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# Surviving in Global Shocks: A Study from the Perspective of Dynamic Capabilities and Organizational Resilience

Küresel Şoklarda Hayatta Kalmak: Dinamik Yetenekler ve Örgütsel Dayanıklılık Perspektifinden Bir Araştırma

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**Abstract**

In major shocks such as COVID-19, the most crucial situation for companies may be survival. Several factors enable companies to endure such periods; one of the foremost factors is resilience. This research examines the resilience of companies after COVID-19 in terms of dynamic capabilities. The study explores the role of resilience in the impact of companies' dynamic capabilities on recovery after COVID-19. The research was conducted with the participation of 433 white-collar employees in selected sectors in Istanbul. According to the research findings, the dynamic capabilities of companies enhance their robustness and recovery levels. Additionally, robustness increases the recovery of the company. Finally, it has been determined that dynamic capabilities affect recovery through resilience. The research provides information on connecting dynamic capabilities to the resilience literature, establishing a relationship between robustness and recovery, and sustaining activities during shock periods. At the end of the research, practical and theoretical suggestions were presented.

**Keywords:** Dynamic capabilities, Resilience, Robustness, Recovery, COVID-19

**Öz**

COVID-19 gibi büyük şok dönemlerinde firmalar için en önemli durum hayatta kalmak olabilir. Firmaların bu tür dönemlerde hayatta kalmasını sağlayan bir dizi faktör bulunmaktadır. Bu faktörlerden öne çıkanlardan birisi dayanıklılıktır. Bu araştırmada firmaların COVID-19 sonrasında dayanıklılıkları dinamik yetenekler açısından incelenmektedir. Araştırmanın amacı; firmaların dinamik yeteneklerinin COVID-19 sonrasında iyileşmeye etkisinde sağlamlığın rolünün incelenmesidir. Araştırma İstanbul ilindeki seçili sektörlerdeki 433 beyaz yakalı çalışanın katılımı ile gerçekleştirilmiştir. Araştırma bulgularına göre firmaların dinamik yetenekleri onların sağlamlıklarını ve iyileşme seviyelerini arttırmaktadır. Ayrıca sağlamlık firmanın iyileşmesini de arttırmaktadır. Son olarak dinamik yeteneklerin iyileşmeyi sağlamlık üzerinden etkilediği tespit edilmiştir. Araştırma, dinamik yetenekler ile dayanıklılık literatürü arasında, sağlamlık ile iyileşme arasında ilişki kurmak ve şok dönemlerinde faaliyetleri devam ettirme açısından bilgiler sunmaktadır. Araştırma sonunda pratik ve teorik açıdan öneriler sunulmuştur.

**Anahtar kelimeler;** Dinamik yetenekler, Dayanıklılık, Sağlamlık, İyileşme, COVID-19

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## 1. INTRODUCTION

Research has been conducted on how companies react to shocks and crises for many years. Researchers advocating proactive measures (Teece, 2007) discuss what precautions firms should take before shocks occur. It is important for companies to remain robust against shocks and then return to their previous form quickly and at a low cost to gain a sustainable competitive advantage (Pu et al., 2022; Sheffi & Rice, 2015). The survival of organizations in the face of shocks and their rapid return to activities is expressed as "resilience." Resilience refers to companies not deteriorating due to negative factors (Sheffi & Rice, 2015) and returning to their previous or better situation to provide a competitive advantage (Hamel & Valikangas, 2003; Kitano, 2004).

How companies ensure resilience is a matter of debate. Antecedents of resilience in the literature include organizational capabilities, flexibility (Iftikhar et al., 2021), process integration (Li et al., 2022), resources and capabilities of top management (Wall & Bellamy, 2019; Calabrò et al., 2021), innovation (Gupta, 2023; Parast et al., 2019; Akgün & Keskin, 2014), social, financial, and human capital (Brewton et al., 2010; Polyviou et al., 2020), dynamic capabilities (Sabahi & Parast, 2020; Dovbischuk, 2022), knowledge (Orlando et al., 2022), competitive strategies (Acquaah et al., 2011), and environmental dynamism (Kyrdado et al., 2023).

Although it is known that many factors will provide organizational resilience, preliminary information in the literature shows that the survival or resilience of companies in the face of sudden shocks (for example, COVID-19) depends on proactive factors. For instance, during the COVID-19 pandemic, companies' activities were disrupted for certain periods. These disruptions revealed methods such as online-from-home and partial permanent work. Companies that needed to be more dynamic and flexible experienced significant problems during this closure process. For this reason, companies need to have organizational structures that will ensure their resilience in the face of such sudden and unpredictable disruptions.



Sensing external opportunities and threats, catching changes, and reconfiguring the resource base are important for companies to remain resilient in the face of shocks. The dynamic capabilities perspective argues that the firm's sensing, seizing, and reconfiguring capabilities (Teece, 2007; Dovbischuk, 2022; Akpan et al., 2022) are important precursors to the firm's robustness. Thus, companies can take proactive measures and quickly return to their previous performance in the face of interruptions (Ozonne et al., 2022). For example, Yu et al. (2019) found that the dynamism of supply chains in companies in China increases the supply chain's resilience and the company's performance. In the research conducted by Sinha and Ola (2021), it was determined that the resilience of companies in disasters is affected by dynamic capabilities. On the other hand, resilience is seen as a dynamic capability in some studies in the literature. According to this view (Pu et al., 2022; Hohenstein et al., 2015), resilience is a dynamic capability that enables businesses to respond to unexpected situations where environmental uncertainty is high. However, this view is debatable. Defining resilience as a dynamic capability raises measurement issues. Additionally, empirical evidence is needed to express resilience's dynamic capabilities.

