's (1995) study show that diversified firms generally over invest in low Tobin's q industries. They also find that cross subsidization is one way of allocating internal resources to unprofitable or underperforming sectors. Firms should use resources for more efficient segments. Lang and Stulz (1994)'s study show that diversification degree will affect firms' market valuation, with increase in diversification level market value of the firm will depreciate. Rajan et al. (2000) use influence cost model based on the agency cost problem and they find that with increase in segment, it is difficult to give resource allocation decision based on the segment performance. Managers have lobbying power and it is the most important factor for the investment decision. Harris et al. (1982) stress information asymmetry problem they claim that only managers know the most productive resource allocation.

After 1980s diversification discount model dominates in the studies but financial economics approach do not take into account level and types of diversification. Next section analyzes the effect of level and types of diversification on firm performance.

2. 2. Strategic Management Approach

Strategic management literature has been interested in types and levels of diversification and its effect on firm performance. It is important to emphasize that strategic management literature generally handles resource-based theory, which focuses on the relatedness in diversification (Wan et al., 2011). According to strategic management approach firms can apply two types of product diversification basically: related and unrelated diversification. These two types of diversification differentiate in the activities that are being involved. In related diversification the firms allocate factors of production in activities requiring similar know-how or similar resources; while the unrelated diversification pushes the firms to engage in

different kinds of products or services that diverge from each other in the resources or know-how used (Galvan, Pindado and Torre; 2007).

While determining the advantages and disadvantages of diversification, resource-based theory takes two assumptions into consideration: firms' strategic resources can be heterogeneous within the industry, and these resources may not be transferable across firms (Barney, 1991 and Wan et al., 2011). Strategic resources can be classified as tangible and intangible resources. Example of intangible and tangible resources can be counted as: brand name, consumer loyalty, technological know-how, skilled employee, physical and financial assets, etc. (Wernerfelt, 1984). Different resource allocation across the firms, especially of rare resources is the reason that creates performance differences within the industry (Barney, 1991 and Wan et al., 2011). Based on above assumptions; difficulty of imitating, transferring or selling strategic resources leads firms to diversify in search of excessive resources (Wan et al., 2011 and Montgomery and Wernerfelt, 1988). If we go into detail about the firms' resources: like brand reputation, customer loyalty and the like, some intangible assets give advantage to the firm in entering to a new product market. Additionally sales team can sell different segment products, this leads the firm to have a cost advantage; otherwise these idle resources may result in inefficient investment for the firm (Palich et al., 2000). Wan et al. (2011) states that diversification can minimize the transaction costs by utilizing already existing internal resources more productively. Flexibility of factors of production (capital and labor) allows the firm to use afore-mentioned reasons more optimally. Besides that, if the resources are to be used in the production of only one product, diversification is not a wise strategy since the factors of production are hard to adapt and marginal utility will be very small (Montgomery and Wernerfelt, 2008; Chatterjee, S. and Wernerfelt, B., 1991).

The comparison of the related and unrelated diversification is generally made in resource-based studies (Berger and Ofek, 1995; Bettis, 1981; Hoskisson, 1987; Markides and Williamson, 1996). In the literature, two methods are used in order to measure the relatedness of diversification. The first method finds the relatedness of diversification by using SIC (Standard Industrial Classification) codes. The SIC

codes classify industries based on a four-digit code. The first two digits represent the major group the industry belongs. Adding one digit to these number results in the industry group number. Finally, the last digit represents the product group. It can be defined as **reaching** the new segments which first two digits SIC codes are the same with the existing ones (Zhao, 2008). The other measurement is based on the commonality of skill, resources, market or purpose of different sectors (Markides, 1994). The advantage of related diversification comes from the economies of scope resulted by sharing the common resources (Berger and Ofek, 1995; Helfat and Einshardt, 2003); on the other hand, a firm can transfer capital and physical resources from internal markets by unrelated diversification (Galvan and De La Torre, 2007).

Studies conducted with a strategic management approach generally concentrates on which type of diversification benefits more to the firm performance rather than discussing whether diversification in overall benefits the value of the firm. Most of the studies defend the advantages of the related diversification over unrelated ones (Barney, 1991; Wernerfelt, 1984; Osorio et al., 2012; and Wan et al., 2011). To repeat again, the relatedly diversified firms can take advantage of the economies of scope by allocating common flexible factors of production (tangible and intangible assets along with financial resources) and know-how among different sectors (Berger and Ofek, 1995; Helfat and Eisenhardt, 2003). In contrast with the agency theory, the managerial resources are the critical measure of the firm value in resource-based theory (Wan et al., 2011).

Most of the studies in the literature try to find the different outcomes between related and unrelated diversification. Generally researchers measure the relatedness according to the SIC codes (Osorio, 2012). Markides and Williamson (1996) measure relatedness according to the firms' nontradable, nonsubstitutable and hard to accumulate assets in different market environment. They call valuable, imperfectly tradable and costly to imitate as strategic assets and strategic asset level determine the relatedness. Markides and Williamson (1996) provides a potentially powerful explanation for the importance of strategic assets and show that related diversification ensures an increase in profitability if firm can share and transfer

strategic resources to its new segments. However, the study of Tanrıverdi and Venkatraman (2005) has different implications. They argue that relatedness of product knowledge, managerial knowledge or customer knowledge do not increase firm performance. On the other hand complementarity of the resources of the segments leads to increase in profitability.

All these are the advantages of related diversification pointed out by resource-based theory; however, in order to use resources efficiently, one should apply and allocate the new assets more quickly and cheaply than its rivals would (Wernerfelt, 1984 and Markides and Williamson, 1994). From the point of view of Nayyar (1992) and Jones and Hill (1988) using internal resources causes some problems between the units and become more costly and inefficient. Palich et al. (2000) and Helfat and Eisenhard (2003) claim that unrelated diversification can provide financial synergies and reduce the risk. Seth (1990) points out that by reducing risk one can decrease bankruptcy risk and increase debt capacity. According to intermediate model, with the increase of diversification level, one faces with positive but diminishing marginal returns and unrelated diversification can be more advantageous strategy for the firms (Palich et al., 2000). As far resource-based view, unrelated diversification can lead to financial synergies but the costs of managing diversified business portfolio may neutralize the advantage or will weigh more than the advantages. Gomes and Livdan (2004) state that if a firm's existing business declines or does not ensure growth opportunities then the firm should seek new business segments. Zhao's (2008) findings support this idea, he categorizes firms in two groups below and above the industry average based on the firms' pre-diversification situations and he finds out that below industry median firms' values increase with unrelated diversification.

Besides the type of diversification, another important factor in resource-based theory is diversification level. Markides and Williamson 1994; Palich et al. (2000); Markides (1992) and Braakman et al. (2011) mention that marginal cost of diversification increases as the level of diversification increases. Palich et al. (2000) and Galvan and De La Torre (2007) found the "inverted u" relationship between the diversification level and firm performance which is called "curvilinearity". Galvan

and De La Torre (2007) and Markides (1992) have used the square of diversification index for explaining curvilinear relationship. According to this model, there are two types of relationships. Firstly, inverted-u relationship can be explained as: there is an optimal level of diversification which maximizes the firm value, but after that point, with increase in the diversification level, firm value decreases. The assumption under this theory takes into consideration that it is always better to have diversified business segments than being a single segment firm (Palich et al., 2000). On the other hand a few number of studies find the u-relationship between diversification level and firm performance (Park and Jang, 2012 and Tang and Jang, 2010). Park and Jang (2012) in their study analyze U.S. restaurant industry from 1980 to 2008 and use entropy measure for related and unrelated diversified firms. They calculate the square of the entropy measure for explaining curvilinear relationship.

Entropy measure $=\sum P_J \times \ln (1/ P_j)$, where the Pj is the share of the jth industry groups' sales out of the total sales of the firm.

They find that related diversification firstly decease profitability, after a certain point with high level of diversification profitability become to increases. They claim that with high level related diversification firms enjoy scale and scope economies. On the other hand, Park and Jang (2012) find that unrelated diversification has an opposite effect on firm performance. Their results show that profitability increases up to a certain point, with high level of unrelated diversification profitability decreases with increasing internal transaction cost and loss of control with irrelevant business segment with the primary business

In summary, general view of the resource-based theory is that the benefits of related diversification outweigh unrelated diversification (Hoskisson, 1987; Markides and Williamson,1996 and Bettis,1981). Next section analyzes the effect of institutional framework on diversification strategy and firm performance.

2.3. Institutional Economics Approach

Throughout the 1990s researchers focused on the different home country environment's effect on diversification strategy. The assumption behind the studies is that emerging and developed countries have different institutional frameworks which affect the firms' diversification or refocusing decisions (Osorio, 2012). Studies, in this field are generally based on the cross country comparisons according to world bank classification (Wan and Hoskisson, 2003 and Wan et al.,2011). World Bank classifies countries according to their GNI per capita: emerging countries which have between $1.045 and $12.746 GNI per capita, and developed countries which have more than $12.746 GNI per capita are classified[1]. Hoskisson et al. (2010-a) also separate emerging countries as developing countries and transition economies.

General idea of institutional view is that transaction costs are higher in the institutionally weaker countries than in the stronger ones (Osorio et al., 2012). Hoskisson et al. (2010-a) states that institutional weakness causes market imperfections in external capital, labor and product markets and using external resources become more costly than using the internal ones. Through the diversification -in emerging countries- a firm can use internal source of capital more efficiently and less costly, on the other hand, in developed countries external markets are more efficient and diversification strategy is not advantageous. From the point of this view, for the countries that have weaker home country environment, the best strategy is diversification. Hoskisson et al. (2010-b) emphasizes that in developing countries smaller firms have limited funding options and growth opportunities are restricted, diversification strategy can be beneficial in accessing capital.

From the point of view of Berger and Ofek (1995), Lang and Stulz (1994), Palich et al. (2000), there is diversification discount and, furthermore, unrelated diversification causes more value loss in developed countries. Some studies analyze firms in developing countries -like India, South Korea, Indonesia- and find diversification premium (Khanna and Palepu,2000; Chang and Hong, 2000; Mursitama,2006). Khanna and Palepu (2000) analyze Indian firms, with using

Tobin's q and ROA for the measurement of firm performance. They compare diversified and stand-alone firms and state that there are serious agency and information problems in Indian market because of the poor institutional framework. By using both Tobin's q and ROA; they conclude that diversified firms initially lose value but after a certain point their profitability increases. Khanna and Palepu (2000) and Gunduz and Tatoğlu (2003) constitute a model which separate firms according to their ownership and as domestic and with foreign partner and find that having foreign partner ensures to increase Tobin's q and ROA for diversified firms. Khanna and Palepu (2000) conclude that having foreign partner can provide access to international capital market, and this provides potentially powerful explanation that insufficient product, labor and capital markets make new investment costly. Lee et al. (2008) analyzed the impact of the change in institutional framework in South Korea between 1984 and 1996. Firstly, they find diversification premium but by institutional transition diversification premium turns into value loss. Leibeskind (2000) states that before 1980s developed countries have less specialized capital market and inefficiency in allocating external capital causes diversification premium.

On the other hand, Gunduz and Tatoğlu (2003) have different implications and show that there is no diversification premium in emerging countries. Gunduz and Tatoğlu (2003) analyze 202 non-financial corporations which are listed on the Istanbul Stock Exchange. They separate firms as diversified and stand-alone firms and compare them based on their accounting and stock market and Tobin's q values by using ANOVA. They find out that there is no significant difference between diversified and stand-alone firms. In addition Lins and Servaes (1999) analyze three developed countries' firms: German, Japan and UK firms and could not find diversification discount in German firms. They claim that not only institutional framework affects firm performance, but also firm structure is vital. German firms generally have insider ownership, which can prevent agency cost problem.

All of the studies above show us that institutional framework determines the impact of the diversification strategy, but firm structure plays an important role on firm performance.

2.4. Concluding Remarks

The net effect of the diversification on the firm performance is ambiguous, our study analyses numerous studies, as a result four models ensue:

- Diversification discount model (Montgomery and Wernerfelt,1988; Lang and Stulz, 1994; Berger and Ofek, 1995; Denis et al., 1997 and Lins and Servaes,1999)
- Diversification premium model (Campa and Kedia, 2002; Zhao,2008 and Park and Jang, 2012)
- U relationship (Park and Jang, 2012; Tang and Jang, 2010 and Khanna & Palepu, 2000).
- Inverted U relationship (Galvan et al.,2007, Palich et al. 2000)

One cannot say that which view is better for demonstrating the product diversification's impact on firm performance but resource-based view is dominating in the most of the studies (Villalonga and Mcgahan, 2005; Wernerfelt, 1984 and Zhao, 2008). Resource-based view justify production, marketing, managerial, distribution skills are valuable sources of companies and can be transferred across products (Zhao, 2008).

