

Understanding the Impact of Economic Crisis on the Distribution of Organizational Decision-Making Authority

Murat Onuk

Yeditepe University, Istanbul, Turkey

Understanding the dynamics of decision making in the right way is an important problem for the management of organizations. In today's business life organizations are becoming more complex, and the environments they are operating in, are becoming increasingly uncertain. The aim of this paper is to contribute to the understanding of the dynamics of managerial decision-making process in complex internal and external environments by sharing the results of an empirical study (Onuk, 2009). While taking the levels of the organizational structure as one of the important dimensions of complex internal environment, complex external environment is reflected within the study as economic crisis. Using the survey tool developed by Onuk (2009), the empirical study realized in the Turkish organization of a large global company investigated decision-making process to understand how decision-making authority for different types of decisions, identified as strategic, tactical, and operational level decisions, was distributed throughout the organization levels, and how this distribution was impacted by economic crisis. The results of the study confirmed the following common expectations: (1) Strategic decisions are mostly taken at upper hierarchical levels of the organizational structure; (2) during times of economic crisis strategic decision making is centralized; and (3) during times of economic crisis distribution of decision-making authority is concentrated at upper management levels.

Keywords: decision, decision-making, decision-making authority, management levels, organizational structure, complexity, strategic management, economic crisis

Introduction

Organizations can be thought of as examples of a general class of complex systems usually referred to as "complex adaptive systems" (Dooley, 2004, p. 354). Organizations need to be smart, agile, and responsive to fast-changing environments. They need to respond and make smart decisions at ever increasing speed, even as the unintended consequences of speedy decisions flare up in a nanosecond and keep leaders focused only on fire-fighting (Wheatley, 2001). Making smart decisions is especially important during the times of global economic crisis like the one which became apparent with the bankruptcy of Lehman Brothers in 2008 in U.S. financial sector and then affected all national economies around the globe.

Problem Statement

Understanding the dynamics of decision making in the right way is an important problem for the

Murat Onuk, Dr., Business Administration Department, Yeditepe University, Istanbul, Turkey.

Correspondence concerning this article should be addressed to Murat Onuk, Business Administration Department, Yeditepe University, Inonu Mah. Kayisdagi Cad. 26 Agustos Yerlesimi, Atasehir, Istanbul 34755, Turkey.

management of organizations. Some of the reasons for its importance are stated as follows:

(1) The decision-making processes are of central importance to business administration and organization theory (Cyert, Simon, & Trow, 1956).

(2) The decisions of a firm's management have at least as great an impact on the firm's performance as overall industry factors (Wheelen & Hunger, 2006).

(3) As organizations grow larger and more complex, with increasingly uncertain environments, decisions become more complicated and difficult to make (Wheelen & Hunger, 2006).

(4) Effective decision making and learning in a world of growing "dynamic complexity" requires system thinking to expand the boundaries of existing mental models and develop tools to understand how the structure of complex systems creates their behavior (Sterman, 2001).

Regarding the relation of the problem of understanding the dynamics of decision making to the complexity science theories, it is necessary to note a number of contemporary trends that seem to be contributing to the growth of interest in complex system theories (Cohen, 1999):

(1) There are dramatic changes occurring in the structure and operational scope of business, governmental, and nonprofit organizations. The list of challenges for contemporary organizations is long; globalization, process reengineering, workforce diversity, quality improvement, and public service privatization are some of the challenges. Such transitions, in turn, apply pressure on organizations to put a premium on responsiveness to change.

(2) It is common knowledge that there is an information revolution unfolding. The prices of sensing, processing, transmission, storage, and retrieval of information decline each year at exhilarating rates. With those changes, it is possible to exploit technology to couple activities that have formerly been separated in space and/or time. There seems to be boundless opportunities to use the technology to increase the responsiveness of one process to another.

(3) Organizational entities are being created and dissolved at increasing rates. Contemporary developments like macro-level political events influencing work, virtual organizations, increasing use of consultants, ad hoc teams, temporary employees, outsourcing agencies, corporate mergers and divestitures all push the focus on dynamics of organizations. It is necessary to consider how organizational capabilities, boundaries, and process couplings arise and change. With that focus on dynamics, it has become apparent that there are numerous points of resonance with complex systems research.

Lewin (1999) states that the implications of complexity for informing research in organization science are immediate and reveal pressing conceptual and methodological challenges. One of the most fundamental implications emerging from the science of complexity is that order naturally emerges in systems, no matter how simple, complex, non-linear, or chaotic the system is. Natural order evolves through self-organization. As summarized by Anderson (1999), when a system is open to receiving energy from the outside, it will tend to create order; when a system becomes closed, it will decay into maximum disorder and chaos.

In addition to this, according to Lewin (1999), this rediscovery of the characteristics of open systems needs a reexamination of the underlying management logic that dominates the view of the role of managers. The idea that organizations can naturally evolve effective strategies, structures, and processes; and self-adjust to new strategies and environmental changes, implies that managers should facilitate, guide, and set the boundary conditions within which successful self-organization can take place. In the language of open systems and

complexity, the new management logic requires managing all the organizational levers of dissipative energy. The new management logic also requires internal processes that facilitate all kinds of emergent processes as self-generated sources of dissipative energy, such as improvisation, product champions, and emergent strategies. In addition, the new management logic requires openness to bottom-up processes and acceptance of effective equifinal outcome. Finally, the new management logic also requires leadership styles that moderate dysfunctional tension and forestall the emergence of chaos.

The Aim

The aim of this paper is to share the findings of an empirical study (Onuk, 2009) realized to contribute to our understanding of the dynamics of managerial decision-making process in complex internal and external environments by analyzing the effect of crisis on the distribution of decision-making authority, to confirm the common expectation that during the times of crises decisions are centralized, and shifted towards upper management levels.