From our perspective, dynamic capabilities sense the firm's opportunities and threats and seize and reconfigure the firm's resource base (Teece & Pisano, 1994; Teece, 2007; Winter, 2003). Resilience focuses on creating a strong organizational structure against negative external factors. The resilience levels of organizations indicate rapid recovery and return to former activities in the face of external negative effects (Pu et al., 2022; Macdonald et al., 2018). In this case, resilience differs from dynamic capabilities because dynamic capabilities focus on opportunities and renewed activities. Within the scope of this research, dynamic capabilities

are examined as a different concept from resilience. Moreover, well-structured dynamic capabilities are conceptualized as a structure that will increase the resilience level of the firm.

Additionally, organizational resilience is evaluated with the dimensions of robustness and recovery. Resilience refers to the firm's resistance to shocks, and recovery refers to its rapid return to previous activities (Sabahi & Parast, 2020; Dovbischuk, 2022). The conclusion is that the firm's robustness will ensure recovery (Ivanov et al., 2017). Therefore, robustness may be a precursor to recovery rather than using robustness and recovery as two separate outcomes. In light of these discussions, determining the relationships between dynamic capabilities and organizational resilience and the contradiction in the relationship between robustness and recovery are among the problems that need to be examined. Therefore, the aim of the research is to examine the mediating role of robustness in the effect of dynamic capabilities on recovery.

The research findings will make modest contributions to identifying the factors that enable companies to survive and continue their activities healthily during shock periods such as COVID-19. In addition, the research contributes to the literature by presenting the distinction between dynamic capabilities and resilience. Finally, this research sets an agenda in the literature by conceptualizing robustness as an antecedent of recovery. In the research, the conceptual framework and hypothesis development section is presented in light of the above discussions. Under the conceptual framework heading, the concepts of dynamic capabilities and organizational resilience are introduced, and the relationships between the concepts are included. The research hypotheses are presented in this section. Then, the method of the research is described. The research concludes with results, discussions, and recommendations.

## 2. CONCEPTUAL FRAMEWORK AND HYPOTHESES

### 2.1. Dynamic Capabilities



Dynamic capabilities are based on the Resource-Based View (RBV), which started with Penrose's (1959) views specific to the firm's resources, was popularized by Wernerfelt (1984) and Barney (1991), and to which many researchers have contributed. The basic perspective of RBV is that competitive advantage depends on resources and capabilities. "Resources are heterogeneously distributed across competing firms and are imperfectly mobile, which, in turn, makes this heterogeneity persist over time" (Barney, 1991; Penrose, 1959; Eisenhardt & Martin, 2000). These resources have characteristics that enable firms to compete. In order for resources to provide a competitive advantage, they must be “valuable, rare, inimitable, and non-substitutable” (Barney, 1991). However, resources as the basis of competition in the dynamic business world are criticized for being static (Priem & Butler, 2001a; 2001b; Helfat, 1997). Following these criticisms, the Dynamic Capabilities Approach was developed. Researchers on dynamic capabilities have offered many definitions. For example, Wang and Ahmed (2007) define dynamic capabilities as “a firm's behavioral orientation to constantly integrate, reconfigure, renew, and recreate its resources and capabilities, and, most importantly, upgrade and reconstruct its core capabilities in response to the changing environment to attain and sustain competitive advantage.” According to Teece (2007), “dynamic capabilities enable sensing and seizing new business opportunities.” Additionally, the author argues that dynamic capabilities are firm-specific. According to Eisenhardt and Martin (2000), “dynamic capabilities create opportunities for new value-creating strategies through modifying ordinary capabilities.” According to Barreto (2010), "dynamic capabilities are the firm's potential to systematically solve problems by sensing opportunities and making timely market-oriented decisions."

The fact that dynamic capabilities have many definitions shows that the conceptual debate is not yet complete. For this reason, it may be appropriate to draw a road map based on

the most accepted definitions within the scope of the research. The definition developed by Teece has been used more recently in the literature and explains the nature of dynamic capabilities. Dynamic capabilities refer to constantly examining developments in the company's internal and external environment. Thus, the company is informed about risks and opportunities. Sensing is the process by which the firm scans for risks and opportunities. The company then creates action plans to address risks and opportunities. The aim here is to minimize the damage caused by threats and seize opportunities. After the action plans are created, renewals are made in the resource base and organizational structure. This stage refers to reconfiguring (Teece, 2007; 2018; Ellström et al., 2021; Felin & Powell, 2016; Dovbischuk, 2022).

