WHICH FIRMS OUTPERFORM THE OTHERS UNDER UNCERTAINTY: REVISITING MILES AND SNOW TYPOLOGY

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ABSTRACT

Economic crisis are the most transformative events that create uncertain environment for the firms. 2008 Global Financial Crisis was one of the worst financial crises since the Great Depression of the 1930s. It has affected organizations in Turkey mostly in 2008 and 2009 and has caused a highly uncertain environment for firms from all industries. Although faced to very similar conditions, organizations responded to crisis differently and had different consequences. The aim of this study is to investigate the strategic behavior of organizations (based on Miles and Snow's Typology) in metal products and machinery industry and find out which strategy outperform the others in terms of performance (ROA) under uncertainty during the crisis time.

Keywords: Strategic Behavior, Miles and Snow Typology, Uncertainty, Economic Crisis, Clustering Analysis.

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HANGİ FİRMALAR BELİRSİZLİK ALTINDA DAHA İYİ PERFORMANS GÖSTERİYOR: MİLES VE SNOW'UN STRATEJİ TİPOLOJİLERİNE YENİDEN BAKIŞ

ÖZ

Ekonomik krizler, firmalar için belirsiz bir ortam yaratan oldukça dönüştürücü olaylardır. 1930'ların Büyük Buhranından bu yana yaşanan ve en büyük finansal krizlerden biri olarak görülen 2008 Küresel Mali Krizi, 2008 ve 2009 yıllarında da Türkiye'deki kurumları etkilemiş, tüm sektörlerden firmalar için oldukça belirsiz bir ortam yaratmıştır. Çok benzer koşullar ile karşı karşıya olmalarına rağmen, kuruluşlar krize farklı tepkiler vermiş ve farklı sonuçlar elde etmişlerdir. Bu çalışmanın amacı metal ürünler ve makine endüstrisindeki kuruluşların stratejik davranışlarını (Miles ve Snow'un strateji tipolojisine dayalı olarak) incelemek ve kriz zamanındaki belirsizlik altında hangi stratejinin daha iyi bir şirket performansı (ROA) yarattığını araştırmaktır.

Anahtar Kelimeler: Stratejik Davranış, Miles ve Snow'un Strateji Tipolojisi, Belirsizlik, Ekonomik Kriz, Kümeleme Analizi.

INTRODUCTION

Firms affected by major changes which create uncertainty in their micro and macro environment (Vecchiato, 2012) and these changes considerably and structurally affect their performance (Sternad, 2012). External uncertainty, which is mostly generated by unpredictable customer demand, complicated the identification of cause-effect relationships (Duncan, 1972). Some researchers have suggested that uncertainty harms firms' performance; however, some researches argued that instead of the external uncertainty, the perception of uncertainty and strategy-making process determine firms' performance (Carbonara, Caiazza, 2010).

Organizations have different strategies, behaviors and structures that lead them to success in a specific environmental condition (Luthans, Stewart, 1977). Although faced to very similar conditions, organizations responded to environment differently and had different consequences. One important goal of organization studies is to be able to understand why some organizations fare better than others (Pfeffer, 1997: 156) in different conditions. Therefore understanding the performance differences between organizations under an uncertain circumstance such a financial crisis is also an important issue.

The recent financial crisis of 2008-09 create a major environmental change affected many industries and countries at the same time and created uncertain and complex micro and macro environments for the firms to thrive. Crisis had influenced the macroeconomic environment at first then affected micro environment. In Turkey decreasing numbers in exports, GDP changes and increasing numbers in unemployment rate revealed that Turkey was affected from global crisis mostly in 2008 and 2009 (Yalcın, 2012) and began to come over crisis in 2010. During the period of 2008-2009 organizations have faced to very high level of uncertainty in their micro and macro environment.

Since the Second World War, economic crisis occur on every five years and most managers are bound to face economic downturns several times during their careers (Latham, Braun, 2011). Although the crises were over, it is still an interesting topic how organizations in different strategic groups, response to uncertainty in their environment and

which strategies lead to higher performance than others in turbulent times. The recent 2008-2009 economic crisis provides a natural setting to investigate these topics in Turkish context. Thus this study is designed to better understand this phenomenon in an uncertainty environment which is caused by a financial crisis and aims to find out strategic behavior of organizations in metal products and machinery industry (based on Miles and Snow's Typology) for three period; before, during and after the crisis and investigate which strategies and firms size outperform the others during and after the crisis time.