The Importance of the Study

According to Cyert and his colleagues (1956), decision making which is defined as choosing one course of action rather than another, or finding an appropriate solution to a new problem posed by a changing world, is commonly asserted to be the heart of executive activity in business. If this is so, a realistic description and theory of the decision-making process are of central importance to business administration and organization theory (Cyert et al., 1956).

In addition to operating in a complex world, within the organization, decision making is a part of a complex integration. That is, in an organization, decisions of individual managers must be integrated with decisions of others to form a mosaic of corporate policy. This integration of individual decisions has become the major concern of organization theory (Lindblom, 1959).

Decision makers play a critical role in decision-making process. Decision makers have a strong influence on a firm's evolution. Expansion, contraction, or stagnation of a firm is the result not only of exogenous forces, but also of the activities of the management (Krystek, 1987; cited in Feichtinger & Kopel, 1993). One reason for the relatively under-developed behavioral basis of decision making is the nature of the decision maker. The basic decision-making unit in the business context is the business organization or firm and this is a far more complex structure than, say, the consumer making a shopping decision. Any attempt to understand decision-making within a business context, therefore, must take into account the structure of business organizations (Dicken, 1971).

As a result, the study is important firstly because of the importance of decision making as explained above. Secondly, the applications of complexity theory to organization science are limited and by taking the complex structure of business organization and the effects of complex environment into consideration, and by analyzing the dynamics of decision making, the study provides such an application.

Management Questions Addressed

The study addressed the following management questions:

- How are the different types of decisions distributed throughout the different levels of organization?
- How is the decision-making authority distributed throughout the different levels of organization?
- How is the distribution of decision-making authority affected by economic crisis?

Methodology

The design of the research satisfies the requirements stated by Dooley and Van de Ven (1999) by providing means of observation and classification for the dynamics of decision-making process. The design of the research is also able to formulate interdependencies mentioned by Levinthal and Warglien (1999), in such a way that the emergent behavior is analyzed.

As a general rule in social research, different research problems require different research approaches (Singleton & Straits, 1999). The present research design is based both on exploratory and conclusive research. It is exploratory, because the research aims to provide significant insight to our understanding of the dynamics of decision making in organizations. It is conclusive, because it is meant to provide information that is useful in reaching conclusions.

Although most researchers do either quantitative or qualitative research work, some researchers have suggested combining one or more research methods in one study (Gable, 1994; Kaplan & Duchon, 1988; Lee, 1991; Mingers, 2001; Ragin, 1987; Myers, 1997). Triangular approach which is the combination of qualitative and quantitative methods is used in this research for the collection of data. Besides the questionnaire, different forms of data collection, such as interviews, use of expert knowledge, analysis of formal and informal procedures, interviews, and observation for obtaining necessary information for the understanding of decision-making process in target organization are also conducted in the study.

Research Findings

The study is realized with the use of the research tool developed by Onuk (2009).

Sampling

The study is applied in Siemens Sanayi ve Ticaret A.S., the general representative of Siemens AG in Turkey (www.siemens.com.tr). Total number of employees of Siemens Turkey during the time frame of the survey which was July 2009, was 2,306. Table 1 provides the details of employee profile of Siemens Turkey.

Table 1

Employee Profile of Siemens Turkey as of July 2009

Total number of employees (July 2009)	2,306
White-collar employees	1601
Blue-collar employees	705
Gender	
Women	556
Men	1,750
Employee with access to a computer	1,650
Education level	
Primary school graduate	48
Secondary school graduate	58
High school graduate	842
Vocational school graduate	133
University pre-graduate	10
University undergraduate	945
Master's degree	258
Ph.D.	12

(Table 1 to be continued)

Position level	
Top management, CEO and CFO	2
Upper-level manager	25
Middle-level manager	96
Manager	114
Employee	2,069

Ninety-two participants responded to the survey. After careful evaluation seven responses were eliminated because the related respondents didn't fill in the demographic questions necessary for the analysis. As a result, 85 responses were used for the analysis.

Size of the target population, which is the total number of employees of Siemens Turkey when the survey was applied, is 2,306. As a result, the representation level of the sample is 3.69%.

The survey was designed in Internet and was not accessible by the employees who do not have access to a computer. Because of this limitation, the actual size of the target population could be maximum 1,650, and the representation level of the sample increases up to 5.15%.

The number of managers within the target population is 237. With the assumption that the decision-making authority lies with the managerial positions, 54 of the evaluated 85 responses are managers at different levels which indicate that the real representation level of the sample is 22.78%.

Demographics

The characteristics of demographic variables of the sample and their level of representation within the target population are analyzed. Correlations of demographic variables between decision-making authority of different decision types both during normal and economic crisis conditions or eras, and results of the analysis of variances are also included (Onuk, 2009).

Instead of analyzing all components of each instrument separately, the analysis is done by using their average values represented by the following variables:

STRNAVR: Average value of decision-making authority for strategic decisions related questions during normal economic conditions;

STRCAVR: Average value of decision-making authority for strategic decisions related questions during economic crisis conditions;

TACNAVR: Average value of decision-making authority for tactical decisions related questions during normal economic conditions;

TACCAVR: Average value of decision-making authority for tactical decisions related questions during economic crisis conditions;

OPENAVR: Average value of decision-making authority for operational decisions related questions during normal economic conditions;

OPECAVR: Average value of decision-making authority for operational decisions related questions during economic crisis conditions.

Distribution of Decision-Making Authority

Analysis based on averages

The results of the analysis realized based on average values of responses depending on gender, age,

education level, position level and distance to CEO during the times of normal economic conditions are given in Table 2, Table 3, Table 4, Table 5 and Table 6 respectively.