### 2.2. Organizational Resilience

Resilience refers to a company's ability not to deteriorate because of negative factors (Sheffi & Rice, 2015) and to return to a previous or better situation to provide a competitive advantage (Hamel & Valikangas, 2003; Kitano, 2004). In other words, it pertains to how prepared the company is in the face of disruptions and its ability to respond to disruptions in a timely manner and at affordable costs (Dovbischuk, 2022). Resilience is the level of discomfort an organization can tolerate and experience (Linnenluecke & Griffiths, 2010).

Two features are emphasized in all definitions of organizational resilience: (1) businesses can recover and return to their previous situations in unexpected and risky situations; (2) they can build a successful future by creating new opportunities for the organization in difficult and risky environmental conditions (Lengnick-Hall et al., 2011; Çetin, 2018). Studies in the literature highlight both the recovery and robustness aspects of resilience. Recovery is the capability of a system to find a path to return to a steady state of functionality once a disruption has occurred (Sabahi & Parast, 2020; Jüttner & Maklan, 2011). In turn, robustness also increases preparedness, as it should be implemented before a disruption, with the aim of resisting shocks and responding with stability (Ivanov et al., 2017; Kilubi & Haasis, 2015; Kochan & Nowicki, 2018).



Companies need to act proactively and respond to environmental problems. These responses will ensure the solidity of the firm (Ali et al., 2017; Kochan & Nowicki, 2018). Firms thus have a stability component, starting from structuring resources and extending to robustness and recovery, which enables them to resist shocks. Due to its conceptual and logical nature, for a company to recover, it must first be less affected by shocks. Thus, they can return to their activities under reasonable conditions, that is, recovery can occur.

### 2.3. Relationships Between Dynamic Capabilities and Organizational Resilience

Although dynamic capabilities focus on both opportunities and threats, they offer an important opportunity to counteract the negative effects of the company's environment. Companies can initiate the action process by sensing threats in the environment and increasing their resilience if they promptly reconfigure their resource base and organizational structure (Schoemaker et al., 2013; Stadtfeld & Gruchmann, 2024; Zhang et al., 2023). Reconfiguring the firm's resource base in response to internal and external factors can help the firm reduce disruptions and disturbances in the face of shocks (Yu et al., 2019). Additionally, the company's robustness in the face of disruptions can enable it to quickly recover from negative impacts (Sabahi & Parast, 2019). In the study conducted by Ruel and El Baz (2023), the dynamic capabilities (DC) perspective is conceptualized as a factor that enhances a firm's preparedness for disasters. According to this framework, DC is argued to improve the firm's robustness. Bari et al. (2022) also assert that DC increases the firm's level of robustness, thereby enhancing its competitiveness. The hypothesis is as follows:

H1: Dynamic capabilities positively affect the firm's robustness.

H1a: Sensing capabilities positively affect the firm's robustness.

H1b: Seizing capabilities positively affect the firm's robustness.

H1c: Reconfiguring capabilities positively affect the firm's robustness.

Since the firm's sensing, seizing, and reconfiguring capabilities create a proactive response system (Teece, 2007), the firm's resilience and ability to respond to shocks are enhanced (Stadtfeld & Gruchmann, 2024). Developing scenarios to ensure business continuity, especially during periods of interruption or disruption, accelerates recovery (Brandon-Jones et al., 2014). Previous research also supports these predictions. Mahto et al. (2022) examined how family companies recovered from negative factors such as earthquakes and COVID-19, finding that the firm's capabilities and resource base accelerate recovery. Weaven et al. (2021) conducted a study with companies facing survival challenges during economic crises and concluded that sensing and responding to environmental events and reconfiguring resources and capabilities are crucial for the company's stability and recovery. Thus, the company becomes more flexible, increasing its chances of survival.

H2: Dynamic capabilities positively affect firm recovery.

H2a: Sensing capabilities positively affect the company's recovery.

H2b: Seizing capabilities positively affect the firm's recovery.

H2c: Reconfiguring capabilities positively affects a firm’s recovery.

Robustness refers to a firm's resistance to shocks, while recovery denotes its ability to rapidly return to previous activities (Dovbischuk, 2022). A company's robustness enables it to take swift action during periods of shock, facilitating quicker recovery (Ivanov et al., 2017). Based on previous research and theoretical arguments, dynamic capabilities are expected to positively influence both the robustness and recovery of the firm (Ozonne et al., 2022). Additionally, companies with high robustness are anticipated to experience faster recovery (Brandon-Jones et al., 2014). Each of the firm's sensing, seizing, and reconfiguring capabilities is also expected to contribute to improvements in the firm's robustness. The hypotheses derived from this perspective are as follows:



H3: Robustness positively affects recovery.

H4: Robustness is mediating the effect of dynamic capabilities on recovery.

H4a: Robustness has a mediating role in the effect of sensing capabilities on recovery.

H4b: Robustness has a mediating role in the effect of seizing capabilities on recovery.

H4c: Robustness has a mediating role in the effect of reconfiguring capabilities on recovery.