This study will make contributions to the literature in two important issues. (1) Recent research, systematically review articles on the intersection between firm strategy and economic recession published between 1991 and 2010 and suggested that there is a dramatic absence of studies on this topic in management field (Latham, Braun, 2011). To the best of our knowledge, no empirical test of firm performance based on miles and snow strategic types during the recession has been reported to date**.** This study may fill this gap in management field. (2) There exists a sizeable literature that examined the role of industry and firm level characteristic in firm performance. However analysis in industry level has not been able to explain large performance variances within a single industry. As a result, strategic groups were proposed as a middle ground between the industry and firm levels of analysis (Short et al., 2003; Parnell et al., 2012). This study integrates the strategic group level and firm level characteristics, by this way enlarge the ability to understand firm performance during and after the crisis time.

1. CONCEPTUAL FRAMEWORK AND RESEARCH HYPOTHESES

1.1. Strategic Choice and Miles and Snow Typology

Environmentally based perspectives such as organizational ecology emphasize the power of environments over organizations (Hannan, Freeman, 1977). These theories suggest that performance appears to be impacted by industry traits such as complexity, rivalry and regulatory and many studies revealed that industry effects play an important role in shaping firm performance (Short et al., 2007). However these theories are not enough to explain different

performances of firms within the same industry. Thus firm's strategic behaviors and resources (Porter, 1980; Barney, 1991) are considered as important determinants of performance. Strategic choice perspective that mostly has a voluntarist orientation rather than deterministic orientation forms a basis to understand strategic behavior and performance of organizations by dissolving away environmental constraint (Whittington, 1988). The theorist of strategic choice perspective, Child (1972) mentioned that environmental factors may influence strategic choices; however organizational decision makers have more autonomy than might be inferred from the perspective of environmental determinism. According to this framework, organizations' strategies may differ even though they are in the same environmental context because they assess a set of issues, demands from stakeholders and potential solutions to solve problems differently.

Many studies assess the effect of business strategies on firm performance and create typologies to describe business strategies in an industry (Mintzberg, 1979, 1983; Ansoff, 1965; Miles, Snow, 1978; Miller, Friesen, 1978 Porter, 1980; and others). Miles and Snow's (1978) typology is one of the most popular typologies with high reliability (Hambrick, 2003).

Consistent with the strategic choice approach, Miles and Snow's (1978) suggested that strategic decision of top managers are critical determinants of organizational structure and process. These choices are seen as a three broad problems of organizational adaptation: (1) entrepreneurial problems focusing on the product-market domain, (2) engineering problems centering on the choice of technologies, and (3) administrative problems involving structure and processes. According to this typology organization's strategic behavior is based on how they find solution to these three strategic problems and there are essentially three strategic types of organizations: prospectors, defenders and analyzers. Each type has its own strategy to choose their markets, consistent technology, structure and processes. There is a fourth type of organization called reactor, however reactor is a form of strategic failure because of inconsistencies among its strategy, technology, structure and processes (Miles et al., 1978). Prospector generally sees the environment as dynamic and uncertain. Prospector's prime capability is that of finding and exploiting new product and market opportunities. They maintain flexibility and

employ innovation to address it, and often become the industry designers (Miles, Snow, 1986). Defenders see the environment as stable and relatively certain that is almost the opposite of the prospector. Defender's prime capability is that of being highly cost-efficient. In order to achieve efficiency, defenders seek stability and operational control by producing only limited set of products directed at a narrow segment. Finally, Analyzer is a combination of prospector and defender types. Analyzer use strengths of both prospectors and defenders and attempts to minimize risk while maximizing opportunity for profit (Miles et al., 1978).

In this study, miles and snow typology is used to assess how firms differentiated from each other in terms of their strategic behavior towards uncertainty and which strategy outperform the others.