Table 2

Distribution of Decision-Making Authority Based on Gender During Normal Period

Averages of decision-making authority (values between 1 to 7)					
Gender	Nr. of cases	% of Cases	Strategical (STRNAVR)	Tactical (TACNAVR)	Operational (OPENAVR)
Female	12	14%	2.22	2.24	2.36
Male	73	86%	3.06	3.28	3.21
Total	85	100%	2.94	3.13	3.09

Table 2 indicates that the impact level of males in the sample organization is higher than that of females for all decision types during normal economic conditions.

Table 3

Distribution of Decision-Making Authority Based on Age During Normal Period

Averages of decision-making authority (values between 1 to 7)					
Age	Nr. of cases	% of Cases	Strategical (STRNAVR)	Tactical (TACNAVR)	Operational (OPENAVR)
21-30	10	12%	2.45	2.22	2.28
31-40	32	38%	3.14	3.14	3.18
41-50	30	35%	3.64	3.23	3.04
51-60	12	14%	3.57	3.67	3.65
60+	1	1%	2.67	2.50	2.67
Total	85	100%	2.94	3.13	3.09

Looking at the results in Table 3 it is not possible to reach a conclusion regarding the effect of age on the distribution of decision-making authority during normal economic conditions.

Table 4

During Normal Period Distribution of Decision-Making Authority Based on Education Level During Normal Period

Averages of decision-making authority (values between 1 to 7)					
Education level	Nr. of cases	% of cases	Strategical (STRNAVR)	Tactical (TACNAVR)	Operational (OPENAVR)
Vocational school	5	6%	1.57	1.70	2.00
University	41	48%	2.68	2.81	2.78
Master's degree	37	44%	3.33	3.64	3.52
Ph.D.	2	2%	4.42	3.92	4.00
Total	85	100%	2.94	3.13	3.09

Results of Table 4 indicate an effect of education level on the distribution of decision-making authority. The higher the level of education the higher the level of impact on decision making for all decision types during normal economic conditions.

Table 5 indicates that with respect to position, the decision-making authority is higher at higher managerial levels. This finding is in line with the definition of legitimate power (French & Raven, 1959). Similar finding is also generally valid with respect to distance to CEO except for Level 1 and Level 2 for strategic and operational level decisions as indicated in Table 6.

Table 5

Distribution of Decision-Making Authority Based on Position Level During Normal Period

			Averages of decision-making authority (values between 1 to 7)		
Position	Nr. of cases	% of cases	Strategical (STRNAVR)	Tactical (TACNAVR)	Operational (OPENAVR)
Upper-level manager	10	12%	3.88	4.48	3.97
Middle-level manager	28	33%	3.33	3.79	3.65
Manager	16	19%	3.00	3.11	3.38
Employee	31	36%	2.25	2.10	2.15
Total	85	100%	2.94	3.13	3.09

Table 6

Distribution of Decision-Making Authority Based on Distance to CEO During Normal Period

			Averages of decision-making authority (values between 1 to 7)		
Distance to CEO	Nr. of cases	% of cases	Strategical (STRNAVR)	Tactical (TACNAVR)	Operational (OPENAVR)
Level 1	11	13%	3.45	3.83	3.26
Level 2	22	26%	3.69	3.74	3.76
Level 3	17	20%	3.25	3.29	3.49
Level 4	24	28%	2.24	2.51	2.38
Level 5	11	13	1.97	2.30	3.48
Total	85	100%	2.94	3.13	3.09

It is assumed that strategic level decisions are taken at strategic apex, tactical level decisions are taken in middle line, techno structure, and support staff, and finally operational level decisions are taken in operating core, being the organizational parts defined by Mintzberg (1979). Satisfying one of the aims of the research, the findings of the empirical study identify this distribution. However, different from the hypothesis, the findings indicate that although the strategic level decisions are more concentrated in upper level of management, tactical level decisions and operational level decisions are also concentrated in upper level of management instead of being concentrated in middle-level management, and lower-level management and employee level respectively. This may indicate an empowerment related issue within the target organization. In addition, the findings also indicate that some non-managers believe that they are taking part in making some of the strategic level decisions and some tactical level decisions. These findings can also be partially related to the divisional organizational form (Mintzberg, 1979) of the target organization.

Correlations

The correlations between six instruments are listed in Table 7. Instead of analyzing all components of each instrument separately, their average values are used for the calculations. As listed in Table 7, there are significant correlations between all instruments. In other words, the authorities of decision making at different hierarchical levels at different economic eras are correlated. As expected, there are high correlations between normal and crisis eras at each decision level with Pearson Correlation measures 0.969, 0.972, and 0.962 for strategic, tactical, and organizational decision levels respectively, all being at significance level 0.01. It is also worth noting that the correlation between strategic level decisions and tactical level decisions (0.724 up to 0.770) is higher than the correlation between strategic level decisions and operational level decisions (0.696 up to 0.740). The correlations between tactical level decisions and operational level decisions (0.844 up to 0.888), on the other hand is higher than the correlation between strategical level decisions and operational level decisions. These correlation values indicate a hierarchy among different levels of decisions.