## 3. METHOD

**Data collection:** The survey form designed to collect data comprised four sections. The first section includes the dynamic capabilities scale, adapted from the studies by Torres et al. (2018), Li and Liu (2014), and Ridder (2012) as referenced in Tatlı (2022). This scale encompasses 18 items across three dimensions: sensing (6 items), seizing (6 items), and reconfiguring (6 items). The second section features the dynamic recovery scale, based on Essuman et al. (2020), Ponomarov and Holcomb (2009), and Tukamuhabwa et al. (2015). This scale consists of 5 items and measures a single dimension. The third section contains the

organizational robustness scale, derived from Brandon-Jones et al. (2014) and Essuman et al. (2020). It includes 5 items and a single dimension. A 5-point Likert scale is used for responses to all scales (1 = Strongly disagree, 2 = Disagree, 3 = Undecided, 4 = Agree, 5 = Strongly agree).

The Turkish validity and reliability of the robustness and dynamic recovery scales were established through meticulous translation and adaptation processes. Translation assistance was provided by faculty members proficient in both Turkish and English. Following translation, the comprehensibility and content validity of the Turkish versions were evaluated through a pilot study. Validity and reliability tests were subsequently conducted on the Turkish scales. Confirmatory factor analysis yielded the following results: CMIN/DF = 3.613, RMR = 0.049, GFI = 0.957, AGFI = 0.919, NFI = 0.969, TLI = 0.966, CFI = 0.977, and RMSEA = 0.078. These values were found to exceed acceptable thresholds (Hair et al., 2014; Kline, 2016; Byrne, 2001). Additionally, the scales demonstrated appropriate AVE and CR values (Fornell & Larcker, 1981; Dash & Paul, 2021), confirming their suitability for use in the research (see Appendix 1-2). The final section of the survey form included demographic questions. Research approval was granted by the Beykent University Ethics Committee for Social Sciences, with the decision dated January 27, 2023, and numbered 90707.

**Sample and sampling method:** The research sample consists of white-collar employees from private sector companies (in education, service, manufacturing, and software/informatics) in Istanbul. Specifically, the sample includes white-collar employees who experienced the COVID-19 pandemic while working in companies that remained operational during this period. To examine the robustness and recovery of companies facing the devastating impact of COVID-19, it is crucial to gather opinions from employees who continued working at the same company throughout the pandemic. Thus, the research sample was defined as white-collar employees who were employed at their current company from March 2020, when the COVID-19 pandemic began in Türkiye, until March 2023. A simple random sampling technique was used to select the sample.



According to the criterion used to determine the sample size (Bal, 2001), a sample size of 384 is recommended for large populations. To account for potential missing data, responses were collected from 484 participants. After excluding 51 participants who did not work at the same company throughout the pandemic or provided single-mode responses, the final sample size was determined to be 433 individuals. Considering Bal's (2001) recommendations, this sample size is deemed sufficient.

Examining participant characteristics: 10.1% are aged 25 and under, 27.3% are between 26-30 years old, 29.6% are between 31-35 years old, 19.8% are between 36-40 years old, and 13.2% are 41 and over. Gender distribution is nearly balanced, with 49.5% male and 50.5% female participants. In terms of education, 60% hold a bachelor's or associate's degree, 37.7% have a master's degree, and 2.7% possess a doctorate. Regarding tenure, 59.7% have worked at the same company for 3-5 years, 24.5% for 6-10 years, and 15.8% for 11 years or more.

**Analysis Technique:** The data analysis was conducted using SPSS 25. Initially, factor analysis was performed to assess the suitability of the data for analysis. According to Hair et al. (2014), the following critical values were adhered to:

KMO Sampling Adequacy: Should be 0.60 or above.

Bartlett's Test of Sphericity: Should be significant at $p<0.05$.

Total Variance Explained: Should be 60% or above.

Factor Loadings: Should be 0.40 or above.

Cronbach's Alpha coefficient was used to assess the reliability of the scales. Hair et al. (2014) suggest that this coefficient should be above 0.60 or 0.70. Following the reliability assessment, a normality test was conducted. Skewness and kurtosis values, ranging between -1.080 and 0.832, were found to be within acceptable limits (George & Mallery, 2010; Tabachnick & Fidell, 2013; Uysal & Kılıç, 2022), suggesting that the data approximately meets the assumption of normal distribution.

Pearson correlation analysis was performed under the assumption of normal distribution. Significance was considered at the $p<0.05$ level. The interpretation of the correlation coefficients utilized the critical values established by Karahan (2017) and Kocaay (2022), which are commonly referenced in the literature:

0 = No relationship

0.01 - 0.19 = Very low relationship

0.20 - 0.39 = Low relationship

0.40 - 0.59 = Moderate relationship

0.60 - 0.79 = High relationship

0.80 - 0.99 = Very high relationship

1 = Complete relationship

Regression analysis was conducted to determine the strength and direction of the relationships between the independent and dependent variables. The significance of the regression model was assessed based on the p-value, with a significance level set at $p<0.05$ (Hair et al., 2014). Additionally, the coefficient of determination ($R^2$) was used to evaluate the proportion of variance in the dependent variable that is explained by the independent variables. The regression coefficients ($\beta$) were analyzed to determine the impact of each predictor variable on the dependent variable.