Vestel Co. is the best example of companies having both related and unrelated diversification strategy in Turkey and transfer its resources via different sectors and produces television, air conditioner, small domestic appliances, vacuum cleaner, refrigerator, washing machine, dishwasher, light emitting diode lightning, computer, cooking appliances. According to the SIC codes Vestel's related diversification strategy is dominating; only computer can be classified as unrelated diversification. We analyze Vestel Co. as a case study since the firms in consumer electronics sector and other sectors can benefit from close investigation of Vestel's diversification experience. Using single firm gives us the chance of investigating a firm's lifecycle over a long period of time.

Helfat and Eisenhardt (2003) states that according to the resource-based view dynamic capabilities, which the firms' ability to build internal and external competences, are important source for the firms. Over time Vestel Co.'s intangible

assets become specialized and due to importance of dynamic capabilities of Vestel Co., next chapter analyzes Vestel Co.'s historical development is analyzed mostly based on the resource based view.

CHAPTER 3

THE CASE STUDY: VESTEL A.Ş.

In this chapter we will analyze Vestel Co. and its diversification strategy based on the strategic management approach. In order to understand Vestel's strategy better, we will briefly summarize its history. Zorlu Holding, which Vestel is a part of, has sprung in Denizli at 1950s. Beginning with textile first, its activities have expanded basically to four sectors: home textile, and spun thread; consumer electronics, information technology and durable consumer goods; real estate; and finally energy. Beginning with home textile and focusing only on this sector until 1980s, Zorlu Holding acquired Vestel at 1994. Then the holding entered into real estate business and energy sector by diversifying financial portfolio. Among different businesses of Zorlu Holding, Vestel is called as "the admiral ship" and "the shining star" constituting an important part of its portfolio.

Vestel produces several goods ranging from LCD TVs, dishwashers, washing machines, refrigerators, cooking appliances, set-top boxes to sound systems and LEDs. Choosing to diversify as a group strategy, Zorlu Group also decided to diversify within Vestel. Television is the most important product group of Vestel brand, and makes the firm an important player in both world and domestic TV markets. According to the data acquired by Electronic Goods Exporters Association (ECID – Elektronik Cihazlar İhracatçıları Derneği), in 2014 TV production of Vestel constitutes about 82% of total production in Turkey.

Vestel had started its production in 1983 and its acquisition was realized in 1994 by Zorlu Group. The first three years under Zorlu Group passed by acquiring and applying the know-how from abroad. The firm had concentrated on only one product: TV. The production was mostly made for foreign companies, Vestel worked as an OEM/ODM manufacturer. Focusing on TV, the brand diversified the models addressing the tiny differences between consumer segments and specialized on this product.

In 1997, Vestel started to make both application and development with application engineering still constitutes an important place. As a result, the first step was been taken for product diversification, and Vestel started to produce white goods (refrigerator, washing machine, dishwasher, oven, air conditioner). Moreover, the entrance to digital consumer goods production came nearly these years. We can infer that Vestel started to utilize its equipment and know-how in other goods production. We conclude that this diversification is a related diversification and the factors of production can be transferred are used to easily among production of different goods by looking at the Standard Industrial Classification codes. Explained above, SIC codes are used to classify industry areas and easily release meaningful and standardized data by government agencies in the way that others can understand. Under this classification, Vestel Co. falls into the "Division D: Manufacturing" and "Major Group 36: Electronic and Other Electrical Equipment and Components, Except Computer Equipment". Industry codes of the goods produced by Vestel Company are summarized in Table 1, and also it is shown below that which product falls into which group:

- Industry Group 363: Household Appliances
    - 3631: Household Cooking Equipment: Convection ovens including portable ones, and microwave ovens
    - 3632: Household Refrigerators and Home and Farm Freezers: Refrigerators and freezers
    - 3633: Household Laundry Equipment: Washing machines, dryer-washing machines
    - 3634: Electric Housewares and Fans: Blenders, coffee makers, curling irons, driers, fans, food mixers, irons, juice extractors, portable ovens, tea kettles, toasters (most of the goods under SDA fall into this group)
    - 3635: Household Vacuum Cleaners: Vacuum cleaners
    - 3639: Household Appliances, Not Elsewhere Classified: Dishwashers
- Industry Group 364: Electric Lighting And Wiring Equipment
    - 3641: Electric Lamp Bulbs and Tubes: Light Bulbs

    - 3645: Residential Electric Lighting Figures: lighting fixtures, residential
- Industry Group 365: Household Audio and Video Equipment, and Audio
    - 3651: Household Audio and Video Equipment: Television receiving sets, speaker systems
- Industry Group 366: Communications Equipment
    - 3663: Radio and Television Broadcasting and Communications Equipment: Television monitors, television transmitting antennas and ground equipment, cable television equipment

As it has been noted before, computers belong to a different major group –though the same division – Major Group 35: Industrial and Commercial Machinery and Computer Equipment.

- Industry Group 357: Computer and Office Equipment
    - 3571: Electronic Computers: Personal computers, computers: digital, analog and hybrid

This classification shows us that all products produced and/or sold by Vestel is in the same division and major group except computers. While white goods and small domestic appliances fall into the same industry group, television and set-top boxes are classified in another industry group under the same major group. LEDs are also in a different industry group though the same division and major group. As we have mentioned before, computers are an example of unrelated diversification and classified under a totally different major group – but again the same division.

Vestel, starting by TV production only, applied its flexible production strategy, wide distribution network, and efficient cost management strategy to expand into other sectors. Another most important reason enabling Vestel to diversify is the advantage in buying components – since all the sectors are related to each other as shown above. Along with these reasons, know-how acquired by application engineering first and, then, development engineering have brought diversification capabilities. One more reason in diversifying the goods produced is the reputation with “Vestel” brand. Brand reputation is a valuable intangible asset of a firm and cannot be

transferred or sold, either. Only with diversification strategy a firm can use this asset in different sectors engaged.

Below, the foundation progression of Vestel Group Companies and the products produced are given. After each, the sales revenue along with total revenue is provided in figure 1 and 2. Since most of the data is confidential, only a part of it has been revealed in the figures. The sales revenue data for the sectors has been compiled from different sources within Vestel: Budget and Planning, Research and Strategic Analysis, Finance, and Law Department. The product groups are analyzed with the data that comprises of: television (TV), air conditioner (AC), small domestic appliances (SDA), vacuum cleaner (VC), refrigerator (REF), washing machine (WM), dishwasher (DW), light emitting diode lightning (LED), computer (CM), cooking appliances (CA). As mentioned above, product diversification can be classified as related and unrelated diversification. According to SIC codes, except computers, Vestel choose related product diversification strategy. Comparing the revenue and sales unit of each product can draw a picture, when we look at the first figure itcan be seen that computer sales unit and revenue decline in time, on the other hand, the other segments' sales unit and revenue generally increase. We can conclude that unrelated diversification strategy of Vestel is unsuccessful.

Table.1. Product Segments According to The SIC Codes

SIC CODE	DEFINITION
3651	Household Audio and Video Equipment
3631	Household Cooking Equipment
3632	Household Refrigerators and Home and Farm Freezers
3633	Household Laundry Equipment
3635	Household Vacuum Cleaners
3641	Electric Lamp Bulbs and Tubes
3645	Residential Electric Lighting Fixtures
3634	Electric Housewares & Fans
3639	Household Appliances
3663	Radio and Television Broadcasting and Communications Equipment
3571	Electronic Computers