1.2. Strategic Behavior under Uncertainty

Organizational responses to an event may be influenced by organizations' routines, organizational structure and organizational ideology (shared values) which are associated with various strategic types (Chattopadhyay et al., 2001; Miles, Snow, 1978). Many studies indicated how organization's strategies shaped the organization behavior under uncertainty. For example Bacot et al., (1992) examined the strategies for survival used by organizations in a specific hostile environment. 30 senior executives were interviewed to find out firms strategic types and their adaptive strategies as a response to economic decline. Results indicated that firms respond the crisis based on their generic strategies emphasis on "lowest cost" or "differentiated position". Low-cost oriented firm's primary attention is internal. The firm is aware of its current capabilities, human resources, technology. This kind of firm divest operations which are outside the firms area of expertise, takes a lean stance and uses the realigned internal capabilities to compete effectively on a low cost basis during crisis time. Controversially, firm focused differentiation, shows more proactive stance towards the environment. The organization emphasizes its distinctive capabilities relative to the market and other environmental factors. To cope the crisis, firm differentiated product/services, made changes in their type of business or more radically exited one type of business and moved to another. Similarly, Bohman and Lindfors' (1998) examination of ten organizations' change management strategies in response to economic recession

highlight the importance of organization's strategic structure in strategic change process.

According to principles of adaptation (Luthans, Stewart, 1977:184), managers will adapt strategies based on their business strategy to cope with the environment and adopt specific structures and behaviors that best satisfy the demand of their business strategy and they will try to align their strategy, structure and behavior. In drawing from this theory and early studies, we assume that during the crisis time, organizations keep their organizational pattern and responses to crisis differently depending on their strategic types. Prospectors may be expected to maintain its "differentiated position" with new products or new markets in order to reduce the effect of the crisis. Defenders may be expected to maintain their narrowly defined market domain by cost-reduction and retrenchment policies while analyzers may be expected to use both strengths of new opportunities and cost-reduction.

H1.Organizations maintains their business strategies before, during and after the crisis time.

1.3. Business Strategies and Firm Performance under Uncertainty

Adaptive capability which is defined as ability of firms to identify and capitalize on emerging opportunities (Chakravarthy, 1982; Miles, Snow, 1998), is an essential strategic function in order to achieve strategic fit with changing environment. Since ensures strategic flexibility in terms of resources and deployment in the various uncertain environment and capturing emerging opportunities at the strategic level, adaptive capability lead the firms to success under uncertainty such a crisis time. Firms with high adaptive capability will exhibit more slack resources than firms with low adaptive capability (Chakravarthy, 1986; Bourgeois, 1980). These slack resources allow an organization to adapt successfully to internal pressures for adjustment or to external pressure for change in policy as well as to initiate changes in strategy with respect to external environment. (Bourgeois, 1980).

Miles and Snow (1978) links adaptive Capability with their strategy typology (defender, analyzer, and prospector). Firm (prospector) which is active in seeking product market opportunity believed to have comparatively higher adaptive capability than defender and analyzers. The defender deliberately reduces adaptive capability (and costs associated with such capability) by selecting a stable and narrowly defined market domain, which enables the defender being highly cost-efficient. Because the defender deliberately limits adaptive capabilities, it is unlikely to notice market change or to be able to adapt to change if it is necessary. The analyzer maintains a stable domain, wherein it can operate with relative efficiency, but also attempts to identify emerging opportunities. Because it minimizes risk while using advantage of observing and learning from the new product problems of other firms, the analyzer often achieves above-average new product success rates (Miles 1982).

However being adaptability brings some costs. The adaptive organization has been characterized as deliberately inefficient. Bourgeois (1980) hypothesized that the relationship between performance and adaptive capability (which Bourgeois relates to organization slack) would be positive, up to a point, then negative. If the strategy types were arrayed ordinal in terms of their adaptive capability, it would follow that, in general, the optimal performance would occur in the organizations that balance adaptive and efficiency needs the analyzers. This situation can be expected because, defenders will not adapt to market change as the analyzer and prospector types, and the prospector must pay for its adaptive capability with inefficiency (Mckee et al., 1989). Since the environment is highly uncertain and rapidly changes during financial crisis, it is expected that balancing the benefits and costs of adaptability will bring the highest performance. There are several studies that support idea that firms need to strike a balance between saving (cost reduction) and spending (R&D) during the recession in order to have success in short-term and long term (Latham, Braun, 2011; Ghemawat, 2009).

Although some studies provided evidence about the better performance of firms that have distinctive characteristics of prospectors such as; innovative, growth through product and market development during the recession (Latham, Braun, 2011; Dugal, Morbey, 1995; Srinivasan et al., 2005 Tubbs', 2007; Roberts, 2003; Kamber, 2002; Michael, 1997), other researchers suggested that cost

orientation which reflects the characteristic of defenders affect firm performance in a positive way (Michael, Robbins, 1998; Bigelow, Chan, 1992). For all that; neither the first group nor the second group researches have conducted a systematic performance comparison for these three strategy typology.