After establishing the relationships between the variables, the research hypotheses were tested using the mediation procedure developed by Hayes (2018). SPSS Process v2.16.3 was employed for the mediation analysis. Hayes's (2018) procedure utilizes bootstrapping for mediation analysis, which assesses the significance of the mediation effect through lower and upper confidence intervals (LLCI-ULCI) rather than standard significance tests. If these confidence intervals do not include zero, it indicates that the findings are statistically significant. In this study, Model 4 from Hayes (2018) was used for the mediation testing. This model incorporates independent, dependent, and mediator variables (Preacher & Hayes, 2004; Gürbüz, 2021).

**Conceptual model of the research:** The research examines the effect of dynamic capabilities on recovery through robustness. Dynamic capabilities (and their sub-dimensions) are the independent variable, robustness is the mediating variable, and recovery is the dependent variable. The conceptual model is presented in Figure 1.

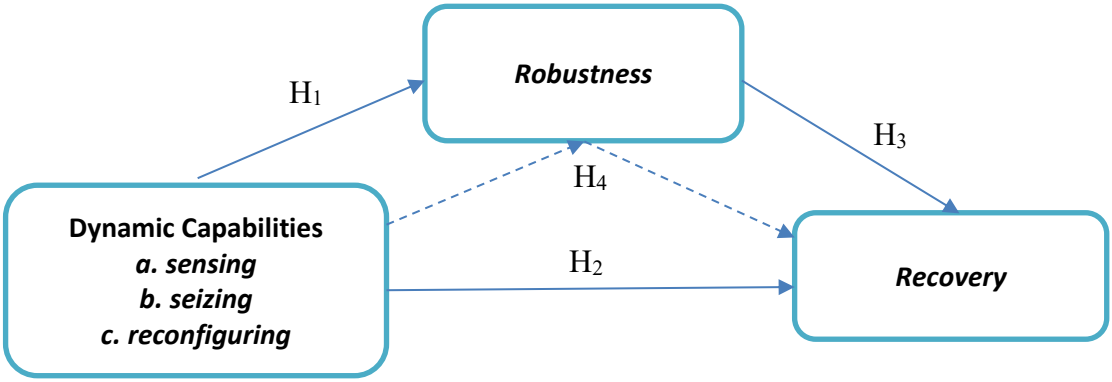


**Figure 1. Conceptual model**

## 4. FINDINGS

The research findings include factor analysis, reliability analysis, normal distribution, correlation analysis and mediation analysis findings. First, factor analysis findings are presented.

**Table 1.** Factor and reliability analysis findings of the dynamic capabilities scale

| *Items* | *DC* | | |
|---|---|---|---|
| | *Reconfiguring* | *Sensing* | *Seizing* |
| D16 | ,794 | | |
| D14 | ,786 | | |
| D15 | ,784 | | |
| D13 | ,717 | | |
| D17 | ,708 | | |
| D18 | ,682 | | |
| D2 | | ,823 | |
| D3 | | ,790 | |
| D1 | | ,744 | |
| D4 | | ,716 | |
| D5 | | ,660 | |
| D6 | | ,598 | |
| D8 | | | ,739 |
| D11 | | | ,733 |
| D10 | | | ,706 |
| D9 | | | ,673 |
| D12 | | | ,662 |
| D7 | | | ,599 |
| *Variance explained* | *%24,047* | *%22,622* | *%20,938* |
| ***KMO; 0.947***<br>***Bartlett's test; 0.000***<br>***Cronbach's Alpha: 0.947***<br>***Total variance explained: 67.607%***<br>***Number of items: 18*** | | | |

**Table 1** presents the results of the factor analysis and reliability analysis for the dynamic capabilities scale. The analysis revealed a KMO value of 0.947, with Bartlett's Sphericity test being significant at $p<0.05$. The scale's explanatory power was 67.607%, and all item factor loadings were above 0.40. The reliability of the scale was assessed using Cronbach's Alpha coefficient, which was found to be 0.947. Consequently, all 18 items of the scale were deemed appropriate, and it was confirmed that the items were correctly distributed across the factors. Based on these findings, the dynamic capabilities scale used in the research is deemed suitable.

**Table 2.** Factor and reliability analysis findings of the Robustness scale

| ***Items*** | ***Factor loadings*** |
|---|---|
| Ös3 | ,880 |
| Ös2 | ,878 |
| Ös4 | ,867 |
| Ös5 | ,864 |
| Ös1 | ,834 |
| ***Variance explained*** | ***%74,728*** |
| ***KMO; 0.854***<br>***Bartlett's test; 0.000***<br>***Cronbach's Alpha: 0.913***<br>***Number of items: 5*** | |

**Table 2** presents the results of the factor analysis and reliability analysis for the robustness scale. The analysis showed a KMO value of 0.854 and Bartlett's Sphericity test was significant at $p<0.05$. The scale explained 74.728% of the variance, and all item factor loadings were above 0.40. The Cronbach's Alpha coefficient for the robustness scale was 0.913. The analysis confirmed that all five items loaded onto a single factor and were appropriately distributed. Based on these findings, the robustness scale is considered suitable for the research.