Table 7

Correlations Between Six Instruments

No.		STRNAVR	STRNAVR	TACNAVR	TACNAVR	OPENAVR	OPENAVR
STRNAVR	Pearson correlation	1	0.969**	0.760**	0.724**	0.735**	0.696**
	Sig. (2-tailed)		0.000	0.000	0.000	0.000	0.000
	N	85	85	85	85	85	85
STRNAVR	Pearson correlation	0.969**	1	0.769**	0.770**	0.739**	0.740**
	Sig. (2-tailed)	0.000		0.000	0.000	0.000	0.000
	N	85	85	85	85	85	85
TACNAVR	Pearson correlation	0.760**	0.769**	1	0.972**	0.867**	0.865**
	Sig. (2-tailed)	0.000	0.000		0.000	0.000	0.000
	N	85	85	85	85	85	85
TACNAVR	Pearson correlation	0.724**	0.770**	0.972**	1	0.844**	0.888**
	Sig. (2-tailed)	0.000	0.000	0.000		0.000	0.000
	N	85	85	85	85	85	85
OPENAVR	Pearson correlation	0.735**	0.739**	0.867**	0.844**	1	0.962**
	Sig. (2-tailed)	0.000	0.000	0.000	0.000		0.000
	N	85	85	85	85	85	85
OPENAVR	Pearson correlation	0.696**	0.740**	0.865**	0.888**	0.962**	1
	Sig. (2-tailed)	0.000	0.000	0.000	0.000	0.000	
	N	85	85	85	85	85	85

Note. ** Correlation is significant at the 0.01 level (2-tailed).

Effect of Economic Crisis on Distribution of Decision-Making Authority

In order to understand whether there is a statistically meaningful difference between the responses collected for the distribution of decision making of different decision types during normal and economic crisis conditions a Paired Sample T-test is realized. In order to realize the test, averages of decision-making authority levels for each different decision types for normal and economic crisis conditions are paired together. As an example, variable STRNAVR which represents the averages of decision-making authority of strategic type decisions during normal period is paired with the variable STRCAVR which represents the same during economic crisis period. Similarly, TACNAVR is paired with TACCAVR for tactical decisions, and finally OPENAVR is paired with OPECAVR for operational decisions. The statistics, correlations and the result of the Paired Sample T-test are given in Table 8, Table 9, and Table 10.

Table 8

Statistics of Paired Samples

		Mean	N	Std. deviation	Std. error mean
Pair 1	STRNAVR	2.9393	85	1.41058	0.15300
	STRNAVR	2.7842	85	1.37856	0.14953
Pair 2	TACNAVR	3.1294	85	1.56829	0.17010
	TACNAVR	2.9780	85	1.57516	0.17085
Pair 3	OPENAVR	3.0865	85	1.76666	0.19162
	OPENAVR	2.9565	85	1.77049	0.19204

Table 9

Correlations of Paired Samples

		N	Correlation	Sig.
Pair 1	STRNAVR & STRNAVR	85	0.969	0.000
Pair 2	TACNAVR & TACNAVR	85	0.972	0.000
Pair 3	OPENAVR & OPENAVR	85	0.962	0.000

The results of Table 9 indicate that each pair is strongly correlated with each other.

Table 10

Results of Paired Samples T-test

		Paired differences					t	df	Sig. (2-tailed)
		Mean	Std. deviation	Std. error mean	95% confidence interval of the difference				
					Lower	Upper			
Pair 1	STRNAVR- STRNAVR	0.1551	0.35084	0.03805	0.0794	0.2307	4.075	84	0.000
Pair 2	TACNAVR- TACNAVR	0.1514	0.37043	0.04018	0.0715	0.2313	3.768	84	0.000
Pair 3	OPENAVR- OPENAVR	0.1300	0.48913	0.05305	0.0245	0.2355	2.450	84	0.016

Results of Table 10 confirm that the changes between each pair are not a chance variation but statistically significant with significance levels 0.000 for strategic and tactical decisions, and 0.016 for operational decisions. This finding indicates that crisis has a statistically significant effect on the distribution of decision-making authority for different decision types.

Analysis based on averages is repeated to compare normal and economic crisis period. The aim of the analysis is to look for changes in averages with respect to gender, age, education level, position level and distance to CEO. The results are summarized in Table 11, Table 12, Table 13, Table 14, and Table 15 which show the effect of economic crisis on the distribution of decision-making authority.

Table 11

Effect of Economic Crisis on the Distribution of Decision-Making Authority Based on Gender

Averages of decision-making authority (values between 1 to 7)								
			Strategical		Tactical		Operational	
Position	Nr. of cases	% of Cases	Normal (STRNAVR)	Crisis (STRCAVR)	Normal (TACNAVR)	Crisis (TACCAVR)	Normal (OPENAVR)	Crisis (OPECAVR)
Female	12	14%	2.22	2.13	2.24	2.11	2.36	2.26
Male	73	86%	3.06	2.89	3.28	3.12	3.21	3.07
Total	85	100%	2.94	2.78	3.13	2.98	3.09	2.96

Results in Table 11 indicate that level of impact on decision-making decreases for all decision types during the times of economic crisis irrespective of gender.

Table 12

Effect of Economic Crisis on the Distribution of Decision-Making Authority Based on Age

Averages of decision-making authority (values between 1 to 7)								
			Strategical		Tactical		Operational	
Age	Nr. of Cases	% of Cases	Normal (STRNAVR)	Crisis (STRCAVR)	Normal (TACNAVR)	Crisis (TACCAVR)	Normal (OPENAVR)	Crisis (OPECAVR)
21-30	10	12%	2.45	2.40	2.22	2.22	2.28	2.27

(Table 12 to be continued)

31-40	32	38%	3.14	2.98	3.14	3.03	3.18	3.11
41-50	30	35%	2.64	2.48	3.23	3.03	3.04	2.93
51-60	12	14%	3.57	3.39	3.67	3.42	3.65	3.24
60+	1	1%	2.67	2.00	2.50	2.33	2.67	2.33
Total	85	100%	2.94	2.78	3.13	2.98	3.09	2.96

Results in Table 12 indicate that during the times of economic crisis level of impact on decision-making decreases for all decision types irrespective of age.