Based on the following explanation this study assumes that;

H2. Analyzers perform better than prospectors and defenders (a) during and (b) after the crisis time.

1.4. Business Strategy, Size and Firm Performance

The resource-based view of the firm, which argues that a firm's bundle of assets and capabilities drives its performance support the relative roles of firm size in shaping organizations structure, strategy and performance. It is mentioned that differences in strategic behavior between large organizations and SMEs are well founded in the literature. Thus Parnell (2010) suggested investigating the effect of organizational size on the linkage of strategy and performance. Literature also indicated that the three strategies different outputs under different size. "Generally, defenders perform better than analyzers and prospectors as small firms, prospectors perform better than defenders and analyzers as medium to large size firms, and analyzers perform better as very large firms" (Smith et al., 1986: 48). Sarac et al., (2014) examined 190 firms and verified the Miles and Snow's strategy typology in Turkey and suggested that the interaction of firm size and firm strategy is the best predictor of performance. Geroski and Gregg's (1997) have found that in general, smaller firms performed worse during the recession than larger firms. In similar, researches pointed that larger organizations are least affected by recessionary pressures (Shama 1993; Latham 2009).

Drawing from resource-based perspective; since large firms have more assets and high capabilities, we assume that large /very large analyzers will perform better than the others during and after the crisis time.

H3. Over medium-sized analyzers perform better than the others (a) during and (b) after the crisis time.

2. METHODOLOGY

2.1. Sample and Procedure

It is argued that strategic groups exist in a given industry if group effects on firm performance can be separated from organization and industry effects (Parnell, 2010). Also Karabag (2008) found that industry structure had a significant impact on firm performance. Thus, in order to eliminate industry effect, this research focused on one industry "metal products and machinery industry" with a sample which covers 38 organizations listed on Borsa İstanbul. This industry was chosen because it was reported as seriously affected industry from downtown while other industries such as; food industry, chemical industry, forest industry were slightly affected from 2008 Global Financial Crisis in Turkey (Report of The Economic Policy Research Foundation of Turkey, 2010).

Data were collected from the financial statements (balance sheet and income statements) of 38 firms for each year between 2006 and 2011. Research had 2 main steps. In the first step strategy typologies of firms had determined and in the second step differences in firm performance were investigated.

2.2. Measures

Measuring Strategies: Selecting Objective Measures

Strategy was measured by objective indicators instead of other methods such as: using perception of managers, assessment of an expert panel or researchers (Snow and Hambrick, 1980). The objective indicators methods in measuring strategy is highly recommended because of several reasons such as (1) not depend on the assumptions of the researcher, manager or consultants, (2) allows large, heterogeneous samples and (3) capture the realized strategies rather than intended strategies (Blackmore, Nesbitt, 2012; Thomas, Ramaswamy, 1996). Since the strategy typology is very suitable to the nature of this study that use of archival data for a period of time (e.g., Ittner et al., 1997; Bentley et al., 2013), whereas other typologies require personal interviews with managers and surveys, this typology was preferred to describe business strategies for each industry.

To measure strategies, a strategy composite measure which was constructed by Bentley et al. (2013) and based on study of Ittner et al., (1997) was used. This set of measures consist; (1) the ratio of research and development to sales, (2) the ratio of employees to sales, (3) a historical growth measure (one-year percentage change in total sales), (4) the ratio of marketing to sales, (5) a measure of employee fluctuations (standard deviation of total employees) and (6) a measure of capital intensity net PPE scaled by total assets. Higher strategy scores represent firms with prospector strategies and lower scores represent firms with defender strategies. These six measures captured the appropriate characteristics and all of the dimensions (entrepreneurial, engineering and administrative) of Miles and Snow's Strategy typologies.

Measuring Organizational Size and Performance

Since number of employees is one of the more common methods of measuring organizational size (Smith et al., 1986: 46), the research sample firms were divided in four size groups based on their number of employees; (1) small firms as fewer than 50 employees, (2) medium firms as 50-250 employees, (3) large firms as 250-1000 and (4) extra-large firms more than 1000 employees.