**Table 3.** Factor and reliability analysis findings of the recovery scale

| ***Items*** | ***Factor loadings*** |
|---|---|
| Di1 | ,900 |
| Di2 | ,872 |
| Di3 | ,868 |
| Di4 | ,804 |
| Di5 | ,751 |
| ***variance explained*** | ***%70,700*** |
| ***KMO; 0.846***<br>***Bartlett's test; 0.000***<br>***Cronbach's Alpha: 0.894***<br>***Number of items: 5*** | |

**Table 3** presents the results of the factor analysis and reliability analysis for the recovery scale. The analysis revealed a KMO value of 0.900, with Bartlett's Sphericity test being significant at $p<0.05$. The scale accounted for 70.70% of the variance, and all item factor loadings were above 0.40. The Cronbach's Alpha coefficient for the recovery scale was 0.913. The analysis confirmed that all five items loaded onto a single factor and were distributed appropriately. Based on these findings, the recovery scale is deemed suitable for the research.

**Table 4.** Correlation analysis

| | $\bar{x}$ | σ | Recovery | Robustness | Sensing | Seizing |
|---|---|---|---|---|---|---|
| **Recovery** | *4,0554* | *0,80661* | 1 | | | |
| **Robustness** | *3,8457* | *0,88372* | ,705** | 1 | | |
| **Sensing** | *3,9515* | *0,73735* | ,403** | ,335** | 1 | |
| **Seizing** | *3,9126* | *0,77189* | ,442** | ,386** | ,713** | 1 |
| **Reconfiguring** | *3,7883* | *0,81513* | ,449** | ,415** | ,614** | ,725** |
| **. Correlation is significant at the 0.01 level (2-tailed). N:433 | | | | | | |

The findings of the correlation analysis are presented in **Table 4**. According to the results, significant relationships ($p<0.05$) are observed between recovery, robustness, and the dimensions of dynamic capabilities.

**Table 5.** Direct effects and mediation analysis findings

| **Direct effect** | | | | | | |
|---|---|---|---|---|---|---|
| X | | Y | $R^2$ | B | p | Hypotheses |
| Sensing | → | Robustness | 0,114 | 0,343 | 0,000 | H1a |
| Seizing | → | Robustness | 0,145 | 0,389 | 0,000 | H1b |
| Reconfiguring | → | Robustness | 0,190 | 0,440 | 0,000 | H1c |
| Sensing | → | Recovery | 0,166 | 0,441 | 0,000 | H2a |
| Seizing | → | Recovery | 0,172 | 0,419 | 0,000 | H2b |
| Reconfiguring | → | Recovery | 0,216 | 0,469 | 0,000 | H2c |
| Robustness | → | Recovery | 0,493 | 0,704 | 0,000 | H3 |

| **Mediation analysis** | | | | | |
|---|---|---|---|---|---|
| | **Effect** | **BootSE** | **BootLLCI** | **BootULCI** | Hypotheses |
| Sensing → Robustness → Recovery | 0,2354 | 0,041 | 0,1565 | 0,317 | H4a supported |
| Seizing → Robustness → Recovery | 0,2534 | 0,0395 | 0,1175 | 0,3302 | H4b supported |
| Reconfiguring → Robustness → Recovery | 0,1862 | 0,0361 | 0,1152 | 0,2571 | H4c supported |

The analysis of the effect of sensing on robustness revealed a significant positive relationship, with an explanation coefficient ($R^2$) of 0.114 and a regression coefficient (β) of 0.343, both statistically significant ($p < 0.05$). Similarly, the effect of seizing on robustness was positive and significant, with an explanation coefficient ($R^2$) of 0.145 and a regression

coefficient (β) of 0.389 ($p < 0.05$). For the effect of reconfiguring on robustness, the explanation coefficient ($R^2$) was 0.190, and the regression coefficient (β) was 0.440, indicating positive and significant results ($p < 0.05$).

Regarding the impact on recovery, the explanation coefficient ($R^2$) for the effect of sensing was 0.166, with a regression coefficient (β) of 0.441; for seizing, the explanation coefficient ($R^2$) was 0.172, with a regression coefficient (β) of 0.419; and for reconfiguring, the explanation coefficient ($R^2$) was 0.216, with a regression coefficient (β) of 0.469. All these relationships were positive and statistically significant ($p < 0.05$).

Finally, the effect of robustness on recovery showed a strong relationship, with an explanation coefficient ($R^2$) of 0.493 and a regression coefficient (β) of 0.704, both statistically significant ($p < 0.05$). These findings highlight the important roles of sensing, seizing, reconfiguring, and robustness in the recovery process, supporting the theoretical framework.

The mediation analysis revealed that the mediating effect of robustness in the relationship between sensing and recovery was 0.2354 (CI=0.1565/0.317). For the effect of seizing on recovery, the mediation effect was 0.2534 (CI=0.1175/0.3302), and for reconfiguring on recovery, it was 0.1862 (CI=0.1152/0.2571). These results indicate a significant mediating role of robustness in the effects of sensing, seizing, and reconfiguring on recovery.

## 5. CONCLUSION, DISCUSSION and SUGGESTIONS

According to the findings, it has been determined that dynamic capabilities increase the robustness of firms. Robustness enables organizations to recover from major crises such as COVID-19. On the other hand, effective structuring of dynamic capabilities enhances firm recovery.