Source: http://siccode.com/en/

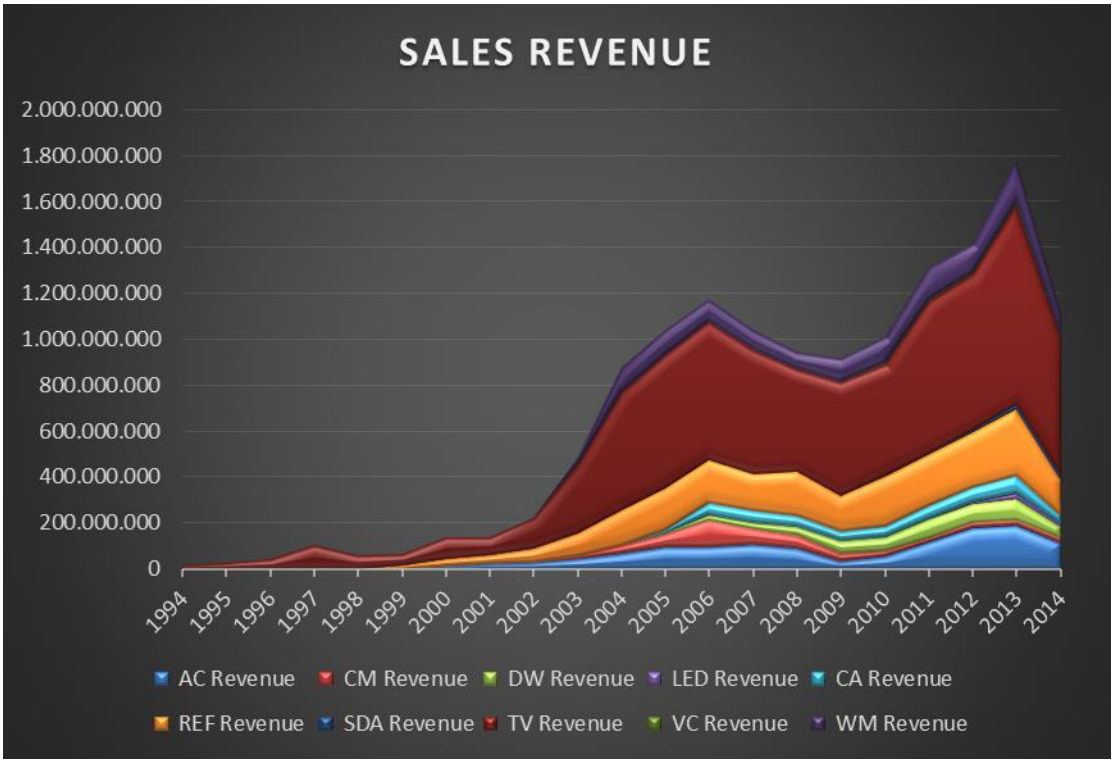

Figure 1: Total Revenue of all Products

Source: Vestel Budget and Planning Department

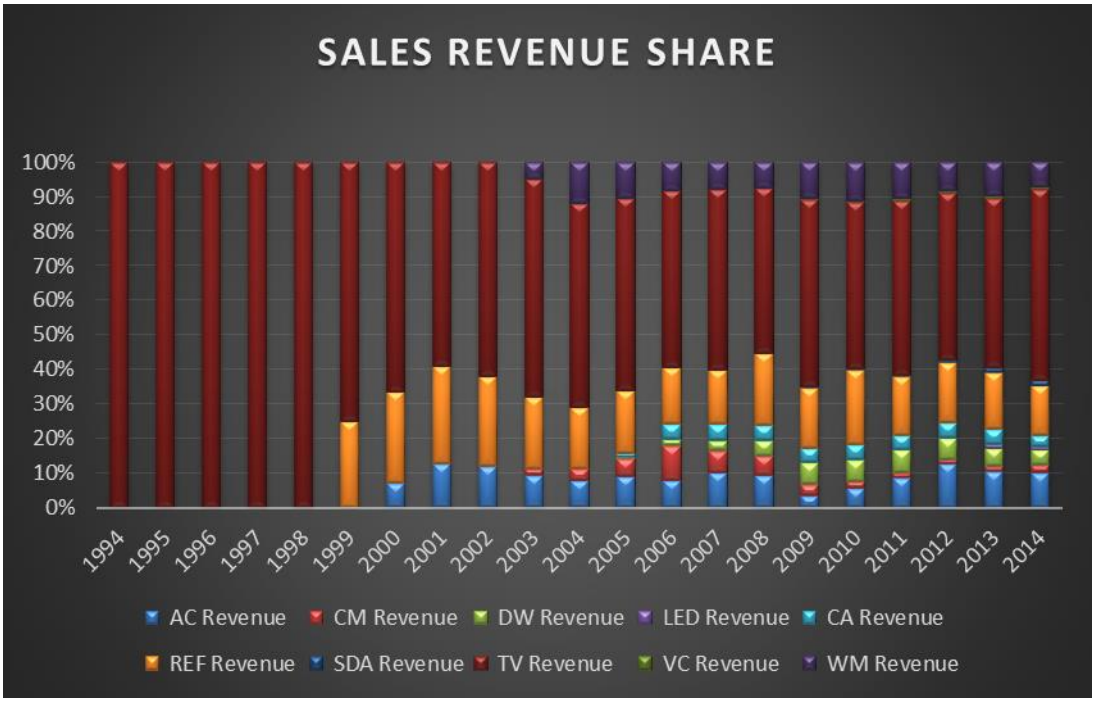

Figure 2: Total Revenue Share of all Poducts

Source: Vestel Budget and Planning Department

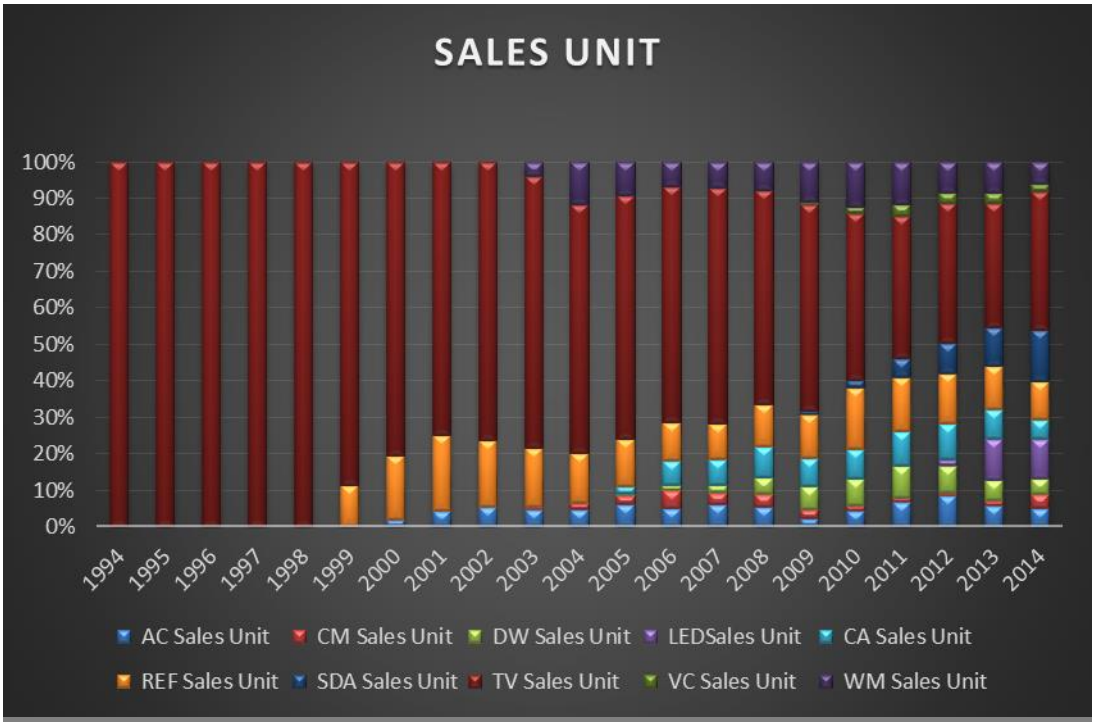

Figure 3: Total Sales Share of all Products

Source: Vestel Budget and Planning Department

- **Vestel Electronics**

Vestel Electronics, the leading television producer of Turkey, was acquired by Zorlu Group in 1994. TV is the first and probably the most important product produced by Vestel since the foundation of the brand (1984). As we have explained before, the factory started by producing CRT TV's with the utilization of application engineering –the know-how was imported from abroad. After gaining knowledge about the technical hardware of TV, Vestel had changed policy and shifted from application engineering to development engineering. The engineers in Research and Development Center tried to make CRT TV's more efficient and more equipped at the same time with a cost advantage when compared to its rivals. Vestel took advantage of low costs by making production in mass quantities but with a specified quality. The cost advantage and a standard quality enable Vestel to export its goods to 145 countries. It is one of the leaders among OEM/ODM manufacturers in Europe besides the important position in the domestic TV sector.

From early 2000s on, the world trend has switched from CRT TV's to plasma and then to LCD TV's. Due to its flexible production system, which is based on labor force rather than machines and resulting reduction in fixed costs, Vestel was not late in adopting the world trend to its production strategy and made a quick switch to LCD TV's as a fast follower. Although there is a decrease at the first months of switch from CRT to LCD ones, due to the decline in exports, it continued to expand after that. By cumulating the know-how both in software issues as well as the hardware issues, Vestel also caught the world trend in terms of software related elements in TV and had a cost advantage also in software.

From figure.2 it can be seen that until 1999 –the year that the first production of refrigerators were realized- total revenue equals to TV revenue, since TV is the sole product manufactured in the plant. Then, after 1999, the production of refrigerators and the other products; air conditioners in 2000, washing machines in 2003, cooking appliances in 2005 and dishwashers in 2007, the share of TV revenue in total revenue decreases. However, it is still above 50% for all of these years. It can be concluded that TV is the most important product and the source of revenue. All in all, it does not mean that TV is a high profitable sector. Due to confidentiality issues the source of data could not be shown, but as of the general dynamics because of the competition in TV sector, in spite of the high revenues, TV has the smallest profit margin when compared to other goods in consumer electronics.

- **Vestel White Goods**

Vestel White Goods Company was founded in 1997 and joined to Vestel Group Companies. The white goods factory comprised of several products and it was the second one built after television factory in 1997. The company started its production first with refrigerators in 1999. The firm continued the investments with air conditioners in 2000, washing machines in 2003, cooking appliances in 2005 and finally dishwashers in 2007. In producing various products within the company, Vestel White Goods has used its logistics advantage due to geographical location, product differentiation ability, flexible production system that is easily transferrable among production of different goods, and low costs of labor that is already inherited from TV production. Probably the most important element that makes Vestel

powerful OEM/ODM manufacturer was the ability to easily differentiate products. This, in turn, increased the demand for the products.

When we look at the figures, it can be seen that among the white goods group, the share of refrigerator revenue in total revenue is the highest, while washing machine and air conditioner comes after respectively. Dishwasher and cooking appliances remain marginal. Refrigerator takes the advantage of being the first product among white goods. With the know-how cumulated since 1997, competitive prices and the brand value enable Vestel to be an important player in the market.

In the air conditioners, Vestel keeps the competitive pricing strategy by addressing both lower and upper segment consumers. It is also the second product group to be manufactured in white goods plant; this might be another advantage in higher total revenue share. The last two groups, the cooking appliances and dishwashers have the smallest share in total revenue.

- **Vestel Communication**

Founded in 1975 in order to produce first remote controller and tuner in Turkey, the firm has joined to Vestel Companies. Today, the factory is producing goods in "consumer electronics" and the leading company in Turkey. The product range includes set-top boxes, DVD players, DivX players, AV receivers, DVD recorder, digital TV receivers, wireless display and sound transmitters in compliance with digital home concept.

- **Vestel Digital**

One of the most recent companies founded by Vestel Group Companies is Vestel Digital. It had started its activities in 2005 in Vestel City. By using the know-how and technological infrastructure of the Vestel Group Companies, it has become a leading technology center. The company maintains its business basically in two sectors: digital media and personal computer products.

In the recent years, since 2011, Vestel has started to use its knowledge in the area of electronics in LED lighting sector. Although it's a novel area for Vestel, the projects

show that it is promising. Some of the projects contracted by Vestel LED are lightning of Istanbul subways, public and private hospitals, reputed telecommunication stores, Istanbul and Izmir airports, hydroelectric plants, hotels, universities, etc. Due to these projects, the revenue of the product group LED is expected to get higher, even though it is very small for now.

Since the small domestic appliances and vacuum cleaners are produced abroad and imported, the figures belonging to these goods could not be grouped under any of these companies, instead, they are given here separately.

As can be seen in figure 1 above, the revenue of computer shows an upward movement for the first three years; however, until then the revenue falls and the share in total revenue remains very marginal. Keeping in mind that the computers belong to a totally different major group compared to the other goods produced by Vestel, this may be counted as an unsuccessful example of unrelated diversification. Revenue and sales data of Vestel seems to indicate that Vestel so far failed with unrelated diversification strategy. Vestel continues unrelated diversification strategy with smartphones and tablets. We could not share tablet and smartphone sales data due to privacy issues, in light of past experiences with unrelated diversification it is hard to achieve profitability; however, depending on three months sales data we can conclude that Vestel can achieve to increase profitability and revenue with unrelated diversification strategy. On the other hand, white goods - which can be considered as related products - revenue and sales shares increase in time. The most distinct result according to the sales and revenue data is if profitability increase with new product, related diversification strategy is the best strategy for Vestel. For understanding whether profitability increases or does not we use panel data analysis in the next chapter.

CHAPTER 4

METHODOLOGY and EMPIRICAL RESULTS

4.1. Methodology

Panel data models are used when analyzing the cross sectional time series data. Panel data enable one to control variables that cannot be controlled or measured, and changing over time. Panel data can be distinguished in two categories: balanced panel data and unbalanced panel data. In balanced panel data, the number of time periods is the same for all groups, i.e. the data exists for all objects in same time periods. In unbalanced panel data, observations are missing for some cross sectional units randomly or nonrandomly. Our data fits into nonrandom unbalanced panel data since the data do not exist for all product groups in the same time periods.

In order to analyze panel data there are three techniques that can be used: OLS, random effects model and fixed effects model. In our study, firstly we test the seasonality and use X-12 Arima method for obtaining seasonal adjustment data. In the modelling stage of estimation procedure, we begin by using pooled OLS regression. According to Park (2011), in order to determine the most appropriate model, one should test for four possible outcomes: F-test in order to decide between the pooled OLS and the fixed effect, and LM test for deciding among the pooled OLS and the random effect. If one fails to reject the null hypotesis of F and LM tests, then pooled OLS will be the best fit model. If F test is rejected and LM is not, then fixed effect model is the best model and in an exactly opposite case, random effect model is the case. On the other hand, if both F and LM test are rejected, then with Haussman test one should compare fixed and random effect models. Null hypotesis of Haussman test will be:

H_0= difference in coefficients are not systematic.

If the null hypotesis of Hausman test is rejected, then one should choose fixed effect model, otherwise random effect model will be preferred. Figure 4 summarises the modelling process.

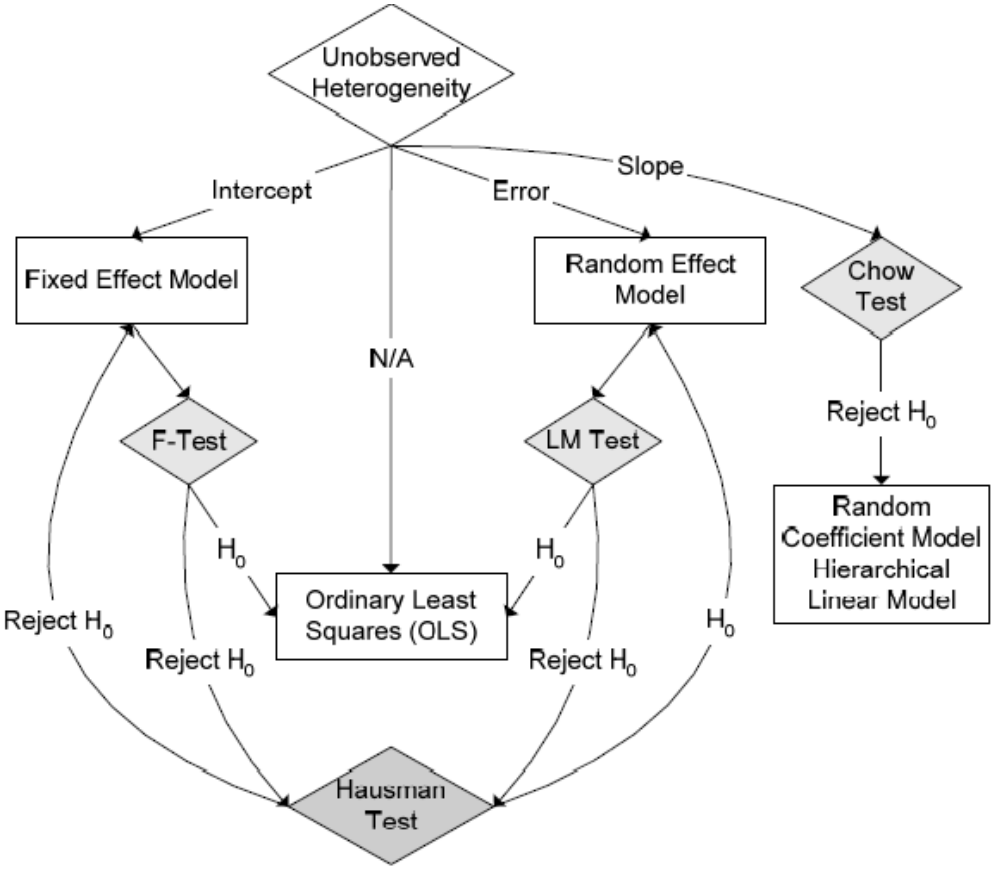

Figure 4: Panel Data Modelling Process

Source: Park (2011), p:16

4.2. Data Analysis

The aim of our study is to examine the effect of product diversification on firm value. In this part, the variables, which are used in the regression analysis, are defined in detail. Since our study finds an answer for the impact of diversification strategy on the value of the firm, return on asset (ROA) and return on sales (ROS) variables are used as dependent variables in measuring the value of the firm.Vestel Co. has quarterly and annual data and we use quarterly data from 1994 (quarter 1) to 2014 (quarter 2). Martins (2010) states that "*using quarterly data provides some advantages: gives larger sample and minimizes the likelihood of structural breaks."*