To assess firm's performance, ROA data which is an indicator of how profitable a company is relative to its total assets was used (Blackmore, Nesbitt, 2012; Fiss, 2011; DeSarbo, 2005). ROA gives an idea as to how efficient management is at using its assets to generate earnings. Since this ratio is highly depending on the industry, it is an appropriate indicator to compare firm's performance in the same industry. It was calculated by dividing a company's annual earnings by its total assets and displayed as a percentage (Sarac et al., 2014).

2.3. Data Analysis

To determine the strategic types of 38 firms in metal products and machinery industry, firms were grouped by Hierarchical Clustering method (Ketchen, Shook, 1996; Thomas ,Ramaswamy, 1996) based on six ratios: (1) the ratio of research and development to sales, (2) the ratio of employees to sales, (3) a historical growth measure (one-year percentage change in total sales), (4) the ratio of marketing to sales, (5)

a measure of employee fluctuations (standard deviation of total employees) and (6) a measure of capital intensity net PPE scaled by total assets. An optimal number of clusters were determined based on the sharp variation in fusion coefficients and visual inspection of the dendrograms. The two maximally different clusters in metal products and machinery industry were defined as prospectors (having high scores) and defenders (having low scores). Organizations that were grouped into the third cluster were defined as analyzers (Sarac et al., 2014; Thomasand, Ramaswamy, 1996). Clustering was conducted three times for three periods: (1) before the crisis (2006-2007), (2) during the crisis (2008-2009), (3) after the crisis (2010-2011). Two years average values were used in clustering of each period.

For the validation of cluster analysis, 3 academics that studied strategy management and were familiar with the Miles and Snow typology supported the classification process (Sarac et al., 2014). They were given paragraph descriptions of the three strategies (Zahra, 1987) and were asked to classify 38 firms into the three typologies. Their classification was consistent with our classification at about 92 %. Only three firms were reported in different typology as compared with classification based on clustering analysis. This high ratio may be accepted as sufficient to support the validity of this classification.

After clustering of firms based on their strategy types, Kolmogorov-Smirnov test and Levene's test were conducted to assess the assumption of normal distribution of ROA variable. Kruskal-Wallis test was used to determine performance differences among three strategy type (prospector, analyzer, and defender) and different organizational size during and after the crisis. The Kruskal-Wallis test is considered the nonparametric alternative to the one-way ANOVA, and an extension of the Mann-Whitney U test to allow the comparison of more than two independent groups since the data is not normally distributed.

3. RESULTS

According to results of Hierarchical Clustering Analysis, 3 firms were classified as prospectors, 11 firms defined as analyzers and 24 firms were classified as defenders. Clustering was conducted for each three periods: (1) before the crisis (2006-2007), (2) during the crisis (2008-

2009), (3) after the crisis (2010-2011). It was found that firms maintain their clusters during the three periods. Thus H1 hypothesis was supported .The graph1 below shows the dendrogram which displays a strategic cluster configuration. The horizontal axis of the dendrogram represents the distance or dissimilarity between clusters. The vertical axis represents the objects and clusters. Based on own judgment, a vertical line was drawn at the cutoff value between distance 5-10 and it results in one three clusters. Rows that link up near the right side were very different and we called them prospectors (3 objects). Rows that are close together (have small dissimilarity) were linked near the right side of the plot, we called them defenders (25 object). Rows that link in the middle, we called them analyzers (10 object)

Graphic 1: Dendogram of clustering analysis
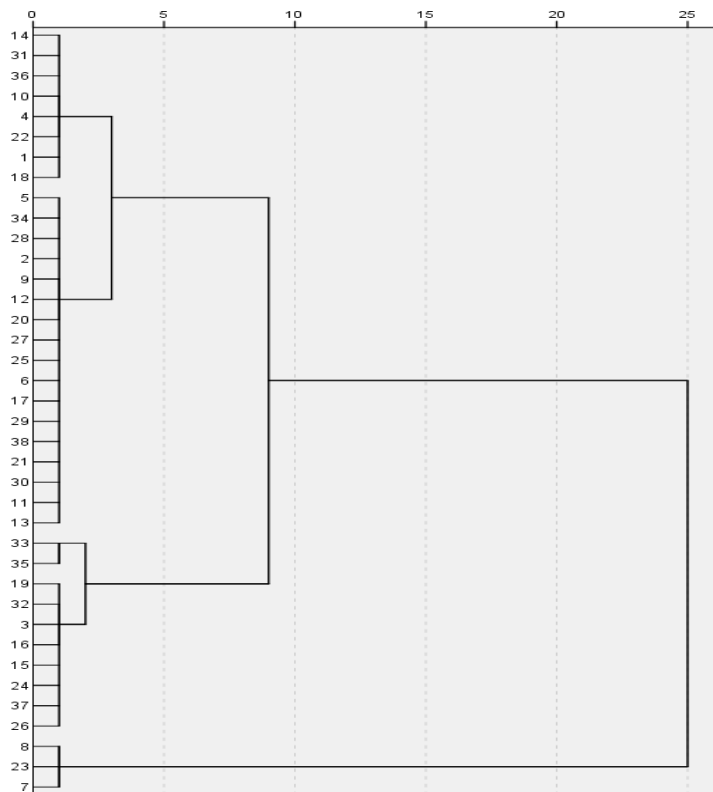
Descriptive Statistics of Firms clustered in each group have been presented in table 1.