The research findings confirm that dynamic capabilities play an important role in companies' survival against disruptive factors. Specifically, monitoring developments in both the internal and external environments of the firm, designing activity plans and processes in response to these developments, and developing the resource base help the firm maintain its robustness. The company's robustness allows it to quickly resume previous activities during shock or crisis periods. As expected, firms' seizing capabilities are effective in gathering information from the environment. Awareness of environmental changes enables the firm to recognize opportunities and threats. This awareness allows firms to make preparations and decisions to react to developments. These actions may include renewing the resource base (such as human, equipment, or financial resources), expanding activity areas, or changing business processes. Such proactive behaviors may help firms be less affected by unusual or predictable environmental issues. For example, during the COVID-19 pandemic, businesses with high robustness experienced less damage from interruptions or partial closures. The company's robustness enables it to restart activities or return to its previous strength.

Our findings in this study are consistent with the existing literature. Research conducted in various countries and sectors has shown that dynamic capabilities positively affect resilience (e.g., Stadtfeld & Gruchmann, 2024; Zhang et al., 2023; Yu et al., 2019; Dovbischuk, 2022). Weaven et al. (2021) found that aligning resources during shock periods enhanced resilience and recovery. Bruhn et al. (2023) demonstrated that companies' preparedness before COVID-19 increased their productivity after the crisis. Specifically, the productivity of companies that monitored environmental developments and made innovative decisions improved significantly after the crisis. According to Ozonne et al. (2022), possessing dynamic capabilities elevates a company’s resilience level. Kähkönen et al. (2023) found that having dynamic capabilities within supply chains boosts a company’s resilience level. Xi et al. (2024) examined the

relationships between resilience, ambidextrous capability, myopia, and dynamic capabilities using data from manufacturing companies. Their research results indicate that a company's dynamic capabilities enhance its resilience level. The literature suggests that having dynamic capabilities during crises such as COVID-19 increases companies' resilience levels, which aligns with our research findings.

However, as noted, there are limited studies on how dynamic capabilities impact the resilience and robustness of companies in the logistics sector during the COVID-19 period. Additionally, there is no research examining the effect of a firm's robustness level on its recovery level. Therefore, comparing our research findings with existing literature is challenging. Consequently, the mediating role of robustness in the relationship between dynamic capabilities and a firm's resilience level, as identified in our research, differs from the examples found in the literature.

This research makes several contributions to the literature. Firstly, it addresses the topic of dynamic capabilities, which has not yet received sufficient attention in Turkish literature and sector research in Türkiye. The role of dynamic capabilities during and after COVID-19 has not been adequately explored. This study is significant in demonstrating the contribution of dynamic capabilities to managing major global crises like COVID-19. Furthermore, given that the direct and indirect effects of dynamic capabilities on resilience, robustness, and recovery have yet to be investigated in Türkiye, this research adds valuable insights to the literature.

Another contribution of this research is the distinction made between dynamic capabilities and resilience. Some studies (e.g., Pu et al., 2022; Hohenstein et al., 2015) treat resilience as synonymous with dynamic capabilities. This research theoretically and empirically differentiates between dynamic capabilities and resilience. Additionally, it clarifies the concepts of robustness and recovery based on theoretical arguments. Since robustness and recovery are interrelated, robustness has been considered an antecedent to recovery.



Despite these contributions, the research has several limitations. The first limitation concerns the sectors included in the study. Sectoral dynamics can influence a firm's resilience to global shocks, yet no sectoral distinctions were made, and sector-specific dynamics were not considered. Another limitation is the focus on companies' actions during the COVID-19 period. This study examined how the dynamic capabilities of surviving companies impact organizational resilience, but did not explore specific actions taken to survive the pandemic. Additionally, the timing of the research poses a limitation. Data were collected three years after the onset of the COVID-19 pandemic, during a period when the immediate effects of the pandemic had diminished. Thus, the findings may not fully reflect the experiences and responses during the height of the pandemic.

Based on the research's limitations, a number of suggestions can be offered for future research. Conducting dynamic capabilities and organizational resilience research from a sectoral perspective can provide more specific information. Additionally, an important debate regarding dynamic capabilities (Collis & Anand, 2019) concerns their rarity. Researching companies likely to have dynamic capabilities can provide more specific results. Another suggestion is to examine how the financial performance of the company changes while analyzing the relationships between the company's dynamic capabilities and the firm's robustness and resilience levels. This can provide evidence to assess the real situation of the companies (Xi et al., 2024). Therefore, it is recommended to investigate the relationships between companies' dynamic capabilities, resilience, and company performance in the logistics sector and related sectors. Additionally, one of the significant impacts of COVID-19 is the increase in digitalization within companies. It is predicted that the digital preparedness levels of companies affect their resilience levels during COVID-19 (Abidi et al., 2023). Therefore, it

may be advisable to include companies' technology readiness levels or digitalization levels in the research model.

Following the research findings, several managerial implications can be outlined. Strengthening companies' dynamic capabilities, especially their ability to perceive changing internal and external environmental conditions, develop mechanisms to capture these changes, and restructure resources in accordance with business needs, is important. These steps can increase companies' robustness levels. Considering that companies with high robustness levels experience a faster recovery process, especially against shocks such as COVID-19, companies should be encouraged to constantly strengthen their robustness levels. The finding that dynamic capabilities directly impact recovery may help companies have a more resilient and rapid recovery process in COVID-19 situations. Therefore, it is important to develop dynamic capabilities and integrate these capabilities into recovery processes.