Under the resource-based view, intangible assets are the unique resources and by making product diversification firm will benefit the use of resources through the economies of scale (Zhao, 2008 and Morck and Yeung, 1991). When forming the data, R&D and advertising expenditures over total assets are used as proxy for intangible assets; and from the perspective of resource-based view we expect positive relationship between the higher level of intangible assets and firm value. According to the resource - based view technological assets and marketing assets are intangible assets of the firm. Technological assets is R&D expenditure over total assets and marketing assets is marketing and advertising expenditure over total assets. We expect that with the increase in the level of intangible assets, firm value and profitability will also increase. We expect increase in R&D expenditure in the long run, and also intangible assets profibility will increase. In order to understand long term effects of intangible assets we use first, fourth and eight lags of technological and marketing assets.

Other resource-based variable is Herfindahl index that is used to find the effect of diversification on firm value. Measuring the degree of diversification we calculate Herfindahl Index by using two methods. Firstly, sale-based Herfindahl Index is calculated where "i" is the segment of the firm and "t" is the year. With the increase in the level of diversification, Herfindahl Index will decrease. "S" is the sales share of each product group within the firm's total sales. In order to convert linear relationship to nonlinear relationship, we calculate square of Herfindahl index.

$$SSHt = \sum (S_{i,t})^2 \ , \ (SSHt)^2 = (\sum (S_{i,t})^2)^2$$

Other calculation of Herfindahl Index is based on market share where "i" is the market share of the firm and "t" is the year. "M" is a market share of each product group within total sales. Again, the linear relationship is transformed to nonlinear relationship by calculating the square of Herfindahl index.

$$MMHt=\sum (M_{i,t})^2 \ , \ (MMHt)^2= (\sum (M_{i,t})^2)^2$$

In Vestel case, two options are possible as the literature also claims two types of relationships (Osorio et al., 2012):

- U-relationship: Vestel operates in consumer electronics sector and heavily invest in technology and R&D investment. If the first stage of diversification cost outweighs benefits, after a certain point firm starts to earn profit from new segment, then we will see u shape model.
- Inverted U-relationship: If profitability decreases with high level of diversification, then we will see inverted u-shape model.

We use first difference of GDP from 1994 until today with 1994 constant prices. GDP growth rate is GDP growth rate derived from seasonally adjusted GDP from 1994 until 2014. Industrial production indexes the indicator which measures the amount of output from the industries. These variables will show us the economic conditions of Turkey between the years 1994 and 2013. One must take into account the economic conjuncture of the country since economic conditions will affect disposable income and thereby consumption decisions, consequently it affects production level. With increase in production level firm gain cost advantage due to economies of scale, hence profitability will increase. We expect positive relationship with economic conditions of the country and firm performance.

Total revenue is the sum of revenue elicited with domestic sales and revenue gathered by exports. Revenue share is the revenue share of the each product group in total sales revenue. Profitability of televisions - which are the main products of Vestel- decreases in the world, however, with an increase in other products' revenues and also revenue share, we expect to increase in profitability in total. Because white goods are more profitable than the televisions.

Current ratio (CR) and size are the financial theory-related variables. Current ratio is current liabilities over current assets which shows the liquidity of the firm, and firm's ability to pay short term debts. With increase in CR default risk will decrease since the firm will hold liquid assets more. We expect a negative relationship between profitability of the firm and CR level. CR is the opportunity cost for new investment opportunities.

Firm size is the natural logarithm of total assets, meaning that with an increase in firm size we expect an increase in firm value.

Table 2 provides description of variables and their expected signs:

Table 2. Describtion of the Variables

Variable Description		Expected Sign
Return on Asset	Net Profit/Total Assets	
Return on Sales	Net Profit / Revenue	
Sales Base Herfindahl Index	Measurement degree of diversification: sales based index: $Ht=\sum(S_{i,t})^2$ j= firm segments in year t= time S=segments sales share in the firms total sales $Ht=(\sum(S_{i,t})^2)^2$	**Positive or Negative**
Square of Sales Base Herfindahl Index	Square of Herfindahl Index: $Ht=(\sum(S_{i,t})^2)^2$	**Positive or Negative**
Market Share Base Herfindahl Index	Measurement degree of diversification: market share based index: $Ht=\sum(M_{i,t})^2$ j= firm segments in year t= time M=segments market share in the firms total sales $Ht=(\sum(S_{j,t})^2)^2$	**Positive or Negative**

Table 2 (continued)

Variable Description		Expected Sign
Square of Market Share Base Herfindahl Index	Square of Herfindahl Index: $Ht=(\sum(M_{j,t})^2)^2$	**Positive or Negative**
Revenue Share of Each Sector	Revenue of each product of Vestel/Total revenue of Vestel	**Positive**
Total Revenue	Total sales revenue	**Positive**
Revenue Growth	Revenue Growth (quarterly)	**Positive**
Domestic Revenue	Total domestic sales revenue	**Positive**
Foreign Revenue	Total foreign sales revenue	**Positive**
First Lag of Total Revenue	First Lag of Total Revenue	**Positive**
Technological Assets	R&D Expenditure / Total Asset	**Positive**
First Order Lag of Technological Assets	First Order Lag of R&D Expenditure / Total Asset	**Positive**
Fourth Order Lag of Technological Assets	Fourth Order Lag of R&D Expenditure / Total Asset	**Positive**
Eight Order Lag of Technological Assets	Eight Order Lag of R&D Expenditure / Total Asset	**Positive**
Marketing Assets	Marketing Expenditure /Total Asset	**Positive**
First Order Lag of Marketing Assets	First Lag of Marketing Expenditure /Total Asset	**Positive**
Fourth Order Lag of Marketing Assets	Fourth Lag of Marketing Expenditure /Total Asset	**Positive**

Table 2 (continued)

Variable Description		Expected Sign
Eight Order Lag of Marketing Assets	Eight Lag of Marketing Expenditure /Total Asset	**Positive**
The First Difference of Market Share	The sales ratio of Vestel products/ total sales in Turkey in category based	**Positive**
Current Ratio	Current Asset / Current Liabilities	**Negative**
Firm Size	Natural Logarithm of Total Assets	**Positive**
First Difference of Gross Domestic Product	Seasonal and Calendar Adjusted Gross Domestic Product, 1994 Constant Prices	**Positive**
GDP Growth Rate	Seasonal and Calendar Adjusted Gross Domestic Product, 1994 Constant Prices	**Positive**
First Order Lag of GDP	First Lag of GDP	**Positive**
Industrial Production Index	Industrial Production Index	**Positive**
R&D Expenditure	Vestel's R&D Expenditure	**Positive**
R&D Expenditure Index	Vestel's R&D Expenditure Index	**Positive**

4.3. Econometric Analysis

In order to explain the relationship between product diversification and firm performance based on product diversification, two dependent variables are used for the best data fit: ROA and ROS. For each case four models are estimated. Our models are estimated by using unbalanced panel data method. In the first three set of estimations ROA is used as the dependent variable while ROS is used in the last three sets of estimations. Heteroscedasticity and autocorrelation are the data problems which must be eliminated before analyzing the coefficients belonging to variables. Firstly, in order to test for heteroscedasticity Breusch-Pagan / Cook-Weisberg test is utilized for all models. The null hypothesis is:

$H_{0:}$ *There is no heteroscedasticity.*

In all of the models we face with heteroscedasticity problem. The estimations are corrected for heteroscedasticity and robust standard errors are found.

In testing for autocorrelation LM test is used with the null hypothesis:

$H_{0:}$ *no first-order autocorrelation.*

In the first three sets of estimations using ROA as the dependent variable, the second model has autocorrelation problem. In the latter sets of estimations all models have autocorrelation problem. The autocorrelation problem is eliminated by using autocorrelation corrected standard errors.

Park (2011) also states that if each individual has its own initial capacity then fixed effect model will be the best model that fits the data. In our models when we look at the F tests the null hypotesis is rejected in favor of fixed effect model. According to Hausman test, results we reject the null hypotesis, results are in favor of fixed effect model.

The estimation results of Fixed Effect Model, with dependent variable “ROA” is shown in the table.3. OLS, fixed effect model and random effect model are shown at the appendix.

Table 3. Summary of the Fixed Effect Estimation Results (Dependent Variable: ROA)

Fixed Effect Models (Dep.Varb. ROA)			
VARIABLES	**MODEL 1**	**MODEL 2**	**MODEL 3**
Constant	-.03850 .01345	.02613 .02569	-.03589*** 0.1279
Revenue Share of Each Sector	.05347 * .01370	0.0123* .6443D-08	
Sales Base Herfindahl Index		.10523*** .03345	
Square of Sales Base Herfindahl Index		-.09082*** .03214	
Technological Asset	-.76525* .65452		
Marketing Asset	-.85658* .12303	-.91453*** .11093	-1.03010*** .11120
GDP Growth Rate	.01646** .01671		
First Lag of GDP			.10699D-06** .4437D-07
Current Ratio	.00974* .00503	.00857** .00385	.00406 .00423
Firm Size		.01003** .00437	
Foreign Revenue			.00773 .02944
Domestic Revenue			.01833 .05137
Market Share Base Herfindahl Index	.06332*** .05862		.08787*** .03047
Square of Market Share Base Herfindahl Index	-.02116** .03436		-.04933** .02339
Industry Index	.00052*** .00009	.00037*** .8374D-04	.00033*** .7979D-04
R&D Expenditure		-.43956D-06 .1854D-04	
R&D Expenditure Index			-.43946D-05 .3782D-05
First Difference of GDP		0.0015** .1946D-08	
Fourth Lag of Technological Asset	-3.55198** .64859		

Statistical significance: ***< .01, **<.05, *<.01

Table 3 (continued)

Fixed Effect Models (Dep.Varb. ROA)			
VARIABLES	**MODEL 1**	**MODEL 2**	**MODEL 3**
Eight Lag of Technological Asset	.065339* .50937		
Fourth Lag of Marketing Asset	.21535** .12002		
Eight Lag of Marketing Asset	.35858* .13045		
R2	0.809	0.702	0.658

Statistical significance: ***< .01, **<.05, *<.01

Table 4. Summary of the Fixed Effect Estimation Results (Dependent Variable: ROS)

Fixed Effect Models (Dep.Varb. ROS)			
VARIABLES	**MODEL 1**	**MODEL 2**	**MODEL 3**
Constant	.47423 .16590	.29813*** .10230	.14736 .11440
Revenue Share of Each Sector	.00718 .06769		
Total Revenue			0.00100** .1547D-07
Sales Base Herfindahl Index	.32256*** .11344	.26398*** .09511	
Square of Sales Base Herfindahl Index	-.27095*** .10145	-.24030*** .08200	
Technological Asset	-1.88146** 1.92570	-.10853 1.82612	
Marketing Asset	-.99634* .41551	-2.36382*** .35453	-2.57300*** .34978
First Lag of GDP			0.02320*** .58780D-08
Current Ratio	.021376** .015348	.05570*** .01262	.04686*** .01237
Firm Size	.06796* .01741	.05104*** .01349	.04365*** .01386
Foreign Revenue		0.00001 .1715D-08	
Domestic Revenue		0.00001 .2823D-08	
Market Share Base Herfindahl Index			.33296*** .10222

Statistical significance: ***< .01, **<.05, *<.01

Table 4 (continued)

Fixed Effect Models (Dep.Varb. ROS)			
VARIABLES	**MODEL 1**	**MODEL 2**	**MODEL 3**
Square of Market Share Base Herfindahl Index			-.30319*** .09300
First Difference of Market Share			
Industrial Production Index	.00148*** .00035	.00122*** .00027	.00115*** .00026
R&D Expenditure			-.14323D-04 .5750D-04
R&D Expenditure Index			
First Difference of GDP	1.15e-06 1.56e-07	0.00112 .1170D-07	0.00001** .6051D-08
First Lag of Technological Asset		-.7641D-05*** .2415D-05	0.00001 .7837D-07
Fourth Lag of Technological Asset	-5.89935* 2.00840		
Eight Lag of Technological Asset	5.24479 1.66176		
First Lag of Marketing Asset		-.7644D-05*** .2415D-05	
Fourth Lag of Marketing Asset	.12566* .41345		
Eight Lag of Marketing Asset	1.59126* .388006		
Fourth Lag of GDP	2.19e-07** 1.47e-07		
Eight Lag of GDP	7.73e-08** 1.43e-07		
R2	0.542	0.656	0.674

Statistical significance: ***< .01, **<.05, *<.01

When the results of the six models are considered with respect to the results of F tests, H_0 is rejected in favor of fixed model. As mentioned above, with the rejection of H_0 we should look at the LM test for a comparison between the random effect model and the fixed effect model. With the rejection of the null hypotesis of the F test and Hausman tests, we analyse the data by utilizing fixed effect model estimations.