Table 1: Descriptive Statistics of Firms

Strategy	Size	N	%
	Large	1	2.6
Prospector	Very Large	2	5.2
	Total	3	7.8
	Large	3	7.8
Analyzer	Very Large	7	18.6
	Total	10	26.4
	Small	3	7.8
	Medium	5	13.5
Defender	Large	15	39.3
	Very large	2	5.2
	Total	25	65.8
	Total	38	100

Results for the Kolmogorov-Smirnov test for normality indicated that the ROA distribution (for three period) deviated significantly from a normal distribution (Period 1: D = .223, p = .045; Period 2: D = .312, p = .050; Period 3: D = .148, p = .018). Also Levene's test of homogeneity of variance was employed and confirmed that the variances in the ROA for different strategy groups were not statistically equivalent (Period 1: F = 2.60, p = .004; Period 2: F = 6.38, p = .000; Period 3: F = 3.92, p = .004). Since the assumption of normality was not met for ROA variable, the researcher used the non-parametric Kruskal Wallis test to determine if there are statistically significant differences between different groups of strategy and size on a ROA variable. Kruskal Wallis test was conducted to test the effect of "strategy group", "size" and the interaction of "strategy*size" on ROA during and after the crisis. According to results given in table 2, there aren't any statistically significant difference between the firm performance by different strategy types, sizes or interaction of strategy*size during the crisis time. Thus H2 (a) and H3 (a) hypothesis weren't supported. Results revealed a significant effect of strategy type (x^2(2)=8.02, p < .018), organizational size (x^2(3)=12.04, p < .007), and interaction of strategy*size (x^2(7)=14.36, p < .045), on ROA % after the crisis time. However, it is seen that after the crisis; prospectors outperform the others with a mean rank of 32 and H2 (b) hypothesis wasn't

supported. When the interaction of strategy and size has been considered, results revealed that very large size prospectors outperform the others with a mean rank of 34 after the crisis time. Thus H3 (b) hypothesis wasn't also supported.

Table 2: Kruskal Wallis test comparing performance of different strategy groups and sizes

	Strategy	N	Mean Rank	Chi-Square	df	Asymp.Sig.
During the crisis / ROA%	Prospector	3	24.00			
	Analyzer	10	23.70	2.91	2	.232
	Defender	25	17.28			
	Total	38				
	Size	N	Mean Rank	Chi-Square	df	Asymp.Sig.
	Small	3	14.33			
	Medium	5	16.60	4.43	3	.218
	Large	19	17.74			
	Very Large	11	25.27			
	Total	38				
	Strategy*Size	N	Mean Rank	Chi-Square	df	Asymp.Sig.
	Prospector x Large	1	24.00			
	Prospector x Very large	2	24.00			
	Analyzer x Large	3	16.67			
	Analyzer x Very large	7	26.71			
	Defender x Small	3	14.33	5.16	7	.640
	Defender x Medium	5	16.60			
	Defender x Large	15	17.53			
	Defender x Very Large	2	21.50			
		38				
After the crisis / ROA %	**Strategy**	N	Mean Rank	Chi-Square	df	Asymp.Sig.
	Prospector	3	32.00			
	Analyzer	10	24.30	8.029	2	.018*
	Defender	25	16.08			
	Total	38				
	Size	N	Mean Rank	Chi-Square	df	Asymp.Sig.
	Small	3	14.80			
	Medium	5	18.74			
	Large	19	16.22	12.04	3	.007*
	Very Large	11	27.55			
	Total	38				
	Strategy*Size	N	Mean Rank	Chi-Square	df	Asymp.Sig.
	Prospector x Large	1	28.00			
	Prospector x Very large	2	34.00			
	Analyzer x Large	3	16.33			
	Analyzer x Very large	7	27.71			
	Defender x Small	3	14.33	14.36	7	.045*
	Defender x Medium	5	7.80			
	Defender x Large	15	18.60			
	Defender x Very Large	2	20.50			
		38				