Table 13

Effect of Economic Crisis on the Distribution of Decision-Making Authority Based on Education Level

Averages of decision-making authority (values between 1 to 7)								
Education	Nr. of cases	% of cases	Strategical		Tactical		Operational	
			Normal (STRNAVR)	Crisis (STRCAVR)	Normal (TACNAVR)	Crisis (TACCAVR)	Normal (OPENAVR)	Crisis (OPECAVR)
Vocational	5	6%	1.57	1.53	1.70	1.67	2.00	2.00
University	41	48%	2.68	2.54	2.81	2.70	2.78	2.67
Master's	37	44%	3.33	3.15	3.64	3.43	3.52	3.35
Ph.D.	2	2%	4.42	4.08	3.92	3.75	4.00	4.00
Total	85	100%	2.94	2.78	3.13	2.98	3.09	2.96

Results in Table 13 indicate that during the times of economic crisis level of impact on decision-making decreases for all decision types irrespective of education level.

Table 14

Effect of Economic Crisis on the Distribution of Decision-Making Authority Based on Position Level

Averages of decision-making authority (values between 1 to 7)								
Position	Nr. of Cases	% of Cases	Strategical		Tactical		Operational	
			Normal (STRNAVR)	Crisis (STRCAVR)	Normal (TACNAVR)	Crisis (TACCAVR)	Normal (OPENAVR)	Crisis (OPECAVR)
Upper-level manager	10	12%	3.88	3.90	4.48	4.33	3.97	3.85
Middle-level manager	28	33%	3.33	3.11	3.79	3.62	3.65	3.49
Manager	16	19%	3.00	2.92	3.11	3.08	3.38	3.31
Employee	31	36%	2.25	2.06	2.10	1.91	2.15	2.01
Total	85	100%	2.94	2.78	3.13	2.98	3.13	2.98

Table 15

Effect of Economic Crisis on the Distribution of Decision-Making Authority Based on Distance to CEO

Averages of decision-making authority (values between 1 to 7)								
Distance to CEO	Nr of cases	% of cases	Strategical		Tactical		Operational	
			Normal (STRNAVR)	Crisis (STRCAVR)	Normal (TACNAVR)	Crisis (TACCAVR)	Normal (OPENAVR)	Crisis (OPECAVR)
Level 1	11	13%	3.45	3.52	3.83	3.79	3.26	3.33
Level 2	22	26%	3.69	3.42	3.74	3.48	3.76	3.65
Level 3	17	20%	3.25	3.05	3.29	3.12	3.49	3.16
Level 4	24	28%	2.24	2.09	2.51	2.42	2.38	2.29
Level 5	11	13%	1.97	1.88	2.30	2.18	2.48	2.33
Total	85	100%	2.94	2.78	3.13	2.98	3.09	2.96

One of the main aims of this study is to check the general expectation of the centralization of decision-making during the times of crisis in terms of the distribution of decisions shifting towards upper management levels. The findings of the empirical study given in Table 14 and Table 15 confirm the general expectation for strategic level decisions. All decision-making authority levels with respect to different position and different decision levels are decreased during the time of crisis, except the decision-making authority level of the upper-level management for strategic level decisions. Similar findings are also valid with respect to the distance to CEO, with the exception that operational level decision-making authority of upper-level management is also increased during the time of crisis.

Results of the Qualitative Analysis

In order to understand respondents and the social and cultural contexts within which they live, as proposed by Myers (1997), four qualitative instruments are included within the survey. The instruments are designed as open-ended questions asking the personal opinions and feelings of the participants on how decision-making authority is affected from crisis. Translations of the instruments are given below.

(1) How your decision-making authority is affected from times of crisis? Please share your opinions.

(2) Is your decision-making authority decreased during the times of crisis? How do you feel about this? Please share your opinions.

(3) What type of relationship exists between the strength of the crisis and the distribution of decision-making authority? Please share your opinions.

(4) What type of relationship exists between the duration of the crisis and the distribution of decision-making authority? Please share your opinions.

Summary analyses of the collected responses to the qualitative instruments are provided in Table 16, Table 17, Table 18, and Table 19.

As shown in Table 16, at least 62 of the respondents (73%) think that economic crisis has an effect on the distribution of decision-making authority. 51.8% of the respondents confirm the common expectation that during the time of crisis decision-making authority is decreased and shifted towards upper management levels.

Table 16

Summary Result of First Qualitative Question

1. How your decision-making authority is affected from times of crisis? Please share your opinions.		
Comment	Nr. of cases	% of cases
No change	7	8.2%
Little impact	3	3.5%
Becomes worse	1	1.2%
It decreases	8	9.4%
It decreases, Germany becomes more active	4	4.7%
It decreases, shifts to upper management levels	44	51.8%
Depends on position and/or target	2	2.4%
Careful decision-making necessary, risk appetite reduced	1	1.2%
Different management styles and planning necessary	1	1.2%
Leads to limitation of spending	1	1.2%
More rules of control, reduced flexibility, new procedures, loss of opportunities	1	1.2%
I have no decision-making authority	1	1.2%
General remarks	3	3.5%
No Comment	8	9.4%
Total	85	100%

As shown in Table 17, when asked directly, 57.6% of the respondents confirm the common expectation that during the time of crisis level of decision-making authority is decreased. 29.4% of the respondents feel bad about this decrease. Among the respondents who commented on their feelings this ratio increases up to 57%, while 36% is neutral.

Table 17

Summary Result of Second Qualitative Question

2. Is your decision-making authority decreased during the times of crisis? How do you feel about this? Please share your opinions.		
Comment	Nr. of cases	% of cases
Yes	49	57.6%
No	19	22.4%
In opposite, it increases	2	2.4%
Partially decreases, partially increases in specialty area	2	2.4%
General remarks	1	1.2%
No comment	12	14.1%
TOTAL	85	100%
Feeling positive	3	3.5%
Feeling negative	25	29.4%
Feeling as a normal situation	16	18.8%
No comment on feelings	41	48.3%
Total	85	100%

As shown in Table 18, 78.8% of the respondents think that as strength of the crisis increase, decision-making authority will decrease.