According to Table 3, revenue share of each sector is significant at the .01 significance level and also positive in model 1 and model 2, on the other hand, it is

not significant at Table 4. With an increase in revenue for each sector, profitability increases. According to Vestel Planning and Budget Department data, television is the most unprofitable product in Vestel and it is reasonable that increase in revenue of other products will lead to increase in profitability, this reveals that new segment products are profitable for the firm. In addition, according to the Table 4 - model 3; profitability increase with an increase in total revenue. Vestel has related diversification strategy and based on the theory, increase in total revenue shows that production volume increases. In Park and Jang's (2012) study they find that with high levels of related diversification, profitability increases due to economies of scale and scope, these findings can be applied to our results.

As mentioned before, technological assets and marketing assets are intangible assets of the firm. Technological assets in the first models; marketing assets in the first, second and third models at Table 3 and Table 4; they are significant and have negative coefficients. When we look at the first lags of technological assets and marketing assets - at Table 3, model 1 and Table 4, model 1- we see that technological asset is statistically significant and has a negative coefficient. In addition, first and fourth lags of technological asset have negative and significant coefficients at table 3 - model 1, table 4 model 1 and 2, unexpectedly. Eight lag of technological asset has positive and significant coefficient at the 1% of significance from 3- model 1. Marketing asset is statistically significant and has negative coefficient at all models. First lag of marketing asset has negative and statistically significant coefficient at 0.01 level at table 4-model 2. Fourth and eight lags of marketing asset has positive coefficient and statistically significantat. Table 3 – model 1 and Table 4 – model 1. These findings support the idea of Mork and Yeung (1991) that R&D and advertising related intangibles increase the firm value in the long run. Firstly the cost of intangible assets outweigh the benefits, but in time the benefits of intangible assets surpass the costs due to economies of scale. Zhao (2008) states that intangible assets are the sunk costs that are made in order to develop and introduce new products. The cost or benefit of these expenditures appears in time. Our findings prove Park and Jang (2012)'s findings that firstly the effect of these expenditure on ROA is negative; however, as we can see in the lag

variables of intangible assets, in the long run their effect turns into positive as expected.

We use R&D expenditure and R&D expenditure index but we could not get meaningful results, unexpectedly.

In order to see the difference between the effects of domestic and foreign sales we use domestic revenue and foreign revenue but they are statistically insignificant.

First difference of gross domestic product and GDP growth rate are the variables that explain the good index for consumption level. With the increase in the GDP disposable income, consumption increase and consequently production level increase. Industrial production index is the economic indicator which measures the amount of output from different industries. Our findings show that ROA and ROS are positively correlated with the economic conditions and statistically significant.

Smilar to Chatterjee and Wernerfelt (1991)'s findings, in our model coefficient of current ratio is positive and statistically significant unexpectedly. This variable shows the lower default risk and we can conclude that holding capital as cash affect firm's profitability positively.

Firm size has a positive coefficient and it is significant. These findings show that as the firm grows, its profibility is affected positively.

When we look at diversification level, "market share base Herfindahl indices" have positive coefficients and the coefficients of "square of market share base Herfindahl indices" are negative and significant. The results reveal that there is u-shaped curve relationship between profitability and the diversification which shows that at the low levels of diversification, profits will decrease but with a high level of diversification firm value will increase. When we look at the "sales based Herfindahl indexes" and "square of sales base Herfindahl indexes, we see that they are statistically significant and positive. Our findings are consistent with Park and Jang (2012)'s. With low level of diversification, its costs will outweigh the benefits, but with the high levels of diversification the benefits - stemming from economies of scale, scope and synergy- exceed the costs (Park and Jang, 2012). These results contradict with the findings of Galvan and De La Torre (2007), Markides (1992) and Khanna, T., and

Palepu, K. (2000). Contrast to our models, their model shows that there is inverted-u relationship between the firm value and diversification level. There is also an optimal point, after this breaking point, firm value will decrease with the increase in diversification.

CHAPTER 5

CONCLUSION

All in all, this study aims to find the effect of diversification as a strategy on the firm value of Vestel Co. To this end, the financial data from 1994 quarter 1 to 2014 quarter 2 in quarterly basis is acquired from different sources, and it included variables such as ROA, ROS, marketing asset, technological asset, GDP etc. The data is analyzed econometrically by using STATA and LIMDEP. Our results show some similarities and differences with the existing views and literature as will be explained below. First of all, as in resource-based view, we have grouped the products manufactured within Vestel according to the SIC codes and found that Vestel follows related product diversification strategy, except computers. On the other hand, the sales revenue figures show us that Vestel failed in unrelated diversification strategy. Computer sales revenue has declined in time, while other segments increase their revenue.

Resource based view analyses two types of diversification: related and unrelated, namely. Resource-based theory is dominating in most of the studies. Among them, a major number of the researches find that related diversification leads superior performance for the firms (Wernerfelt and Montgomery, 1986; Hoskisson, 1987; Berger and Ofek, 1995; Markides and Williamson, 1996 and Colpan, 2003). Economics and finance literature have found diversification premium model which shows positive and linear relationship between the diversification and firm profitability (Campa and Kedia, 2002; Chang and Hong and Zhao, 2008) and diversification discount model as the reverse of the former one (Lang and Stulz, 1994; Berger and Ofek, 1995 and Lins and Servaes, 1999). Our result does not fit any of them. We have found an U-shaped relationship between diversification and firm level as in the resource-based theory. Resource-based view focuses on level of diversification.

Park and Jang, (2012) and Tang and Jang, (2010)'s studies in favor of u shape relationship argue that at the early stages of the investment in R&D and advertising, firm faces costs that outweigh the benefits. The benefits of the investment reveals in time. The most important result of our study is diversification level and firm performance has an u-shape relationship. We find that in the long run- after a certain point- with increase in diversification level, profitability increase but this hypothesis is for the related diversification.

According to resource-based view, intangible assets of the firm are historically accumulated endowments. Vestel has been successful by using transferrable resources among the related sectors and the firm continues its diversification strategy with tablets and smart phones. According to the SIC codes, these sectors are counted as unrelated diversification strategy. Based on Vestel's history, one can say that Vestel will fail at unrelated diversification strategy with smart phones and tablets. On the other hand, among the world manufacturing firms in the area of durable consumer goods and consumer electronics such as LG and Samsung are successful in related and unrelated diversification. Beginning with 1990's, Korean government has the target industries and with strong government support Samsung and LG have applied diversification strategy successfully. According to our results at the beginning stage of diversification, costs outweigh benefits and at this stage the support is vital for the firms. For the long-run industrial targets, government support has an important role. Turkish government should take an example of Korean government and specify the target industries by focusing on technologies and thematic areas of importance through technology roadmaps. The public incentives should be provided via technology roadmaps and in accordance with national targets specified in these roadmaps.

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APPENDICES

APPENDIX A: ECONOMETRIC RESULTS

Table 5. Results (Dependent Variable: ROA)

	MODEL 1 (Dep.Varb. ROA)		
VARIABLES	**Fixed Effect Model**	**Pooled OLS with Robust SE**	**Random Effect Model**
Constant	-.03850 .01345	-.01340 .01099	-.01332 .00198
Revenue Share of Each Sector	.05347 * .01370	.00947* .00401	.00843* .00311
Technological Asset	-.76525* .65452	-.88324* .65658	-.85822* .64679
Marketing Asset	-.85658* .12303	-.93455* .12147	-.92554* .09448
GDP Growth Rate	.01646** .01671	.02869** .01621	.02759** .02673
Current Ratio	.00974* .00503	.00508* .00483	.01509* .00288
Market Share Base Herfindahl Index	.06332*** .05862	.13075*** .05543	.12068*** .05543
Square of Market Share Base Herfindahl Index	-.02116** .03436	.06821** .03158	.06731** .04168
Industry Index	.00052*** .00009	.00148*** .00009	.00134*** .00008
Fourth Lag of Technological Asset	-3.55198** .64859	-3.19017** .64279	-3.08017** .65285
Eight Lag of Technological Asset	.065339* .50937	.775203* .46694	.76532* .47699
Fourth Lag of Marketing Asset	.21535** .12002	.18870** .12026	.14860** .12026
Eight Lag of Marketing Asset	.35858* .13045	.46649* .12723	.45347* .12653
R2	0.809	0.823	0.811
HAUSMAN	0,55 (Fixed Effect)		

Table 6. Results (Dependent Variable: ROA)

	MODEL 2 (Dep.Varb. ROA)		
VARIABLES	**Fixed Effect Model**	**Pooled OLS with Robust SE**	**Random Effect Model**
Constant	.02613 .02569	.02543 .03265	.02613 .02569
Revenue Share of Each Sector	0.0123* .6443D-08	0.00143* .3157D-08	0.01233* .317887D-08
Sales Base Herfindahl Index	.10523*** .03345	.09427*** .03117	.08431*** .03289
Square of Sales Base Herfindahl Index	-.09082*** .03214	-.07432*** .02805	-.06531*** .03305
Marketing Asset	-.91453*** .11093	-.93089*** .10916	-.92199*** .21916
Current Ratio	.00857** .00385	.00841** .00379	.01839** .01578
Firm Size	.01003** .00437	.00738** .00372	.006238** .00452
Industry Index	.00037*** .8374D-04	.00036*** .8028D-04	.00044*** .8134D-04
R&D Expenditure	-.43956D-06 .1854D-04	-.12992D-05 .1830D-04	-.13422D-05 .1940D-04
First Difference of GDP	0.0015** .1946D-08	0.0023** .1921D-08	0.0152** .1831D-08
R2	0.702	0.703	0.704
HAUSMAN	0.77 (Fixed Effect)		

Table 7. Results (Dependent Variable: ROA)

	MODEL 3 (Dep.Varb. ROA)		
VARIABLES	**Fixed Effect Model**	**Pooled OLS with Robust SE**	**Random Effect Model**
Constant	-.03589*** 0.1279	-.03691*** .01274	-.03703*** .01257
Marketing Asset	-1.03010*** .11120	-1.03610*** .10950	-1.03520*** .10792
First Lag of GDP	.10699D-06** .4437D-07	.10814D-06** .4389D-07	.10795D-06** .4323D-07
Current Ratio	.00406 .00423	.00425 .00417	.00423 .00411
Foreign Revenue	.00773 .02944	.00697 .02895	.00718 .02853
Domestic Revenue	.01833 .05137	.02004 .05063	.01965 .04989
Market Share Base Herfindahl Index	.08787*** .03047	.08870*** .02979	.08870*** .02937
Square of Market Share Base Herfindahl Index	-.04933** .02339	-.04884** .02280	-.04901** .02250
Industry Index	.00033*** .7979D-04	.00032*** .7665D-04	.00033*** .7565D-04
R&D Expenditure Index	-.43946D-05 .3782D-05	-.46878D-05 .3734D-05	-.46472D-05 .3679D-05
R2	0.658	0,678	0.657
HAUSMAN	0.80 (Fixed Effect)		

Table 8. Results (Dependent Variable: ROS)