*p < .05

DISCUSSION

The purpose of this study is to find out strategic behavior of organizations in metal products and machinery industry (based on Miles and Snow's Typology) and analyze which strategy type and size of firm outperform the others during and after the crisis time. Results of the study make necessary contribution to the literature in understanding firm's strategic behaviors and its results under uncertainty. Results indicated that firms maintain their strategy type also during the crisis and respond based on their generic strategies emphasis on "lowest cost" or "differentiated position" or "their mix". However it has found that there is not a significant effect of strategy group on firm performance during the crisis time. This shows that defenders, analyzers and prospectors have equal effectiveness during the crisis time in metal products and machinery industry. Consistent with previous findings of typology (Miles, Snow, 1978) suggested that the three strategy types have equal effectiveness under normal conditions, we also found that all types of firms have equal effectiveness during the early stage of crisis. Since organizations have just faced to uncertainty, interpretation of changes and taking action for the adaptation may take a period of time. During this preparation period, it is seen that firms doesn't differentiate from each other in their performance. Also there are some studies explained that antecedents of firm performance may be related with the context. For example Karabağ and Berggren (2014) has investigated the antecedents of firm performance in Turkey and have found that firm factors to be insignificant or only weakly explaining firm performance while competitive intensity is the most important aspect both for profit margin and productivity turns. They indicated that especially in emerging economies political factors such as; access to government contracts and regulatory opportunities tends to be more important than developing the right strategy. We may also think that during the crisis, there could be more influential factors related with context on performance rather than strategy type. However this study found strong empirical evidence that an organization's strategy has significant effects on firm's post crisis performance. It may be considered that after the crisis time, the management of the institutional environment (government policies and structures) becomes less important than their product market environment to perform better and also firm strategies conducted during the crisis help to post-crisis period and lead to performance.

Adaptive capability of strategy types are ranked from high to low respectively as Prospectors, analyzers and defenders (Miles, Snow, 1978). Since high adaptive capability may bring some inefficiency because of more slack resources (Bourgeois, 1980), we expected that analyzers which have a hybrid strategy combining the strengths of both the Prospector and the Defender, outperform the other two extreme strategies after the crisis time. However, rather unexpectedly, the results showed that not analyzers but prospectors outperform the others. Prospectors which are highly flexible, fit well to the turbulent environment. Their capability of finding and exploiting new product and market opportunities help them to cope with the uncertainty more effectively during the crisis time and affect their post crisis performance in a positive way. This result is consistent with Schumpeter perspective and some previous studies that suggested that firms which have distinctive characteristics of prospectors such as; high investment in R&D (Tubbs, 2007), high intention to build new products (Roberts, 2003) and advertising expenditures (Kamber, 2002) have better performance. Zajac and Shortell, (1989) found that Prospectors outperformed Defenders in the volatile healthcare industry (Desarbo et al., 2005: 48). We may also think that there may be other effects beyond strategies. For example, Gumusoglu and Acur (2016) showed that dynamic capabilities (sensing, seizing, and reconfiguring) explain performance over and beyond strategizing. Results also indicate that Interaction of strategy type and organizational size effect firm performance after the crisis time. Results reveal that very large size prospectors outperform the others after the crisis. In literature it is indicated that prospectors perform better than defenders and analyzers as medium to large size firms (Smith et al., 1986). It is also mentioned that larger organizations are least affected by recessionary pressures (Shama 1993; Latham 2009). Thus, better performance of very large size prospectors seems consistent with related literature.

Results of this study make a valuable contribution to understand which strategy outperforms the others during and after the crisis time. However the obtained results are only for metal products and machinery industry and may be different for other industries. According to sample size of some studies that have used Miles and Snow Typology (Di Benedetto and Song, 2003; Olson et al., 2005; Song et al., 2007), sample size of this study may be considered as a limitation. Although it is a common problem for studies conducting

subgroup analysis in the business strategy area (Gumusluoglu, Acur, 2016) findings of this study should be taken into consideration cautiously. Another limitation of this study is the measurement of performance based on ROA. Further studies may consider other dimension of performance besides financial measure.