Table 18

Summary Result of Third Qualitative Question

3. What type of relationship exists between the strength of the crisis and the distribution of decision-making authority? Please share your opinions.		
Comment	Nr. of cases	% of cases
As strength increases, decision-making authority decreases	67	78.8%
It doesn't change	4	4.7%
Participative decision-making will be helpful	2	2.4%
There will be little impact on institutional corporation	1	1.2%
No comment	11	12.9%
Total	85	100%

As shown in Table 19, at least 60% of the respondents think that as the duration of the crisis extends, decision-making authority will be decreased.

Table 19

Summary Result of Fourth Qualitative Question

4. What type of relationship exists between the duration of the crisis and the distribution of decision-making authority? Please share your opinions.		
Comment	Nr. of cases	% of cases
As crisis extends, decision-making authority decreases	43	50.6%
It doesn't change	10	11.8%
As crisis extends, decision-making authority decreases, after the end of the crisis it normalizes after some time	6	7.0%

(Table 19 to be continued)

As crisis extends normalization starts	5	5.9%
As crisis extends radical changes appear	2	2.4%
Participative decision-making will be helpful	2	2.4%
Different type of reactions will occur based on duration	1	1.2%
As crisis extends decision-making authority decreases, fear and loss of opportunities will occur	1	1.2%
As crisis extends decision-making authority decreases, even crisis ends decrease in authority will remain	1	1.2%
As crisis extends change will be permanent	1	1.2%
As crisis extends there will be more demand for normalization and receiving the authority back	1	1.2%
No comment	12	14.1%
Total	85	100%

Hypothesis Testing

Based on the findings given in previous sections the hypotheses are tested as follows:

H1. Distribution of decision-making authority in organizations is significantly affected during crises.

Research findings confirm that within the framework of the empirical study realized, crisis has an impact on the distribution of decision-making authority.

Results of Paired Samples T-test given in Table 10 confirm that the changes on distribution of decision-making for each decision type due to economic crisis are not chance variations but statistically significant. This finding indicates that economic crisis has a statistically significant effect on the distribution of decision making for different decision types.

Results of the analysis based on averages summarized in Table 14 and Table 15 also show that economic crisis has an effect on the distribution of decision-making authority.

Results of the qualitative analysis also confirm that economic crisis has an effect on the distribution of decision-making authority. As shown in Table 16, at least 73% of the respondents think that economic crisis has an effect on the distribution of decision-making authority.

In summary the results of the empirical study confirm that hypothesis H1 is valid.

This finding is in line with the research (see Faulkner, 2001; Ritchie, 2004; Avena, 2005; Harrington & Ottenbacher, 2009) stating that crisis has an effect of the managerial decision making.

H1a. Crises cause an increase of the impact of top-level executives in strategic decisions.

Analysis confirms the fact that position level has a statistically significant effect on the distribution of decision-making authority for strategic decisions during both normal and economic crisis period.

Analysis confirms similar result for distance to CEO. However, because of limited number of cases it is not possible to differentiate among the effects of different position levels or different levels of distance to CEO. Analysis of averages is used to make this differentiation.

According to Table 14, for strategic decisions, level of decision-making authority of upper-line managers which is 3.88 during normal conditions increased to 3.90 during economic crisis conditions. This is also valid with respect to distance to CEO. According to Table 15, for strategic decisions, level of decision-making authority of managers closest to the CEO which is 3.45 during normal conditions increased to 3.52 during economic crisis conditions. Based on the analysis of averages, the findings of the empirical study given in Table 14 and Table 15 confirm the hypothesis H1a.

This finding is also in line with the theoretical background provided in previous research. Harrison and

Pelletier (2000), Avena (2005), and Harrington and Ottenbacher (2009) confirm that level of decision maker within the organization has an effect on decision making. Regarding strategic decisions, Alkaraan and Northcott (2007) state that most strategic decisions are authorized by senior executives at the top level of the organization. As a result, an increasing impact of top management on decision making during times of crisis can be expected.

H1b. Crises cause a decrease of the impact of middle level managers in tactical decisions.

The statistical analyses for position level, and for distance to CEO indicate that these variables have a statistically significant impact on the decision-making authority for tactical decisions only during normal period. Therefore, based on the results of the existing empirical study, it is not possible to comment on the effect of crises on the impact of middle level managers in tactical decisions and the null hypothesis should be rejected.

On the other hand, the analysis based on the average values of the decision-making authority level for tactical decisions provides consistent results in terms of the effect of crises on decision-making authority. According to Table 14, for tactical decisions, level of decision-making authority of middle-line managers which is 3.79 during normal conditions decreased to 3.62 during economic crisis conditions. This is also valid with respect to distance to CEO. According to Table 15, for tactical decisions, level of decision-making authority of managers close to the CEO three levels which is 3.29 during normal conditions decreased to 3.12 during economic crisis conditions. Based on the analysis of averages, the findings of the empirical study given in Table 14 and Table 15 confirm the hypothesis H1b. However, despite the analysis based on averages, since it cannot be statistically confirmed hypothesis H1b should be rejected.

H1c. Crises cause a decrease of the impact of lower level managers in operational decisions.

The statistical analyses for position level and for distance to CEO indicate that these variables don't have a statistically significant impact on the decision-making authority of operational decisions. Therefore, based on the existing empirical study it is not possible to comment on the effect of crises on the impact of lower level managers in operational decisions and the null hypothesis should be rejected.