	MODEL 1 (Dep.Varb. ROS)		
VARIABLES	**Fixed Effect Model**	**Pooled OLS with Robust SE**	**Random Effect Model**
Constant	.47423 .16590	.48327 .14349	.83275 .14393
Revenue Share of Each Sector	.00718 .06769	-.06095 .01356	-.07856 .01575
Sales Base Herfindahl Index	.32256*** .11344	.32214*** .10061	.39174*** .11634
Square of Sales Base Herfindahl Index	-.27095*** .10145	-.26193*** .08467	-.25814*** .07567
Technological Asset	-1.88146** 1.92570	-1.80446** 2.86589	-1.83035** 2.95749
Marketing Asset	-.99634* .41551	-.99839* .47175	-.98837* .46731
Current Ratio	.021376** .015348	.021357** .021145	.021947** .023225
Firm Size	.06796* .01741	.06898* .01671	.06791* .01563
Industry Index	.00148*** .00035	.00151*** .00033	.01141*** .00120
First Difference of GDP	1.15e-06 1.56e-07	1.14e-06 1.84e-07	1.13e-06 1.73e-07
Fourth Lag of Technological Asset	-5.89935* 2.00840	-5.95964* 1.69164	-5.99659* 1.63679
Eight Lag of Technological Asset	5.24479 1.66176	5.16930 1.91902	5.15702 1.97038
Fourth Lag of Marketing Asset	.12566* .41345	.11200* .35676	.11103* .35765
Eight Lag of Marketing Asset	1.59126* .388006	1.60756* .550359	1.61453* .513788
Fourth Lag of GDP	2.19e-07** 1.47e-07	2.21e-07** 9.31e-08	2.23e-07** 9.90e-02
Eight Lag of GDP	7.73e-08** 1.43e-07	7.85e-08** 1.04e-07	7.69e-08** 1.13e-07
R2	0.542	0.543	0.594
HAUSMAN	**0.40 (Fixed Effect)**		

Table 9. Results (Dependent Variable: ROS)

	MODEL 2 (Dep.Varb. ROS)		
VARIABLES	**Fixed Effect Model**	**Pooled OLS with Robust SE**	**Random Effect Model**
Constant	29813*** .10230	29416*** .11220	.29359*** .11032
Sales Base Herfindahl Index	.26398*** .09511	.27063*** .09308	.27046*** .09151
Square of Sales Base Herfindahl Index	-.24030*** .08200	-.24479*** .07995	-.24467*** .07864
Technological Asset	-.10853 1.82612	-.10865 1.79952	-.10991 1.76816
Marketing Asset	-2.36382*** .35453	-2.37876*** .34977	-2.37826*** .34367
Current Ratio	.05570*** .01262	.05572*** .01241	.05571*** .01220
Firm Size	.05104*** .01349	.05032*** .02401	.05162*** .01301
Foreign Revenue	0.0 .1715D-08	0.0 .1694D-0	0.0 .1665D-08
Domestic Revenue	0.0 .2823D-08	0.0 .2792D-08	0.0 .2743D-08
Industry Index	.00122*** .00027	.00124*** .00027	.00122*** .00027
First Difference of GDP	0.0 112 .1170D-07	0.0132 .1156D-07	0.012 .1170D-07
First Lag of Technological Asset	-.76441D-05*** .2415D-05	-.15609D-06* .8404D-07	-.15595D-06* .8257D-
First Lag of Marketing Asset	-.76441D-05*** .2415D-05	-.76688D-05*** .2386D-05	-.76657D-05*** .2344D-05
R2	0,656	0,657	0,657
HAUSMAN	0.20 (Fixed Effect)		

Table 10. Results (Dependent Variable: ROS)

	MODEL 3 (Dep.Varb. ROS)		
VARIABLES	**Fixed Effect Model**	**Pooled OLS with Robust SE**	**Random Effect Model**
Constant	.14736 .11440	.14996 .10540	.15472 .10436
Total Revenue	0.001** .1547D-07	0.0** .6232D-08	0.0** .7070D-08
Marketing Asset	-2.57300*** .34978	-2.57808*** .34609	-2.57752*** .33994
First Lag of GDP	0.0232*** .58780D-08	0.012*** .5980D-08	0.0132*** .5873D-08
Current Ratio	.04686*** .01237	.04771*** .01220	.04758*** .01200
Firm Size	.04365*** .01386	.03367*** .01213	.03426*** .01204
Market Share Base Herfindahl Index	.33296*** .10222	.29110*** .09580	.29312*** .09458
Square of Market Share Base Herfindahl Index	-.30319*** .09300	-.25047*** .08387	-.25295*** .08310
Industry Index	.00115*** .00026	.00114*** .00025	.00115*** .00025
R&D Expenditure	-.14323D-04 .5750D-04	-.16244D-04 .5701D-04	-.16046D-04 .5598D-04
First Difference of GDP	0.0** .6051D-08	0.0*** .5980D-08	0.0*** .5873D-08
First Lag of Technological Asset	0.0 .7837D-07	0.0 .7765D-07	0.0 .7624D-07
R2	0,674	0,68	0,68
HAUSMAN	0,25 (Fixed Effect)		

APPENDIX B : TURKISH SUMMARY

Verimliliğin arttırılması ve üretim faktörlerinin verimli bir şekilde kullanılması hem mikro hem de makroekonominin konusu olmuştur. Ekonomistler verimli bir şekilde büyümek için ürün çeşitliliği veya uzmanlaşma olmak üzere iki stratejiyi incelemektedirler. Riski azaltma ihtiyacından dolayı 1950'li yıllarda ürün çeşitliliği stratejisi gündeme gelmeye başlamıştır. 1980'li yıllara kadar ürün çeşitliliği stratejisi verimliliği ve karlılığı arttıran aynı zamanda riski azaltan bir strateji olarak görülmüştür. 1980'li yıllardan itibaren ise ürün çeşitliliği stratejisi yerine uzmanlaşmanın karlılığı arttırdığı yönünde çalışmalar ağırlık kazanmıştır. Literatürde ortak bir sonuç bulunamamaktadır. Bu çalışmanın amacı ürün çeşitliliğinin firmanın karlılığı üzerindeki etkisini incelemektir. Bu amaç için Vestel Ticaret A.Ş. panel veri ekonometrik analizi ile incelenmiştir. Çalışmanın önemi ve anlamlı katkısı, diğer çalışmaların aksine bir firmanın incelenmesi ile zaman içerisinde firmanın gelişiminin gözlenebilmesidir.

Ürün çeşitliliği üzerine yapılan çalışmalar incelendiğinde 1950'li yıllardan 1980'li yıllara kadar ürün çeşitliliğini savunan çalışmalar öne çıkmaktadır (Osorio, 2012). Özellikle finans literature ürün çeşitliliği ve karlılık üzerine çalışmalarında sadece iki sonuç bulmaktadır. Yapılan ilk çalışmalara göre ürün çeşitliliği stratejisinin karlılık üzerine pozitif etkisi bulunmaktadır, bunun sebepleri verimliliğin artması ve büyümenin gerçekleşmesi, atıl iç kaynakların verimli bir şekilde kullanılması, farklı ürün gamlarında faaliyet göstererek firmanın batma riskinin düşürülmesi gösterilebilinir. (Osorio, 2012; Palich, 2000 ve Zhao, 2008). Finans literatüründe birçok çalışma ürün çeşitliliği stratejisine sahip ve uzmanlaşmayı seçmiş firmaları kıyaslamaktadır. Kıyaslarken karlılığı ölçmek için çoğunlukla **aktif getiri oranını** karlılık göstergesi olarak kullanmaktadırlar; firmanın ürün çeşitliliği stratejisi ile ne kadar değerlendiğini anlamak için ise **değer fazlasını** hesaplamaktadırlar. Araştırmacılar ürün çeşitliliği stratejisini uygulayan firmaların pazar gücü elde ederek, sert fiyat politikaları uyguladıklarını ve bu sayede rakiplerine karşı avantaj elde ettiklerini savunmaktadırlar (Osorio,, 2012 ve Palich et al 2000). Rakiplere karşı elde edilen avantaj çapraz sübvansiyon ile açıklanabilinir, ürün çeşitliliği

stratejisi ile farklı ürün segmenterine sahip firmalar az karlı ürün gruplarını karlı ürünler ile sübvanse edebilir ve bu alanda rakiplerine karşı üstünlük sağlamış olurlar (Weston, 1977). Ayrıca ürün çeşitliiği sayesinde firmalar başlangıç maliyetlerinden muaf olurar veya rakiplerine göre minimum düzeyde başlangıç maliyeti ile karşılaşırlar (Scherer, 1980). Finansal çalışmalar ayrıca ürün çeşitliliği stratejisi ile firmaların batma riskini azalttıklarını ve farklı ürün grubuna sahip olmanın onlar için sigorta niteliğini taşıdığını belirtmektedirler (Galvan ve De La Torre, 2007 and Myers, 1977). Farklı ürün gamı portföyüne sahip olmak firmaların borçlanma kapasitelerinin artmasını sağlar ve bu kapasitenin artışı vergi avantajı olarak firmaya avantaj sağlamaktadır (Palich, 2000; Berger ve Ofek, 1995 ve Servaes, 1996).

Firmaların kullanabileceği kaynaklar iç ve dış kaynaklar olarak ikiye ayrılmaktadır. Dış kaynaklar kredi ve halka arz gibi firma dışından kullanılan fonlardır. İç kaynaklar ise faiz gibi işlem maliyeti olmadığından dolayı maliyet avantajına sahiptir (Palich, 2000). Finans literatürü dış kaynak kullanımının verimliliği düşürdüğünü belirterek ürün çeşitliliği stratejisi sayesinde iç kaynak kullanımının firmalara maliyet avantajı sağlayarak karlılığını arttırdığını belirtmektedirler (Gunduz, L. ve Tataoğlu, E., 2003).

1980'li yıllardan itibaren ise ürün çeşitliliği stratejisi karlılığı düşüren bir politika olarak görülmeye başlamıştır. Finans ve ekonomi literatürünün çoğu, karlılık ve ürün çeşitliliği arasında lineer ve negatif bir ilişki ortaya koymaktadır (Osorio, 2012). Birçok çalışmada firmaların ürün çeşitliliği stratejisinde kaybettikleri değeri ölçmek için **"Tobin'in q"** oranı kullanılmıştır (Berger ve Ofek, 1995; Denis ve Sarin, 1997; Lang ve Stulz, 1994 ve Rajan, 2000). Lang ve Stulz (1994) ve Gomes ve Livdan (2004) çalışmalarında ürün çeşitliliği yapan firmaların düşük Tobin q oranına sahip olduklarını kanıtlamışlardır. Ürün çeşitliliğinin karlılığı negatif yönde etkilediğini savunanların temel argümanları; çapraz sübvansiyon ile düşük getirili sektörlere yatırım yapmak, yüksek yönetici maliyeti ve bilgi eşitsizliğidir (Osorio, 2012). Yapılan çalışmalar verimsiz sektörlere yatırım yapmak yerine uzmanlaşarak karlı yatırım yapmanın en doğru strateji olduğunu göstermektedir (Weston, 1977; Berger ve Ofek, 1995; Palich, 2000 ve Stulz, 1990).

Denis (1997) ürün çeşitliliği stratejisi karlılığı düşürüyorsa neden firmalar hala bu stratejiyi sürdürmektedir sorusundan yola çıkarak firmaların ürün çeşitliliği stratejisini seçme sebeplerini incelemiştir. Campa ve Kedia (2002), ve Colak (2010) firmaların ürün çeşitliliği stratejisini seçme sebeplerini de modele dahil ederek çalışma yapmışlardır. Sonuç olarak bu sebepleri modele yerleştirdiklerinde ve firmaları sebeplerine göre ayırdıklarında ürün çeşitliliği ve karlılık arasında pozitif bir ilişki bulmuşlardır ancak; sebeplerini modelden çıkarttıklarında ürün çeşitliliği stratejisinin karlılığı azalttığını ortaya çıkarmaktadırlar. Campa ve Kedia (2002), ve Colak (2010)'a göre eğer bir firma bulunduğu alanda düşük karlılığa sahip ve getirisi düşük bir sektörde faaliyet gösteriyor ve bu sebepten dolayı ürün çeşitliliği stratejisini tercih ediyorsa sonuç olarak yeni ürün gruplarında da düşük performans sergilemektedirler. Sonuç olarak firmaların ürün çeşitliliğine gitmeden önceki durumlarının göz önüne alınması gerektiğini, başlangıçta düşük performansa sahip firmalar ile yüksek performans sergileyen firmaların ayrı ayrı incelenmesi gerektiğini savunmaktadırlar.