The findings may have several implications for firms. Economic crisis are turning points for most managers during their careers. First, to face with uncertainty effectively an organization should recognize that these strategic types may not change rapidly. Organizations should respond the environment and adopt specific structures and behaviors that best satisfy the demand of their business strategy. Prospectors and large firms have advantages in coping uncertainty thus firms may be aware about their strengths and weaknesses during the crisis. Furthermore, Firms may also assess their competitor's strategies and estimate their actions under uncertainty.

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ÖZET

Organizasyonların belirli bir çevresel koşulda başarıya götüren farklı stratejileri, davranışları ve yapıları vardır (Luthans, Stewart, 1977). Benzer koşullara rağmen, kurumlar çevreye farklı cevaplar verirler ve farklı sonuçlar elde ederler. Organizasyon çalışmalarının önemli bir amacı, bazı organizasyonların neden farklı koşullarda diğerlerinden daha başarılı olduğunu (Pfeffer, 1997: 156) anlayabilmektir. Bu nedenle, finansal kriz gibi belirsiz bir koşul altında organizasyonlar arasındaki performans farklılıklarının anlaşılması da önemli bir konudur.

Bu çalışmanın amacı metal ürünleri ve makine endüstrisindeki organizasyonların, ekonomik kriz gibi belirsiz bir ortamdaki stratejik davranışlarını (Miles ve Snow'un strateji tipolojisine dayanan) anlamak ve hangi strateji türünün ve firma büyüklüğünün belirsizlik altında (kriz anında) ve kriz sonrasında daha avantajlı olduğunu araştırmaktır. Bu amaçla söz konusu endüstride faaliyet gösteren 38 firmanın 2008-2009 finansal kriz dönemini de içine alan bir periyoddaki finansal tabloları incelenerek; 2006 ve 2011 yıllarını ve arasını kapsayan verileri toplanmıştır. Miles ve Snow'un strateji tipolojisine dayanarak objektif beş parametreye göre (Bentley ve diğ., 2013; Ittner ve diğ., 1997) "(1) araştırma ve geliştirme giderlerinin satışlara oranı, (2) çalışanların satışlara oranı, (3) büyüme oranı (toplam satışlarda bir yıldaki yüzdelik değişim), (4) pazarlama giderlerinin satışlara oranı, (5) toplam çalışanların standart sapması ve (6) sermaye yoğunluğu oranı", firmalar kümelendirilmiş ve üç strateji tipolojisi altında toplanmıştır. Söz konusu parametrelere ilişkin yüksek skorlar atılgan şirketleri (prospectors), düşük skorlar savunmacıları (defenders) orta skorlar ise analizcileri (analyzers) temsil etmiştir.

Çalışmanın sonuçları, şirketlerin kriz sırasında da strateji türlerini sürdürdüğünü ve "maliyet liderliği" veya "farklılaştırılmış konum" ya da "onların karışımı"nı vurgulayan genel stratejilerine dayanarak belirsizliğe cevap verdiğini göstermiştir. Ancak, krizin başlangıç evresinde ve kriz döneminde izlenen strateji tipinin firma performansı üzerinde farklılaştırıcı etkisi gözlenmemiş; savunucular, atılganlar ve analizciler performansları açısından bu dönemde farklılaşmamışlardır.

Kriz sonrası dönemde hem atılganların hem de savunucuların avantajlarını birleştiren ve hibrid bir stratejiye sahip olan analizcilerin, diğer iki uç stratejiden daha iyi performans göstermeleri beklenmiştir ancak sonuçlar kriz sonrasında atılganların diğer stareji tiplerine göre daha yüksek performans gösterdiklerini ortaya koymuştur. Atılganların son derece esnek yapıları, yeni ürün ve pazar fırsatlarını bulma ve kullanma yetenekleri, kriz dönemindeki

belirsizlikle daha iyi başa çıktıklarını ve kriz sonrası performanslarını olumlu yönde etkilediğini ortaya koymuştur.

Araştırma sonuçları aynı zamanda firma performansı üzerinde strateji tipi ve firma ölçeğinin birlikte etkili olduğunu göstermiştir. Büyük ölçekli atılganların, küçük ölçekli atılganlara kıyasla kriz sonrasında daha iyi performans gösterdikleri gözlenmiştir.