On the other hand, similar to the tactical decisions, the analysis based on the average values of the decision-making authority level for operational decisions also provides consistent results in terms of the effect of crises. According to Table 14, for operational decisions, level of decision-making authority of lower level managers which is 3.38 during normal conditions decreased to 3.31 during economic crisis conditions. This is also valid with respect to distance to CEO. According to Table 15, for operational decisions, value of decision-making authority of managers close to the CEO at Level 4 and Level 5 which are 2.38 and 2.48 respectively during normal conditions, decreased to 2.29 and 2.33 during economic crisis conditions. Based on the analysis of averages, the findings of the empirical study given in Table 14 and Table 15 confirm the hypothesis H1c. However, despite the analysis based on averages, since it cannot be statistically confirmed hypothesis H1c should be rejected.

H1d. Crises cause an increase of the impact of male managers in organizational decisions.

Results of the analysis on the relation of gender with decision-making authority are given in Section 4.1.1 of the research of Onuk (2009). Within the literature review realized it was not possible to identify an impact of gender on the distribution of decision-making authority. However, the parametric and non-parametric analyses realized on the results of the empirical study indicate a statistically significant impact of gender on the distribution of decision-making authority on tactical decisions during both normal and economic crisis period. Since there are only two categories, it is not statistically possible to identify whether this impact is from male or female origin. In addition, since there are only 12 cases in female category, the results of the statistical analysis

cannot be generalized.

The results of the analysis based on the average values given in Table 11 also do not provide a differentiation between female and male respondents however it indicates that crisis decreases the impact level of both female and male decision makers for all type of decisions. As a result, hypothesis H1d should be rejected.

H1e. Crises cause an increase of the impact of more educated managers in organizational decisions.

Based on the results of the statistical analyses reported in Section 4.1.3 of the research of Onuk (2009), it can be said that the distribution of decision-making authority is affected by education level of the employees for strategic and tactical decisions both for normal and economic crisis eras.

On the other hand, the analysis based on the average values of the decision-making authority level in relation to educational level provides consistent results both in terms of the impact of education level and the effect of crises. According to Table 13, for all type of decisions, without any exception, the more educated the employee, the higher his/her impact on decision making. This statement also holds during the time of crisis. However, comparing the level of decision-making authority before and during the time of crisis reveals the fact that for all education levels and decision types, crises causes a decrease in the level of decision-making authority. Therefore, hypothesis H1e should be rejected.

H1f. Crises cause an increase of the impact of managers with greater work experience in organizational decisions.

Being one of the limitations of this research work experience is not directly measured within the survey. As an approximate solution age of the employee is used to analyze this hypothesis. Results of the statistical analyses indicate that age has no effect on the distribution of decision-making authority of different decision types during normal and economic crisis eras.

The analysis based on averages does not provide any results to differentiate among age categories in terms of their impact of decision-making authority either. Regarding the effect of crises, results in Table 12 only indicate that during the times of economic crisis level of impact on decision-making decreases for all decision types irrespective of age. Therefore, hypothesis H1f should be rejected.

H2. During crises, decision-making authority tends to be shifted towards and centralized in the upper management levels

As reported for hypothesis H1, within the framework of the empirical study realized within this research, crises has a statistically significant impact on the distribution of decision-making authority within the organization. General expectation and the concept of centralization as explained by Mintzberg (1979) tell that during crises decision making within an organization will be centralized. However as explained while testing the hypothesis H1a, the findings of this research confirms this general expectation statistically only for strategic type decisions.

The results of the qualitative analysis on the other hand provide some supporting findings for the hypothesis without making any differentiation among decision types. As shown in Table 16, 48 respondents (56.5%) clearly confirm the common expectation that during the time of crisis decision-making authority is decreased and shifted towards upper management levels. The percentage which supports the general expectation increases up to 70% when empty and unrelated respondents are taken out of the evaluation. In addition, a detailed analysis based on position levels made on the results of Table 14 provides following results: In employee level 85% of the respondents believe that their decision-making authority decreases during the

crisis. This ratio is 71% for managers, 73% for middle-line managers, but only 30% for upper-line managers. 70% of the upper-line managers believe that their decision-making authority is not affected negatively from the crises.

In conclusion, despite the strongly supporting results of the qualitative analysis, it can be said that based on the results of the research H2 holds only for strategic type decisions.

H3. There is a negative relationship between the strength of crisis and decision-making authority.

A quantitative analysis investigating the characteristics of the crises was not included within the survey. This created an important limitation during the statistical analysis of the findings. However, on the qualitative part one of the questions is directly related to hypothesis H3. As shown in Table 18, 78.8% of the respondents think that as strength of the crisis increase, decision-making authority will decrease. When empty and unrelated responses are eliminated the percentage increases to 94%, confirming the negative relationship between the strength of crisis and decision-making authority strongly. Therefore, based on the result of the qualitative analysis it can be said that H3 is justified.

H4. There is a negative relationship between the duration of crisis and decision-making authority.

Similar situation of hypothesis H3 is also valid for hypothesis H4. A quantitative analysis investigating the characteristics of the crisis was not included within the survey. This created an important limitation during the statistical analysis of the findings. However, one of the questions in qualitative part is directly related to hypothesis H4. As shown in Table 19, at least 60% of the respondents think that as the duration of the crisis extends, decision-making authority will be decreased. When empty and unrelated responses are eliminated the percentage increases to 84%, confirming the negative relationship between the strength of crisis and decision-making authority strongly. Therefore, based on the result of the qualitative analysis it can be said that H4 is justified.

Conclusion

The purpose of this study was to analyze the effect of crisis on the distribution of decision-making authority of different types of decisions throughout the organization levels.

Based on the theoretical background investigated (Onuk, 2009), several hypotheses were developed to understand the effects of crises on the distribution of decision-making authority within organization. Application of the survey tool developed by Onuk (2009) to the target organization provided following summary results regarding these hypotheses:

First of all, distribution of decision-making authority in organizations is significantly affected during crises.