Finans ve ekonomi literatürü ürün çeşitliliği ve karlılık arasında lineer ilişkiyi incelemiş fakat ürün çeşitliliği seviyesini ve çeşidini dikkate almamıştır. Stratejik yönetim literatürü çalışmaları ürün çeşitliliğinin seviye ve çeşidine göre etkilerini incelemektedir (Osorio, 2012). Stratejik yönetim çalışmaları kaynak temelli yaklaşımı baz alarak ürün çeşitliliği stratejisini ilgili ve ilgisiz olmak üzere ikiye ayırmaktadırlar (Wan, 2011). İlgisiz ve ilgili ürün çeşitliliğini ayırmak için kullanılan en genel yöntem SIC kodlardır. SIC kodlara göre eğer ilk iki hanesi aynı ise ürün grupları ilgili, değil ise ilgisizdir (Wan, 2011). İlgili ürün çeşitliliğinde firma yeni ürün grubu üretiminde mevcut bilgi birikimi ve kaynaklarını kullanabilmekte iken ilgisiz ürün gruplarında mevcut kaynaklar kullanılamamaktadır (Galvan, Pindado ve Torre; 2007).

Stratejik yönetim literatürü ürün çeşitliliğinin avantaj ve dezavantajlarını incelerken firmanın stratejik kaynaklarının heterojen olduğunu ve bu kaynakların transfer edilemediğini varsaymaktadır (Barney, 1991 ve Wan et al, 2011). Stratejik yönetim literatürü kaynakları maddi ve maddi olamayan olmak üzere ikiye ayırmaktadır. Maddi olmayan varlıklara örnek marka ismi, müşteri bağlılığı, teknolojik bilgi

birikimi, yetenekli çalışanlar; maddi olmayan varlıklara ise fiziksel ve finansal varlıklar örnek verilebilinir (Wernerfelt, 1984). Maddi olmayan varlıkların transferinin zor ya da imkansız oluşu, firmaları ürün çeşitliliğine yönlendirmektedir, burada fazla kaynakların verimli bir şekilde kullanıldığı varsayılmaktadır (Palich, 2000). Ancak eğer firmanın stratejik kaynakları ancak bir ürün grubu üretimi içinse ürün çeşitliliği stratejisi verimsiz bir sonuç doğurmaktadır (Montgomery ve Wernerfelt, 2008; Chatterjee, S. ve Wernerfelt, B., 1991).

İlgili ve ilgisiz ürün çeşitliliği karşılaştırmaları genelde kaynak temelli çalışmalarda yapılmaktadır (Berger ve Ofek, 1995; Bettis, 1981; Hoskisson, 1987; Markides ve Williamson, 1996). Çalışmaların çoğu ilgili ve ilgisiz ürün grubu ayrımını q SIC kodlara göre yapmakta iken, bir kısmı da ortak kullanılan kaynaklara göre ayırım yapmakta ve buna göre ilgili ve ilgisiz ürün çeşitliliğine giden firmaları kıyaslamaktadırlar (Galvan ve De La Torre, 2007). İlgili ürün çeşitliliğinin avantajları olarak üretim kaynaklarının verimli bir şekilde dağılması sayesinde ölçek ekonomisinin verdiği avantajlar, farklı ürün gruplarından elde edilen ve ilgili ürün gruplarında kullanılabilen bilgi birikimi gösterilmektedir (Berger ve Ofek, 1995; Helfat ve Eisenhardt, 2003). İlgisiz ürün çeşitliliği stratejisinin avantajları olarak ise farklı ürün gruplarında faaliyet göstererek firmaların riski dağıtıp, batma riskini düşürmesi ve borçlanma kapasitelerinin artması gösterilmektedir (Palich, 2000). Çalışmaların çoğu ilgili ürün çeşitliliği stratejisinin firmaların karlılığını arttırdığını göstermektedir (Hoskisson, 1987; Markides ve Williamson,1996 ve Bettis,1981).

Kaynak temelli çalışmaların incelediği diğer konu ise ürün çeşitliliğinin seviyesidir. Herfindahl Indeksi ve karesini kullanarak lineer olmayan ilişki de incelenmektedir (Osorio, 2012). Yapılan çalışmalara göre ürün çeşitliliği ve karlılık arasında iki çeşit sonuç ortaya çıkmaktadır:

- U-şeklinde ilişki
- Ters-U şeklinde ilişki

Ürün çeşitliliği ve karlılık arasında U- şeklinde ilişki bulan çalışmalara göre bunu sebebi kısa vadede yatırım maliyetlerinin getiriden daha yüksek olması fakat uzun vadede üretim hacminin, bilgi birikiminin artması ile firmanın karının artmasıdır

(Park ve Jang, 2012 ve Tang ve Jang, 2010). Ters-u şeklinde ilişki bulan çalışmalar ise karlılığı arttıran maksimum noktanın bulunduğunu ve bu noktadan sonra ürün çeşitliliğini arttırmanın kaynak yetersizliğine sebep olduğunu ve karlılığın düştüğünü savunmaktadırlar (Galvan ve De La Torre, 2007 ve Markides, 1992). Genel olarak bakıldığında kaynak temelli çalışmalara göre ilgili ürün stratejisi kısa ve uzun vadede firmanın karlılığını arttırmakta iken ilgisiz ürün çeşitliliği stratejisi uzun vadede karlılığı düşürmektedir (Zhao, 2008).

Kurumsal ekonomi çalışmaları ise ülke ekonomik koşullarının ürün çeşitliliği stratejisini doğrudan etkilediğini belirtmektedirler. Yapılan çalışmalarda Dünya Bankası'nın ülkeleri sınıflandırma sistemi kullanılarak ülkeler gelişmiş ve gelişmekte olan olmak üzere ikiye ayrılmaktadır. Gelişmekte olan ülkelerin finansal sistemlerinin gelişmediği veya az geliştiği varsayımı altında dış kaynak kullanımının maliyetli olduğunu savunan çalışmalar, gelişmekte olan ülkelerde iç kaynak kullanımının firmaların maliyetini azalttığını savunmaktadırlar. Ürün çeşitliliği stratejisi ile iç kaynak kullanımına giden firmalar rakipler karşısında avantaj kazanarak karlılığını arttıracaktır. Fakat; gelişmiş ülkelerin finansal piyasalarının da gelişmiş olması kaynağa ulaşımı hem kolaylaştırmakta hem de maliyeti ucuzlaştırmaktadır (Osorio, 2012). Berger ve Ofek (1995), Lang ve Stulz (1994), Palich (2000) yaptıkları çalışmalarda ilgisiz ürün çeşitliliği stratejisinin gelişmiş ülkelerde avantaj yaratmadığını, bu ülkelerde firmaların risk çeşitlendirme ihtiyaçlarının bulunmadığını belirtmektedirler. Sonuç olarak gelişmekte olan ülkelerde ürün çeşitliliği stratejisinin karlılığı arttırdığı ve ilgisiz ürün çeşitliliğinin risk azaltarak firmalara avantaj sağladığı ortaya çıkmaktadır. Gelişmiş ülkelerde ise bu durum tam tersi olmaktadır, ilgili ürün çeşitliliği stratejisi ile firmalar bilgi birikimini kullanarak karlılığı arttırabilir ama gelişmiş ülkede bulunan firmaların risk azaltma ihtiyacı bulunmaması ilgisiz ürün çeşitliliğinin avantajını ortadan kaldırmaktadır (Osorio, 2012; Berger ve Ofek, 1995; Lang ve Stulz,1994 ve Palich, 2000).

Literatür incelendiğinde ürün çeşitliliğinin karlılık üzerine etkisi konusunda ortak bir bulgu olmadığı ve çalışmaların çok farklı sonuçlar verdiği ortaya çıkmaktadır. Yapılan çalışmaların çoğu birden fazla firmaların incelenmesi ile yapılmıştır. Bu

tezde ise Vestel Ticaret A.Ş.'nin üretimde çeşitlilik stratejisi incelenmiştir. Tek bir firmanın incelenmesi firmanın gelişimini incelemek adına önemli bir kaynak olmuştur. Vestel'in bu stratejisinin anlaşılabilmesi için, tarihinin özetine bakmak gereklidir. Vestel'in bir parçası olduğu Zorlu Holding, 1950'lerde Denizli'de kuruldu. Asıl olarak tekstil sektöründe iş yapan Holding zamanla dört ana alanda daha iş yapmaya başlamıştır; ev tekstili ve polyester iplik; tüketici elektroniği, bilişim teknolojisi ve dayanıklı tüketim malları; gayrimenkul; ve son olarak enerji. 1980'lerin sonlarına kadar sadece tekstil işinde yoğunlaşan Holding, 1994 yılında Vestel'i satın alır. Sonrasında ise elindeki portfolyoyu çeşitlendirmek adına gayrimenkul ve enerji sektörlerine de giriş yapar. Holding'in farklı alanlardaki işlerinin içinde Vestel, büyük ve önemli bir yer kapsadığı için, "amiral gemisi" veya "parlayan yıldız" olarak anılır.

Vestel, LCD TV, bulaşık makinesi, çamaşır makinesi, buzdolabı, fırın gibi ürünlerden ses sistemlerine kadar birçok ürünü üretmektedir. Strateji olarak üretimde çeşitliliği seçen Holding, Vestel'in içinde de bu stratejiyi uygulamaya karar verir. Televizyon, Vestel'in ürettiği en önemli ve en büyük kalem olma özelliğine sahip olmakla birlikte, şirketi hem dünya hem de yerel TV pazarında en önemli oyuncular arasına sokmaktadır. Elektronik Cihazlar İhracatçıları Derneği'ne göre 2014 yılında Vestel'in üretimi tek başında Türkiye'deki TV üretiminin %82'sini oluşturmaktadır.

1983 yılında üretime geçen Vestel, 1994 yılında Zorlu Grubu tarafından devralınır. Devralınmasının sonrasındaki ilk üç sene, ülke dışından 'know-how' getirmek ve bunu şirkete uygulamakla geçer. O zamana kadar şirket sadece bir ürüne odaklanmıştı: TV. Bu ürün de daha çok yabancı markalar için üretilmekteydi, Vestel bir OEM/ODM üreticisi konumundaydı. TV'ye odaklanıp, farklı müşteri segmentleri ve farklı ihtiyaçlar için farklı ürünler geliştirilmeye başlandı.

1997'de Vestel hem uygulama hem de geliştirme kısımlarını yapmaya başladı, her ne kadar uygulama mühendisliği hala önemli bir yer kaplıyor olsa da. Bunun neticesinde üretimde çeşitlilik için ilk adım atılmış oldu ve Vestel Beyaz Eşya üretimine geçti (buzdolabı, çamaşır makinesi, bulaşık makinesi, fırın ve klima). Bunun yanı sıra, dijital tüketim malları üretimine de bu yıllarda başlandı. Bundan,

Vestel'in elde etmiş olduğu "know-how" bilgisini ve ekipmanını diğer malların üretiminde kullanmaya başladığı anlaşılmaktadır. Standart Endüstriyel Sınıflandırma Kodlarına (SIC) bakıldığında ilgili üretimde çeşitlilik stratejisinin izlenmiş olduğu ve üretim araçlarının farklı ürünleri üretmek için de kolaylıkla kullanılabileceği görülmüştür. SIC kodları endüstri alanlarını sınıflandırmak ve devlet kuruluşlarının anlamlı ve standardize edilmiş data verebilmesini sağlar. Bu sınıflandırma altında, Vestel A.Ş. "D Bölümü: İmalat" altında "Ana grup 36: Bilgisayar Ekipmanı Hariç, Elektronik ve Diğer Elektronik Ekipman ve Parçaları" üreticisi kategorisinde yer almaktadır. Vestel'in ürettiği ürünlerin endüstri kodları Tablo 1'de gösterilmiştir. Aşağıda da hangi ürünün hangi kategori altında yer aldığı verilmektedir.