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## Appendix 1: Descriptive statistics and items

| Items | Mean | Skewness | Kurtosis |
|---|---|---|---|
| **Sensing Capability** | | | |
| Our firm's capabilities allow us to be aware of opportunities and threats outside the company. (d1) | 3,97 | -0,890 | 0,846 |
| Our firm's capabilities allow us to be aware of our strengths and weaknesses within the company. (d2) | 4,04 | -0,824 | 0,775 |
| Our firm's capabilities enable us to recognize the need for improvements in our business processes. (d3) | 3,99 | -0,902 | 0,725 |
| Our firm's capabilities help us identify inefficiencies in our business processes. (d4) | 3,89 | -0,759 | 0,702 |
| Our firm's capabilities allow us to recognize organizational change opportunities required by market conditions. (d5) | 3,91 | -0,831 | 0,397 |
| Our firm's capabilities help us anticipate changes in the environment. (d6) | 3,90 | -0,678 | 0,033 |
| **Seizing Capability** | | | |
| When we identify an opportunity or threat using our capabilities, we know which external information to utilize. (d7) | 3,96 | -0,822 | 0,494 |
| When we identify an opportunity or threat using our capabilities, we quickly share the information obtained from the external environment within the organization. (d8) | 3,89 | -0,693 | 0,126 |
| When we identify an opportunity or threat using our capabilities, we develop effective strategies to address environmental developments (opportunities and threats). (d9) | 3,96 | -0,862 | 0,642 |
| When we identify an opportunity or threat using our capabilities, we rapidly convert the developed strategies into action plans. (d10) | 3,86 | -0,679 | 0,197 |
| When we identify an opportunity or threat using our capabilities, we achieve consensus within the organization on the action plan to be followed. (d11) | 3,88 | -0,749 | 0,123 |
| When we identify an opportunity or threat using our capabilities, we make effective decisions on the action plan to be followed. (d12) | 3,93 | -0,843 | 0,389 |
| **Reconfiguring Capability** | | | |
| We can timely alter business processes in response to opportunities and threats. (d13) | 3,65 | -0,507 | -0,276 |
| We can adapt business processes to competitive changes when responding to opportunities and threats. (d14) | 3,76 | -0,656 | 0,204 |
| We can quickly mobilize resources (brand, technology, knowledge, people, network, finance, etc.) in response to opportunities and threats. (d15) | 3,80 | -0,696 | 0,166 |
| We can effectively combine resources (brand, technology, knowledge, people, network, finance, etc.) in response to opportunities and threats. (d16) | 3,84 | -0,754 | 0,290 |
| We can redesign (reconfigure) business processes in response to opportunities and threats. (d17) | 3,81 | -0,854 | 0,527 |
| We can reconfigure resources (brand, technology, knowledge, people, network, finance, etc.) in response to opportunities and threats. (d18) | 3,87 | -0,808 | 0,447 |

| | | | |
|---|---|---|---|
| **Robutsness**<br>our company/firm; | | | |
| It allowed sufficient time for employees to respond. (rob1) | 3,70 | -0,714 | -0,301 |
| It maintained normal functions despite some damage. (rob2) | 3,87 | -0,918 | 0,592 |
| It met operational needs despite some deviations. (rob3) | 3,84 | -0,866 | 0,585 |
| It performed well in various scenarios despite some revisions. (rob4) | 3,92 | -0,855 | 0,407 |
| It mitigated the effects of the pandemic by responding effectively. (rob5) | 3,91 | -0,835 | 0,125 |
| **Recovery**<br>our company/firm; | | | |
| It successfully returned to normal operations. (rec1) | 4,12 | -1,080 | 0,832 |
| It quickly returned to normal operations. (rec2) | 4,09 | -0,936 | 0,374 |
| It easily returned to normal operations. (rec3) | 4,04 | -0,823 | 0,146 |
| It developed new skills and capabilities. (rec4) | 4,03 | -0,984 | 0,620 |
| It improved its market position. (rec5) | 4,00 | -0,978 | 0,579 |

## Appendix 2: Validity and Reliability Values

| **Variables** | **AVE** | **CR** | **1** | **2** |
|---|---|---|---|---|
| **Robustness** | **0.66** | **0,886** | **0,812** | |
| **Recovery** | **0.63** | **0,893** | 0,773 | **0,794** |

| | X2/Df | GFI | CFI | TLI | RMSEA | NFI | RMR | AGFI |
|---|---|---|---|---|---|---|---|---|
| Fit indices | **3,613** | **0.957** | **0.977** | **0.966** | **0.078** | **0.969** | **0.049** | **0,919** |
| acceptable fit | 5 | 0,85 | ,90 | 0,9 | 0,8 | 0,90 | 0,10 | 0,85 |
| good fit | 3 | 0,95 | 0,95 | 0,95 | 0,05 | 0,95 | 0,05 | 0,95 |