Second, crises cause an increase of the impact of top-level executives in strategic decisions. Although the findings indicate that the strategic level decisions are more concentrated in upper level of management as foreseen, tactical level decisions and operational level decisions are also concentrated in the upper level of management instead of being concentrated in the middle-level, and the lower-level management level respectively. This may indicate an empowerment related issue within the target organization. In addition, the findings also indicate that some non-managers believe that they are taking part in making some of the strategic level decisions and some tactical level decisions. These findings can also be partially related to the divisional organizational form (Mintzberg, 1979) of the target organization.

Third, during crises, for strategic type decisions, decision-making authority tends to be shifted towards and

centralized in the upper management levels. This study was aiming to check the general expectation that during the times of crisis the distribution of decisions is shifted towards and is centralized in the upper management levels. The findings of the empirical study confirmed the general expectation only for strategic level decisions. All decision-making authority levels with respect to different positions and different decision levels are decreased during the time of crisis, except for the decision-making authority level of the upper-level management for strategic level decisions. Similar findings are also valid with respect to the distance to CEO, with the exception that operational level decision-making authority of upper-level management is also increased during the time of crisis. The results of the qualitative analysis also confirmed that during the times of crisis the decision making is centralized.

Fourth, there is a negative relationship between the strength of crisis and decision-making authority.

Finally, there is a negative relationship between the duration of crisis and decision-making authority.

References

- Alkaraan, F., & Northcott, D. (2007). Strategic investment decision-making: The influence of pre-decision control mechanisms. *Qualitative Research in Accounting & Management*, 4(2), 133-150.
- Anderson, P. (1999). Complexity theory and organization science. *Organization Science*, 10(3), 216-232.
- Avena, E. (2005). The Experience of responsibility-based management in decision-making: A grounded theory study. PhD Dissertation, UMI Number: 3196634, University of Phoenix, Phoenix, Arizona.
- Cohen, M. (1999). Commentary on the organization science special issue on complexity. *Organization Science*, 10(3), 373-376.
- Cyert, R. M., Simon, H. A., & Trow, D. B. (1956). Observation of a business decision. *The Journal of Business*, 29(4), 237-248.
- Dicken, P. (1971). Some aspects of the decision-making behavior of business organizations. *Economic Geography*, 47(3), 426-437.
- Dooley, K. J. (2004). Complexity science models of organizational change and innovation. In A. H. Van De Ven & M. S. Poole (Eds.), *Handbook of organizational change and innovation* (pp. 354-373). Oxford University Press, New York.
- Dooley, K. J., & Van de Ven, A. H. (1999). Explaining complex organizational dynamics. *Organization Science*, 10(3), 358-372.
- Faulkner, B. (2001). Towards a framework for tourism disaster management. *Tourism Management*, 22, 135-147.
- Feichtinger, G., & Kopel, M. (1993). Chaos in nonlinear dynamical systems exemplified by an R&D model. *European Journal of Operational Research*, 68, 145-59.
- French, J. R. P. Jr., & Raven, B. (1959). The bases of social power. In D. Cartwright (Ed.), *Studies in social power* (pp. 150-167). University of Michigan Institute for Social Research, Ann Arbor.
- Gable, G. (1994). Integrating case study and survey research methods: An example in information systems. *European Journal of Information Systems*, 3(2), 112-26.
- Harrington, R. J., & Ottenbacher, M. C. (2009). Decision-making tactics and contextual features: Strategic, tactical and operational implications. *International Journal of Hospitality & Tourism Administration*, 10(1), 25-43.
- Harrison, E. F., & Pelletier, M. A. (2000). The essence of management decision. *Management Decision*, 38, 462-469.
- Kaplan, B., & Duchon, D. (1988). Combining qualitative and quantitative methods in information systems research: A case study. *MIS Quarterly*, 12(4), 571-587.
- Lee, A. S. (1991). Integrating positivist and interpretive approaches to organizational research. *Organization Science*, 2, 342-365.
- Levinthal, D. A., & Warglien, M. (1999). Landscape design: Designing for local action in complex worlds. *Organization Science*, 10(3), 342-57.
- Lewin, A. Y. (1999). Application of complexity theory to organization science. *Organization Science*, 10(3), 215.
- Lindblom, C. E. (1959). The science of "muddling" through. *Public Administration Review*, XIX, 79-88.
- Mingers, J. (2001). Combining IS research methods: Towards a pluralist methodology. *Information Systems Research*, 12(3), 240-259.
- Mintzberg, H. (1979). *The Structuring of organizations*. Prentice Hall, New Jersey.
- Myers, M. D. (1997). Qualitative research in information systems. *MIS Quarterly*, 21(2), 241-242.
- Onuk, M., (2009). The effects of economic crisis on the distribution of strategic decision making authority. Unpublished doctoral dissertation, Yeditepe University, Institute of Social Sciences, Istanbul.
- Ragin, C. C. (1987). *The Comparative method: Moving beyond qualitative and quantitative strategies*. University of California

Press, Berkeley and London.

Ritchie, B. W. (2004). Chaos, crises and disasters: A strategic approach to crisis management in the tourism industry. *Tourism Management*, 25, 669-683.

Singleton, R., & Straits, B. C. (1999). *Approaches to social research*. Oxford University Press, New York.

Sterman, J. D. (2001). System dynamics modeling: Tools for learning in a complex world. *California Management Review*, 43(4), 8-25.

Wheatley, M. J. (2001). The real work of knowledge management. *IHIRM Journal*, 5(2), 29-33.

Wheelen, T. L., & Hunger, J. D. (2006). *Strategic management and business policy, concepts and cases* (10th ed.). Pearson Prentice Hall, Upper Saddle River.