- Endüstri Grubu 363: Ev Aletleri
  - 3631: Ev Pişirme Ekipmanı: Konveksiyon fırını, portatif olanlar da dahil, ve mikrodalga fırınlar.
  - 3632: Ev Buzdolapları, Ev ve Çiftlik Dondurucuları: Buzdolapları ve Dondurucular
  - 3633: Ev Çamaşır Ekipmanı: Çamaşır Makineleri ve Kurutmalı-Çamaşır Makineleri
  - 3634: Elektrikli Ev Eşyaları ve Fanlar: Karıştırıcılar, Kahve Makineleri, Saç Maşaları, Kurutucular, Fanlar, Yemek Mikserleri, Ütüler, Meyve Sıkacakları, Portatif Fırınlar, Çay Kettleları, Tost Makineler, (KEA kategorisindeki ürünlerin çoğu bu kategori altında yer almaktadır)
  - 3635: Ev Elektrikli Süpürgeleri: Elektrikli Süpürgeleri
  - 3639: Ev Aletleri, Sınıflandırılmamış: Bulaşık Makineleri

Endüstri Grubu 364: Elektrikli Aydınlatma ve Kablaj

- 3641: Elektrik Ampulleri ve Borular: Ampuller
- 3645: Meskun Yerler için Aydınlatma Araçları: Aydınlatma Aksesuarları

Endüstri Grubu 365: Ev içi Ses ve Görsel Ekipman Düzenekleri

- 3651: Ev içi Ses ve Görsel Ekipman Düzenekleri: Televizyon Reseptörleri, Ses Sistemleri

Endüstri Grubu 366: İletişim Ekipmanı

- Radyo veTelevizyon Yayıncılığı ve İletişim Ekipmanları: Televizyon Monitörleri, Televizyon Verici Antenleri ve Yer Teçhizatı, Kablolu Televizyon Ekipmanları

Daha önce belirtildiği gibi bilgisayarlar farklı bir ana grup içine girmektedir- aynı bölüm olsa –Ana Grup 35: Endüstriyel ve Ticari Makineler ve Bilgisayar Ekipmanı.

Endüstri Grubu 357: Bilgisayar ve Ofi Ekipmanı

- 3571: Elektronik Bilgisayarlar: Kişisel Bilgisayarlar, Bilgisayarlar: Dijital, Analog ve Hibrid

Bu sınıflandırma Vestel'in bütün üretiminin ve satışının, bilgisayarlar hariç, aynı bölüm ve aynı ana grup kategorisinde olduğunu göstermektedir. Beyaz Eşya ve Küçük Ev Aletleri aynı Endüstri Grubu içinde yer almaktayken, Televizyon ve Set-Üstü Cihazları ise farklı bir Endüstri Grubu'nda yer almaktadır, fakat her iki grup da aynı Ana Grup'ta altında yer almaktadır. LEDler de ayrı bir endüstri grubunda yer almaktadır fakat LEDler de yine aynı bölüm ve ana grupta içerisindedir. Daha önce belirttiğimiz gibi, bilgisayarlar ilgili olmayan ürün çeşitliliğinin bir örneği olup tamamen ayrı bir ana grup altında sınıflandırılmaktadır – fakat yine de aynı bölüm içerisindedir.

İşe sadece TV üretimiyle başlayan Vestel, esnek üretim stratejisini, geniş dağıtım ağını ve verimli maliyet yönetimi stratejisini bir araya getirerek diğer sektörlere girmeyi başarmıştır. 1994 yılında tv ile üretime başlayan Vestel 1999 yılında buzdolabı üreterek beyaz eşya alanında faaliyet göstermeye devam etmiştir. Vestel 2000 yılında klima, 2003 yılında çamaşır makinesi, 2005 yılında fırın ve 2007 yılında bulaşık makinesi üretimine geçmiştir. Küçük ev aletleri, süpürge ve bilgisayarları ise fabrikalarında üretmek yerine dışarıdan tedarik etmeyi seçmiştir. Bilgisayar dışında bütün ürün grupları ilgili üründür. Tek ilgisiz ürün olan bilgisayar grubu ise Vestel'İn başarısız olduğu sektör olmuştur. Vestel'in ürün çeşitliliğinin karlılığı üzerine etkilerini incelemek adına bu çalışmada, 1994 birinci çeyrekten 2014 ikinci çeyreğe kadar olan veriler kullanılmıştır. Vestel'e ait olan data Vestel Hukuk, Finans, Planlama ve Bütçe ve Stratejik Araştırma ve Geliştirme departmanlarından toplanmış olup toplamda 82 çeyreğe ait data ile dengesiz panel veri çalışması yapılmıştır. Tablo 10'da belirtilen veriler kullanılmış olup çalışmada

karlılık belirleyicileri olarak, yani bağımlı değişken olarak, aktif getiri oranı ile satış gelirleri kullanılmıştır, kalan değişkenler bağımsız değişkenlerdir.

Tablo 10: Değişkenlerin Tanımları

Değişken Tanımı	**Beklenen Değer**	**Sonuç**
Aktif Getiri Oranı		
Satış Getirisi		
Satış Bazlı Herfindahl Indeksi	Pozitif veya Negatif	Positif
Satış Bazlı Herfindahl Indeksi Karesi	Pozitif veya Negatif	Negatif
Pazar Payı Bazlı Herfindahl Indeksi	Pozitif veya Negatif	Positif
Pazar Payı Bazlı Herfindahl Indeksi Karesi	Pozitif veya Negatif	Negatif
Her Ürün Grubunun Cirosu	Positif	Positif
Toplam Ciro	Positif	Positif
Yurt İçi Satış Cirosu	Positif	Anlamsız
Yurt Dışı Satış Cirosu	Positif	Anlamsız
Toplam Cironun Birinci Farkı	Positif	Positif
Teknolojik Varlıklar	Positif	Negatif
Teknolojik Varlıklarının Birinci Farkı	Positif	Negatif
Teknolojik Varlıklarının Dördüncü Farkı	Positif	Negatif
Teknolojik Varlıklarının Sekizinci Farkı	Positif	Positif
Pazarlama Varlıkları	Positif	Negatif
Pazarlama Varlıklarının Birinci Farkı	Positif	Negatif
Pazarlama Varlıklarının Dördüncü Farkı	Positif	Positif
Pazarlama Varlıklarının Sekizinci Farkı	Positif	Positif
Cari Oran	Negatif	Positif
Firma Büyüklüğü	Pozitif veya Negatif	Positif
GSYİH	Positif	Positif
GSYİH Büyüme Oranı	Positif	Positif
Sanayi Üretim Endeksi	Positif	Positif
Ar&Ge Harcamaları	Positif	Anlamsız

Dengesiz panel veri analizi sonucunda toplam ciro artışı ve her bir ürün gamının ayrı ayrı cirosunun da artması ile firmanın karlılığı artmaktadır. Tv ürün grubunun karlılığının düşük olmasından yola çıkarak Vestel'in ürün gamlarında ciro arttırmasının karlılığı arttırdığı ortaya çıkmaktadır. Yurt içi ve yurt dışı satışlar ayrı ayrı analiz edildiğinde anlamlı bir sonuç elde edilmemiştir. Cari oran firmanın elinde tuttuğu likiditeyi göstermektedir. Elinde likit tutmak yatırımın fırsat maliyeti olduğundan cari oranın karlılık ile negatif bir ilişkiye sahip olması beklenmesine rağmen cari oran ve karlılık arasındaki ilişki pozitif çıkmıştır. Beklenildiği gibi firma büyüklüğünün artışı karlılığı pozitif yönde etkilemektedir. Bu sonuçlar göstermektedir ki ürün çeşitliliği stratejisi ile Vestel büyümekte ve büyüyerek karlılığını arttırmaktadır.

Teknolojik varlıklar (Ar&Ge yatırımlarının toplam varlıklara oranı) ve pazarlama varlıkları (pazarlama yatırımlarının toplam varlıklara oranı) harca firmanın maddi olmayan varlıklarıdır. Bu varlıklar uzun vadeli yatırımlar ve firmaların en önemli kaynaklarıdır, kısa vadede karlılığı olumsuz etkilerken uzun vadede karlılığı arttırmaktadır Mork and Yeung (1991). Panel veri analizine göre teknolojik varlıklar, birinci ve dördüncü farkları firma karlılığı ile negatif ilişkiye sahipken, teknolojik varlıkların sekizinci farkı karlılığı pozitif yönde etkilemektedir. Pazarlama varlıkları ve birinci farkı karlılığı negatif yönde etkilerken, dördüncü ve sekizinci farkı ile karlılık arasında pozitif bir ilişki bulunmuştur. Bu durum göstermektedir ki firmanın maddi olmayan varlıklara yaptığı yatırımlar uzun vadede pozitif getiri sağlamaktadır.

GSYİH ve sanayi üretim endeksleri ülke ekonomisinin göstergesi olup, sonuçlara göre firmanın karlılığını pozitif yönde etkilemektedir, yani firma sadece ürün çeşitliliği stratejisi ile büyümemekte aynı zamanda ülke ekonomisinden de etkilenmektedir. Ülke ekonomisinin büyümesi firmanın karlılığını arttırmaktadır.

Satış bazlı Herfindahl İndeksi ve pazar payı bazlı Herfindahl İndeksi ürün çeşitliliğinin seviyesini ölçmek için kullanılmış olup, non-lineer ilişkiyi görmek için satış bazlı Herfindahl İndeksinin karesi ve pazar payı bazlı Herfindahl İndeksinin karesi ise kullanılmıştır. Çıkan sonuçlara göre ürün çeşitliliği ve karlılık arasında U-

şeklinde bir ilişki tespit edilmiştir. Bu sonuca göre kısa vadede ürün çeşitliliği arttıkça karlılık düşmekte ancak uzun vadede ürün çeşitliliği seviyesi arttıkça karlılık artmaktadır. Bu sonuç önceki bulgularla da uyum sağlamaktadır. Firma ürün çeşitliliğini arttırırken pazarlama ve teknolojik varlıklarına yatırımı arttırmak zorundadır. Bu yatırımlar da uzun vadede firmaya karlılık artışı sağladıklarından kısa vadede karlılığın düşmesi, öğrenme sürecinden ve başlangıç maliyetlerinin yüksek olmasından kaynaklanmaktadır. Vestel firması incelendiğinde ilişkili ürün stratejisini sürdürdüğü ortaya çıkmaktadır. İlgisiz ürün gamında sadece bilgisayar bulunmakta olup, bilgisayar cirosu yıllar içerisinde düşüş göstermiştir. İlgili ürün gamında bulunan ürünlerin cirosu ise yıllar içerisinde artış göstermekte olup, cirolarındaki artış karlılığı pozitif yönde etkilemiştir.

Sonuç olarak Vestel ilgili ürün stratejisinde uzun vadede başarılı olup karlılığını arttırmıştır. Kısa vadede ise, yatırım maliyetlerinin getiriden yüksek olması sebebi ile yeni ürün gruplarında faaliyet göstermek firmanın karlılığını düşürmektedir. Dünyada tüketici elektroniği alanında faaliyet gösteren LG, Samsung, Bosh ve Türkiye'de faaliyet gösteren en büyük iki firma Vestel ve Arçelik ürün çeşitliliği stratejisini seçmektedirler. Vestel 2015 yılında LG ve Samsung gibi cep telefonu ve tablet ürün gamında da faaliyet göstermeye başlamıştır. Cep telefonu ve tabletler ilgisiz ürün çeşitliliği sınıfına girmektedir. Geçmişte Vestel'in ilgisiz ürün olan bilgisayar alanında başarısızlığı ve rakiplerin ilgisiz ürün stratejisindeki başarıları göz önüne alındığında aradaki farkın yatırım konusunda gelen destekler olduğu ortaya çıkmaktadır. Kore firmaları olan LG ve Samsung devlet desteği ile yatırımlarını büyütmüş, ilgili ve ilgisiz ürün çeşitliliği stratejilerinde başarılı olmuşlardır. Firmaların başlangıç maliyetleri ile baş edebilmeleri için Türk hükümeti de Kore örneğinde olduğu gibi hedef sanayi belirlemeli, teknolojik yo haritası çizip bu doğrultuda büyüyen firmaları ve sektörleri desteklemelidir.

APPENDIX C : TEZ FOTOKOPİSİ İZİN FORMU

ENSTİTÜ

Fen Bilimleri Enstitüsü ☐

Sosyal Bilimler Enstitüsü ☒

Uygulamalı Matematik Enstitüsü ☐

Enformatik Enstitüsü ☐

Deniz Bilimleri Enstitüsü ☐

YAZARIN

Soyadı : Akgül
Adı : Banu
Bölümü : İktisat

TEZİN ADI (İngilizce) : Product Diversification and Profitability A Case Study: Vestel A.Ş.

TEZİN TÜRÜ : Yüksek Lisans ☒ Doktora ☐

1. Tezimin tamamından kaynak gösterilmek şartıyla fotokopi alınabilir. ☐
2. Tezimin içindekiler sayfası, özet, indeks sayfalarından ve/veya bir bölümünden kaynak gösterilmek şartıyla fotokopi alınabilir. ☐
3. Tezimden bir (1) yıl süreyle fotokopi alınamaz. ☒

TEZİN KÜTÜPHANEYE TESLİM TARİHİ: